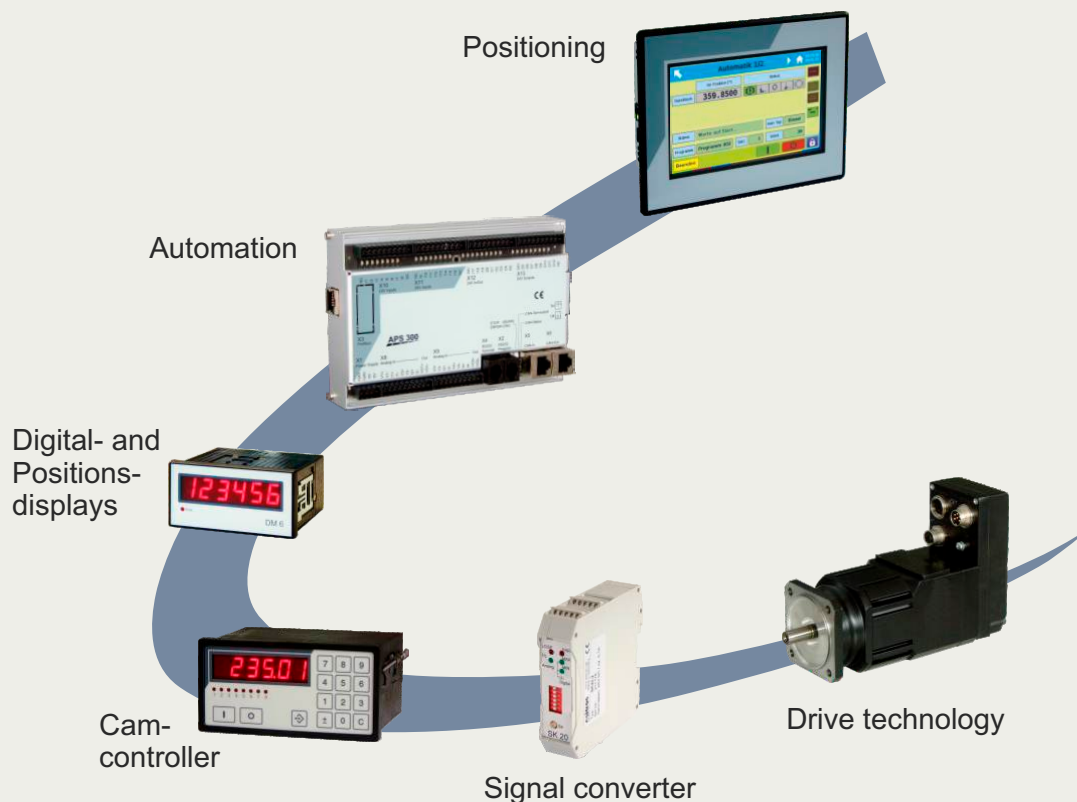




Automation and Positioning

We have the solution for your task



Talk to us



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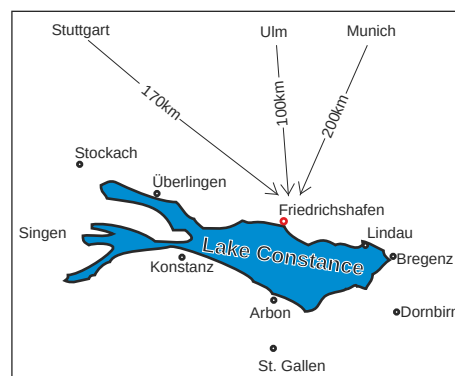


The esitron-electronic GmbH is successful manufacturer of controls for the automation of production and special purpose machines since 1989. Focused on positioning controls for electrical or hydraulic drives as well as a palette of different devices in the field of the automatic control engineering.

One of our strengths beside the standard products is the individual and optimal adaptation of our devices to customer requirements.

Our customers are predominantly companies from different ranges of manufacturing systems engineering. A long term collaboration affiliates us with most of them. The qualified consultation is the center of attention to us.

We claim to fulfill tasks of automation consistently and successfully. We rely on innovation and highest quality of our products as well as on our creative and qualified employees, who conceive, develop and realize the optimal solutions for our customers.



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Automation and Positioning



Positioning	Positioning
Automation	Auto- mation
Operator terminals	Operator- terminals
Digital- and Position displays	Digital- and Position displays
Cam controller	Cam- controller
Position acquisition and accessories	Position- acquisition
Signal converter	Signal- converter
Drive technology	Drive technology
Digital Regulators	Digital regulators
Accessories	Acces- sories

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Accessories	Digital regulators	Drives	Signal-converter	Position-acquisition	Cam-controller	Digital- and Position displays	Operator-terminals	Automation	Positioning
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CPS500



Compact Process System-Controller

- HMI, SPS und I/Os
- CANopen
- Ethernet
- USB
- CoDeSys - Programmable

Automation

CPS300



Multi-axes controller for 1 to 6 axes with linear interpolation.

Special functions:

- Rotary tables / indexing attachments
- Feed- and press automation
- Zigzag feed controller
- Transfer controller

HMI

CPS20



Single axis controller

Special functions:

- Rotary tables / indexing attachments
- Feed- and press automation
- Feed controller
- Stepping motor controller
- Printer's imprint detection
- Integrated PLC

Digital- and
Positions displays

CDS22



Single axis controller, complete unit in table-top housing with integrated servo amplifier for AC-Servomotors up to ca. 5 Nm

Special functions:

- Rotary tables / indexing attachments
- As well for all-purpose positioning applications

Cam
controllers

CPS 5.011

Positioning controller for esiMot-servodrives or SC10. Simple operation. Position acquisition with motor feedback system.

Position
acquisition

CPS 5.101 CPS 5.201



Positioning controller for rapid/creep speed drives with simplest operation. Position acquisition through incremental or absolute encoder.

Signal-
converter

MP100



Positioning controller with 99 positions in internal memory. Position acquisition through incremental, absolute or analog encoders. Online controllable through RS232-interface or Profibus-module.

Special functions:

- for hydraulic drives
- hunting control
- synchronous run
- Position-force-regulator
- Printer's imprint detection

Drives

VN20



Feed controller with integrated dynamic cam controller. Tool and ejector monitoring.

Digital
regulators

Acces-
series

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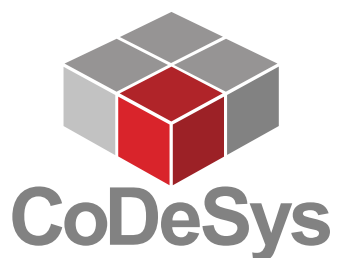


CPS 500

Compact Process System Controller

all-in-one

- HMI, PLC and I/O in one unit
- 7" Wide screen touch display, 262.000 colours
- Digital inputs and outputs onboard
- Analog inputs and outputs onboard
- IEC 61131-3 programmable (CoDeSys)
- Integrated target visualization with CoDeSys
- Ethernet interface
- USB interface
- SD card slot
- Modular I/O extension



CPS 500 System Controller

The CPS500 is a complete compact system and includes operation, visualization, a PLC and integrated analog and digital inputs and outputs. There are various fieldbus interfaces available for network integration. Up to 7 extension modules for additional inputs and outputs can be plugged into the device directly and more are addressed via CANopen network. The CANopen master functionality enables to control any slaves. Thus the CPS system is expandable to the requirements with high granularity. It comes with a library for CANopen drives.

Programming

Programming is done entirely under CoDeSys. Everything from the operating interface and visualization to PLC functions and control of remote units via CANopen is programmed in one design environment. This simplifies the engineering effort, because there is no need to define communication interfaces like OPC. The following editors for programming and code generation are available:

SFC	Sequential function chart
IL	Instruction list
FC	Flow chart
LD	Ladder diagram
FBD	Function block diagram
ST	Structured text

Technical data

General:

- 7" Wide screen display 800x480 pixel, 262k colors
durable LED background lighting
- Integrated touchpanel
- Supply voltage: 24 VDC / 0,2 A (without modules, unloaded)
- Nonvolatile parameter memory (batteryless)
- Dimensions (WxHxD): 213x160x33 mm

Inputs / Outputs:

- 10 Digital inputs: 24 VDC
- 8 Digital outputs: 24 VDC, 0,5 A, short circuit proof
- 2 Analog inputs: 12 Bit (0-10 V / 0-20 mA / $\pm 10V$)
- 2 Analog outputs (0 - 10V, 10Bit, max. 5mA)

Miscellaneous:

- Real time clock with 6 weeks power reserve
- Emission/Interference: EN61131-2 Zone B
- Ambient temperature: 0 - 50 °C
- Front panel mounting
- IP65 Front

Memory available under CoDeSys:

- 3 MB RAM working memory
- 1 MB Flash-memory
- SD card slot

Interfaces:

- CANopen, CiA compatible, RJ45
galvanic insulation
internal supply
switchable termination
- Ethernet
- USB 2.0 (Device)
- RS232 Terminal interface

Special feature:

- Web-Server
- Web-Visualization
- Remote maintenance via Internet

Extension modules

- Direct mounting: (up to 7 modules)
 - APS114: 8 digital inputs, 8 digital outputs
 - APS133: 6 analog differential inputs $\pm 10V$ or $\pm 20mA$, 3 analog outputs 0...10V
 - APS171: axis module for 1 position controlled axis, $\pm 10V$ output, 4 axis related inputs
- Via CAN:
 - remote (decentral) I/O-modules
 - Valve cluster
 - Fieldbus-Boxes
 - Drives
 - Integrated drives
 - ...

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CPS500

Compact-Positioning-System for 1 ... 6 axes

- Linear and rotary axes in mixed mode feasible
- No programming language required
- All inputs and readouts in clear text
- 999 Programs, 4000 Sets
- Editing of programs during running operation feasible
- Automatic clamping
- Easy adaptation to different machines
- Optional as complete unit with integrated servo drives

Universal
Positioning controller
pre-programmed



Abstract CPS500 rotary table / indexing attachments

The CPS500 is a free programmable CNC - positioning controller for 1 to 6 axes with position controlled drives. The programming is carried out in simplified plain text. Knowledge of a programming language is not required. The operation is easy and convenient thanks to the menu-driven sequences.

Via parameters which appear in plain text on a back-lighted 7" touch screen, the CPS500 can easily be adapted to the respective machine with or without a round table attachment. Special functions for round tables or rotary attachments are available.

An optional clamping is automatically processed and monitored. Numerous clamping parameters allow optimal adaptation to the machine and its sensors.

The following operating modes are available:

- Reference run: Automatic searching for the machine reference position.
- Automatic: Execution of the selected program or the programmed pitch increments using the appropriate speeds.
- Program input: Programming is accomplished in the parameterized unit. Absolute and incremental as well as shortest way and segment programming is feasible. Time controlled endless movement, reference run or zero setting inside the program, dwell times and machine outputs as well as subroutines and loops allow universal programming.
- Manual mode: Run to any position by means of arrow keys or definite motion to a previously entered position. Zero point setting or continuous turning are also possible.
- Parameter input: Password protected parameter input of machine-specific parameters in different parameter levels.
- Test mode : Testing function for inputs and outputs. Very useful for initial startup or troubleshooting.

Technical Data CPS 500 multi-axis control

Program functions:	Absolute positioning with or without direction preset Relative positioning Segment division Endless move (time controlled) Reference run / zero setting inside program Machine function, activate, deactivate or toggle Jump, loop, subroutine Dwell time, input condition
Program memory:	999 Programs, declared in plain text 4000 Sets
Input angle:	0,0001 - 999,9999 °/U/m/mm/inch
Rotary Axes:	1 - 6, declared in plain text
Display:	7" Wide screen TFT 262.000 colours, LED back light
Input:	Resistive Touch
Axis resolution:	max. 1.073.741.842 (2 ³⁰) Increments per meter of table rotation
Acceleration and deceleration time:	10 - 9999 ms as ramp time adjustable
Speed:	Programable in every set
Limits of travel:	adjustable through parameter
Clamping:	Automatic processed, several parameters for behaviour and reaction times
Other:	Freely definable warning and error texts with input function Customers logo and contact information storable as BMP
Ambience temperature:	0 ... 45°C
Dimensions:	160x213x36mm (HxWxD) without extension modules

Example for programming in degrees

←
Programm 1/2
▶
🏠
16:26:40
09.02.12

▼	Programm 3	▲	▼	Satz 1	2	▲		Fehler
Relative Positionierung				Rundtisch	Achse B	Achse C	Para Saved	
Kettenmaß [°]				360.0000	0.0000	0.0000	Prog Saved	
Geschwindigkeit [U/min]				10.00	37.50	37.50	----	

Program name
in decoded text

Axis name in plain text

Satz anhängen

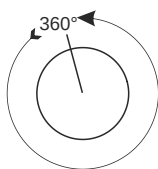
Satz einfügen

Satz entfernen

Programm löschen

Programm-bezeichnung

🔒⁴



Incremental angle of axis A: turn „Rundtisch“ 360 degrees with 10 rpm speed.
Axes B and C don't move in this set.

Example for pitch programming

←
Programm 1/2
▶
🏠
11:01:05
02.07.12

▼	Programm 3	▲	▼	Satz 2	2	▲		Fehler
Segmentteilung				Rundtisch	Achse B	Achse C	Para	
Segment [°]				80.0000	0.0000	0.0000	Prog	
Teiler				9	1	1	----	
Geschwindigkeit [U/min]				2.45	37.50	37.50	----	
Anzahl Schritte				8				

Satz anhängen

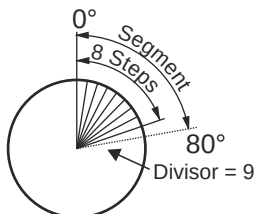
Satz einfügen

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Programm löschen

Programm-bezeichnung

🔒⁴

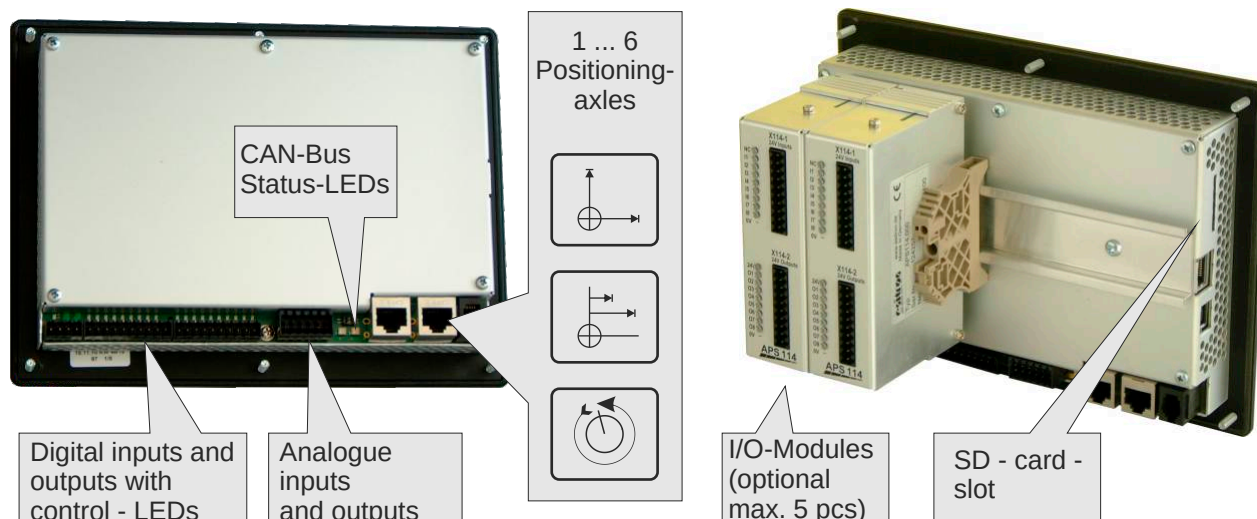


Programming of a 80° segment with a divisor of 9
 $(80/9 = 8.8888 \text{ Grad})$
 8 Steps with 2,45 rpm speed.

Inputs and outputs

Signal inputs:	10 inputs, 24V, extensible to 50 inputs with I/O-modules, more via CAN-Bus, selection of 54 different functions e.g.: start, clamping sensors, Teach-In, ...
Signal outputs:	8 outputs, 24V 0,5A, extensible to 48 outputs with I/O modules(24V 0,8A), more via CAN-Bus, selection of 50 different functions e.g.: positioning status, M-function, clamping, ...
Connections:	Connector with tension springs CAN-bus: 2x RJ45

Backview



Complete units

The CPS500 is available as complete unit with integrated servo controller for brushless AC servomotors. Different versions of servo controllers are fitted depending on the required motor current.

Example 1-axe table top unit



The table top model with it's small design has all connections with robust industrial connectors at the rear. The maximum motor rated current is 10A in the table top model. There are 6RU table top units, consoles and control cabinets available for higher motor currents.

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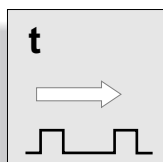
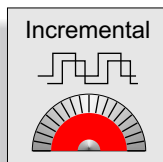
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CPS 300

Compact Positioning Controller

- Multi-axis controller 1 to 6 axes with linear interpolation
- 32 inputs (41 from 4 axes on)
- 16 outputs
- easy individual adaptation
- comfortable operating
- easiest programming
- large display
- clearly arranged keyboard
- storage of programm and parameter data on PC through software KLEWin (optional)



Multi axes controller CPS 300

The CPS 300 is a free programmable CNC position controller for universal applications in machines equipped with up to 6 axes. The CPS 300 can even control the entire function in a large range of applications. PLC functions are accomplished with 16 inputs and 16 outputs which can be processed within the program flow. Various parameters provide facilities for easy adaptations to countless machine configurations. In every record of a program, a complete functional group (i.e. positions for all axes) can be programmed. The large display is clearly arranged.

Easy operating

Operating is exclusively done via clear-text menus and special function keys. This kind of operating is uniform to all operating modes.

The keyboard is split into an input area and an operating area. This simplifies handling.

Programming is realized without the usual cryptic commands. Programming is menu-guided and supported with clear text input masks. Thus, no programming experience is required.

Handling is very simple. This reduces time and costs for setting up operation and getting acquainted with the CPS 300.

Individual adapting

Various special functions can individually be adapted by parameters. A few examples:

- piece counter (3 modes)
- start signal handling (4 modes)
- programmable travel limitations
- position display (variable number of digits)
- gear factor etc., for each axle separate

Certain operation modes can also be adapted individually, p.e. reference run:

- order of axes
- process of running reference (each axle separate)
- speeds (each axle separate)

All parameters are arranged into functional groups and protected by passwords.

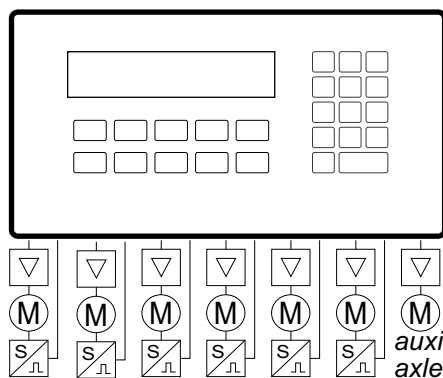
Function scheme

Options:

3 analog inputs (10 bit res.) →

RS485 serial interface ↔

Absolute position feedback with SSI (synchronous serial interface) or direct processing of magnetostriptive transducers. (P/Start-Stop interface)



16/25 inputs status,
operation modes and limit
switches
←
16 programmable inputs
→
16 outputs
→
controller release contacts
←
RS232 serial interface

Some outputs are fixed
assigned to status
signals.

Operating modes

Automatic
Single step
Cycle run
Continuous run
Manual mode
Rapid motion
Creep speed
Step-by-step
Position presetting
Zero point setting
Teach-in programming
Reference run
Program input
Parameter input
Controller data
Machine data
Reference run
Speeds
Password setting
Error diagnosis
Data transmission
Storage (KLEWin)
Programming interface
(DIN66025, optional)

Technical Data

1-6 axes, each one
set-value output -10...+10V (12 Bit res.)
encoder input up to 250kHz
controller release (potential-free contact)
1 auxiliary axle set-value 0...+10V (res.8 bit)
32 (max.41) signal inputs 24V 10mA
16 signal outputs 24V 0,5A
short-circuit proof transistor outputs
Regulating time 2ms (3ms 4-6 axis)
Serial interface RS232C

LCD-Display 4x40 characters, illuminated
all messages in clear text
Membrane keyboard, tactile acknowledge
Program storage
99 programs, with a total of up to
2000 records, power-fail safe

Clamping plug connectors
Operating voltage 85...264V AC; 50/60Hz
Operating temperature 0-45°C (32...113°F)
Dimensions WxHxD
320x170x95 mm (up to 3 axes)
320x170x115 mm (4-6 axes)

Programming

Positioning
absolute
relative
linear interpolation
M-Functions
set
reset
pulse output
set and wait for acknowledge
Reference run
Set to zero
Control commands
Jump
Loop
Subprogram call
Dwell time
Set-value of auxiliary axle
Input inquiry
Conditional jump
Conditional call
Wait for condition
Supplementary functions
Stop
Consecutive records

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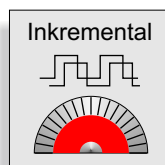
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CPS300

Compact positioning system for rotary tables / indexing attachments

- Easy adaptation to different rotary tables / indexing attachments
- Sinusoidal acceleration ramps
- Automatic clamping
- Optional as complete unit with integrated servo amplifiers
- Storage of program- and parameter data on PC through software KLEWin (optional)



Abstract CPS300 rotary table / indexing attachments

The CPS300 is a free programmable CNC - positioning controller for 1 to 3 axes providing special functions adapted to rotary tables or indexing attachments with position controlled drives. Adaptation of the CPS300 controller to different rotary tables/indexing attachments is done via parameter settings, shown as decoded text on the illuminated LC-display.

Sinusoidal acceleration curves reduce considerably the load of all mechanical components. Clamping is automatically processed and monitored.

Programming and operation is easy and comfortable due to menu assisted sequences.

The following operating modes are available:

- Reference run: Automatic searching for the machine reference position.
- Automatic: Execution of the selected program or the programmed pitch increments using the appropriate speeds.
- Program input: Programming is realized in degrees. Absolute and incremental as well as nearest direction and segment programming is feasible.
Subprograms, loops, input conditions ...
- Manual mode: Run to any position by means of arrow keys of definite motion to a previously entered angular position. Zero point setting or continuous turning are also possible.
- Parameter input: Password protected parameter input of machine-specific parameters in different parameter levels.
- Test mode : Testing function for inputs and outputs. Very useful for initial startup or troubleshooting.
- KLEWin (Option) External storage and reading of program and parameter data on PC.
Reading of different display languages like English or French.

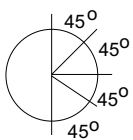
Technical Data CPS 300 rotary table / indexing attachments

Programming system	Absolute, incremental, segment	Limit switch	adjustable via software
Minimum input angle	0.0001 degree	Automic clamping	Adjustable via parameters
Maximum input angle	+/- 999.9999 degree	Drift compensation	Yes
Linear and rotational axes	Yes, also mixed	Acceleration and deceleration ramp	10 - 10000 ms
Number of axes	1 - 3	Programmable speed	0.01-99.99 Revs/min.
Input	Membrane keyboard with tactile acknowledgement	Max. Encoder frequency	250kHz (internal quadruplication 1MHz)
Display	LC - Display (decoded text) 4x40 illuminated characters	Position acquisition	Incremental, absolute (SSI-Interface),
Programms to be stored	99	Signal-inputs	32 - 41 Inputs.; 24V; 10mA
Programmable records	2000 (power fail safe)	Signal-outputs	16 Outputs; 24V; 0,8 A
Resolution	Up to 7.200.000 Incr./rev.	Analog output	+ / - 10V (12 bit resolution)
Reference zero run	Yes	Connections	Clamping connector 9-pin D-Sub for interfaces
Impulse start	Yes		
Start ramp monitoring	Yes		
Stop with residual movement	Yes	Supply voltage	85-264V; 50Hz; ca. 0,2A 24 VDC for signal outputs
Error diagnosis	Decoded Text	Ambient temperature	0 ... + 45° C
Linear ramp	Yes	Dimensions (WxHxd)	320 x 170 x 95 mm
Sin ² Ramp	Yes		

Inputs and Outputs

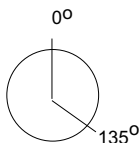
Signal inputs:	Signal outputs:	Other outputs per axis
Automatic / Manual mode Release Start Stop Motor monitoring Axis specific inputs: - Reference switch - Clamping clamped - Clamping released - Negative limit switch - Positive limit switch Free usable inputs	Ready for operation Program end In position Clamping outputs per axis Quantity end Automatic ready 8 machine functions	Drive enable contact 1 Drive enable contact 2 Analog output +/- 10 Volt Analog ground

Examples for programming in degrees



Record 1.001 Incremental dimension
X1: 45.000 X2: 45.000
F1: 2.00 F2: 1.00

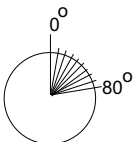
Incremental angle of 45 degrees with 2 axes.



Record 1.002 Absolute dimension
X1: ---,--- X2: 135.000
F1: 0.00 F2: 1.20
Direction: 0 Direction: 2

Absolute positioning of axis 2 to 135 degrees with negative direction of travel.

Direction: 0: Travel using nearest direction
 1: Positive travel direction
 2: Negative travel direction



Record 1.003 Pitches
X1: 80.000 X2: ---,--- Steps: 9
Divisor: 9 Divisor: 0
F1: 2.45 F2: 0.00

Programming one segment of 80 degrees of axis 1 using a divisor of 9.
 Number of pitches to be executed: 9
 $(80/9 = 8.8888 \text{ degrees})$

The following record functions are available:

- Set / reset / maintain / toggle machine function
- Reference run / set axis 0
- Control instructions: jump / program call / dwell time / waiting for condition
- Input inquiry: jump to record no. / program call / waiting for condition

General information :

The record types are selected in a selection screen:

Record 1.001 --empty--
F1:Travel/pos. F4:Control functions
F2:M functions F5:Inputs
F3:Reference/zero

The clamping is always processed automatically.

Complete units

The CPS300 is available as complete unit with integrated servo-amplifiers for brushless AC-Servomotors. Various amplifiers for the required motor current are available. Each axis may have a different amplifier. Optional interpolation-electronics (Series IBV600 and EXE600) can be implemented.

Technical Data tabletop unit

Power supply : 230V; 50Hz, 16A
Dimensions (WxHxD): 470 x 288 x 390 mm (without connectors)
Weight: ca. 20 kg

The complete unit is a compact tabletop with all connections designed in rugged industrial connectors on the backside. The required power supply is also integrated in the rack. The maximum current may not exceed a total of 16A.

Available amplifiers in tabletop housing

Type ¹⁾	$I_{N \text{ Continuous}}$ A_{RMS}	$I_{max}^{2)}$ A_{RMS}	Motor inductance min [mH]
DSD6-0204	2,0	4,0	6,0
DSD6-0408	2,0	4,0	3,0
DSD6-0612	6,0	12,0	2,0
DSD6-1020	10,0	20,0	1,2

²⁾ Maximum-currents can be drawn for minimal 5 seconds.



Control cabinet / console

For higher power requirements and/or 3 axes the CPS300 is available in a control console or cabinet.

Technical Data tabletop unit

Power supply : 230V; 50Hz, 16A
3x400V; 50Hz, Current depends on used amplifiers

Available amplifiers

Type ¹⁾	I_N Continuous A_{RMS}	I_{max} ²⁾ A_{RMS}	Motor inductance min [mH]
DSK2-0306/600	3,0	6,0	5,0
DSK2-0510	5,0	10,0	1,2
DSK2-0510/600	5,0	10,0	2,2
DSK2-0816	8,0	16,0	0,8
DSK2-0816/600	8,0	16,0	1,5
DSK2-1020	10,0	20,0	0,6
DSK2-1020/600	10,0	20,0	1,1
DSK2-1530	15,0	30,0	0,6
DSK2-1530/600	15,0	30,0	0,7
DSD6-2244/600	22,0	44,0	1,1
DSD6-3060/600	30,0	60,0	0,8

¹⁾All controllers are as 230V or 400V - type (..../600) available.

²⁾ Maximum-currents can be drawn for minimal 5 seconds.



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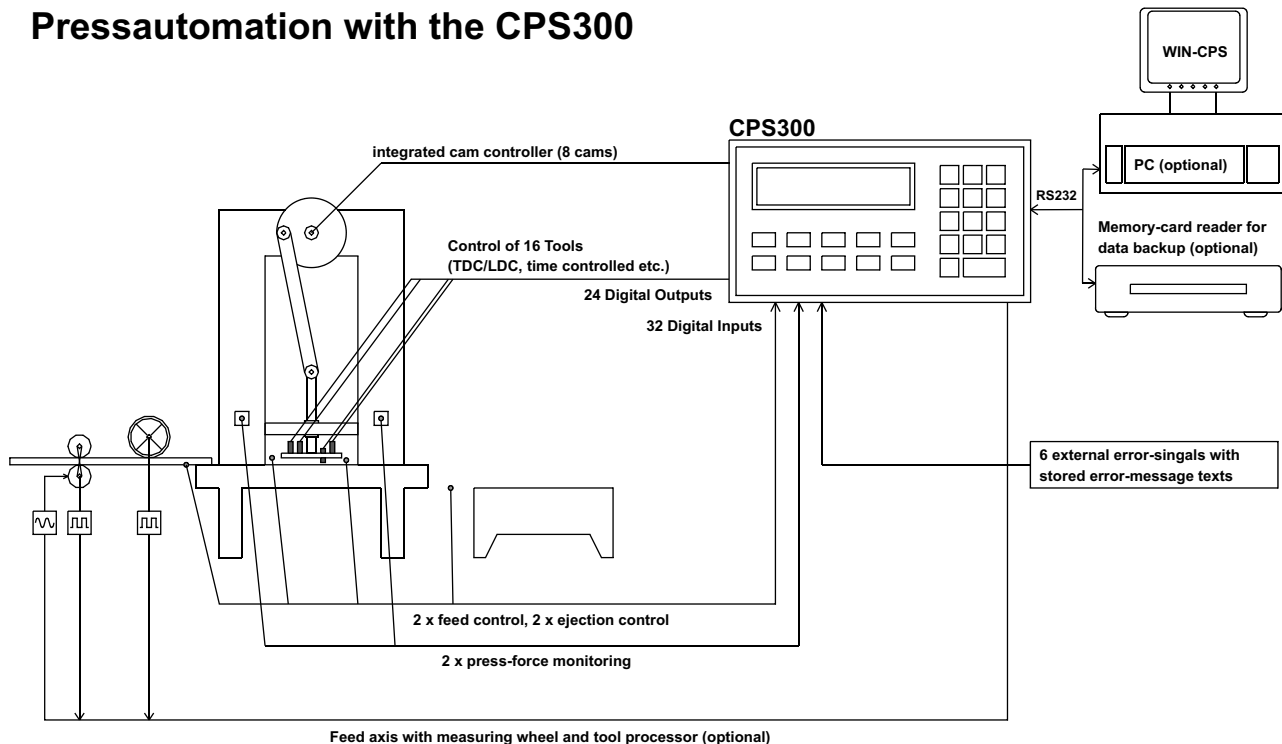
CPS 300

Feed and press controller

- Integrated cam controller
- Feed, ejection and press-force control
- 99 feed and cam programmes (2000 sets)
- Inputs for external error signals
- Programmable error-message texts
- Type of tools parametrizable
- Assignable in-/output configuration
- Tool processor (optional)
- Measurement wheel connection (optional)
- Storage of program and parameter data through PC-Software KLEWin (optional)



Pressautomation with the CPS300



Features:

Integrated Cam Controller (optional)

- 99 cam programmes, 1 cam programme each feed programme
- 4 tool protection inputs (2x ejection monitor, 2x feed monitor)
- cam controlled pressforce monitor with up to two analog inputs
- start cam
- 4 dynamic and 4 static cams each cam programme

Assignable in- and outputs

- 24 digital outputs and 16 digital inputs

Adjustable tool drive

- continuous signal
- impulse
- TDC/LDC controlled
- impulse with TDC-monitoring

Adjustable work-piece counter

- work-piece multiplier
- up/down counter
- counts feeds, tool triggers, strokes

KLEWin (Optional PC-software)

- External storage and reading of program and parameter data on PC.
- Reading of different display languages like English or French.

The following operating modes are available:

- Automatic: Single step, cycle (single execution of the entire program), continuous run.
- Program input: 8-digit drawing number per program, feed or workpiece programming (optional, dimensions are relative to workpiece)
- Set up: Run to any position by means of arrow keys of definite motion to a previously entered position.
- Parameter input: Password protected parameter input of machine-, controller- and user-specific parameters in different access authorization levels.

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CPS300

Zigzag feed controller

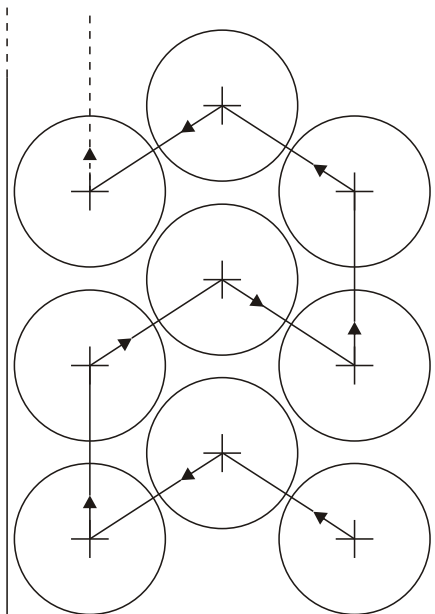
- 2 Axes
- Simple programming:
 - Diameter of circular blanks
 - Width of band
 - Width of ligament
- Automatic tool calculation



Zigzag feed controller

CPS300

- Optimal exploitation of band
- Option:
Dynamic cam controller (8 cams)



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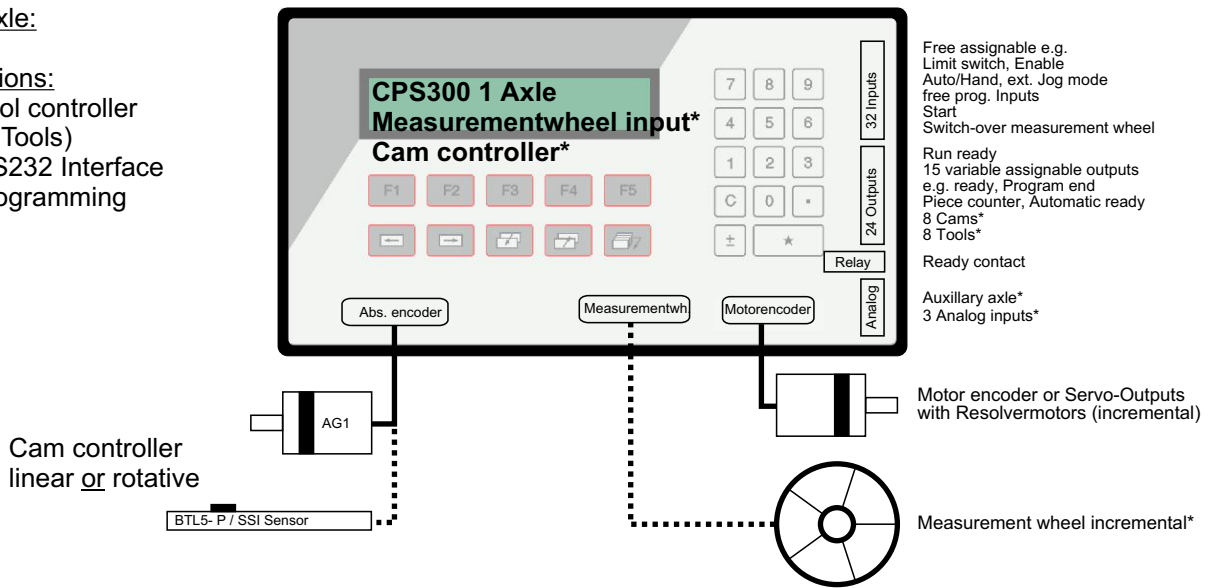
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CPS300 Feed controller overview

1 Axle:

Options:

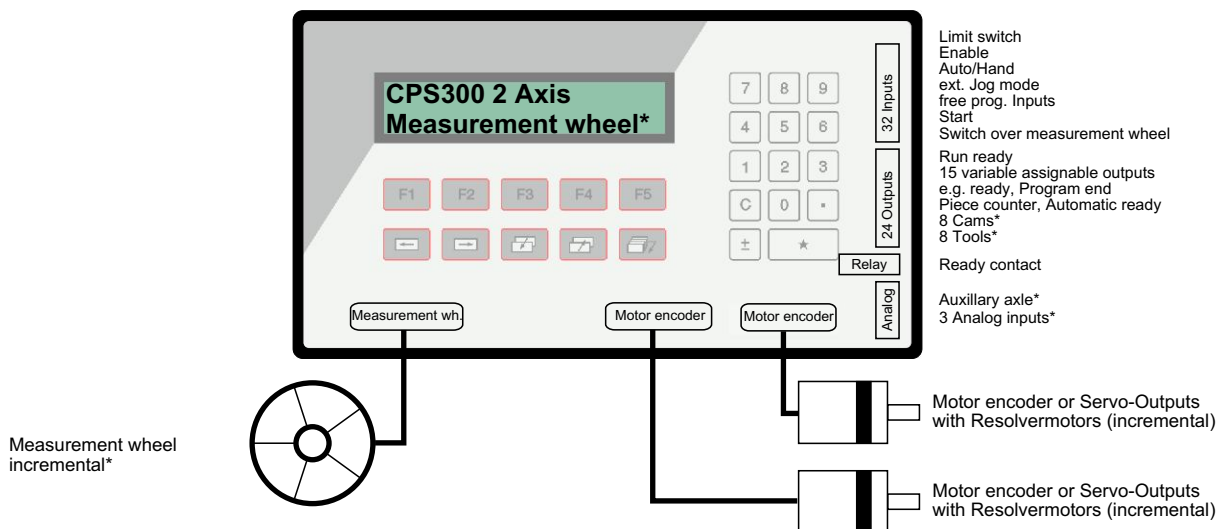
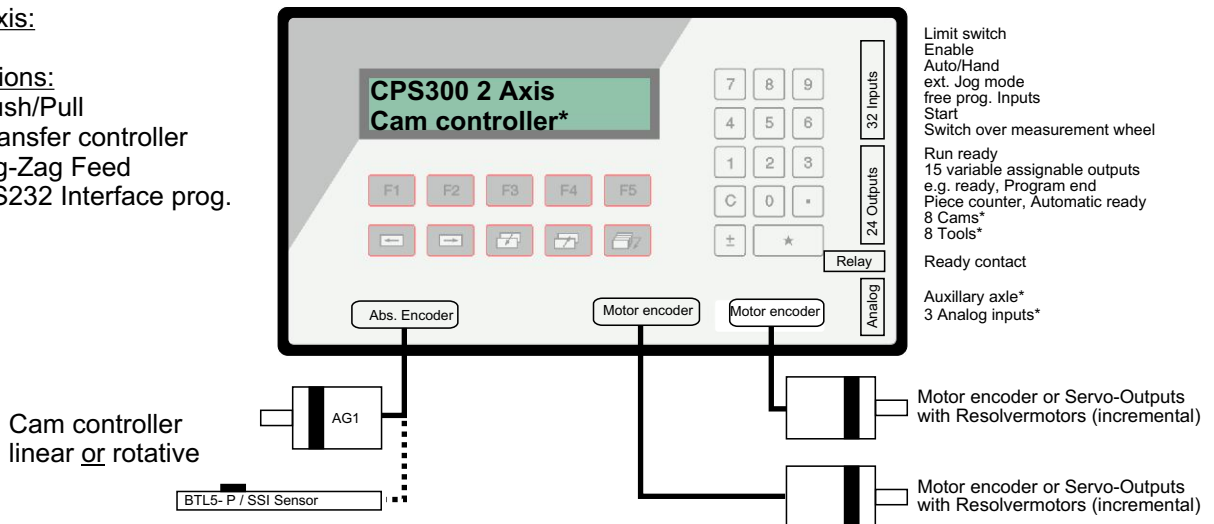
- Tool controller (8 Tools)
- RS232 Interface programming



2 Axis:

Options:

- Push/Pull
- Transfer controller
- Zig-Zag Feed
- RS232 Interface prog.



*Options

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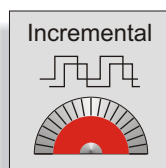
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CPS20

Compact Positioning System

Free programmable CNC controller
for universal applications
with position controlled drives.



CPS 20 Compact- Positioning- System

Keyboard panel, position controller and processing unit are combined to a very compact device, therefore easy to embed in a control console or a 19" rack.

Built in digital position controller with linear ramp or, for softer acceleration, with $\sin^2$ -shaped ramp.

Easy and comfortable handling and programming by keyboard and menu-based clear text display (no codings).

Application fields include particularly specialized machinery and production machinery. Special purpose programs for applications like rotary indexing tables or roll-feed-machines (and more special applications) are available.

Main Features:

- mode selection by menus
- clear text display (illuminated)
- auto starting up to reference point selectable
- automatic or manual mode of operation
- free programming of all parameters
- password protected machinery parameters
- machinery-specific adaptations
- 90 programs
- 180 sets (extendable up to 800)
(safe against power failures)
- acceleration ramp and deceleration ramp programmable
- linear oder $\sin^2$ ramp for choice
- velocities free programmable
- incremental position acquisition
- error diagnosis with messages in clear text
- high noise immunity through electrically insulated inputs and outputs
- short-circuit-proof transistorised outputs
- plug and socket connections for ease in handling

Options:

- absolute position acquisition (SSI-Interface)
- analog input (12 Bit resolution) for position acquisition or special application
- second incremental encoder interface for a measurement wheel or handwheel
- RS232 (CCITT V24) Interface

Technical characteristics CPS 20

number of axes	1	max. velocity	99.99 m / min at 0,1 mm resolution
input	membrane keyboard	max.incremental encoder frequency	250kHz (internally multiplied with 4)
display	LCD - Display (clear text) 2 x 24 char. illuminated	position acquisition	incremental, absolute (SSI-Interface), analog (12Bit resolution)
programs in memory	90	signal inputs	8 inputs 24V 10mA (extendable to 10 inputs)
programmable sets	180 (extendable up to 800) safe against power failure	signal outputs	6 outputs 24V 1A (extendable to 10 outputs)
gear ratio	6 digits (decimal)	analog output	+/- 10V (12Bit resolution)
reference point move	yes	connections	solderless plug/socket conn.
pulse start	yes	power supply	24 V DC (+/-20%) approx. 0.3A; Option: power supply 220V 50 Hz
start timing check	yes	ambient temperature	0 to +45° C
stop with subsequent		size (w * h * d)	213 x 133 x 75 mm
position correction	yes		
error diagnosis	clear text messages		
linear ramp	yes		
$\sin^2$ ramp	yes		
acceleration and deceleration ramp	10 - 10000 ms		

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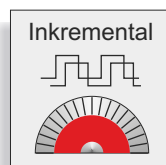
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CPS20

Compact Positioning System Rotary tables / Indexing attachmenty

- Easy adaptation to different rotary tables/indexing attachments
- Sinusoidal acceleration ramps
- Automatic clamping
- Optional as complete unit with integrated servo amplifiers



Abstract CPS20 rotary table / indexing attachments

The CPS20 is a free programmable CNC - positioning controller for 1 axis providing special functions adapted to rotary tables or indexing attachments with position controlled drives. Adaptation of the CPS20 controller to different rotary tables/indexing attachments is done via parameter settings, shown as decoded text on the illuminated LC-display.

Sinusoidal acceleration curves reduce considerably the load of all mechanical components. Clamping is automatically processed and monitored.

Programming and operation is easy and comfortable due to menu assisted sequences.

The following operating modes are available:

- Reference run: Automatic search for the machine reference position.
- Automatic: Execution of the selected program or the programmed pitch increments using the appropriate speeds.
- Program input:
 1. For constant pitch distances, the input of the pitch is sufficient.
 2. For irregular pitch distances, the programming is realized in degrees. Absolute and incremental as well as nearest direction and segment programming is possible.
- Jog mode: Run to any position by means of arrow keys or definite motion to a previously entered angular position. Zero point setting is also possible.
- Parameter input: Password protected parameter input of machine-specific parameters in different parameter levels.
- Startup assistance: Test function used for testing the inputs and outputs during startup or in case of faults.

Options:

- Handwheel: For precise and sensitive manual positioning
- PC-Software WIN-CPS Comfortable programming of all data

Technical Data CPS 20 Rotary table / indexing attachments

Programming system	Absolute, incremental, segment	Limit switch	adjustable via software
Minimum input angle	0.0001 degree	Automatic clamping	Adjustable via parameters
Maximum input angle	+/- 999.9999 degree	Drift compensation	Yes
Number of axes	1	Acceleration and deceleration ramp	10 - 10000 ms
Input	Membrane keyboard with tactile acknowledgement	Programmable speed	0.01-649 Revs/min.
Display	LC - Display (decoded text 2x24 illuminated characters)	Max. Encoder frequency	250kHz (internal quadruplication 1MHz)
Programms to be stored	90	Position aquisition	Incremental
Programmable records	760 (power fail safe)		Absolute (SSI- or EnDat-Interface),
Resolution	Up to 7.200.000 Incr./rev.	Signal-inputs	8 Inputs; 24V; 10mA optional 15 inputs
Reference zero run	Yes	Signal-outputs	6 Outputs; 24V; 0,8A
Impulse start	Yes	Analog output	+ / - 10V (12 bit resolution)
Start ramp monitoring	Yes	Connections	Clamping connector
Stop with residual movement	Yes		9-pin D-Sub for interfaces
Error diagnosis	Decoded Text	Supply voltage	24 VDC, ca. 0,3A
		Option:	Power pack 230VAC
Linear ramp	Yes	Ambient temperature	0 ... + 45° C
Sin ² Ramp	Yes	Dimensions (WxHxD)	213 x 133 x 68 mm

Inputs and Outputs

Standard signal inputs:

Reference switch
Clamping clamped
Clamping released
Negative limit switch
Positive limit switch
Automatic / jog mode
Release
Start

Signal outputs:

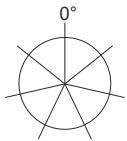
Ready for operation
Program end
In position / positioning
Clamping
M-function 2 / quantity end
M-function 1

Other outputs:

Drive enable contact 1
Drive enable contact 2
Analog output +/- 10 volt
Analog ground

Examples for pitch programming

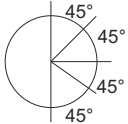
Pitch with divisor 7



Program input
Divisor : 7

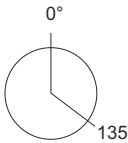
The CPS 20 calculates automatically the angular pitch:
 $360 \text{ degrees} / 7 = 51.4285 \text{ degrees}$

Examples for programming in degrees



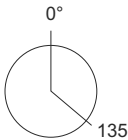
1.1 I:+45.0000 F:1.12
R: 3

Incremental angle of 45 degrees with 3 repetitions (R: 3)



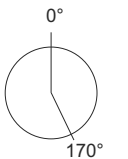
1.2 A:+135.0000 F:12.0

Absolute positioning to 135 degrees with positive travel direction



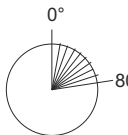
1.3 A:-135.0000 F:12.0

Absolute positioning to 135 degrees with negative travel direction



1.4 A: 170.0000 F:3.23

Absolute positioning using the nearest direction
(Programming without sign).



1.5 S:+80.0000 F:1.00
T: 9

Programming a segment of 80 degrees with a divisor
of 9 ($80/9 = 8.8888 \text{ degrees}$).

General Information:

The change-over between the positioning modes is accomplished by striking a key (menu key).

In addition, it is possible to program the machine functions (M:) and the travel speed (F:) in each record. "FS:" is used to define whether a subsequent record / repetition without start signal is to be executed.

The clamping is always processed automatically.

Complete units

The CPS20 is available as complete unit with integrated servo-amplifiers for brushless AC-Servomotors. Various amplifiers for the required motor current are available. There are small units (63HP) and wide units (84HP) depending on the built-in options with a maximum motor current of 12A available. The supply voltage is 230VAC for the small and 400VAC for the wide units.

Optional interpolation-electronics (Series IBV100) can be implemented.

The complete unit is a compact table-top with all connections designed as rugged industrial connectors on the backside. The required power supply is also integrated in the rack.

The CPS20 is also available in a control console with higher power capabilities.

Available amplifiers

$I_{N \text{ Continuous}}$ A_{RMS}	$I_{max}^{2)}$ A_{RMS}	Motor inductance		Supply-voltage [V]	Brakepower cont. [kW]
		min. [mH]	max. [mH]		
3,0	9,0	2,5	250	230	0,77
6,0	18	1,3	125	230	1,5
12	30	1	100	230	3,0
3,0	9,0	5,3	600	400	1,5
6,0	18	2,6	300	400	3,0
12	30	2,1	250	400	6,0
24 ¹⁾	48	1,0	120	400	12
48 ¹⁾	96	0,5	60	400	12

¹⁾Not in table top unit available

²⁾ Maximum-currents can be drawn for minimal 5 seconds.

Technical Data complete unit (table-top)

Rack width	63HP	84HP
Power supply:	230V; 50Hz	400V, 50Hz,
Dimensions (WxHxD):	366 x 288 x 330 mm (without connectors)	473 x 288 x 390mm (without connectors)
Weight:	ca. 12 kg	ca. 16 ... 20kg (depending on used amplifier)



CPS20 table top (63HP) with optional Emergency-Stop.

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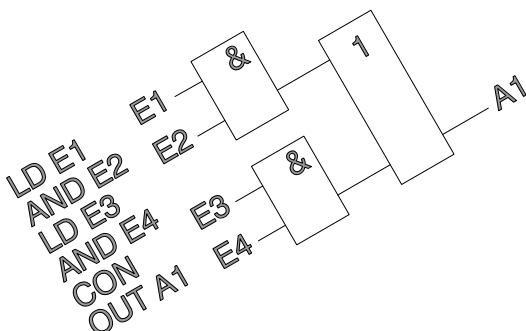
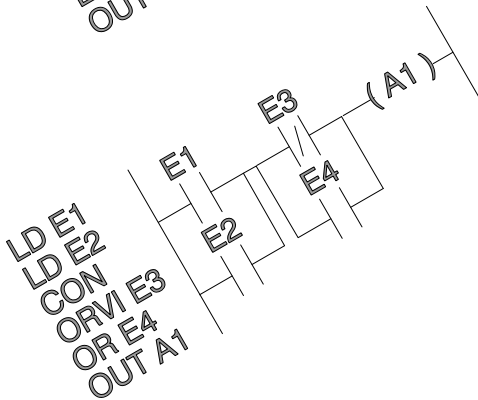
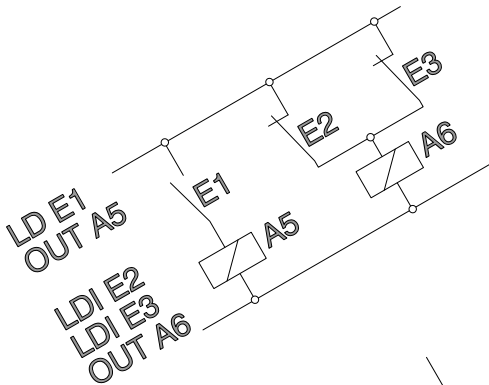
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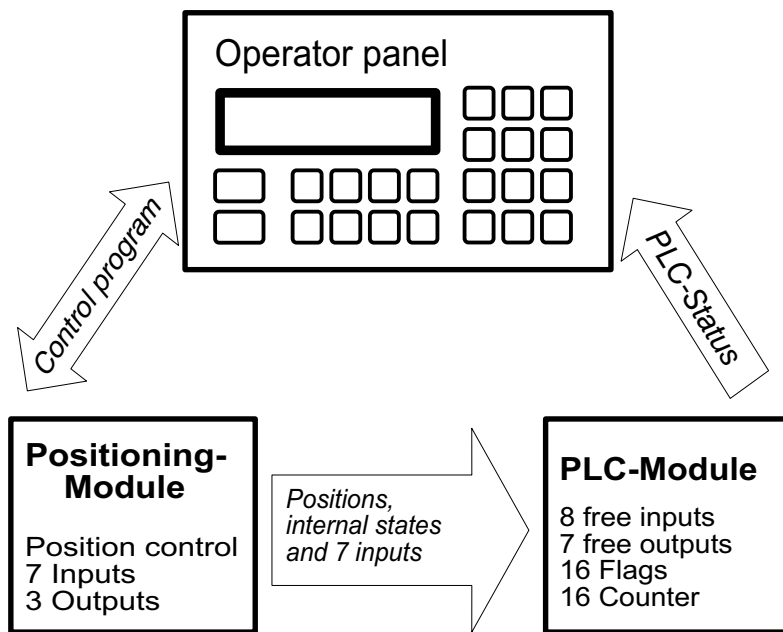
CPS20

Compact Positioning-System With integrated PLC - module

- Operator panel, positioning controller and PLC in one unit
- PLC-Program runs independent from positioning
- Interaction Positioning - PLC
- Position controlled axis
- High flexibility



Compact-Positioning-System CPS20 with integrated PLC- module



CPS20 with integrated PLC

The positioning controller CPS20 with integrated PLC-Module features new potentials of automation.

Functionality. The combination of operator panel, positioning controller and PLC in one unit saves wiring effort and thus time and money.

Interaction. The integration of the PLC into the positioning controller gives access to position values of the CNC-axis and to internal states which weren't accessible up to now.

Flexibility. Access to positioning controller's internal data allow program-controlled signals which have been generated up to now fixed within the positioning controller.

Independence. The PLC program runs asynchronous (i.e. independent timed) with the positioning program. Thus sequences are feasible which haven't been possible with a positioning controller working record by record. The programs may be synchronised by internal flags.

Field of applications:

The CPS20 with integrated PLC is ideal for all applications with a CNC-axis in combination with simple handling, sequence or other automation tasks.

Technical Data PLC-Module:

Command memory: 256 commands
Command execution time: 0,5 ms
15 Inputs, with
 8 free assignable
 7 used by the positioning unit
7 Outputs
 4 free assignable
 3 used by the positioning unit
16 Flags
16 Internal states of the positioning
4 Positions compare (CNC-Axis)
Programming: command-list

PLC command list			
Command	Function	Input/Flag/Internal	Output/Flag
LD/LDI	start current branch	○	
AND/ANDI	AND-boolean term	○	
ORV/ORVI	OR-branch	○	
OR/ORI	next branch OR	○	
ORB	end OR		
CON	combine open branches		
OUT	Output (logical result)		○
SET	Output (set)		○
RST	Output (reset)		○
END	Program end		
E1-E15	Inputs	○	
I1-I16	Internal state flags	○	
M1-M16	Flags	○	○
A4-A10	Outputs		○
POS 1-4	Positions register		

Subject to changes.



CPS20

2/3-step controller

Compakt-Positioning-System

**Rapid-/Creepspeed-
controller**

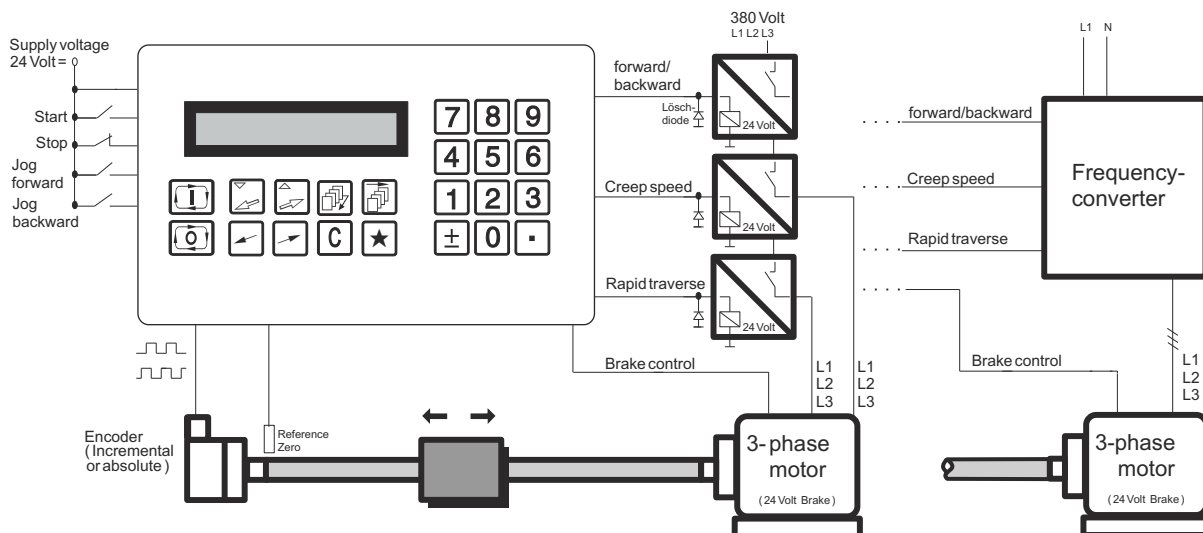
- Easy operation
- Decoded text display
- 180 Positions storable
- Start curve monitoring
- Gearbox adaptation 6-digit



CPS 20 Compact-Positioning-System

Free programmable CNC positioning controller. Adjustable switch-off as well as rapid and creep speed transitions make it very well suitable for posistop-motors or standard asynchronous motors. No programming knowledge required. Easy operation and programming through menu lead decoded text display. Adaptation to the motor and machine is provided by password protected parameter adjustment. Position feedback is achieved with encoder or linear measurement systems thus exact positioning to any positions is facilitated. High current outputs allow fast and direct connection to a motor brake or contactors.

- Menu-driven selection of operating mode
- Decoded text display
- Automatic reference zero run
- Automatic / Jog mode
- All parameters free adjustable
- Password protected machine parameters
- Machine specific adaptation e.g. scale
- 180 positions memory
- Switch-off distance for rapid traverse adjustable
- Brake distance adjustable
- Error diagnosis with decoded text display
- High immunity through opto decoupled inputs and outputs
- Short-circuit proof transistor outputs
- Direct connection of motor contactors
- Direct connection of motor brake



Technical Data CPS 20

Number of axes:	1	Max. encoder-frequency:	250 KHz (4-fold 1 MHz)
Input:	Membrane keyboard with tactile feedback	Position feedback:	incremental, Option: absolute (SSI-interface)
Display:	LCD-Display (decoded) 2 x 24 characters illuminated	Signal inputs:	24 V, 10 mA
Storable Positions:	180 (power-fail safe)	Signal outputs:	24 V, 1 A
Gearbox adaptation:	6 digit	Supply voltage:	24 V =, +/- 20% ca. 0,3 A, Optional: mains module 230 V
Homing:	yes	Ambience temperature:	0 ... + 45°C
Pulse start:	yes	Dimensions WxHxD:	213 x 133 x 75 mm
Start curve monitoring:	yes		
Stop with residual travel:	yes		
Error diagnosis:	yes		

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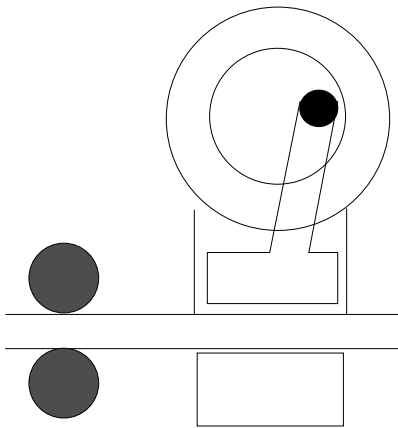
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CPS20

Feed controller



- Position controlled feed axis
- Selectable sinusoidal or linear acceleration
- Measurement wheel operation feasible (Option)
- 99 Programs, 800 Sets, Jumps, Loop functions
- Up to 6 M - functions
- 2 of these acknowledgeable with TDC / BDC function
- Error messages in clear text, 4 editable
- Start ramp monitoring
- Length correction during automatic run
- External setup
- Direct feed during setup
- External program preselection of up to 63 programs
- Outputs assignable
- Inputs assignable
- Extended workpiece counter 6 digit with preset - function
- Guard door function with limitation to $v=2$ m/min
- Feed data programmable via RS232
- Link to cam controller DNS20 via RS232
- I/O test mode for initial startup
- Selectable language: English / German / French



Order data: CPS20.500.120

Abstract

The CPS20 feed controller combines operator terminal, control unit with in- and outputs and position controller to a very compact device.

The feed movement may be sine-square acceleration. This reduces the slip between roller and material and boosts the precision on fast stroke resp. clock cycles significantly. For crucial applications there is an option to incorporate a measurement wheel. Placed directly on the material, the measurement wheel compensates for roller slippage and inaccuracy in the drive.

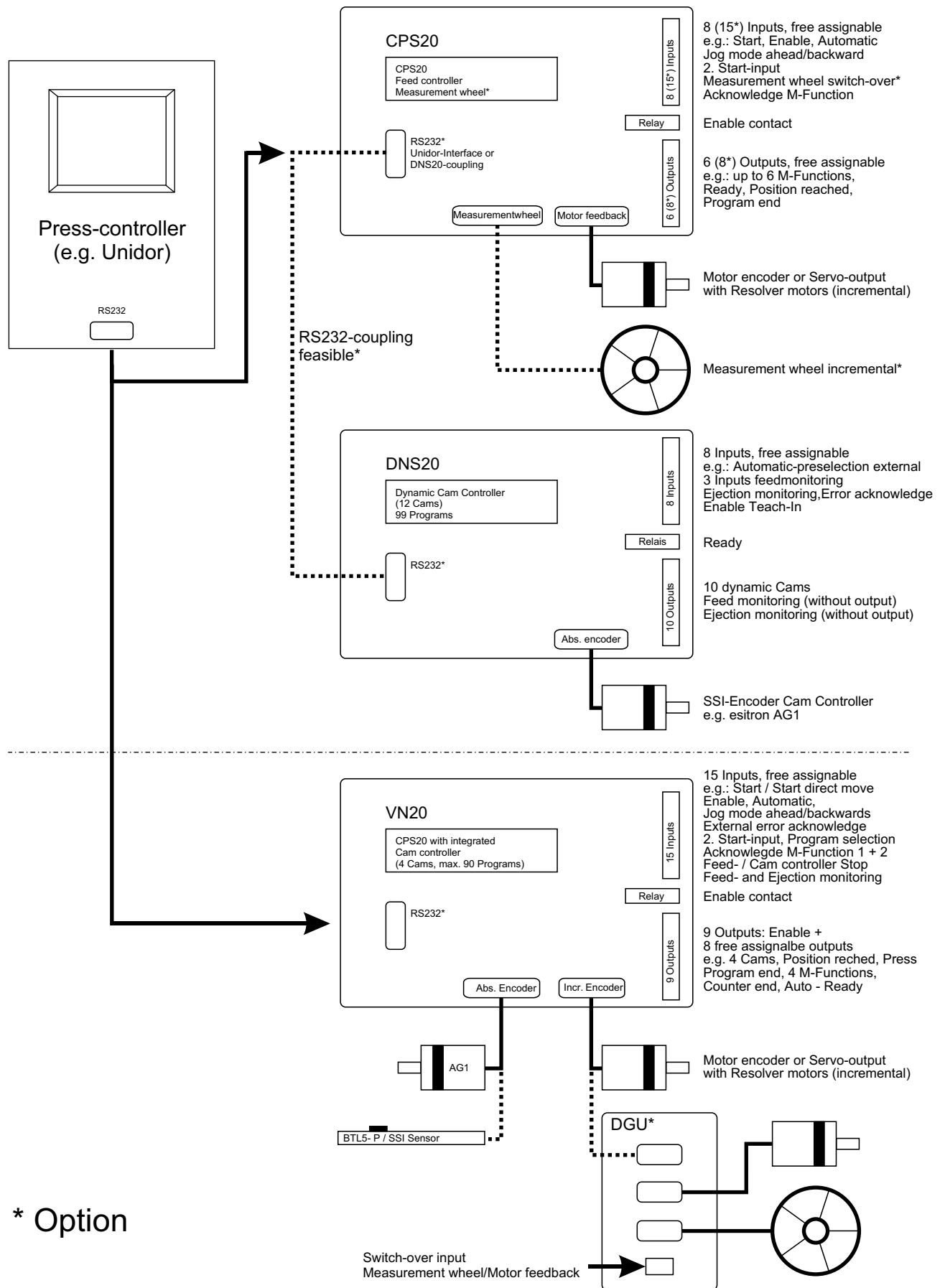
Programming of the CPS20 is very simple and accomplished in decoded text. Further more there are many reasonable features like direct movement, workpiece counter and external error messages with freely definable texts. There is an optional interface to the cam controller DNS20 or a data-link to a press controller available.

Technical Data

Operation modes:	Manual jog: forward, backward, fast motion, internal and external Direct move Automatic with length correction	
Program input:	800 Sets, power fail safe through EEPROM without battery	
Each set:	- Incremental length	- Speed (1 - 100 %)
	- Machine function 1 - 6	- Set repetitions (0 - 999)
	- Following set programming	- Jump- / Loop function
Parameter input:	Motor- and machine specific data password protected	
Signal inputs:	8 Inputs 24 V, Ri = 10 kOhm (Optional 16 Inputs) Function assignable (e.g.. Start, Enable, Automatic, ...)	
Signal outputs:	6 Transistor outputs 24 V, 1 A short circuit proof (Optional 9 outputs) Function assignable (e.g. Position reached, M-Functions, ...)	
Set point output:	-10V ... +10V, output impedance 600Ohm	
Enable for amplifier:	Floating contact (shutter), rating 1 A	
Position acquisition:	incremental, level acc. RS422, 250 kHz, internal fourfold (1 MHz) Supply voltage output 5 V, 300 mA for encoder	
Gearbox adaption:	7 digit, extra scale for measurement wheel	
Error diagnosis:	Decoded text messages Monitoring of internal and external operating conditions. 4 external error messages with freely definable texts	
Workpiece counter:	6 digit workpiece counter with preset - function, workpiece counter input	
Display:	LCD - Display (decoded text), 2 x 24 signs, illuminated	
Input:	Membrane key with tactile acknowledgement	
Data interface:	RS232 C (Option) Programming of all program data (see above)	
Voltage supply:	24 VDC $\pm 20\%$, ca. 0,3 A	
Dimension WxHxD:	213 x 133 x 75	
Connections:	clamping connector plug & SUB-D Connector	
Operating temperature:	0 ... +50°C	
CE-Standards:	Emission:	acc. to EN 50081-1
	Immunity:	acc. to EN 50081-2

Subject to changes

CPS20 Feed controller overview



* Option

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CPS 20

Stepping motor controller

- 1 or 2 Axes
- Modular design, for use with various stepping motors
- Individual adaptation
- Comfortable handling
- Simple programming
- Decoded text display



Abstract

The CPS20.6xx (1 Axis) bzw. CPS20.7xx (2 Axes) is a free programmable positioning controller for universal applications with stepping motors. Applications focus on special and production machinery. Special programmes for various application areas are available.

The CPS20.6x/7x offers simple and comfortable handling and programming via keyboard and menu-driven decoded text displays. No cryptic abbreviations are used, which give the user a hard time.

The controller is combined with the control panel to a very compact unit and thus facilitates trouble free assembling in control consoles.

The separated and modular desing of controller and power stage facilitates to combine arbitraty stepping motors with 2-, 3- or 5 phases and varying power.

Features:

- Operating mode selection menu driven
- Decoded texts on illuminated display
- Automatic reference zero move
- Automatic/manual jog mode
- All parameters free programmable
- Password protected machine parameters
- Adaptation specific to the machine (e.g. Measuring unit)
- 1 - 90 Programms
- 180 Sets extendable to 800 (power fail safe)
- Acceleration and deceleration ramp programmable
- Speed freely selectable
- Error diagnosis system with decoded text messages
- High immunity to interference through galvanic insulated in- and outputs
- Short-circuit proof transistor-outputs
- Easy to remove through plugable connectors

Options:

- RS232C Data interface
- Wallplug
- Complete unit, ready to use in 19" housing

Technical Data:

Number of axes:	1 or 2	Acceleration and de-celerantion ramp:	1 - 100 kHz/sec.
Entry:	Membrane key with tactile acknowledgment	Max. seed:	30 kHz
Display:	LC-Display (Decoded) 2 x 24 illuminated characters	Signal-inputs:	8 Inputs; 24V; 10mA extendable to 15 inputs
Memory:	180 Sets, extendable to 800 sets	Signal-outputs:	6 Outputs; 24V; 1A extendable to 10 outputs
Gear adaptation:	7-digit	Clock-/Direction output.:	24V (unloaded); 20mA
Reference-run to zero:	yes	Connectors:	Clamping connectors
Impulse start:	yes	Supply voltage:	24 VDC; ca. 0,3A
Startramp monitoring:	yes	Ambient temperature:	0 ... + 45°C
Stop with residual move:	yes	Dimensions (WxHxD):	213 x 133 x 68 mm
Error diagnosis:	yes		

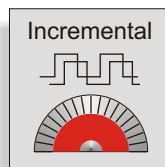
Subject to changes.



CDS22

Compact Drive System

- Complete Controller in Desktop Housing with integrated amplifier for AC Servo Motors up to 5 Nm
- Compact size tabletop unit
- Special functions for rotary tables and indexing attachments
- Menu Controlled Operation
- Easy Programming of Pitch Distances, Angles, Segments and Absolute Positions
- Automatic Work Cycle for Clamping and Indexing
- Language selection German/English/French
- Options:
 - Hand Wheel Connection
 - Serial Interface RS232
 - Interpolation electronics



CDS 22 Circular Table/Indexing Attachment Controller

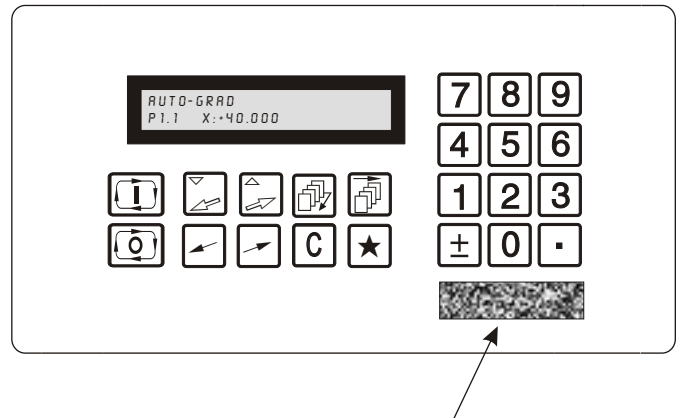
Programmable CNC positioning controller providing special functions adapted to circular tables or indexing attachments with position-controlled driving systems.

Sinusoidal acceleration curves considerably reduce the load of mechanical components.

Adaption of the CDS 22 controller to different tables/indexing attachments by parameter settings (decoded text on illuminated LC-display).

Easy and comfortable programming and operation due to menu assisted sequences.

Automatic clamping and control processing.



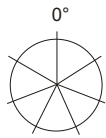
insertion type plate for own company logo or product code

The following operating modes are available:

- Reference run: Automatic searching for the machine reference position.
- Automatic: Execution of the selected program or the programmed pitch increments using the appropriate speeds. Start at any pitch possible.
- Program input:
 1. For constant pitch distances, the input of the pitch is sufficient.
 2. For irregular pitch distances, the programming is realized in degrees. Absolute and incremental as well as nearest direction and segment programming is feasible.
- Jog mode: Run to any position by means of arrow keys or definite motion to a previously entered angular position or infinite rotation. Zero point setting is also possible.
- Parameter input: Password protected parameter input of machine specific parameters in different parameter levels.
- Startup assistance: Test function is used for testing the inputs and outputs during startup or in case of faults.
- RS232 Interface (Option): External creation of programs with PC-software "WinCPS". Storage and reading of program data on PC.

Example for Pitch Programming

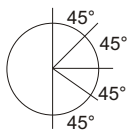
Pitch with divisor 7 mit einem Teilungsfaktor von 7



Program input
Divisor: 7

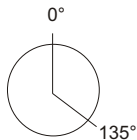
The CDS 22 calculates automatically the angular pitch:
 $360 \text{ degrees} / 7 = 51.4285 \text{ degrees}$

Example for Programming in Degrees



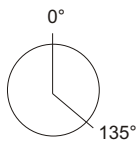
1.1 I:+45.0000 F:1.12
R: 3

Incremental angle of 45 degrees with 3 repetitions (R: 3).



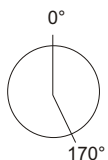
1.2 A:+135.0000 F:12.0

Absolute positioning to 135 degrees with positive travel direction.



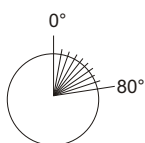
1.3 A:-135.0000 F:12.0

Absolute positioning to 135 degrees with negative travel direction.



1.4 A: 170.0000 F:3.23

Absolute positioning using the nearest direction (programming without sign).



1.5 S:+80.0000 F:1.00
T: 9

Programming a segment of 80 degrees with a divisor of 9
($80/9 = 8.8888 \text{ degrees}$).

General Information:

The switch over between the positioning modes happens by striking a key (menue key).

In addition, it is possible to program machine functions (M:) and the travel speed (F:) in each record. FS: is used to define whether a subsequent record / repetition without start signal is to be executed.

The clamping is always processed automatically. Clamping can be switched off temporary for each record inside a program.

Inputs and Outputs

Signal inputs:	
Standard:	Extended:
Reference switch	Jog forward
Clamping clamped	Jog backward
Clamping released	Jog fast
Negative limit switch	Activate Handwheel
Positive limit switch	Handwheel x10
Automatic/Jog mode	
Release	
Start	

Signal outputs:
Ready for operation
Program end
In position/positioning
Clamping
M-function 2/quantity end
M-function 1

Technical Data CDS 22 Circular Tables/Indexing Attachments

Programming system	Absolute, increm., segment	Software travel limit	adjustable
Minimum input angle	0.0001 degree	Autom. clamping	adjustable by parameters
Maximum input angle	+/- 999.9999 degrees	Drift compensation	yes
Max. equal pitch range	1 - 9999 pitches	Acceleration and deceleration ramp	10 - 10.000ms
Number of axes	1	Progr. speed	0.01-649 table rev./min
Input	Membrane keyboard with tactile acknowledgement	Max. pulse encoder frequency	250kHz (quadruplication 1MHz)
Display	LC - Display (decoded text) 2 x 24 characters, illuminated	Position detection	incremental
Programs to be stored	1 - 90	Signal inputs	8 inputs; 24V; 10mA 15 with opt. expansion
Programmable records	760 (stored power fail save)	Signal outputs	6 outputs; 24V; 1A
Resolution	up to 7.200.000 Incr./rev.	Connections	Clamping connector
Reference zero run	yes	Supply voltage	230 V; 50-60 Hz
Pulse start	yes	Ambient temperature	0 to + 45° C
Starting curve monitoring	yes	Dimensions w x h x d	361 x 155 x 390 mm
Stop with residual dist.run	yes		
Diagnostics	with decoded text display		
Linear ramp	yes		
Sin ² ramp	yes		

Versions:

- CDS 22/3: Motor current up to 3 A, Motors up to ca. 3 Nm
- CDS 22/5: Motor current up to 5 A, Motors up to ca. 5 Nm

Options:

- Hand wheel connection
- Serial interface RS232
- Interpolation electronics IBV, up to 50x

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CPS 5.011

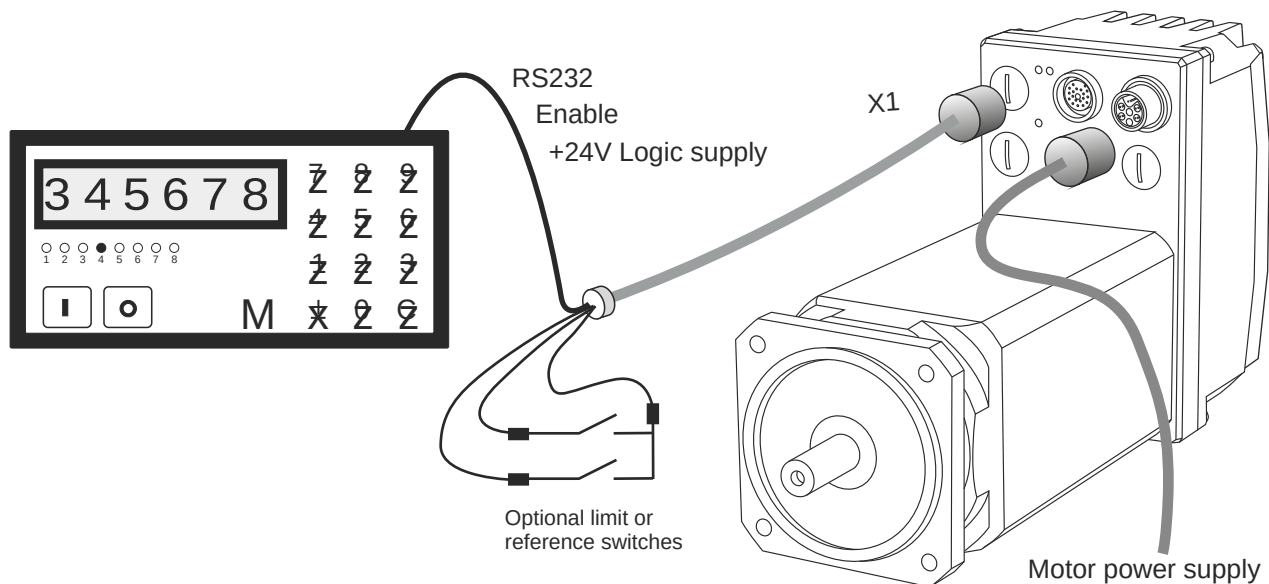
Servo-Positioning-Controller

- For positioning with decentralized servo drives esiMot and servo controller SC2 / SC10
- Direct data exchange with esiMot or SCx
- Position acquisition through the motor-feedback - no additional encoder required
- Direct length input (enter - start)
- Up to 8 positions storable
- Inputs for jog mode
- Well legible LED display (6-digit, red, 14 mm characters)
- Backlash compensation and loop travel
- Resolution programmable to display engineering units
- Supply voltage 18 V - 32 V
- Compact size (144x72x112mm (WxHxD))

Suitable for all
esiMot - types
and SC2 / SC10



Servo-Positioning-Controller CPS 5.011



Example with esiMotXL

Functions:

Positioning:

1. Enter position and start
2. Recall of stored positions via keyboard or digital inputs
3. Jog mode with rapid or creep speed

Positions memory:

- With incremental position measuring systems, the current position can be saved in a power failure-proof manner. Repeated reference movement is not required if it is ensured that the position in switched off state is not changed
- esiMot is available with optional multi turn absolute encoder. This position is used by the CPS 5.

Reference run:

- Numerous reference modes to select from: To reference switch, limit switch, to block (with adjustable torque limit) or simple zero setting at the current position.

Status- and error display:

- All CPS5 and esiMot status and error messages are displayed

Parameter adjustment:

- All parameters are adjusted at the CPS5
- including esiMot's regulator adjustments
- esiMot's adjustments can be read and stored into CPS5

Inputs / Outputs

8 digital inputs 24 V, e.g.

- Enable
- Reference run
- Relieve
- Jog
- Start, Stop
- Set to zero
- Disable keyboard
- Select stored position

8 digital outputs 24 V, e.g.

- Position reached
- Ready
- Program end

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CPS5

Rapid/Creepspeed-Positioning Controller

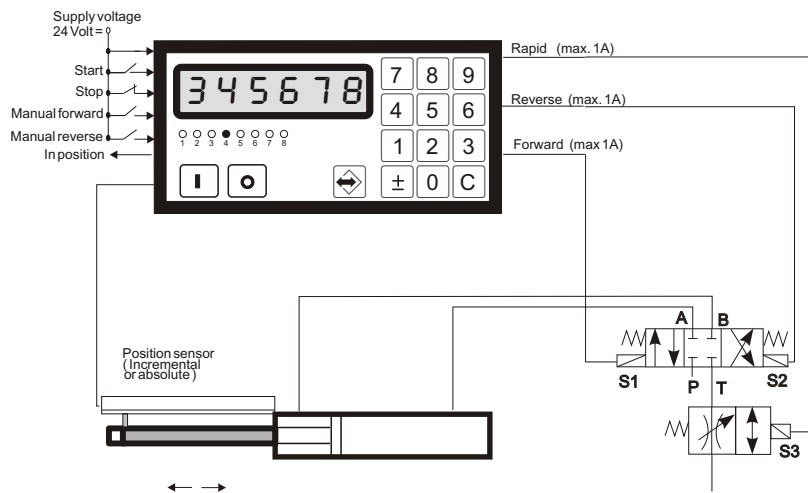
- For positioning AC motors in Posistop version or with frequency converter
- Easily adapted to various frequency converters
- Position sensing using incremental or absolute encoders
- Direct length preset (key in - start)
- Up to 8 positions may be stored
- Automatic rapid/creep cycling and brake actuation
- Highly legible LED display (6-digit, red, 14 mm high)
- Play compensation and loop travel
- Resolution programmable to display in engineering units
- Supply voltage 18 V - 32 V
- Built-in encoder supply 300 mA, 5 V or 24 V
- Compact size (144x72x112mm (WxHxD))



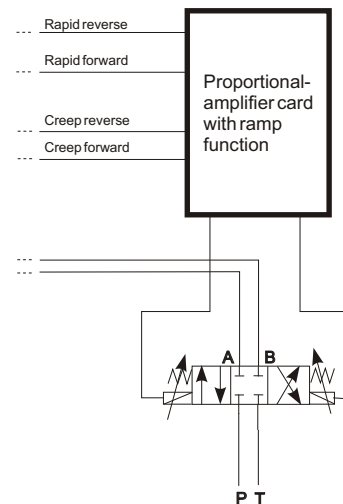
Ordering code

CPS 5.101	Use with incremental encoders
CPS 5.201	Use the absolute encoder having SSI interface
CPS 5.401	Use with magnetostrictive transducer

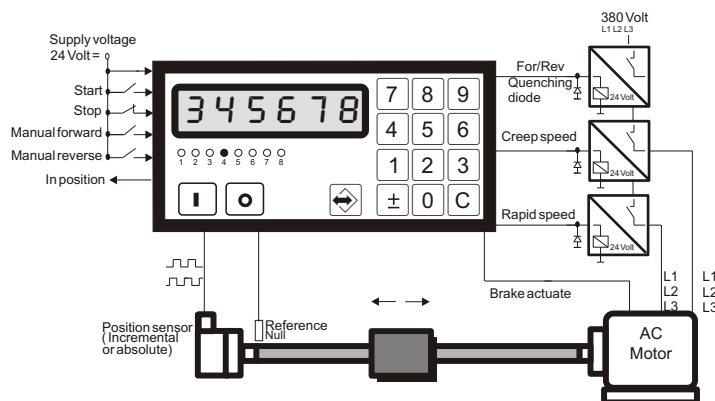
Rapid/Creep Control



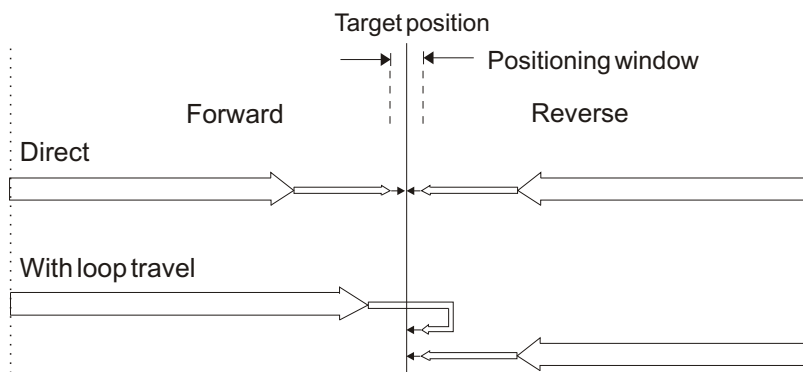
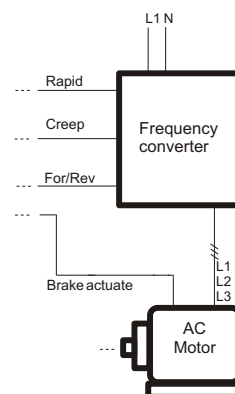
Proportional-Valve



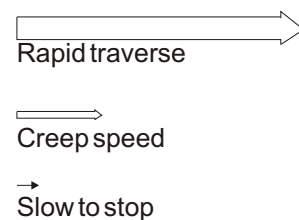
Pole Changing Motor



Motor with frequency converter



Signs and symbols:



- 8 digital inputs 24 V, for
- Manual jog
 - Start, Stop
 - Reference (Home)
 - Zero set
 - Keypad disable

- 8 digital outputs 24 V, for
- Rapid traverse forward/reverse
 - Creep speed forward/reverse
 - Actuate brake
 - Position reached
 - Fault

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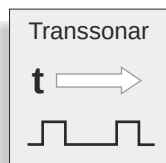
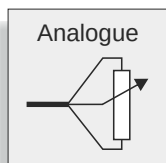
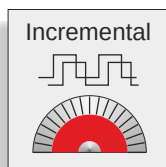
MICROPOS MP100

Positioning controller for electric or hydraulic drives

Synchronous run
up to 4 axes

Special functions for
hydraulic drives

- Digital position controller
- Separate programmable acceleration and deceleration ramps
- $\sin^2$ acceleration possible
- 99 positions in internal memory
- Online RS 232 - interface
- Selection of operating mode through inputs
- Decoded text error diagnosis
- 1 ms regulating time
- External selection of up to 63 positions
- Absolute and relative positioning selectable per set
- Functions for hydraulic drives:
 - piston area compensation (parameter)
 - characteristic curve compensation (parameter)
 - Overlap compensation (parameter)
 - Pt1 - regulation (parameter)



MICROPOS MP 100

The MP 100 is a positioning unit for universal applications featuring simple and comfortable operation. A position and speed control is integrated. The use of latest technology renders the MP100 a very compact device.

The fast 16 bit microcontroller stands for high efficiency of the system and enables regulating times faster than 1 ms!

Programming

- 99 records (power fail safe)
- position (absolute/relative)
- velocity
- M-function
- delay-time (between records)

Direct programming at the front panel

Programming through serial interface

Programming using a digi-switch

Program execution

Single execution (Auto-Single)

Continuous execution (Auto-Cycle)

Automatic status reports:

- Position reached
- Programm end
- Fault / ready

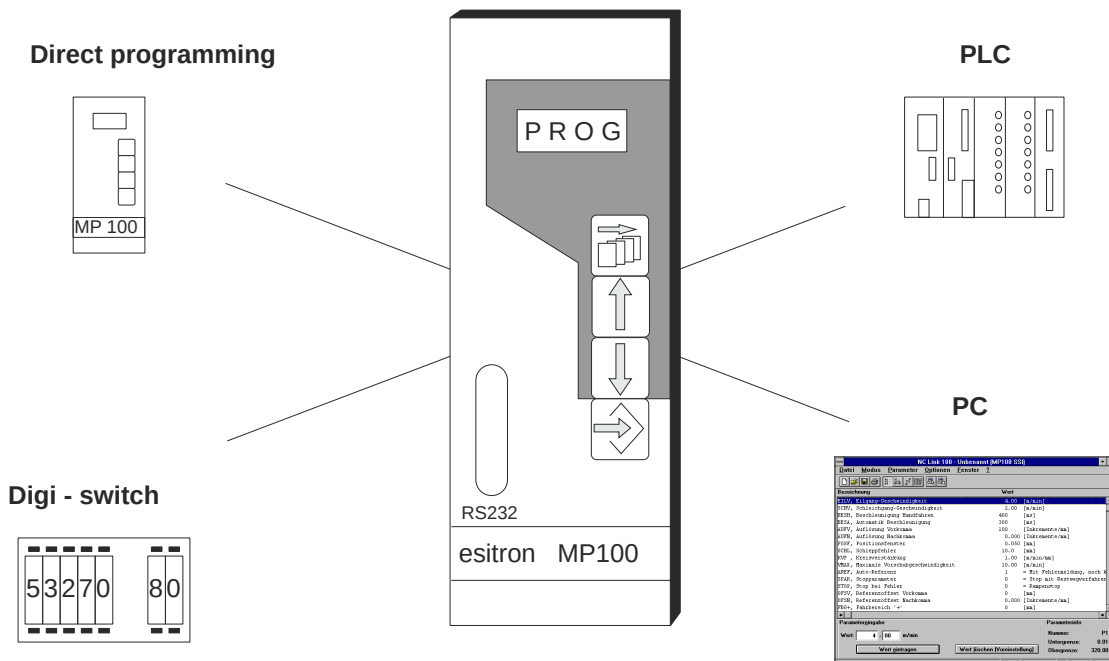
External selection of records (5 digital Inputs)

External handling through serial interface

Programming facilities

Frontpanel programming
with integrated keyboard
and decoded text display

Online-operation with PLC or PC.
Data interchange, commands
status and position report
through serial interface.

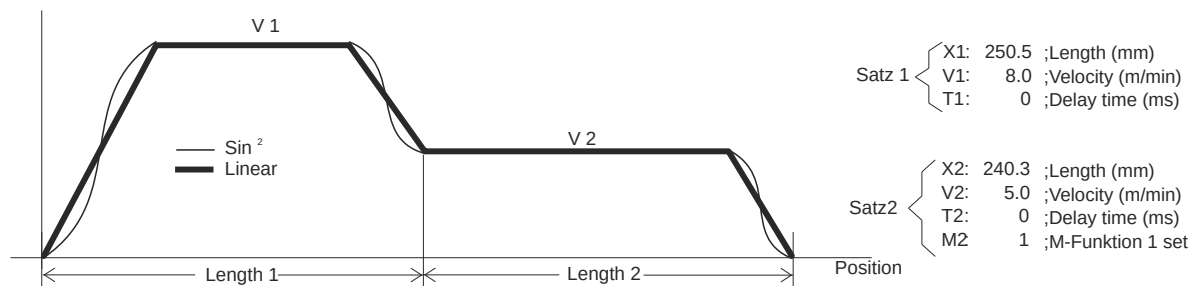
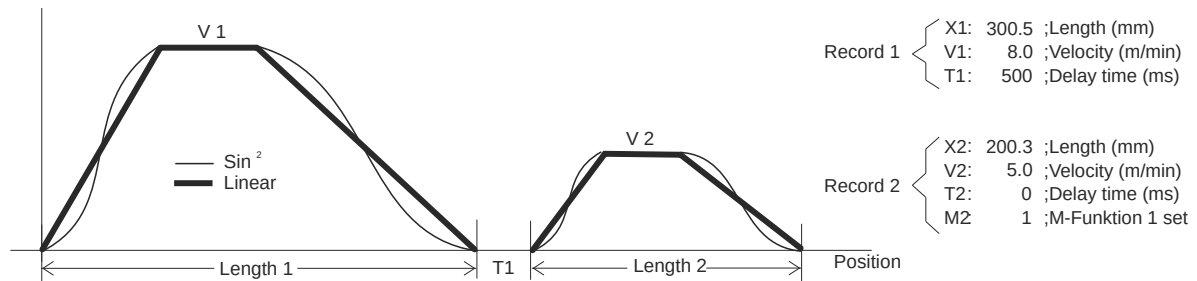


Programming of position
with a digi-switch connected
to the serial interface.

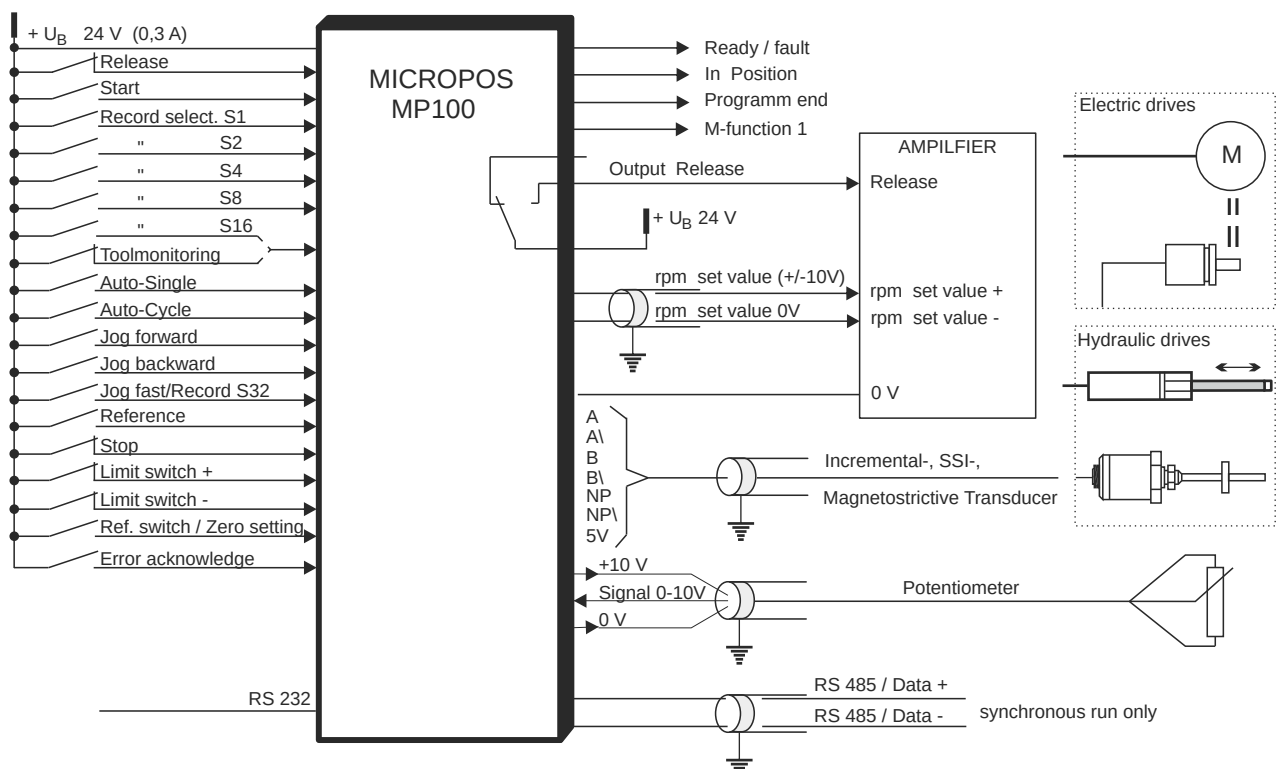
Programming on a PC.
Transmission of program and
parameters through serial interface.
Option: Comfortable programming
software (NC-Link 100) with online
diagnosis running under Windows™.
Online positioning is possible.

Programming examples

Sinusoidal or linear ramp.
Change of speed with or without intermediate stop.
Separate acceleration and deceleration times.



Connecting diagram



Technical data MICROPOS MP 100

Modes of operation:	Reference run Jog forward/backward/fast Automatic Single/Cycle
Program input:	99 records, power fail safe through non volatile EEPROM. In each set: - absolute or relative position (-9999.999 ... +9999.999) i.e. mm - velocity (0.01 - 320 m/min) - machine function (set / clear) - delay time (0 ... 9999 ms)
External record selection:	Through RS232: all 99 positions, through digital inputs: up to 31/63 positions selectable (electric/hydraulic drives)
Parameter input:	Data specific to machine and motor, password protected
Tool correction:	correction value (-9999.999 ... +9999.999) i.e. mm or degree
Signal-inputs:	18 inputs: 24 V, $R_i = 15 \text{ k}\Omega$
Signal-outputs:	4 outputs: 24 V, 1 A
Set value output:	-10 V ... +10 V (12 bit resolution)
Release for amp:	Floating contact (changer), current max. 1 A
Position feedback:	Incremental: Level according to RS 422, 250 kHz, internal fourfold (1 MHz), Power supply output 5 V / 300 mA for encoder Absolute: SSI-Interface, dataformat 8 - 31 bit, Gray-/Binary code Absolute: direct processing of magnetosrictive transducers or Absolute: Analog with 14 bit resolution with power supply for potentiometer
Data interface:	Online RS 232 C, Baudrate: 300 - 19200 Baud
Error diagnosis:	Decoded text error messages Monitoring of external and internal status Monitoring of power supply voltage
Power supply voltage:	24 V DC $\pm 20 \%$, approx. 0,3 A
Dimensions:	Plug-in PCB 100 mm x 160 mm Frontpanel 3 U x 10 HP (129 mm x 50 mm)
Connector:	48 way male multi-point connector strip DIN 41612 (type F)
Ambient temperature:	0 - 50 °C (32 ... 122°F)
Special applications:	Synchronous run with up to 4 MP100

Ordering data

MP1 0. 5 1. – SY - Version for synchronous run systems

- 7 - for digital measurement system (incremental, SSI, magnetostrictive transducer)
- 8 - for analog measurement system (potentiometer)
- 0 - Plug-in PCB 100 mm x 160 mm
- 1 - Rack mount unit with connectors

Accessories:	COM-DP	Communication modul profibus <> MP100
	701.01006-0	Card holder with plug-in connector block
	DEK.0500	Digi-switch for RS 232C
	611.01011-2	Programming set NC-Link 100

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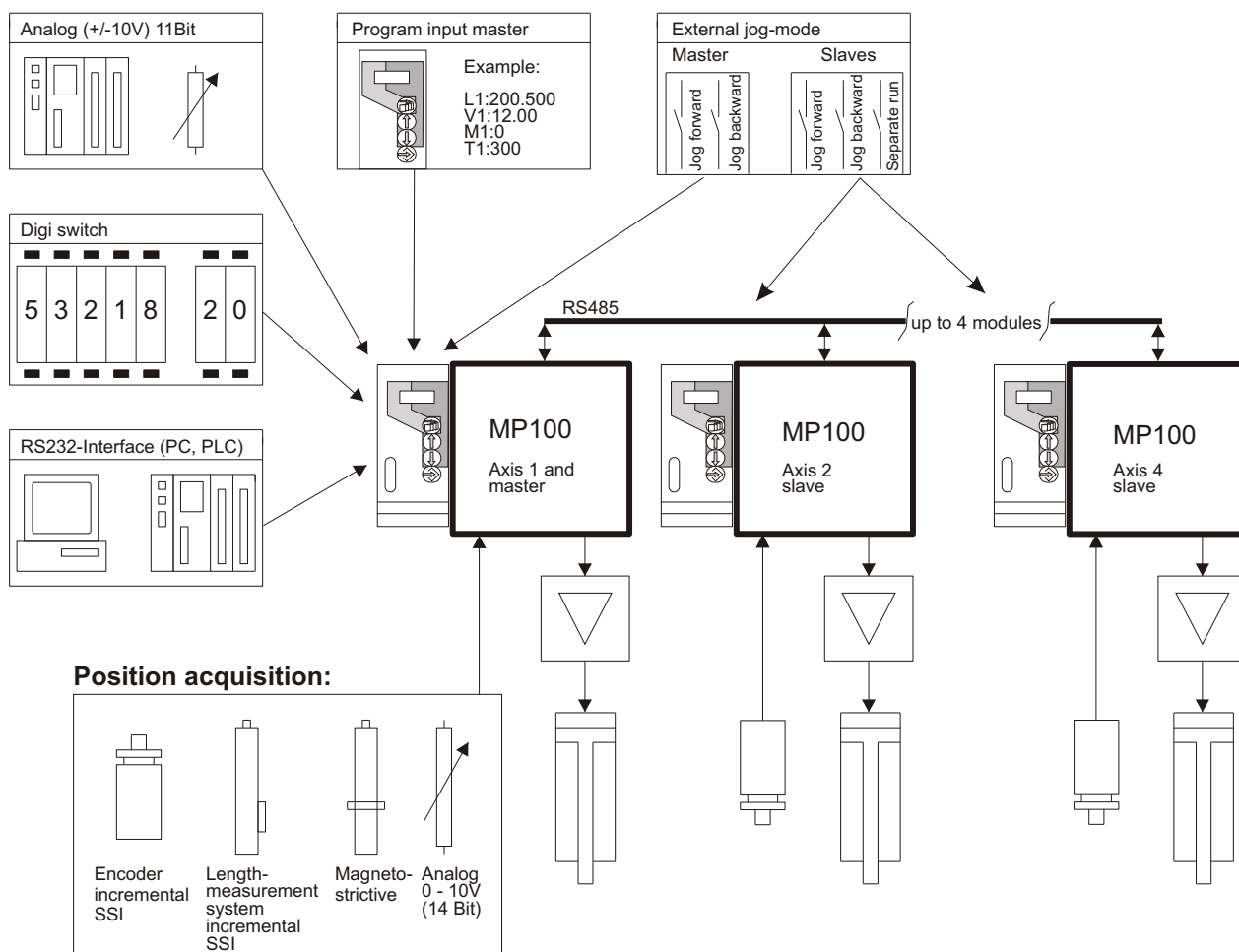
POSITIONING CONTROLLER MP100 MICROPOS

Synchronous run with MP100

Functions:

- Synchronous move of all axes in automatic and jog-mode
- Separate jog-mode for each module feasible (setup operation)
- Conjoint reference run with incremental measurement systems
- Different gearbox ratios (resolution) programmable
- Working modes are selected on master conjointly
- Parameter setting and programming on master module

Set value:



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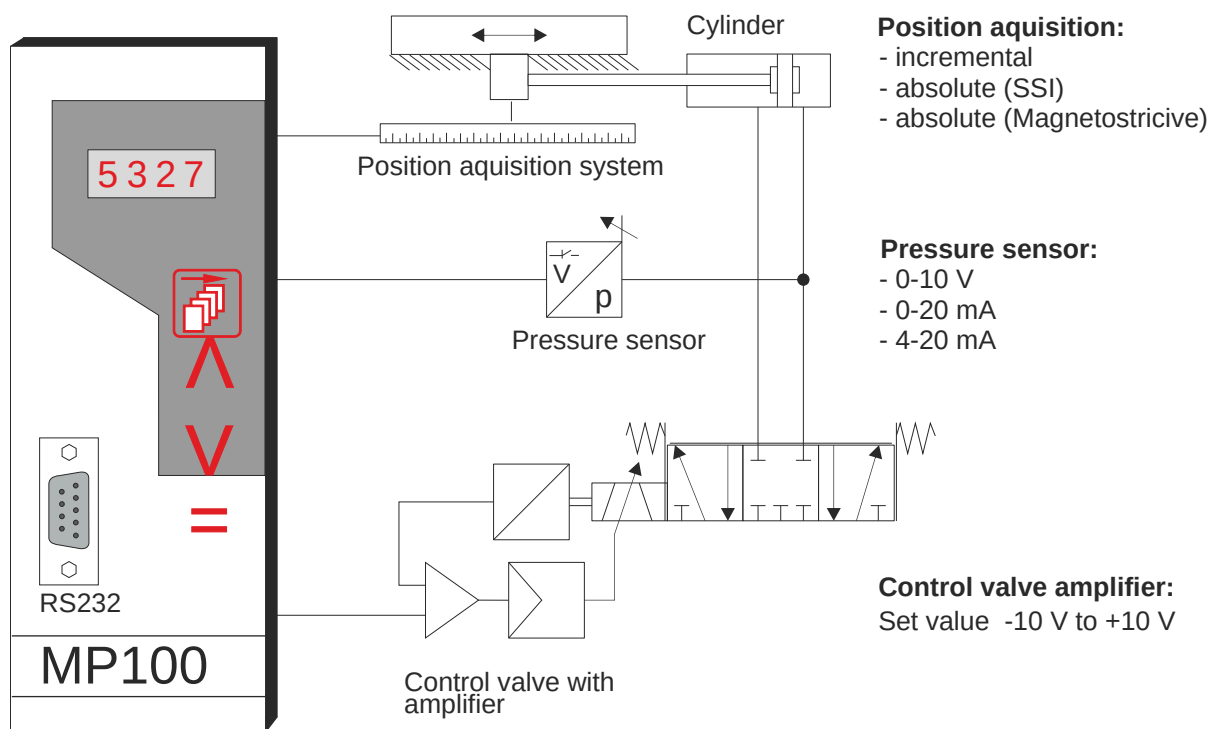
Tel. +49(0)7541-6000-0
Fax +49(0)7541-6000-11
E-Mail: info@esitron.de

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Position-Pressure-Controller MICROPOS MP100

- Digital position and pressure regulation
- Different configurations:
 - Position control, switchover to pressure regulation
 - Position control with pressure limitation
- Minimal- and maximal pressure monitoring
- Numerous measurement systems supported
- Position and pressure programmable
- Comprehensive hydraulics parameter:
 - piston area compensation
 - compensation amplification for overlap
 - curve linearization
 - different valve types

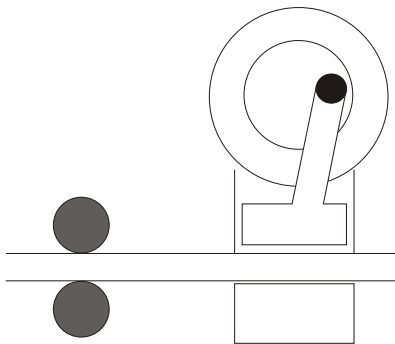


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VN 20

Feed controller with integrated cam controller



- Integrated position controlled feed axis
- Measurement wheel feasible (option DGU)
- press control possible using output
- automatic continuous/single cycle/single step
- error messages in clear text, 4 free definable
- start curve monitoring internal with cam or external
- programmable feed and eject control
- length correction during automatic mode
- external jog operation
- target feed in jog operation
- external program selection up to 63 programmes
- input and output function assignment
- sinusoidal acceleration possible
- TDC correction (teach-in)
- RS232 programming of feed and cam data
- Commissioning support (I/O-test)
- Piece counter up / down with preset
- selectable German/English language texts



Technical data - VN 20 Press Controller

Modes:	Jog mode forward / reverse / rapid feed automatic continuous / single cycle / single step
Program input: Feed:	180 sets, power failure protected with non-volatile Eeprom. Each set includes - position in chain (-999.999 ... +999.999 mm) - velocity (1 - 100%) - machine function 1 - 4 (set / reset) - set repetitions (0 - 999) - follow-on set programming
Cams:	Programmable for each feed program: - 4 cams with a dynamic offset of 0 - 250 ms - 2 on / off switch points per cam - programmable level on reply input for feed or eject control - cam 1 can be internally programmed as start - cam names free definable
Press:	Programmable for each feed program when „Press“ output is activated: - continuous: press before feed or feed before press - single cycle: press before feed or feed before press
Parameter input:	Motor and machine- specific data password protected.
Signal inputs:	16 inputs 24V; $R_i = 10k\Omega$ Function selectable (e.g. start, enable, automatic, ...)
Signal outputs:	9 outputs 24V 0,8A Function selectable (cams, In Position, M-functions, ...)
Nominal value output:	-10V...+10V (12-bit resolution)
Enable for amplifier:	Potential-free contact (changeover), contact load capacity 1A
Position feedback:	Incremental, level per RS422, 250kHz, internal interpolation (4x), 1MHz Supply voltage output 5V/300 mA for encoder
Angle feedback:	Absolute over SSI-interface, 12 bit resolution Angle null point shift possible in parameter setting TDC correction via teach-in
Cycle times:	2ms feed axis / 500µsec cam controller
Drive adaptation (gear):	6-digit
Error diagnostic:	Clear text error messages Monitoring of external and internal operation conditions 4 external error messages with free definable names
Display:	LCD display (clear text) 2x24 characters illuminated
Input:	Membrane keypad with tactile feedback
Data interface:	RS232 C (option) Programming of all program data (see above)
Supply voltage:	24V DC $\pm 20\%$, ca. 0,3A
Dimensions (w x h x d):	213 x 133 x 68 [mm]
Terminations:	Clamping terminal block
Operating temp.:	0°... +50°C (32°...122°F)

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APS300



20 dig. inputs, 12 dig. outputs,
4 analog inputs, 2 analog outputs
CANopen Master (2xRJ45)
Opt. Profibus-DP Slave

APS100



1 internal axis, 20 dig. inputs, 12 dig. outputs,
2 analog inputs, 2 analog outputs

APS114



I/O-extension module for direct mounting to
APS100 or APS300,
8 dig. inputs, 8 dig. outputs

APS133



I/O-extension module for direct mountig to
APS100 or APS300
6 analog inputs, 3 analog outputs

APS191



Profibus-module for APS100

APS40



Extension module with 40 I/O
16 dig. inputs, 16 dig. outputs,
8 configurable I/O

APS40IP



Extention module with 36 I/O
20 dig inputs, 16 dig. outputs

APS60



Extension module with 60 I/O
24 dig. inputs, 30 dig. outputs
4 analog inputs, 4 analog outputs
2 Relay outputs

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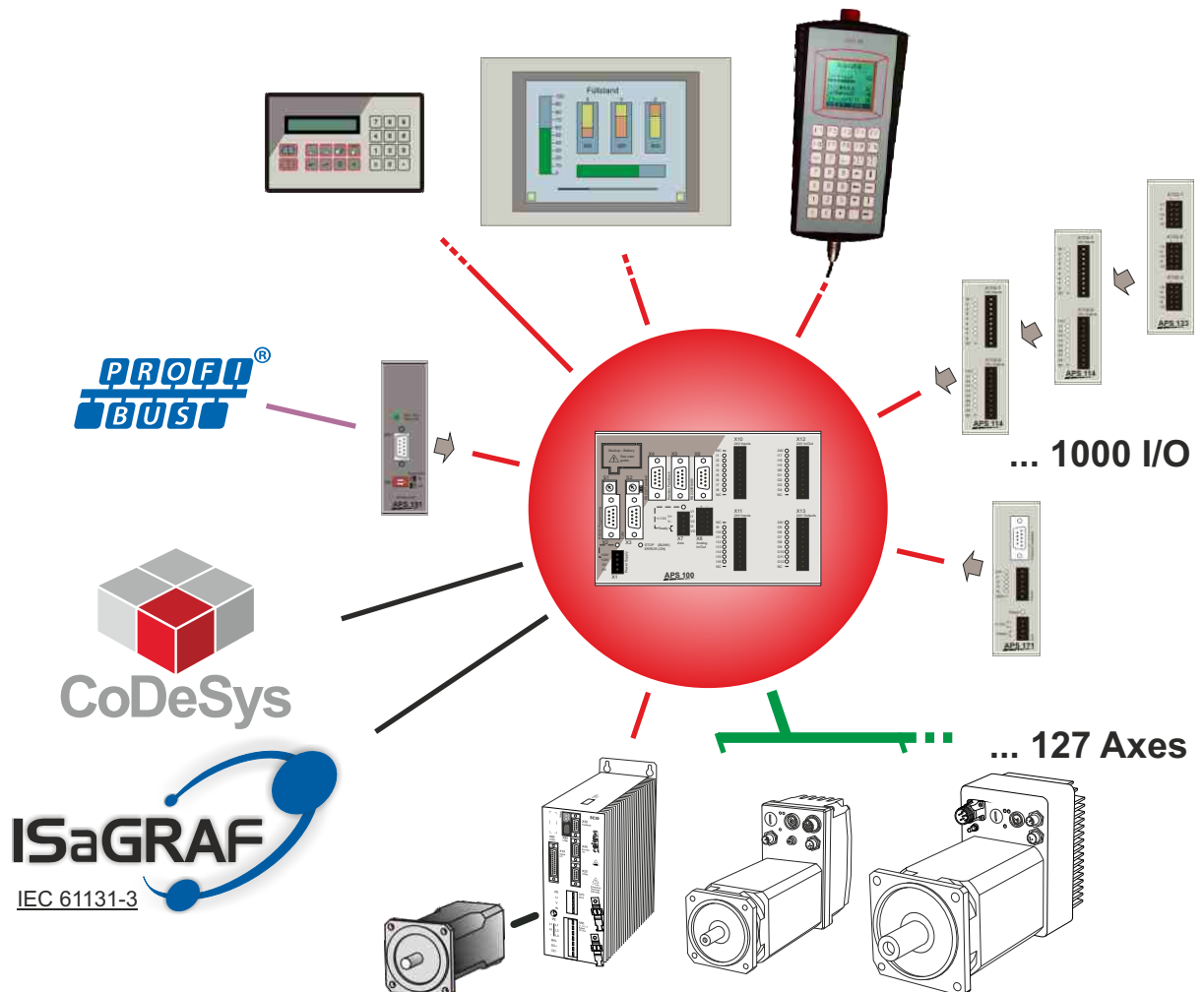


APS-System

Automation + Positioning + PLC

Modular Automation System

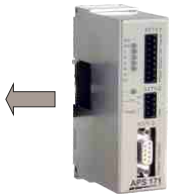
- Axis controller + PLC
- Control of external decentral axes
- Internal axis - or speed regulator
- Management of up to 127 axes
- IEC 61131-3 compliant programming
- Complete PLC - functionality
- Function blocks for positioning tasks
- 20 Digital inputs + 12 digital outputs (0,8A) on board
- 2 Analog inputs + 2 analog outputs on board
- Extension modules for more in- and outputs



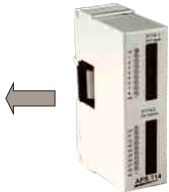
System components



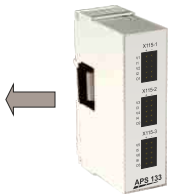
- APS100 Main module**
 1 position controlled axis, $\pm 10V$, for servo-, or hydraulic drives,
 encoder input for position feedback (incremental, SSI, transsonar)
 2 analog inputs, 20 digital inputs, 12 digital outputs, 1 analog
 auxiliary output, 1 relay output (drive enable)
 RS232 PC-Interface, RS232/RS485 Terminal interface, CAN-Bus
 Interface



- APS171 Axis module for direct mounting to APS100**
 1 position controlled axis, $\pm 10V$, for servo-, or hydraulic drives,
 4 axis related inputs



- APS114 digital I/O-module for direct mounting to APS100**
 8 digital inputs
 8 digital outputs



- APS133 analog I/O-module for direct mounting to APS100**
 6 analog differential inputs $\pm 10V$ or $\pm 20mA$
 3 analog outputs 0 - 10V



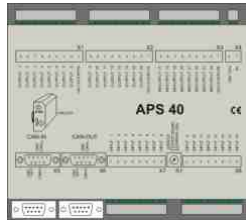
- APS191 Profibus-Module for direct mounting to APS100**



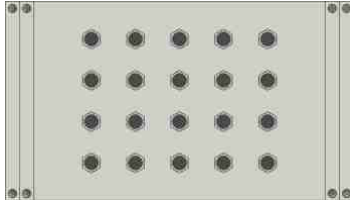
- APS300 main module**
 4 analog inputs, 20 digital inputs,
 2 analog outputs, 12 digital outputs,
 RS232 Programming-interface, RS232/RS485 Terminal interface,
 CANopen Master
 Axis control through CAN-Bus
 Optional integrated Profibus-DP Slave interface



- APS300 with Ethernet interface**
 with additional RJ45 Ethernet-programming interface for fast data
 transmission



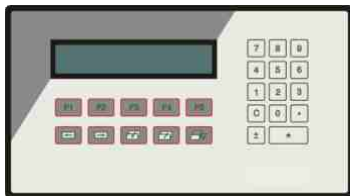
- **APS40 I/O-Module through CAN-bus connection**
16 digital inputs
16 digital outputs 0,8A
8 configurable in- / outputs



- **APS40IP I/O-Module through CAN-bus connection;**
Protection class IP66
16 digital inputs
16 digital outputs 0,8A
8 configurable in- / outputs



- **BT20/BT24 User terminal**
10 function keys (inscribable on BT24)
Numeric key block for number inputs
Illuminated display 2x24 characters



- **BT300 User terminal**
10 function keys
Numeric key block for number inputs
Illuminated display 4x40 characters



- **HBG10 Hand held user terminal**
35 free inscribable keys, 3-fold usable
Confirmation keys, optional with panic function;
Emergency-Stop,
Optional with hand-wheel, IP65
Illuminated display



- **Any user terminal with Modbus usable**

APS Functions



Positioning / Closed Loop Axis Controller

Function blocks are used to activate positioning and closed loop axis control.
The cycle time of the axis controller is constant, regardless of the PLC cycle time.

- Positioning servo or stepper motors absolute and incremental (absolute-/rel. positioning)
- Selectable sinusoidal¹ or linear ramp
- Synchronizing¹ and servo control¹
- Linear interpolation¹
- Dynamic and static play compensation
- Automatic homing
- Manual mode (forward, reverse, rapid, creep) with teach-in feature
- Lag error¹ and working range monitoring
- Detailed status checking (axis stopped, moving) and error messages

¹ for servo motor drive only



PLC

Numerous PLC functions

- Mathematical functions
- Logical functions
- Trigonometric functions
- Integral, hysteresis, etc.
- Realtime clock
- Multitasking
- Local and global variables: Boolean, analog, timer, character strings
- Jumps, labels, statements and loops
- Subroutine / function call

Memory APS100

	ISaGRAF	CoDeSys
Total	784k	832k
Program	512k	256k
Data	256k	448k
Variables non-volatile	16k	128k

Memory APS300

	CoDeSys
Total	774k
Program	510k
Data	256k
Variables non-volatile	8k



Operator Interface

- Output text and numeric values
- Direct keypad inquiry
- Formatted read-in of numeric entries



Computer Link

Max. 128 bytes data exchange via
Siemens Profibus-DP, RS 232 or RS 422
- 64 bytes for input data
- 64 bytes for output data



Programming

One PC software package for all tasks:

Positioning, PLC, automating, operator interfaces and computer linking. Programming is feasible in the standard programming languages according to the IEC 61131-3 standard:

SFC	Sequential Function Chart
ST	Structured Text
FBD	Function Block Diagram
IL	Instruction List
LD	Ladder Diagram
FC	Flow chart

Convenient development environment

- Windows 7, Windows 9x, Windows NT, Windows 2000, XP
- Project and program administration
- Test using simulator or directly in hardware using RS232
- Graphical diagnostic using actual display of variable values
- Common comprehensive function library for positioning commands and PLC functions
- Automatic program documentation

Diagnosis- and parametrizing software APS-COM available.

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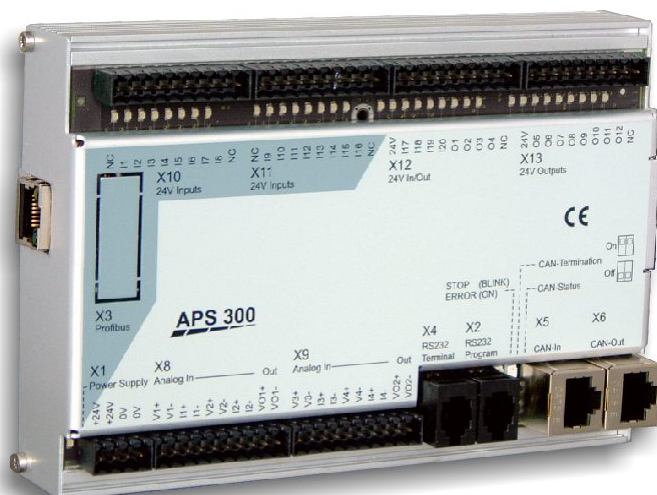
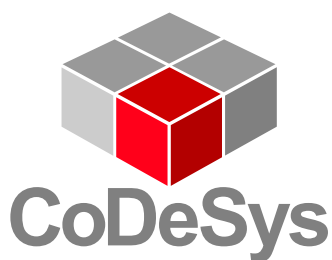
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APS300

Automation Positioning PLC

- Compact unit
- CANopen master
- Comprehensive PLC-functions
- IEC 61131-3 programmable (CoDeSys)
- Analog and digital in- and outputs
- LED status display
- Modular extensible
- Optional: Profibus-DP slave interface
- Optional: Ethernet programming interface
- Reduced wiring effort with sensor-actor plugs



The scalable APS-System grows to your demands.

The APS300 is a compact controller, programmable with CoDeSys. It has integrated analog and digital in- and outputs. Up to 7 extension modules can be plugged into its extension port. Further modules can be connected via CANopen. The CANopen master function allows the control of any slaves. There is a library available to communicate with drives.

Programming

There are graphical and text editors available under CoDeSys. All APS functions are supported in any programming language. The user may choose the language which suits him best.

Furthermore, there is free graphical editor (CFC). This means the elements can be placed anywhere.

Among the elements of the processing list are component, input, output, jump, label, return and comment.

SFC	Sequential function chart
ST	Structured text
FBD	Function block diagramm
IL	Instruction list
LD	Ladder diagramm
FC	Flow chart

Technical Data

General

- Power supply voltage 24 VDC $\pm$ 20% / 0,1 A (unloaded)
- Power fail safe parameter-memory (without battery)
- Dimensions (WxDxH): 165x115x40 mm

In-/Outputs

- 20 Digital inputs: 24 VDC
- 12 Digital outputs: 24 VDC, 0,5 A, short circuit proof
- 4 Analog inputs, 12 bit resolution, (0...10V / 0...20mA)
- 2 Analog outputs (0 - 10V, 12Bit, PWM, max. 5mA)

Miscellaneous:

- Realtime clock with 6 weeks power reserve
- Emission/Interference: EN61131-2 Zone B
- Ambient temperature: 0 - 50 °C
- Mounting on 35 mm DIN-rail
- weight: ca. 0,46kg

Memory:

- 510 kB Program memory
- 256 kB Data memory
- 8 kB retain variables

Interfaces:

- CAN, CiA compatible, RJ45 galvanic insulation internal supply switchable termination
- Profibus-DP Interface, Sub-D 9 (optional)
- RS232 Terminal interface
- RS232 Programming interface
- Ethernet Programming interface (optional)

Extension modules:

- Direct mounting: (up to 7 modules)
 - APS114: 8 digital inputs, 8 digital outputs
 - APS133: 6 analog differential inputs $\pm$ 10V or $\pm$ 20mA, 4 analog outputs 0...10V
 - APS171: axis module for 1 position controlled axis, $\pm$ 10V output, 4 axis related inputs
- Via CAN:
 - various I/O-modules, e.g. APS40, APS40IP, APS60, ...

Operator terminals

- HBG10: Handheld terminal with emergency stop and optional handwheel
Illuminated LCD-Display, 35 free inscribable function keys, multiple allocatable
- VTxx-series: Touchpanels, 4" - 12,1" screen, own intelligence, recipe memory
dynamic texts and pictures, backlight
- BT20/BT24: User terminal, function keys, number block
Illuminated 2x24 character display
- BT300: User terminal, 10 function keys, number block
Illuminated 4x40 character display
- Any terminal can be connected via Modbus.



APS-Com

Diagnostics and Parameter setting software for APS-Systems

- This information is not yet available electronically.
- If you're interested in this product, please contact your local dealer or Esitron under

sales@esitron.de.

Thank you for your understanding.

Sorry

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APS40IP

Extension module for APS-Systems

- 16 Digital Inputs 24V DC
- 16 Transistor Outputs 24V DC
- 8 Configurable in-/outputs 24V DC
- Supply voltage 24 V DC
- Fieldbus interface CAN,
Optional galvanically isolated from I/O- circuit
- IP66 Compact housing
- Direct Sensor / Actor connection through
M12- connectors



Picture: Custom specific partial assembly

Extension module APS40IP

Abstract

The APS40IP module extends the APS-System by 16 digital inputs, 16 digital outputs and 8 configurable in-/outputs.

With it's IP66 water protected housing it makes it feasible to access sensors and actors within a rough process environment. This remote I/O processing reduces the wiring effort and thus the potential of errors substantial.

Communication to the master module is accomplished through unsusceptible CAN-bus, which is optional galvanically isolated.

Integration into the APS-System through library functions provided by the APS-System's software is a cinch.

Technical Data

Power supply:

Control circuit:	24 VDC (18 ... 30 VDC)
Fieldbus:	24 VDC (18 ... 30 VDC)
Outputs:	24 VDC (18 ... 30 VDC)
Power consumption:	2,5 VA (Control circuit and fieldbus)

Digital inputs:

Number:	16 (+8)
Nominal value:	24 VDC
Voltage range for "0":	0 .. 3 VDC
Voltage range for "1":	12 .. 30 VDC

Digital outputs:

Number:	16 (+8)
Type:	Transistor outputs
Capability:	24 VDC, max. 0,8A Short circuit and overload protected.
Max. cumulative current per 8 outputs (1-8, 9-16, 17-24):	6A

Environment:

Working temperature:	0 .. +50° C
Storage temperature:	-20 ... +70° C
Protection class:	IP 66 (with fitted plugs)

Emission:	EN 50081-2
Susceptibility:	EN 50082-2

Housing:

Dimensions (BxHxT):	245x140x87mm (without M12- connectors and cable entrances)
Material:	Aluminium, painted
Mounting:	Wall mount

Connection:

M12- Initiator connector

Subject to changes.

BT20



Operator terminal for the APS-system
numerical key block
Illuminated display 2x24 characters

BT24



Operator terminal for the APS-system with 10
freely inscribable function keys
numerical key block
Illuminated display 2x24 characters

BT300



Operator terminal for the APS-system
numerical key block
Illuminated display 4x40 characters

HBG10



Hand-held operator terminal for the APS-system with 35 freely inscribable function keys
3-fold usable, Illuminated LC-display 2x24,
Emergency-stop, confirmation keys,
Protection class IP65

VTxx



Touchpanel for panel mounting
5 sizes, 6 types
Built-in Intelligence, Recipes memory
Dynamic texts and images

MHG102



All-purpose Handwheel in handy hand-held
housing

MHO100



All-purpose hand-wheel for for panel mounting

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BT20

OPERATOR TERMINAL

- 10 function keys
- free inscribable clear text display
2 x 24 characters, illuminated
- membrane keyboard with number block
- Supply voltage: 24 VDC $\pm$ 20 %, 0,2 A
- Protection class: IP 64 (front panel)
- Ambient temperature: 0 - 45 °C
- Dimensions (WxHxD): 213 x 133 x 75 mm



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BT24

OPERATOR TERMINAL

- 10 free inscribable function keys
 - free inscribable clear text display
2 x 24 characters, illuminated
 - membrane keyboard with number block
-
- Supply voltage: 24 V DC $\pm$ 20 %, 0,2 A
 - Protection class: IP 64 (front panel)
 - Ambient temperature: 0 - 45 °C
 - Dimensions (WxHxD): 226 x 142 x 75 mm



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HBG 10

Handheld Operator Terminal

Symmetrical design
for right- and
left-handed users

- Illuminated LCD-Display, 16 x 21 or 8 x 16 characters
- 35 markable key, 3-fold usable
- 2 enable keys
- Emergency stop switch
- High protection class IP65
- Connection to PLC, CNC (e.g. Siemens S7)
- Interfaces:
 - RS232, RS422
 - Profibus-DP
 - MPI
 - CAN-Bus (in preparation)
- Options:
 - 3-stage enable key (with panic function)
 - Hand wheel



Summary

The HBG10 is a rugged operating and display unit, especially for industrial application with PLC, CNC, handling machines and roboter controls.

The symmetrical housing is suitable left-handed as well as right-handed operators. The rugged housing is made of polyamide, impact resistant and resistant against water, various alcohols, oil, grease as well as against salty condensates. Protection class is IP 65.

The connection is made via a bayonet nut connector. The 35 inscribable keys give a tactile feedback. With the use of the shift-key up to 103 different functions are feasible. As standard, the HBG10 is delivered with emergency-stop and two enable keys.

The large illuminated grafical display is delivered with two character heights in standard model.

Options:

- Hand-wheel for sensitive positioning
- 3-stage enable key with panic function, conform to safety category 4

Accessories:

- Wallholder WH 10
- cable with assembled connector, length: 5 and 10 m

Technical Data:

Display	LCD, illuminated, 16x21 or 8x16 characters
Keys	35 with tactile acknowledgment, 3-fold usage
Key labeling	via insertion labels
Voltage supply	24 Vdc $\pm$ 20 % 150mA
Connector	Banyonet nut rapid coonector
Interfaces	
Profibus-DP	Optional
RS232	Optional
RS422	Standard
MPI-Bus	Optional
CANopen	in preparation
Protection class	IP65
Protection class	III (according to EN50178)
Emission	compliant to EN50081-2
Interference	compliant to EN50082-2
Operating temperature	0 - 50 °C (32° - 122 °F)
Dimensions	300 x140 x90 mm (HxWxD) (11,8 x 5,5 x 3,5 inch)
Weigth. ca.	850 g (30 oz)

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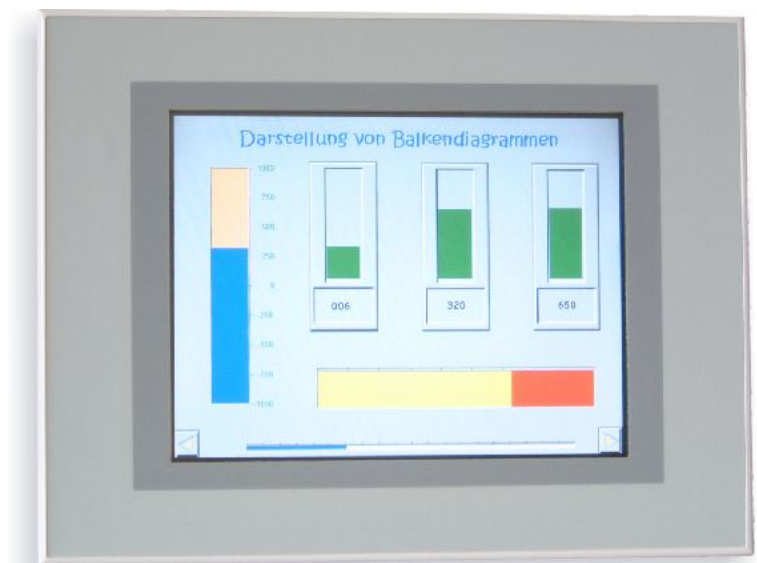


VTxx - Series

Touchpanel for panel mounting

4" - 12,1"
Screen diagonal
Front IP65

- 5 Sizes, 6 Types
- Built-in intelligence, Recipes memory
- Dynamic texts and images
- Alarm buffer
- 4 - 8 Projekt languages
- 10 Password levels
- 24V DC Supply
- Backlighting



Technical Data:

Display Type	VT155W	VT505W	VT525W	VT575W	VT585W	VT595W
Diagonal	4"	5,7"		7,5"	10,4"	12,1"
Display area size (mm)	94,5x54,5	115,2x86,4		158x118	211,2x158	246x185
Resolution	240x128	320x240		640x480		800x600
Display	Grey STN	Blue STN	Color STN	Color STN	Color TFT	
Tones/Colors	4	4	16	256		
Touch Screen Matrix	20x8	20x16		40x30		50x40
Cell dimension in pixels	12x16	16x15		16x16		16x15
Backlighting	LED	CCFL				
Min. lamp life backlighting*	-	45.000	50.000	15.000	30.000	50.000
Character set	Programmable fonts/TTF Windows					
Dimensions [mm]	166x100x40	210x158x54		246x189x38	336x256x44	
Cut-out [mm]	157x91	198x148		233x176	314x240	

* At 25°C ambience

Main Features	VT155W	VT505W	VT525W	VT575W	VT585W	VT595W
Project memory (Text+Graphic)	640k		960k	960k+6M		
Recipes/Alarm buffer (byte)	16k/8k Flash	16k/- Flash	32k/8k Flash	128k/8k Flash		
Project languages	4		6	8		
Password-levels/BitPasswort	10/8					
Pages/Fields per page	64/32	128/34	150/48	1024/256	1024/320	1024/400
Dynamic texts/List of images	Value depends on dimensions of project memory					
ISA-Alarms/Info-Messages	256/256	-/256	256/256	1024/1024		
Help messages (Pages/Info-Messages/Alarms)	64/256/256	128/256/-	150/256/256	1024/1024/1024		
Alarm history buffer	220	-	220	256		
Recipes (Number/Variables per recipe)	128/256			1024/512		
Trends (Memory/Number of samples)	-			6144/480	8192/640	
Pipelines (Number/total bytes)	-			64/512		
Macros (Number/commands per Macro)	1024/16					
Print pages (Total/no. of fields/page)	64/128	-	64/128	1024/128		
Max. bargraphs per page (taken together with fields)	32	34	48	256	320	400
Indicators, potentiometers, selectors per page	-			128	256	
Project images	BMP, JPEG, TIFF, PSD, WMF, PNG, EPS, ...					
Buttons per page	corresponding to the number of touch-cells					
Hardware clock	Super-Cap*	-	Super-Cap*			

* 72 hour power reserve

Overall Data:	VT155W	VT505W	VT525W	VT575W	VT585W	VT595W
Power supply	24V DC (18...32V)					
Protection class	IP65 Front					
Operating temperature	0...+50°C					
Storage/Transport temperature	-20...+60°C					
Humidity (non-condensing)	<85%					
Weight [kg]	0,5	1,4	1,4	1,5	1,9	2,1

Programming software VTWIN:

Just one software for all VT products:

- projects can swap terminals
- on line help, menus and manuals in 5 languages
- for Windows® 9x/NT/2000/ME/XP

Comes with:

- configuration cables for all terminals
- detailed hardware and software manuals in electronic format

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MHG102

Electronic Handwheel for Rotary Table Controllers CPS20 / CDS22 / CPS300

- 100 Impulses per revolution
- Break resistant ABS-plastics
- Magnetic detents every 3,6°
- Protection class IP65
- Selection switches X, Y, Z, 4 and x1, x10
- Green monitoring LED (nom 24V DC)
- Optional with additional emergency stop

RS422 Outputs



Example of use

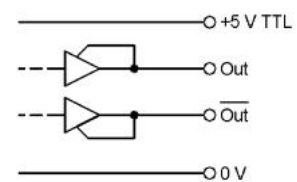
The handwheel MHG102 is a complete hand held unit with 100 Impulses/360° for die exact manual positioning of von machine tools. It features switches for 4 directions of motion (X, Y, Z, 4) and 2 different increments (x1, x10). The MHG102 is the ideal input unit for machine tools of all kinds.

Technical Data

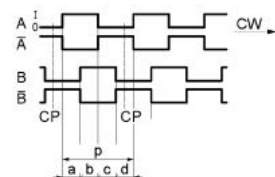
Mechanical values	
Scaling	1%
Revolution speed	max. 600 min ⁻¹
Torque	3 ... 6 Ncm
Load on axle	20N radial
	10N axial
Weight	0,4kg
Environment	
Vibration	150 ms ⁻² (55Hz / 2h)
Shock	490 ms ⁻² (11ms)
Working temperature	-10 ... +60°C
Storage temperature	-30 ... +80°C
Humidity	max. 90% r.h.
Protection class	IP65
Electrical values	
Signal acquisition	Optical, contact less
Supply voltage	+5V DC +/- 5%
	5 ... 12V DC
Current consumption	60mA typ.
Signal level	High = Vcc - 1V
	Low ≤ 0,5V (20mA)
Output capacity	20mA
Voltage resistance of outputs	+50V

Outputs:

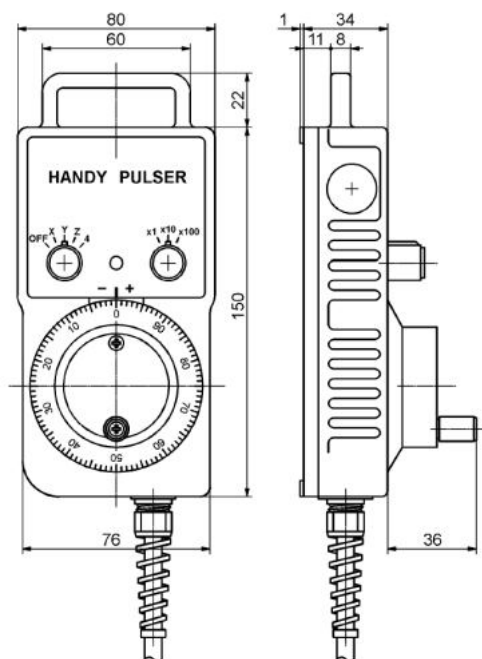
Circuitry:



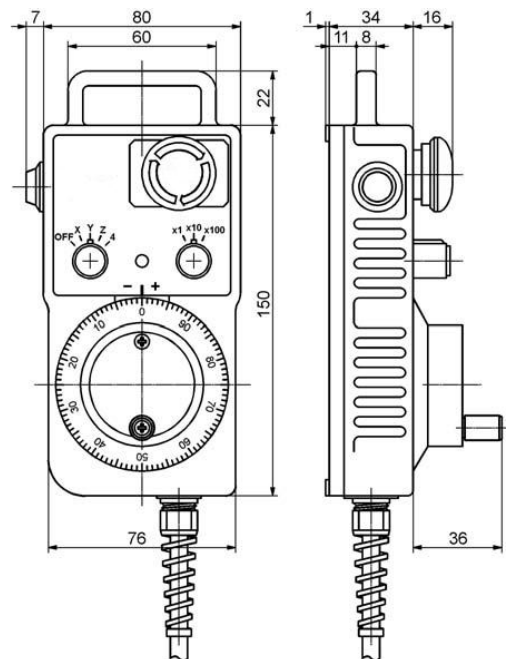
Impulse diagrams:



Dimensions:



With Emergency-Stop:



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Digital and Position displays

DM100



Large Display 4...8-digits, 100mm character height, legible from 50m distance

Available fieldbus-interfaces:

- Profinet-IO, Profibus-DP, EtherCAT, CANopen, RS485 Modbus

Available analogue interface:

- 0...10V, 0/4...20mA

DM57



Digital display 5-digit, 57mm character height legible from 25m distance

Available fieldbus-interfaces:

- Profinet-IO, Profibus-DP, EtherCAT, CANopen, RS485 Modbus

Available analogue interface:

- 0...10V, 0/4...20mA

DM6



Digital display 6-digit, 14mm character height legible from 5m distance

Available fieldbus-interfaces:

- Profinet-IO, Profibus-DP, EtherCAT, CANopen, RS485 Modbus

Available analogue interface:

- 0...10V, 0/4...20mA

M1-7



Compact built-in type unit for analog measurement

AM10



Position display for incremental and absolute (SSI + EnDAT) encoder as well as magnetostrictive linear position acquisition systems.

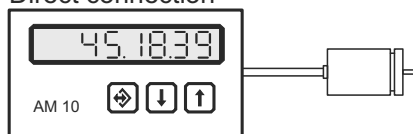
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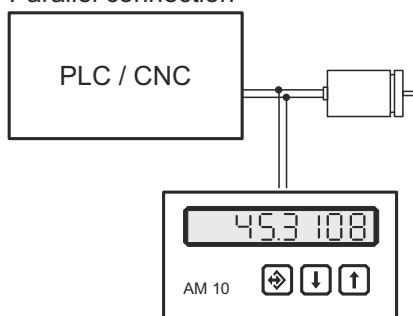
AM10

**Display module for incremental
SSI, Transsolar or EnDat 2.2 - encoders**

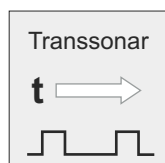
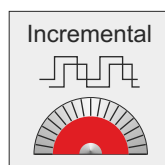
Direct connection



Parallel connection



- Wide display range (7 1/2 digits)
- Easy legible LED display (red, 14mm digit height)
- Scalable measurement (mm, inch, liter degree (decimal or minutes and seconds)
- Adjustable number of decimal places
- Adjustable zero point and counting direction
- 10...32 V DC supply voltage
- 2 multifunction digital inputs - alternative functions:
 - External zero-setting (relatively, absolutely)
 - Freeze display
 - Display minimal/maximal value
 - Enable keyboard
- 2 programmable relay outputs, each with a max. load of 1A(250 VAC) or 2A(24 VDC), possible functions:
 - Limit switch/comparator
 - Cam
 - Two-position-controller



SSI up to 32 Bit !

- Dimensions and cut-out according to DIN 43700:
 - Dimensions: 144 x 72 x 111 mm (W x H x D)
 - Mounting cut-out: 68^(+0,7) x 138^(+1,0) mm

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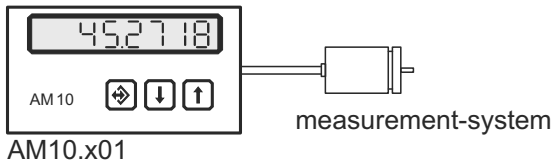
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E-Mail: info@esitron.de

Possible connections: direct or parallel

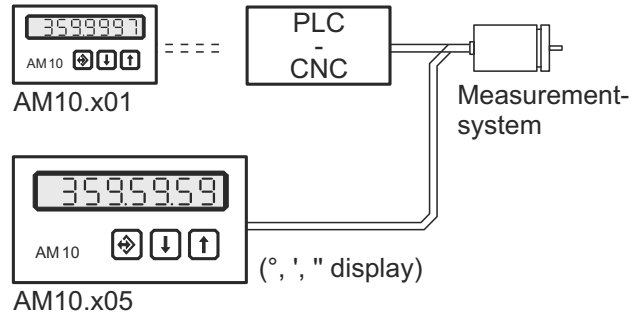
Direct connection

to various measurement-systems



Parallel connection

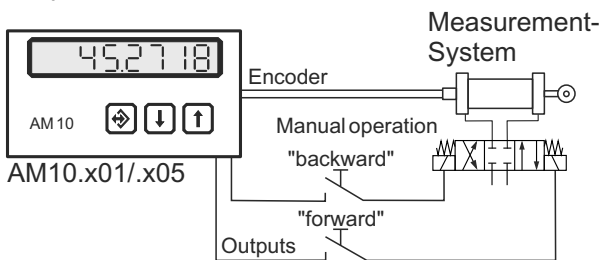
to other equipment like AM10 or PLC / CNC



Application examples

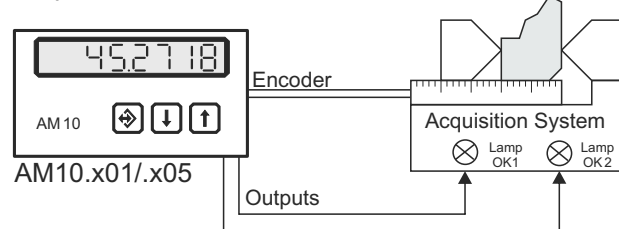
Displayunit with range-limiting function

Outputs with limit-switch function



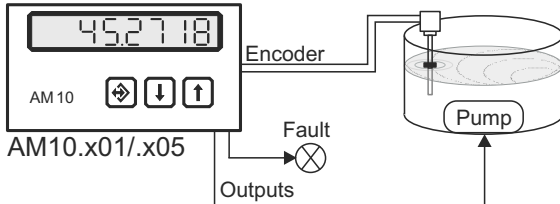
Measurement with tolerance monitoring

Outputs with cam-function



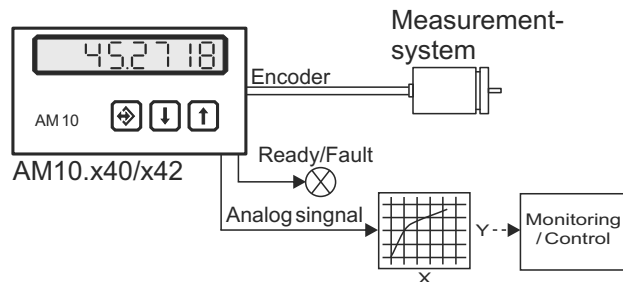
Level control with range monitoring

Outputs with cam and two-position controller



Interfacing analog systems

with optional 16 Bit analog output



Order data

- AM10.101** for incremental encoders, for direct as well as parallel connection
- AM10.201** for SSI absolute encoders (direct connection only) up to 32 Bit
- AM10.205** like AM10.201, for direct or parallel connection (adjustable)
- AM10.401** for ultrasonic encoders (direct connection only)
- AM10.405** like AM10.401, for direct or parallel connection (adjustable)
- AM10.701** for EnDat 2.2 - encoders, direct connection

Options

- AM10.xx6** 4 Transistor-outputs (+24 V, high-side switch)
 - AM10.xx7** like AM10.xx6, for direct or parallel connection (adjustable)
 - AM10.x1x** Delivers the displayed value to an RS232-Interface
 - AM10.x40** with 16 Bit analog output (selectable 0-10 V, 0-20 mA, 4-20 mA), supply voltage of 24 VDC +/- 20% required, with a "ready"-relay output, response of output can be defined freely within two points.
 - AM10.x42** like AM10.x40, for parallel connection only
 - AM10.x50** like AM10.x40, with RS232-Interface
 - AM10.x52** like AM10.x42, with RS232-Interface
- Further options on request

Accessories (Samples)

- AM10.xxx.2** Tabletop enclosure with integrated power supply (110 VAC/+24 VDC) and cord.
- 652.01014-0** Wall-plug (US-style), 110 V AC / +24 VDC, 0,5 A
- Encoders** Various measurement-systems on request.



DM 100

Display Module

- Large LED display (red, 100mm character height)
 - Large display area (4, 6, 8 digits)
 - Adjustable brightness
 - Direct display of signed numbers
 - Decimal point / decimals can be set
 - Colon switchable between every 2 digits
 - Direct control of individual digits with integrated character set
 - Flashing function of each digit
 - Direct control of individual segments feasible
 - Interfaces:
 - PROFIBUS-DP
 - PROFINET-IO
 - CANopen DS301
 - EtherCAT CoE
 - Modbus
 - Further interfaces on request
 - Setting of various operating modes via interface configuration
 - Test function integrated
 - 24 V DC Supply voltage (18 - 32 V DC)
 - Wall or ceiling mount aluminium enclosure
- Order options:**
- Brackets for wall or ceiling mounting
 - Assembled cables



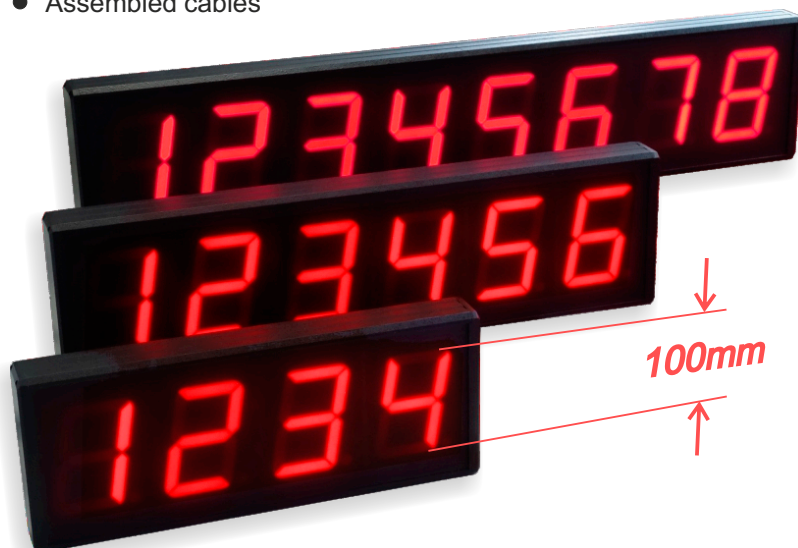
DM100/8

DM100/6

DM100/4



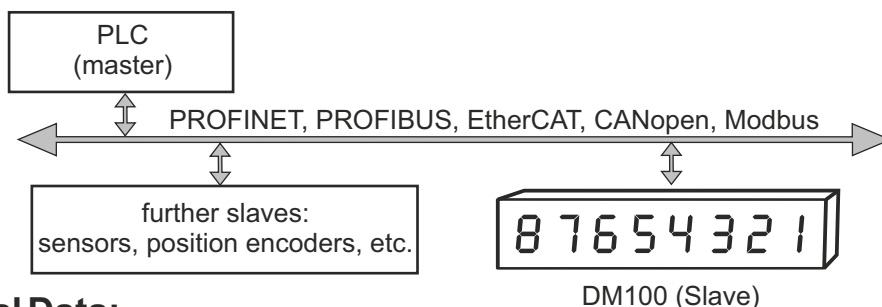
50m



Display Module DM100

The DM100 is a display module for PROFINET, PROFIBUS, EtherCAT, CANopen or Modbus. It can display any number, special characters and some letters. The 100 mm sized characters are well legible from a distance of 50 m. The display can easily be linked to any network via built-in interface. EtherCAT and CAN-versions support dynamic mapping. Connection is accomplished via common M12 circular plugs.

The data and values received from the master are converted and displayed on the 7-segment display. The integrated character set allows to display numbers directly with decimal places and signs as well as special characters and partially letters. The integrated flashing function offers the opportunity to display exceeding limits or alarm states effectively. Individual display segments can be activated as well as many other useful functions are available. The display module is therefore suitable for displaying any process data such as pressure, flow, positions, temperature, speed, counter values, etc. in large production environments.



Technical Data:

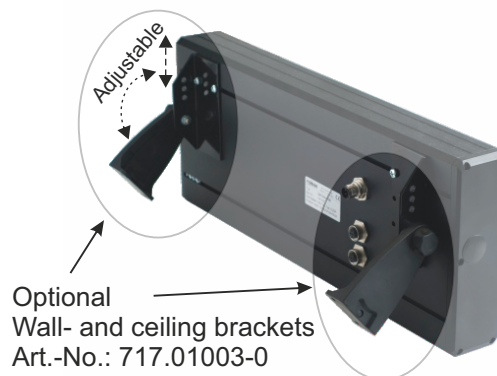
Display:	LED 7-Segment, red, 4, 6, 8 digits, 100 mm height				
Supply voltage:	24 V DC				
Admissible range:	18 - 32 V DC				
Ambience temperature:	0 ... 50 °C				
Storage temperature:	-20 ... +70 °C				
Humidity:	max. 90 %, non dewing				
Protection class (front):	IP51 (with vertical front panel)				
24V - connection:	M12 circular plug				
Interface:	PROFINET	PROFIBUS	EtherCAT	CANopen	RS485
Protocoll:	I/O-device	DP	CoE	DS301	Modbus
Configuration file:	GSDML	GSD	XML	EDS	-
Data rate:	10/100 MBit/s	... 12 MBd	10/100 MBit/s	... 1 MBd	... 115,2 kBd
Sync:	-	supported	-	supported	-
Freeze:	-	supported	-	-	-
Connection:	2x M12 switched	2x M12	2x M12	2x M12	2x M12
Termination:	-	external	-	external	external

Dimensions:



Digits	k
4	415
6	609
8	804

Further digits on request.



Order data:

DM100/x.100 Display module, PROFIBUS-DP
 DM100/x.400 Display module, CANopen
 DM100/x.500 Display module, Modbus
 DM100/x.600 Display module, EtherCAT
 DM100/x.700 Display module, PROFINET-I/O

x = number of digits

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DM 100

Display-Module

- Analogue 0/4...20mA DC, 0...10V DC
- Up/Down counter through 3 digital inputs 24V
- Scaling through factory setting or direct with sensor signal feasible
- Tare function
- Flashing function when exceeding limits
- Adjustable brightness
- Large LED - Display (red, 100mm character height)
- Large display area (4 ... 8 digits)
- Galvanically separated power supply
- Integrated test function
- 24Vdc Supply voltage (18 - 32 Vdc)
- Low profile wall or ceiling mount aluminium enclosure: 50mm without connectors

Order options:

- Brackets for wall or ceiling mounting
- Assembled cables



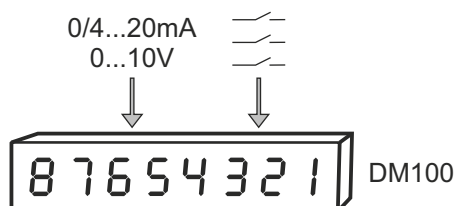
General

The DM100 is a display module for DC current and DC voltage signals with an visual limit monitoring. The scaling of the display value can be carried out via the minimum and maximum value directly on the device.

Alternatively, 24V pulses can be counted. There are three inputs for counting up, counting down and counter reset. The counting direction and edge is adjustable.

The connection is made using standard M12 circular connectors.

The 100mm high characters are legible from 50m distance. The display module is therefore suitable for displaying any process data such as pressure, flow, positions, temperature, speed, counter values, etc. in large production environments.



Technical Data:

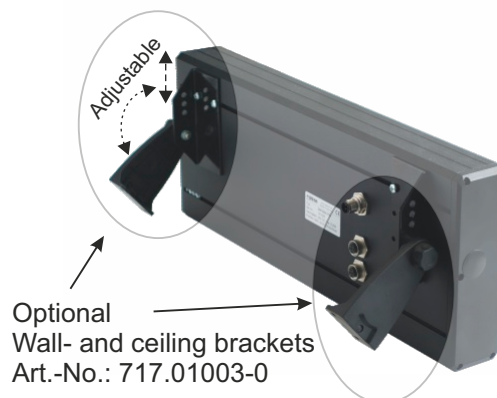
Display:	LED 7-Segment, red, 4 ... 8 digits, 100mm height
Supply voltage:	24 Vdc
Admissible range:	18 - 32 Vdc
Ambience temperature:	0 ... 50°C
Storage temperature:	-20 ... +70°C
Humidity:	max. 90%, non dewing
Protection class (front):	IP51 (with vertical front panel)
24V - connection:	M12 circular connector
Resolution	20 Bit
Error:	0,1%, +/- 1 digit
Max. Temperature drift	8ppm / K
Weight:	2,3kg / 3,5kg / 4,7kg (4 / 6 / 8 digits)

Dimensions:



Digits	k
4	415
6	609
8	804

Other digits
on request.



Order data: DM100/x.000 Display module

x = number of digits

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DM 57

Display Module

**Large display
57mm LEDs
legible
from 25m**

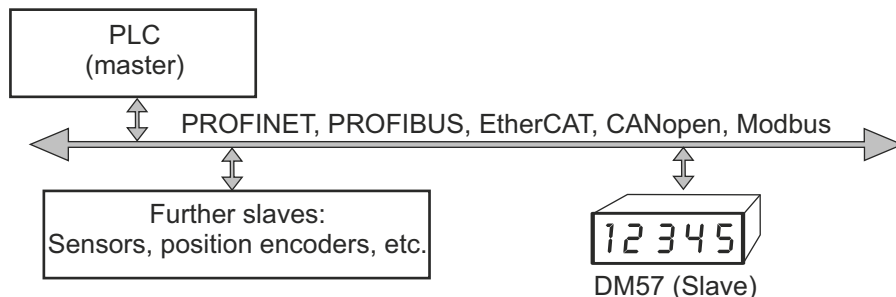
- Large LED display (red, 57 mm character height)
- Large display area (5 digits)
- Adjustable brightness
- Direct display of signed numbers
- Decimal point / decimals can be set
- Direct control of individual digits with integrated character set
- Flashing function of each digit
Direct control of individual segments feasible
- Interfaces:
 - PROFIBUS-DP
 - PROFINET-IO
 - CANopen DS301
 - EtherCAT CoE
 - Modbus RS485
 - Further interfaces on request
- Setting of various operating modes via interface configuration
- Test function integrated
- 24 V DC Supply voltage (18 - 32 V DC)
- Dimensions and cut-out according to IEC61554



Display Module DM57

The DM57 is a display module for PROFINET, PROFIBUS, EtherCAT, CANopen or Modbus. It can display any number, special characters and some letters. The 57mm high characters are well legible from a distance of 25 m. The display can easily be linked to any network via built-in interface. EtherCAT and CAN-versions support dynamic mapping. The RJ45 connectors for PROFINET and EtherCAT are equipped with link and activity LEDs.

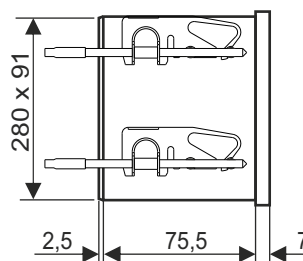
The data and values received from the master are converted and displayed on the 5-digit, 7-segment display. The integrated character set allows that numbers can be directly displayed with decimals and signs as well as special characters and partially letters. The integrated flashing function offers the opportunity to display exceeding limits or alarm states effectively. Individual display segments can be activated as well as many other useful functions are available. The display module is therefore suitable for displaying any process data such as pressure, flow, positions, temperature, speed, counter values, etc.



Technical Data:

Display:	LED 7-Segment, red, 5 digits, 57 mm height				
Supply voltage:	24 V DC				
Admissible range:	18 - 32 V DC				
Ambience temperature:	0 ... 50 °C				
Storage temperature:	-20 ... +70 °C				
Humidity:	max. 90 %, non dewing				
Protection class (front):	IP51 (with vertical front panel)				
24V - connection:	Screw-type plug-in terminals, wire up to 1,5 mm ²				
Interface:	PROFINET	PROFIBUS	EtherCAT	CANopen	RS485
Protocoll:	I/O-device	DP	CoE	DS301	Modbus
Configuration file:	GSDML	GSD	XML	EDS-	
Data rate:	10/100 MBit/s	... 12 MBd	10/100 MBit/s	... 1 MBd	... 115,2 kBd
Sync:	-	supported	-	supported	-
Freeze:	-	supported	-	-	-
Connection:	2x RJ45 switched	Sub-D 9 female	2x RJ45 switched	Sub-D9 male	Sub-D9 male
Termination:	-	external	-	external	external

Dimensions: Acc. to IEC 61554, cut-out 282^{+1,1} x 92^{+0,8} mm



Order data:

- DM57.100 Display module, PROFIBUS-DP
- DM57.400 Display module, CANopen
- DM57.500 Display module, RS485
- DM57.600 Display module, EtherCAT
- DM57.700 Display module, PROFINET-IO

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DM 57

Display-Module

- Analogue 0/4 ... 20mA DC, 0 ... 10V DC
- Up / Down-counter through 3 digital inputs 24V DC
- Scaling through factory setting or direct with sensor signal
- Tare function
- Flashing function for alarms
- Adjustable brightness
- Large LED - Display (red, 57mm character height)
- Large display area (5 digits)
- Supply voltage galvanically insulated
- Integrated test function
- 24Vdc Supply voltage (18 - 32 Vdc)
- Panelmount unit, low depth: 78mm without connectors

Order option:

- Pre-assembled cables

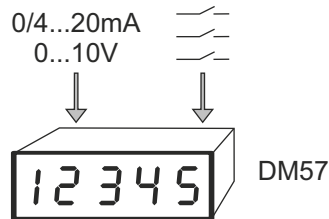


Display Module DM57

The DM57 is a display module for DC current and voltage signals with a visual alarm function for limits. The scaling is feasible through minimum and maximum value directly on the unit.

Alternatively, 24V pulses can be counted. There are three configurable inputs for counting up and counting down as well as counter reset. The counting direction and -edge is adjustable.

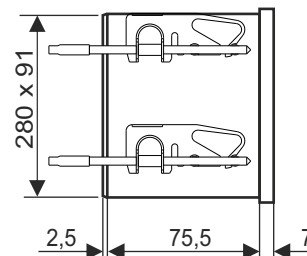
The 57mm high characters are well legible from 25m distance. The integrated flashing function offers the possibility to display exceeding limits very effective. The display module is therefore suitable for displaying any process data such as pressure, flow, positions, temperature, speed, piece counter, counter values, etc. in vast production areas.



Technical Data:

Display:	LED 7-Segment, red, 5 digits, 57mm height
Supply voltage:	24 Vdc
Admissible range:	18 - 32 Vdc
Ambience temperature:	0 ... 50°C
Storage temperature:	-20 ... +70°C
Humidity:	max. 90%, non dewing
Protection class (front):	IP51 (with vertical front panel)
24V - connection:	Srew-type plug-in terminals, wire up to 1,5mm ²
Resolution:	20 Bit
Measurement error:	0,1% +/- 1 digit
Max. Temperature drift:	8 ppm / K
Weight:	0,9kg

Dimensions: Acc. to IEC 61554, cut-out 282^{+1,1} x 92^{+0,8} mm



Order data: DM57.000 Display module

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DM 6

Display-Module

- Large LED - Display (red, 14mm character height)
- Large display area (6 digits)
- Adjustable brightness
- Direct display of signed numbers
- Decimal point / decimal places can be set
- Direct selection of individual digits with integrated character set
- Flashing function for each digit
- Direct selection of individual segments feasible
- Interfaces:
 - Profibus-DP
 - PROFINET-IO
 - CANopen DS301
 - EtherCAT CoE
 - Modbus RS485
 - Other interfaces on request
- Setting of different operating modes via interface configuration
- Integrated test function
- 24Vdc Supply voltage (18 - 32 Vdc)
- Dimensions and cut-out according to DIN43700

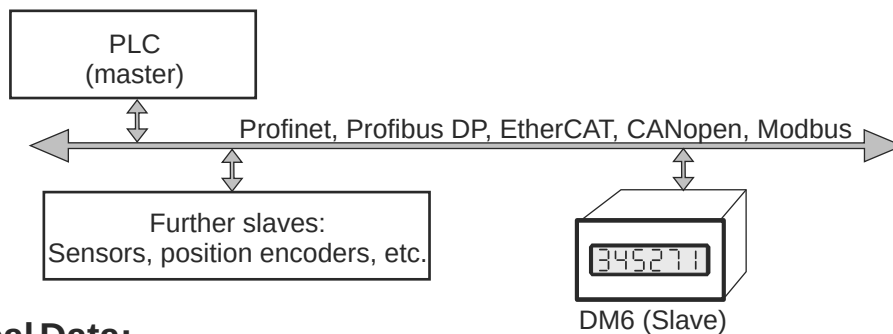
14mm LEDs
legible
from 5m!



Display Module DM6

The DM6 is a display module for Profinet, Profibus-DP, EtherCAT, CANopen or RS485. It can display any number, special characters and some letters. The 14mm high characters are well legible from 5m distance. The display can easily be linked to any network via the built-in interface. The RJ45 connectors for Profinet or EtherCAT are equipped with link and activity LEDs.

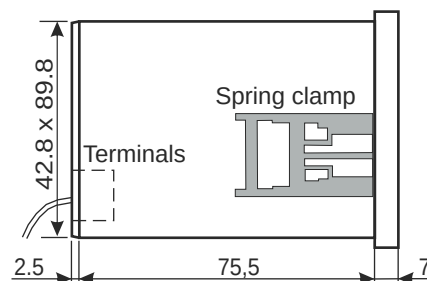
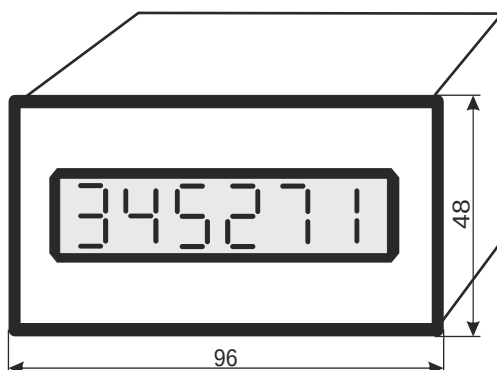
The data and values received from the master are converted and displayed on the 6-digit, 7-segment display. The integrated character set allows that numbers can be directly displayed with decimal places and signs as well as special characters and partially letters. The integrated flashing function offers the possibility to display exceeding limits or alarm states very effectively. The activation of individual display segments as well as many other useful functions are also available. The display module is therefore suitable for displaying any process data such as pressure, flow, positions, temperature, speed, counter values, etc....



Technical Data:

Display:	LED 7-Segment, red, 6 digits, 14mm height				
Supply voltage:	24 Vdc				
Admissible range:	18 - 32 Vdc				
Ambience temperature:	0 ... 50°C				
Storage temperature:	-20 ... +70°C				
Humidity:	max. 90%, non dewing				
Protection class (front):	IP64 (front, with vertical front panel)				
24V - connection:	Screw-type plug-in terminas, wire up to 1,5mm ²				
Interface:	Profinet (2-port)	Profibus	EtherCAT	CANopen	RS485
Protocoll:	I/O-device	DP	CoE	DS301	Modbus
Configuration file:	GSDML	GSD	XML	EDS	-
Data rate:	10/100MBit/s	up to 12 MBd	10/100 MBit/s	up to 1 MBd	...115,2kBd
Sync:	-	supported	-	supported	-
Freeze:	-	supported	-	-	-
Connection:	2x RJ45 switched	Sub-D9 female	2x RJ45 switched	Sub-D9 male	Sub-D9 mle
Termination:	-	switch./external	-	external	external

Dimmensions: Acc. DIN 43700, cut-out 45^{+0,6} x 92^{+0,8} mm



Order data:

- DM6.100 Displaymodule, Profibus-DP
- DM6.400 Displaymodule, CANopen
- DM6.500 Displaymodule, RS485 Modbus
- DM6.600 Displaymodule, EtherCAT
- DM6.700 Displaymodule, Profinet

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DM 6

Display-Module

- Analogue input 0/4...20mA DC, 0...10V DC
- Up/Down counter with 3 digital inputs 24V
- Scaling through factory setting or direct with sensor signal
- Tare function
- Flashing function for alarms
- Adjustable brightness
- Large LED - Display (red, 14mm character height)
- Large display area (6 digits)
- Supply voltage galvanically insulated
- Integrated test function
- 24Vdc Supply voltage (18 - 32 Vdc)
- Dimensions and cut-out according to DIN43700

Order options:

- Pre-assembled cables

**14mm LEDs
legible
from 5m!**



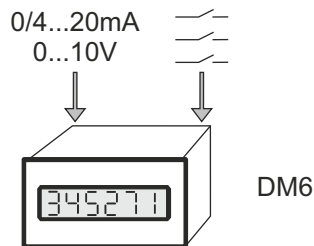
Display Module DM6

The DM6 is a display module for DC current and DC voltage signals with an visual limit monitoring. The scaling of the display value can be carried out via the minimum and maximum value directly on the device.

Alternatively, 24V pulses can be counted. There are three inputs for counting up and counting down as well as counter reset. The counting direction and edge is adjustable.

The connection is made via screwable plug-in terminals.

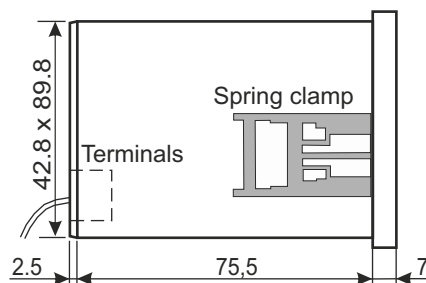
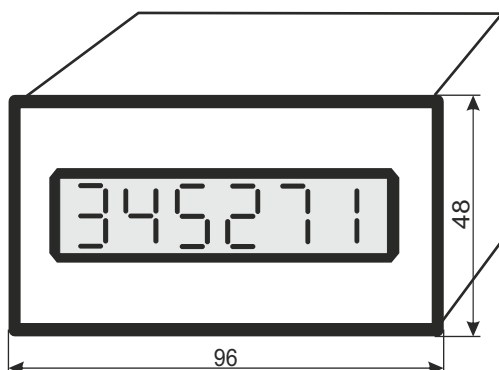
The 14mm high characters are well legible from 5m distance. The display module is therefore suitable for displaying any process data such as pressure, flow, positions, temperature, speed and counter values.



Technical Data:

Display:	LED 7-Segment, red, 6 digits, 14mm height
Supply voltage:	24 Vdc
Admissible range:	18 - 32 Vdc
Ambience temperature:	0 ... 50°C
Storage temperature:	-20 ... +70°C
Humidity:	max. 90%, non dewing
Protection class (front):	IP64 (front, with vertical front panel)
24V - connection:	Screw-type plug-in terminas, wire up to 1,5mm ²
Measurement error:	0,1% +/- 1 digit
Weight:	0,4kg

Dimmensions: Acc. DIN 43700, cut-out 45^{+0,6} x 92^{+0,8} mm



Order data: DM6.000 Displaymodule

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M1-7

4 Digit Digital Meter

- 10mm red LED Display range -1999 ... 9999
- Supply voltage galvanically insulated
- Min-/Max-Value acquisition
- Tare function
- Zeropoint calming
- Code-protected programming
- IP65 at front
- Measurement:
 - DC - Voltage
 - DC - Current
 - DC - Voltage with shunt
 - Resistance, Potentiometer
 - Thermocouple
 - PT100 (2+3 Wire)

Small and compact
48 x 24mm



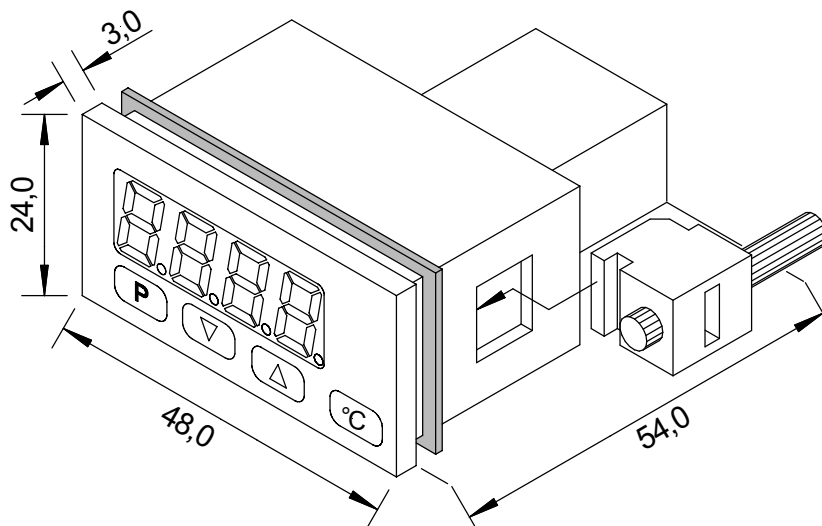
M1-7

Compact display unit for analog measurement.

Technical Data:

Measurement rate	0,1 ... 10 sec
Measurement error	+/- 0,1% of measurement value, +/- 1 Digit
Temperature coefficient	~100ppm/K
Supply votage	24Vdc +/-10% galvanically insulated
Power consumption	ca. 1 W
Connection	On the backside with plugable clamps up to 2,5mm ²
Ambience temperature	0 ... +60°C
Storage temperature	-20 ... +80°C
Dimensions	48x24x54 mm(WxHxD) (including clamps)
Cut out	45,0 ^{+0,6} x 22,2 ^{+0,3} mm
Mounting	Screw-element for panel-thickness up to 3mm
Protection class	IP65 Front
	IP00 Back
Weight	ca. 50g

Dimensions:



Order code:

Type No.	Measurement	Range
M1-7V		
.R4A0001	DC-Voltaage, DC-Current	+/-10V; 0/4...20mA
.R4A0002	DC-Voltage (Shunt)	60mV; 150mV
.R4A0005	Poentiometer	1kΩ ... 100kΩ
.R4A0806	Resistance	1kΩ
.R4A0506	Resistance	10kΩ
.R4A0606	Resistance	100kΩ
.R4A0706	Resistance	1MΩ
M1-7T		
.R4A030C	PT100 (2-/3- wire)	-200°C ... 850°C
.R4A040X	Thermocouple	Type B, E, J, K, L, N, R, S, T

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Cam controller

CC8/CC16



All-purpose cam controller for linear or rotative applications.
Seperately adjustable dead-time compensation for each cam.

DNS20



Dynamic cam controller with speed dependant dead-time compensation. 12 (external 10) programmable cams.

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CC 8 / CC16

Universal Cam Controller for linear or rotary (0 ... 360°) applications

- 8/16 cams/outputs programmable (CC8/CC16)
- Multiple switchpoints for each cam supported
- 300 switchpoints can be distributed over 15 programs
- Direction-dependent switchpoints possible
- Dynamical dead time compensation for each cam adjustable
- TDC or tool/null point correction separat adjustable
- Parallel connection of several CC8/CC16 is feasible
- Indication of the cam status on front panel LED's
- Easy legible LED display (6 digits, red, 14 mm digit height)
- Pos. Acquisition: SSI -, transsonar - or incremental sensors
- Teach-In programming supported
- Integrated sensor supply 5 V or 24 V
- Small seated size
- Optional serial interface for host programming



Ordering data:

CC8.xxx
CC16.xxx
CCxx.101
CCxx.201
CCxx.401
CCxx.x1x

Cam controller with 8 outputs (Cams)
Cam controller with 16 outputs (Cams)
for incremental measurement system
for absolute SSI measurement system
for transsonar measurement system
Optional RS232 Interface

esitron-electronic GmbH

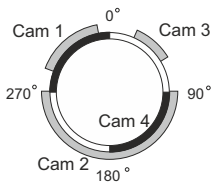
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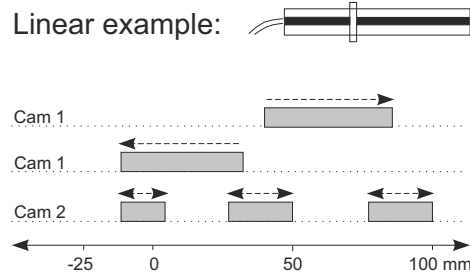
Cam controller CC8 / CC16

The CC8/CC16 are modern programmable cam controllers for linear or rotary applications. Due to their fast cycle time of 1ms the CC8/CC16 are ideal for fast running machines. All common position feedback systems are supported. A large LED display and numeric keyboard provide quick and simple operation. Passwords and an input for a key switch assure protection against use by unauthorized personnel. The units are packaged in a compact standard housing for easy panel mount.

Rotary example:



Linear example:

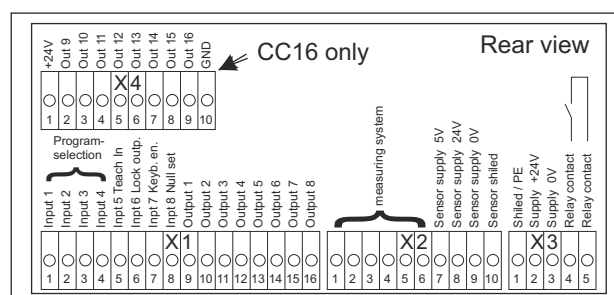
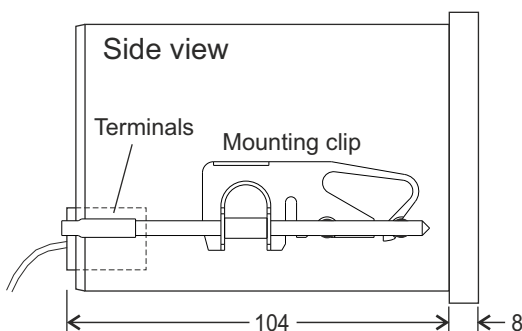


Cams	Switchpoints	
1	290° on	350° off
2	90° on	270° off
3	30° on	60° off
4	90° on	180° off
4	270° on	0° off

Cam	Switchpoint / mm		Direction
1	40 on+	85 off+	positive
1	30 on-	-10 off-	negative
2	-10 on	5 off	both directions
2	25 on	50 off	
2	75 on	100 off	

Technical Data CC8 / CC16

Display:	LED 7-Segment display, 6 red digits, 14 mm height
Input:	Membrane keys with numeric keypad, lockable externally
Switchpoints:	300
Programs:	up to 15 (externally selectable)
Digital inputs:	8 inputs 24 V DC
	External program selection
	Teach-In
	Lock (disable) outputs
	Keyboard enable
	Null set
Outputs/cams:	8(CC8) resp. 16(CC16) digital transistor-outputs 24 V DC/1 A
	short circuit protected and current limited
Ready:	Potential-free contact (normally open)
	Contact load capacity 24 V/1 A
Pos. Acquisition:	- Incremental max. 250 kHz (internal 4 x interpolated)
	- SSI from 8 to 32-bit data word length
	- Transsolar P-interface Resolution 50 µm
Supply voltage:	18 ... 32 V DC, ca. 0,3 A (no load on outputs)
Sensor supply:	5 V or 24 V 300mA
Operating temperature:	0 ... 50°C
Connectors:	Plugable screw terminals
	Conductor cross sections up to 1,5 mm²
Dimensions:	Dimensions and cut-out according to
	DIN 43700 144x72x112 mm (wxhxd)
Cutout:	68 ^{+0,7} x 138 ^{+1,0} mm





DNS20

Dynamic Cam Controller

- Dead-time compensation adjustable for each cam
- 2 ON and OFF switchpoints each cam
- 12 cams freely programmable
- Feed monitor assignable to each cam
- Ejection monitor assignable to each cam
- Teach-In programming feasible
- Assignable inputs



Order data:

DNS20.000.242.2
DNS20.000.252.2
AG1-4096-5

Cam controller standard
Cam controller with RS232 interface
Absolute encoder 4096 increments each rev.

DNS 20 Dynamic cam controller

Electronic cam controller for universal applications based on a high performance micro-controller.

Keyboard panel, position controller and processing unit are combined to a very compact device, therefore easy to embed into a control console or 19" rack.

Only a SSI absolute encoder is required to get the system ready to run.

Easy and comfortable handling and programming by keyboard and menu-based clear text display (no codings).

Dynamic dead-time compensation means rpm-dependent shifting of switchpoints to compensate for response time of peripherals. Adjustable for each cam.

- Selection of operating mode is menu-driven
- Clear text display (illuminated)
- All parameters freely programmable
- Password protected machinery parameters
- Machinery specific adaptations
- 99 Programms can be stored (power-fail safe)
- Output state is displayed
- rpm and angle is displayed

- Automatic run external preselectable
- Programm selection through keyboard or host-computer
- Teach-in mode during programm run can be externaly locked out.
- Manual change of switchpoints during programm run possible
- Absolute position acquisition (SSI-interface) therefore no reference run neccessary.
- Diagnosis with clear text messages.
- High noise immunity through electrically insulated inputs and outputs.
- Short-circuit proof transistor outputs
- Connectors for good serviceability.

Options:

- Programm selection via serial Interface (RS232C)

Applications:

- Switching
- Controlling
- Positioning
- Monitoring

Technical Data DNS 20

Input	Membrane key with tactile acknowledgement	Number of cams	12 (10 external)
Display	LCD - Display (clear text) 2 x 24 charact. illuminated for angle, rpm and ouput-state.	Number of switchpoints	2 On- /2 Off-switchpoints each cam.
Programms in memory	99 (power-fail safe)	Input-functions	max. 8 e.g. Tool monitoring Feed monitoring Ejection monitoring
Position acquisition	Absolute encoder with SSI-interface	Inputs	8 Inputs; 24 V; 10 mA with selectable functions (e.g. key-switch, etc.)
Max. resolution	0,2 degree (11 Bit)	Outputs	10 Outputs; 24 V; 0,8 A
Dead-time compensation	0 - 999 ms separately programmable for each cam.	Connections	plug, spring-type terminal
Response time	500 µs	Power supply	24 V DC approx. 0,3 A Optional: mains module 230 V; 50 Hz
		Ambient temperature	0 ... + 50°C
		Dimensions (WxDxH)	213 x 133 x 75 mm

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AG1



Absolute encoder, single turn 4096 steps, SSI, IP65

AG25



Absolute encoder, multi turn, 8192 steps/rev. 4096 revs, IP64/IP67 (axis/housing)

DG58



Incremental encoder up to 10000 steps/rev. max. 6000 rpm

DGU02



Switch-over for 2 incremental encoders DIN-rail mount

MA205



Measurement lever for encoders

MR500



Measurement wheel with tongs

Support



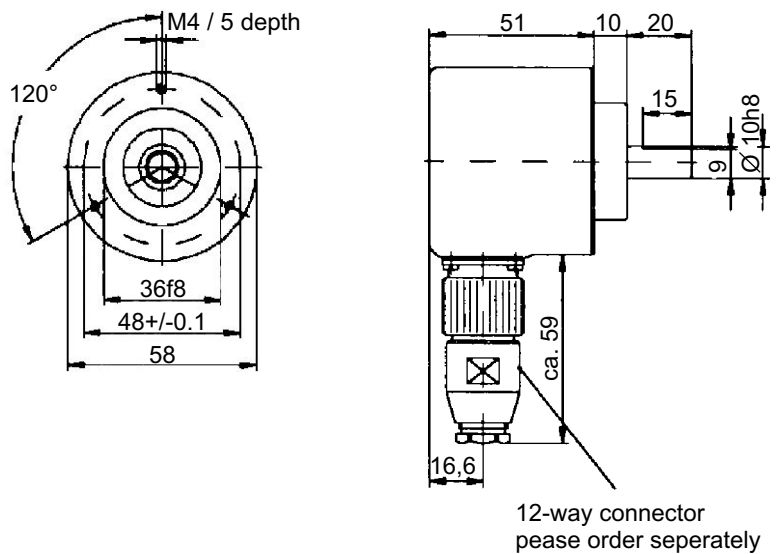
Support unit for encoders with damping elements.

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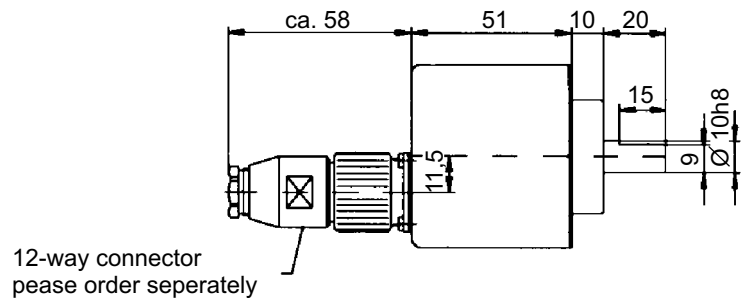


Absolute encoder AG 1

Absolute encoder
AG1-4096-5-3 (SSI)



Absolute encoder
AG1-4096-5-2 (SSI)



Technical Data:

Supply voltage:	5 V DC +/- 10 %, (max. 120 mA)
Resolution:	12 Bit = 4096 steps/rev.
Number of revolutions:	1
Dataformat:	SSI, Gray-Code
Speed:	max. 1500 min ⁻¹ (mechanical 6000 min ⁻¹)
Axial load:	< 20 N
Radialload:	< 40 N
Vibrations:	IEC 68 part 2-6; <= 100 m/s ² / 16-500 Hz
Shock:	IEC 68 part 2-27; <= 1000 m/s ² / 4 ms
Ambient temperature:	0°C ... +60°C (32°F ... 140°F)
Protection class:	IP 65
Interference:	EN 50082-2
Emission:	EN 50081-2

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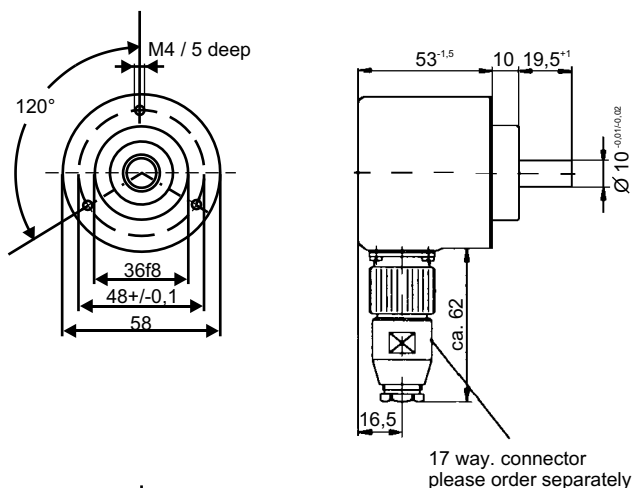
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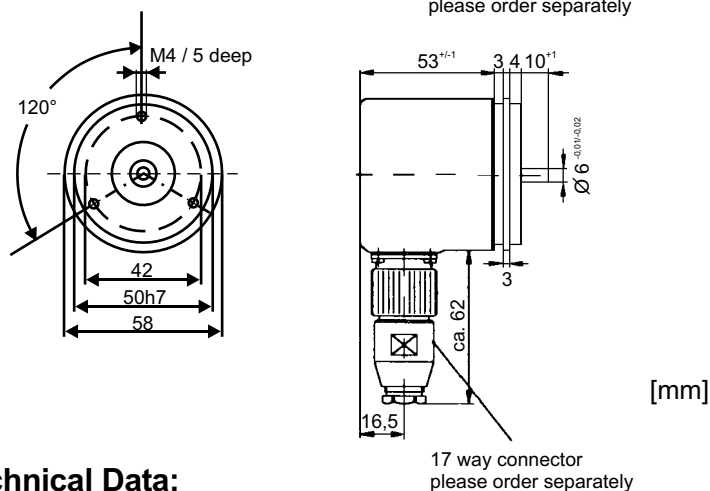


Absolute encoder AG 25 (Multiturn)

Absolute encoder
AG25-8192-24-3 (SSI)



Absolute encoder
AG25-8192-24-6 (SSI)



Pinning

Pin:	Function:
8	Clock+
9	Clock-
14	Data+
17	Data-
7	+24 V supply
10	GND / 0 V
Housing	Shield

Technical Data:

Supply voltage:	10-30 V DC (max. 250 mA)
Resolution:	13 Bit = 8192 steps/rev.
Number of revolutions:	4096
Dataformat:	SSI, Gray-Code
Speed:	max. 6000 min ⁻¹ (mechanical 10000 min ⁻¹)
Axial load:	< 40 N
Radialload:	< 60 N
Vibrations:	IEC 68 part 2-6; <= 100 m/s ² / 55-2000 Hz
Shock:	IEC 68 part 2-27; <= 1000 m/s ² / 6 ms
Ambient temperature:	-20°C ... +85°C (-4°F ... 185°F)
Protection class:	IP 67 (Housing) / IP64 (Axle)
Interference:	EN 50082-2
Emission:	EN 50081-1

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DG 58

Incremental Shaft-Encoder

- Rugged aluminium-housing
- High shock- and vibration tolerance
- up to 10000 Incr./rev.
- 6 short circuit-proof outputs
- Servo- or clamping flange
- IP67 on housing
IP66 on axle
- Suitable for outdoor applications

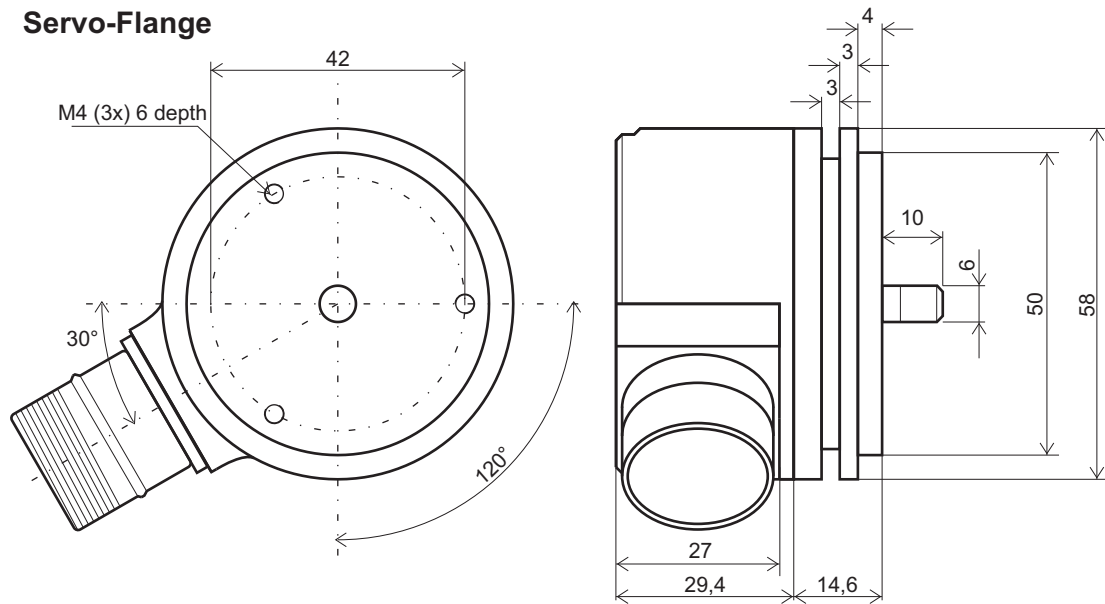


Order code: DG58-lpr-5-0x

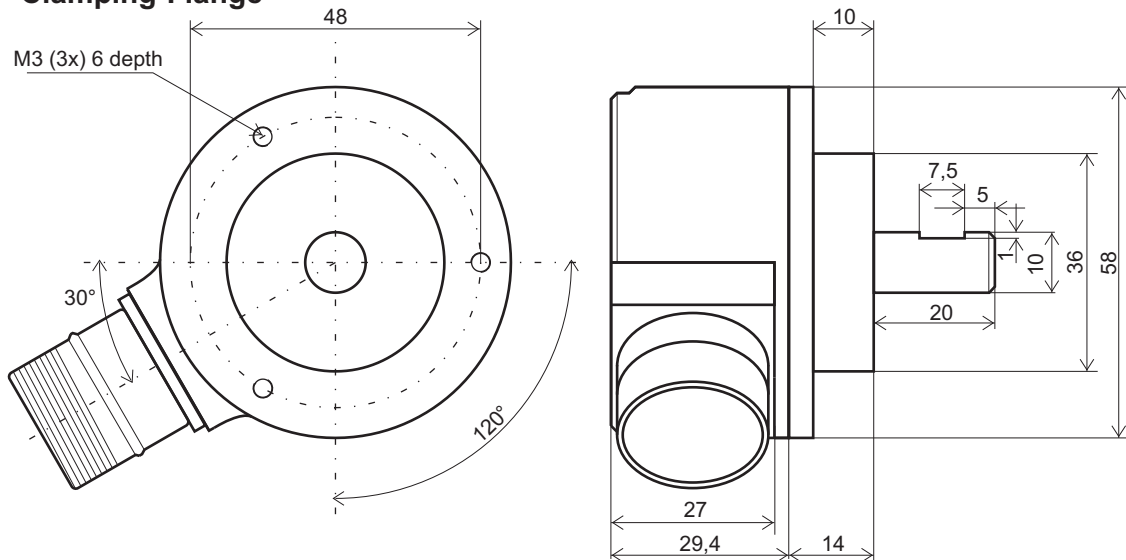
- 02 - Clamping-flange
- 03 - Servo-Flange
- 5V-supply
- 1000/5000/10000 Incr./rev.

Dimensions

Servo-Flange



Clamping-Flange



Technical Data:

Supply voltage: 5 V DC, (max. 75 mA)
 Resolution: up to 10000 Increments/rev.
 max. rpm: 6000 1/min mechanical
 operating speed: (n+60)•resolution < 250kHz
 Interface: RS422, 5V Level

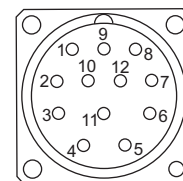
Max. axial load: < 50 N
 Max. radial load: < 60 N
 Vibrations: 15g/55...2000Hz
 IEC 60068 part 2-6
 Shock: 200g/6ms
 IEC 60068 part 2-27

Ambient temperature: -40°C ... +70°C
 Protection class: IP 67 (IEC 60529)

Pin assignment:

Pin:	Function:
5	Ch A
6	Ch A inv.
8	Ch B
1	Ch B inv.
3	IP
4	IP inv.
12	+5 V Supply
10	GND / 0 V
7	Status (Optional)
Housing	Shield

View on
Pins



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DGU 2

Encoder changeover switch

Switching between two incremental encoders

- Contactless electronic changeover through 24V DC signal
- Connection of measurement wheel or incremental encoder with 5 V supply voltage
- DGU 2 - supply is made through encoder supply
- DIN rail mount



Order data:

DGU 02

Power supply DGU2 (via X3)

Supply voltage: $5\text{ V}_{\text{DC}} \pm 5\%$
 Supply Current: ca. 0,2 A + 2 x encoder supply,
 independent of switchover signal

Switchover signal (X4)

Input current
 at 24 V: 6 mA

Encoder input (X1, X2)

Encoder supply: $5\text{ V} / 0,3\text{ A}$
 Max. frequency: 250 KHz
 Level: Balanced singals acc. RS422

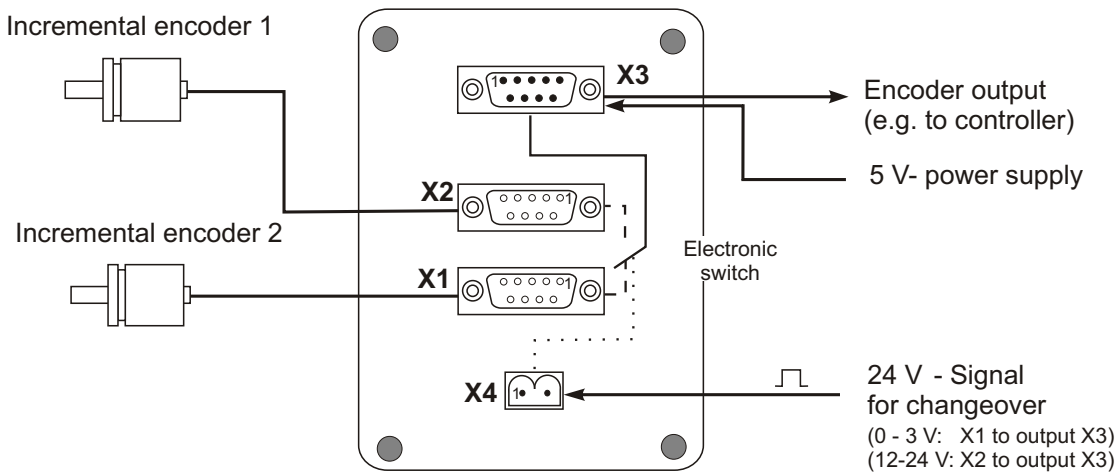
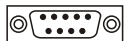
General

Ambient temperature: $0 \dots 50\text{ }^{\circ}\text{C}$
 Storage temperature: $-20 \dots 70\text{ }^{\circ}\text{C}$
 Housing: Aluminum
 Dimensions (WxDxH): $64 \times 36 \times 98\text{ mm}$
 Protection class: IP 30
 Mounting: DIN rail mount

Terminal plugs

X4: Spring-force connector plug
 X1, X2: Sub-D-connector female, 9 pin
 X3: Sub-D-connector male, 9 pin

Encoder changeover switch DGU 2

**Pin assignment**

X1, X2, X3



X4

- 1 Channel B
- 2 Channel B inverted
- 4 Channel A
- 5 Channel A inverted
- 6 GND
- 7 Index channel inverted
- 8 Index channel
- 9 5 V power supply

- 1 Changeover signal voltage + 24 V
- 2 Changeover signal voltage 0 V



Encoder accessories

Measurement lever MA205



Measurement wheel MR500



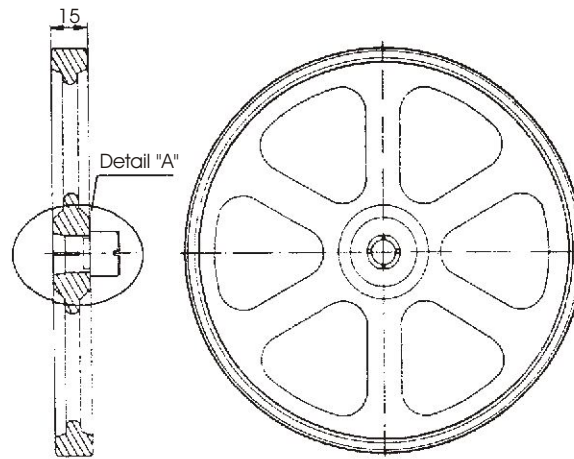
Measurement wheel MR 500 with tongs

MRM500

Surface hard anodised
ca. 700 HV
Perimeter 500mm +/- 0,3mm

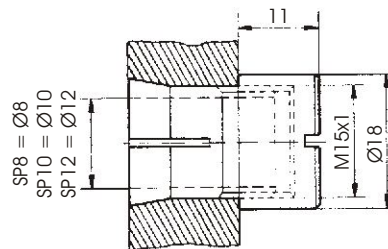
MRG500

Surface coating rubber coated
Perbunan
ca. 70 Shore
Perimeter 500mm +/- 0,8mm

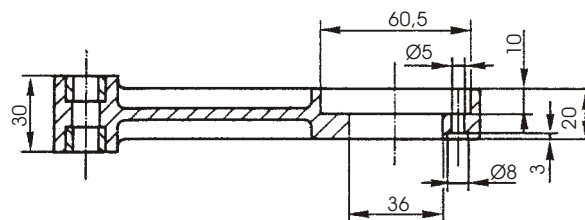
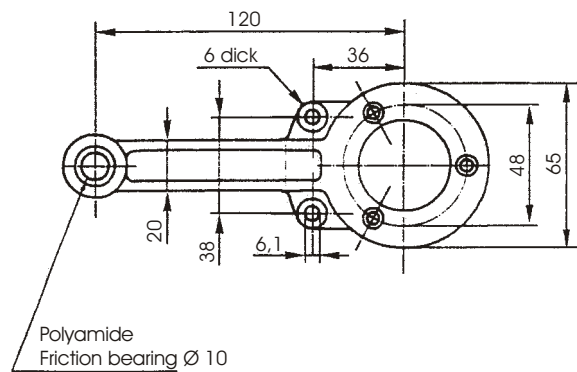


Material: AL225

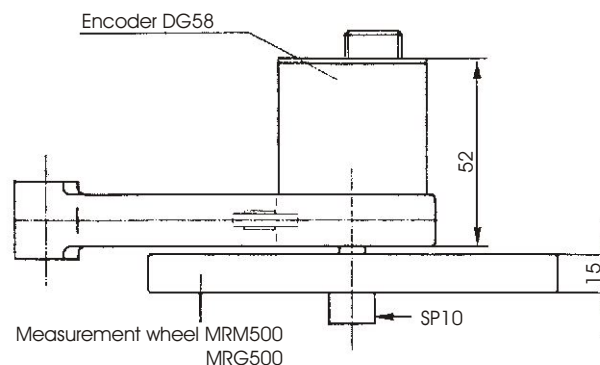
Detail "A" tongs



Measurement lever MA 205 for encoder Ø 60



Measurement lever MA 205 with mounted encoder and measurement wheel MR 500



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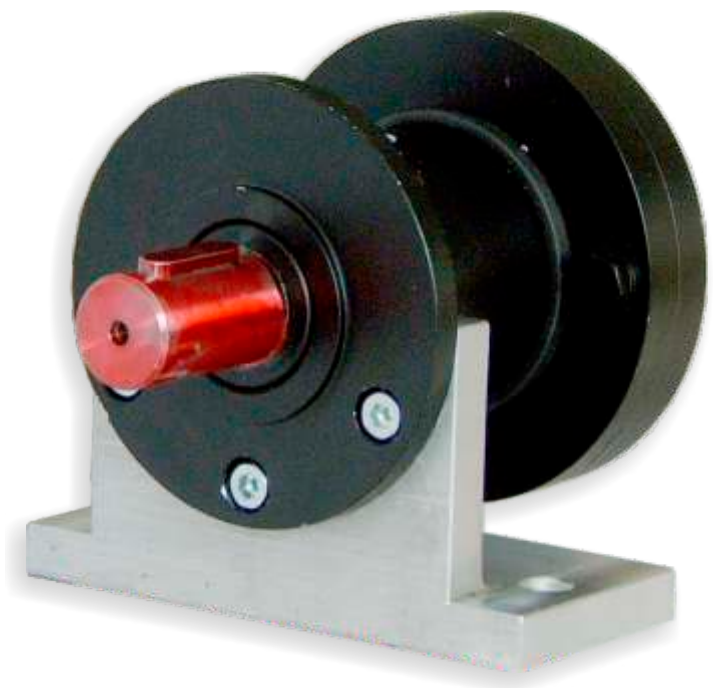


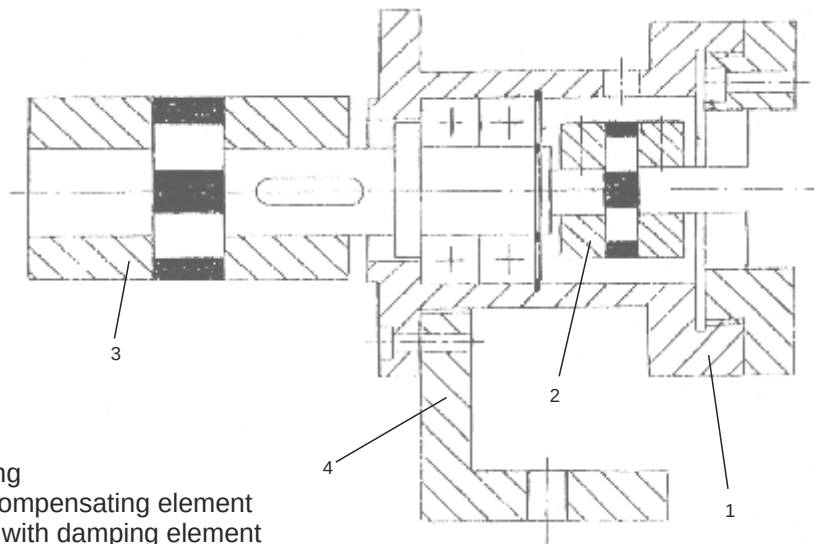
Support

unit for encoders with damping elements

- Protects the encoder from high radial- and axial loads.
- Suitable for encoders with 10mm axle

Rugged design

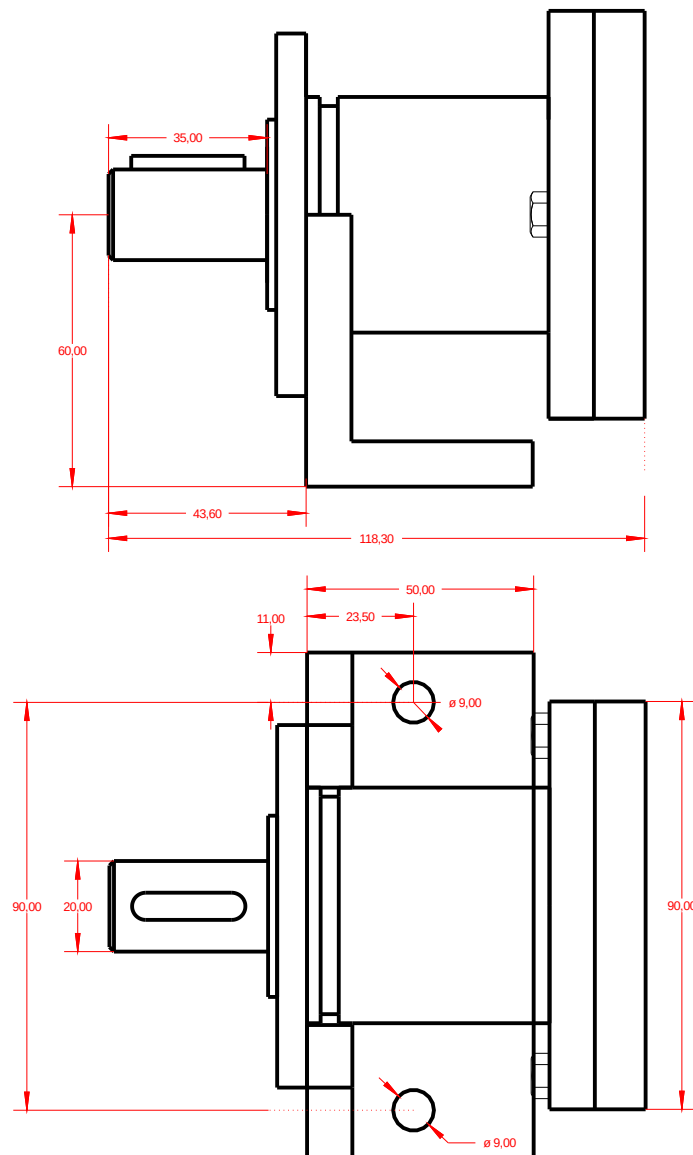




Support

1. Bearing housing
2. Coupler with compensating element
3. Claw coupling with damping element
4. Fastening angle

Dimensions:



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Signal converter

COM-DP



Communications module, Gateway Profibus - DP <> RS232

SK01



Signal converter input 24V, output RS422

SK10



Signal converter for incremental encoder input 5 ... 30V, output 5 ... 30V
Signal: clock/direction or clock forward/clock backwards

SK10.400



Signal converter with frequency divider by 4, 8, 16
input 5 ... 30V, output U_B /RS422

SK10 Handrad



Signal converter with 5V supply voltage output

SK20



Signal converter SSI > 0...10V, 0/4...20mA or
magnetostrictive > 0...10V, 0/4...20mA

SK30



Signal converter +/-10V > clock/direction for stepping motors

SK40



Signal converter 0...5V, 0...10V, +/-10V, 0/4...20mA > Incremental encoder signals

SK100



Signal converter +/-10V > 4...20mA

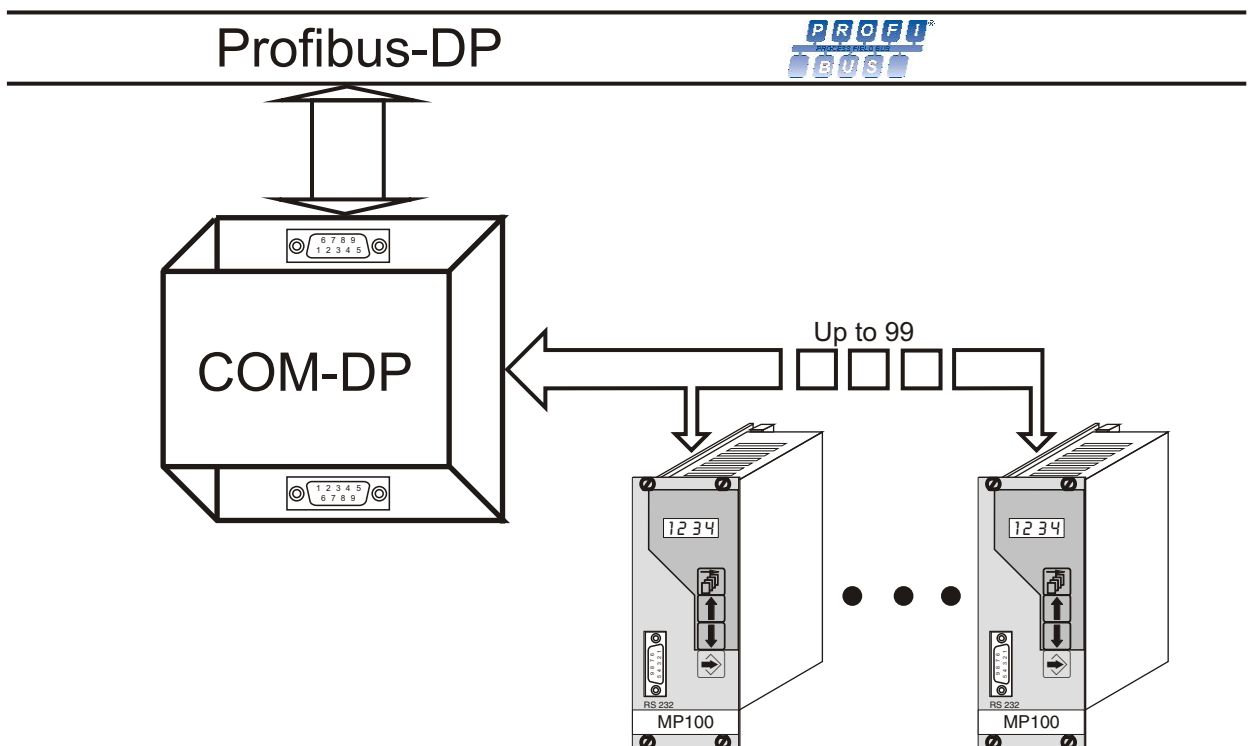
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COM-DP

Profibus - Interface for MP100

- The communication module COM-DP allows direct connection of MP 100 position controllers to the Siemens Profibus-DP.
- All programm and parameter data as well as commands, reports and position feedback can be transmitted.
- Trouble-free usage with older MP100 systems
- Up to 99 MP100 can be hooked up to a single COM-DP communication module.



Features:

- Profibus-DP, Slave, according to EN 50170, up to 12 MBaud
- Function library for Siemens S7

Ordering data:

COM-DP.010 Profibus-DP

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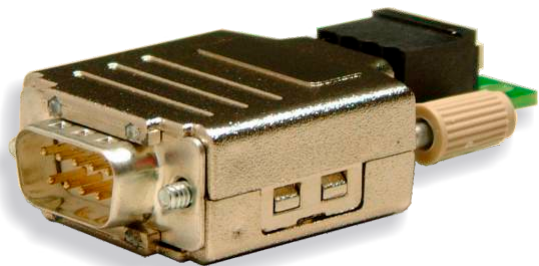


SK 01

Signal converter

**Conversion and level-change
of 24V PLC-Signals**

- Signal level from 24 V to RS422 (5V)
- Conversion 1:1
- Galvanic Insulation



Order data:

SK 01.1 Conversion 1:1 ; Signal level-change

Technical Data

General

Ambient temperature:	0 bis +50° C
Storage temperature:	-20 bis +70° C
Weight:	ca. 25g
Dimensions:	35x17x65 (WxDxH mm)
Connection:	Spring-clamp/9pol Sub-D Connector
Connection diameter:	0,14 - 0,75 mm ²
Protection class:	IP20

Supply-voltage

Nominal value:	5Vdc +/- 5%
Ripple:	< 0,5%
Wrong polarity protection:	no
Consumption:	max. 0,1A

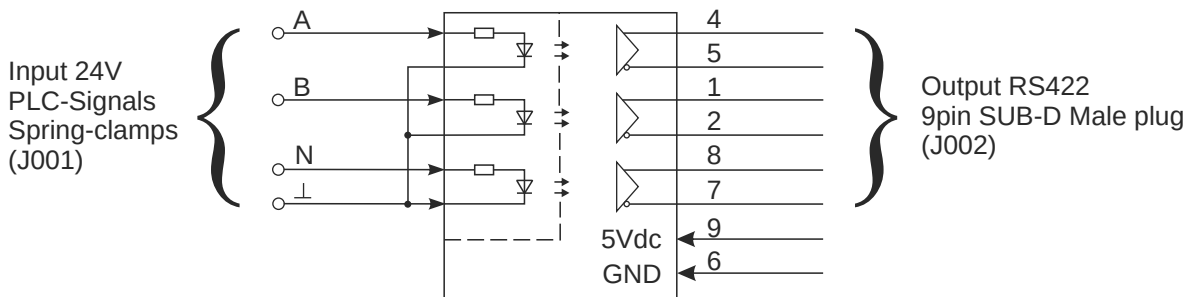
Signal inputs

Number:	3
Input type:	Type1 (IEC1131 Part2)
Nominal voltage:	+24Vdc
Maximal Voltage:	+30Vdc
Threshold High-Level:	>+12Vdc
Threshold Low-Level:	<+ 3Vdc
Minimal Voltage:	0Vdc
Input current at nominal voltage:	typ. 5mA
Delay time Low -> High*	typ. 1µs
Delay time High -> Low*	typ. 2µs
Frequency limit*	250kHz
Potential separation	yes

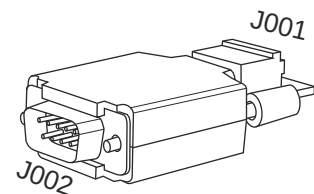
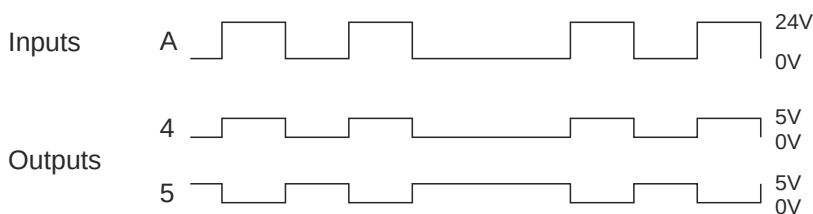
Outputs:	5V / RS422 Balanced output
----------	----------------------------

*) measured with push-pull outputs in signal source

Signal converter SK 01



Signal level-change from 24V-Signals (PLC-compatible) to RS422 (5V)



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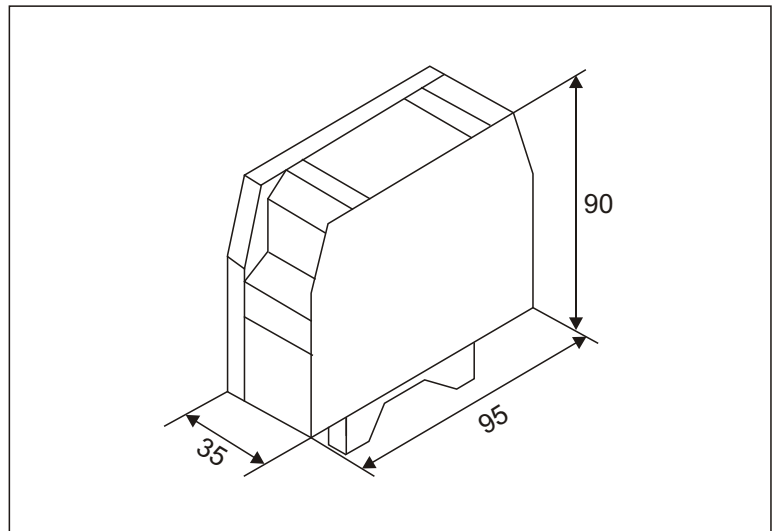
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Signal Converter SK10

Conversion and Level Conditioning of Encoder Signals

- Signal level from 5/12/24 V to RS422-signals and 24 V (PLC compatible)
- Galvanic isolation
- 1:1 conversion
- Conversion of encoder information into clock and direction signals
- conversion of encoder information into clockwise (c.w.) and counterclockwise (c.c.w.) signals



Ordering Code	SK10.100	1:1 conversion; signal level transformation
	SK10.200	Conversion into clock and direction signals
	SK10.300	Conversion into c.w. and c.c.w. signals

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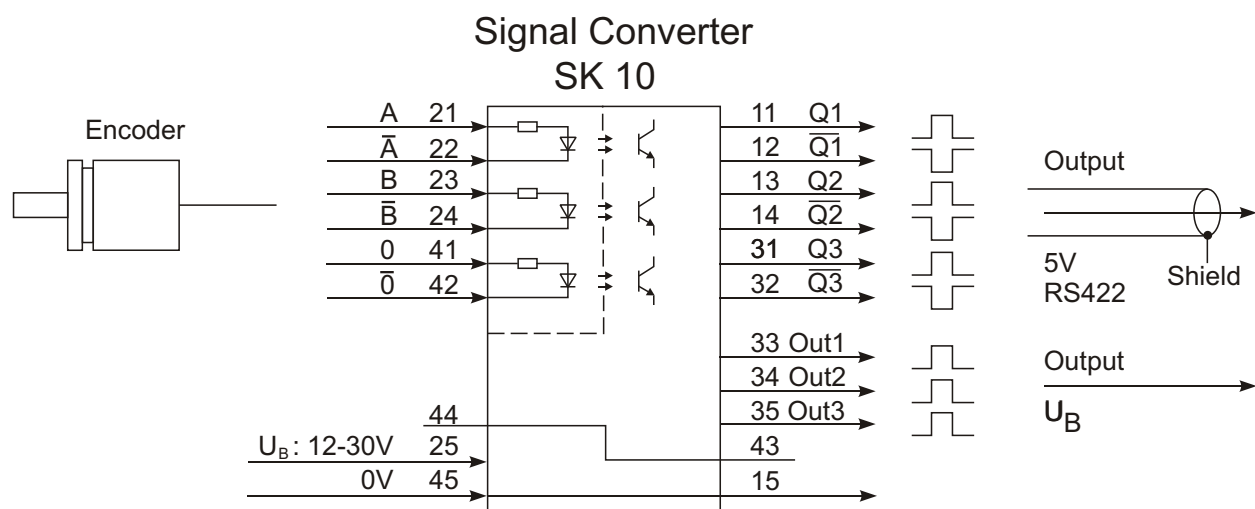
General		Supply Voltage	
Ambient temperature:	0 to +50 C°	Input voltage	
Storage temperature:	-20 to +70 C°	Nominal:	24 V DC +/- 20%
Weight:	ca. 0.1 kg	Permissible range:	12 - 30 V DC
Dimensions:	35x90x95 (WxDxH in mm)	Ripple:	< 5%
Termination:	pressure screw with wire protector	Reverse polarity	
Mounting:	TS 35 rail	protected:	yes
Protective system:	IP20	Input current:	ca. 0.1A

Encoder Signals

Signal level: 5 - 30 V DC

Clock frequency (12 - 30 V outputs): 100 kHz

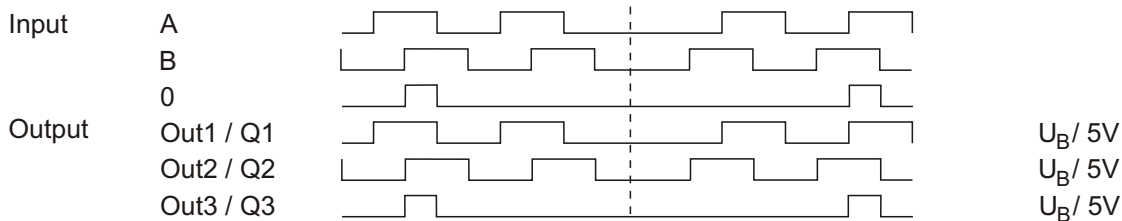
Clock frequency (RS 422 outputs): 300 kHz



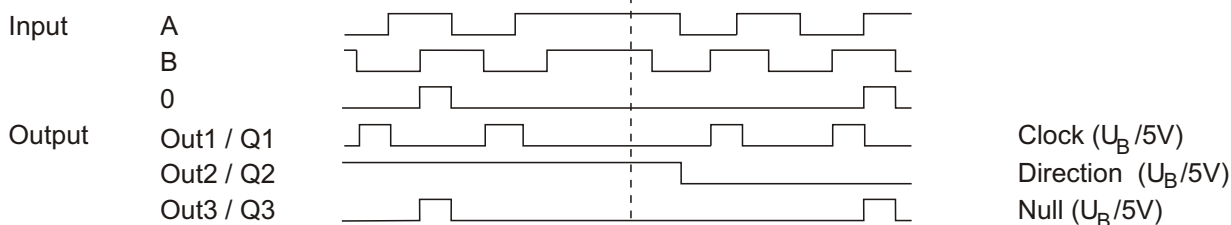
Forward

Reverse

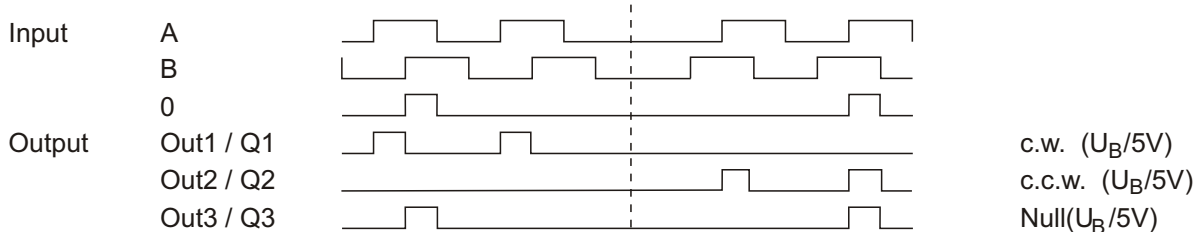
SK10.1 Signal level conversion from 5 V to 24 V signals or 24 V to 5 V signals



SK10.2 Conversion of encoder information into clock and direction signals



SK10.3 Conversion of encoder information into c.w. and c.c.w. signals

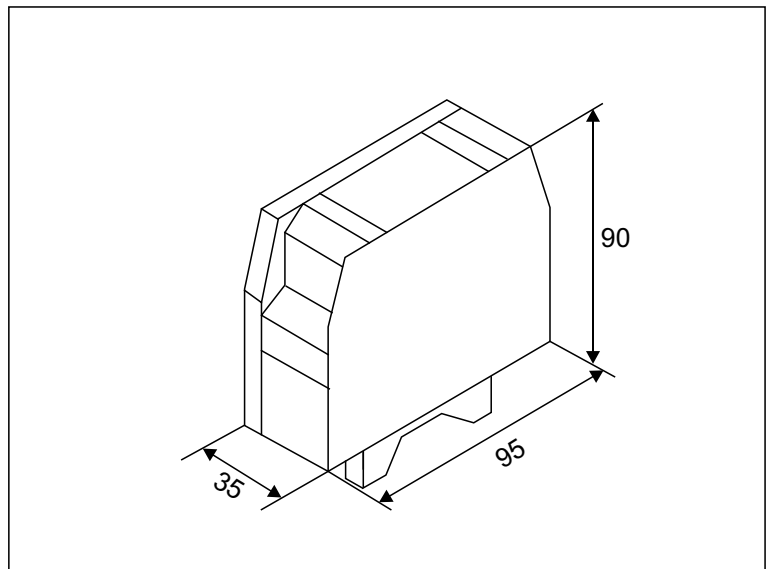




SK10.400

Signal converter with frequency divider

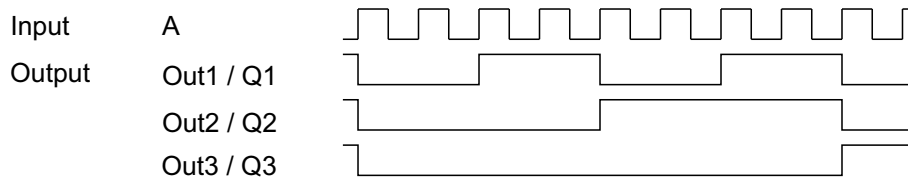
- Converts signal level from 5/12/24 V to RS 422-Signals and 24 V (PLC-compatible)
- Frequency division by 4, 8, and 16
- Galvanic insulation



Order data: SK10.400 Frequency divider

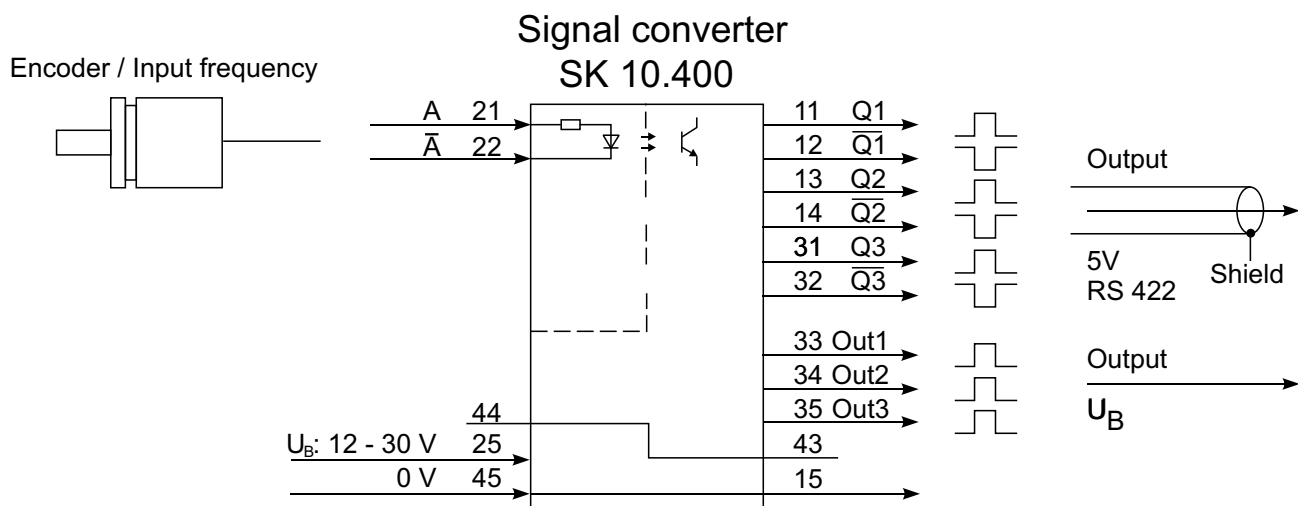
Example

SK10.400 Signal level conversion from 5 V to 24 V-Signals or 24 V to 5 V-Signals
Frequency division by 4, 8, 16



Technical Data

General		Power supply	
Ambient temperature:	0 ... +50 °C	Input voltage:	
Storage temperature:	-20 ... +70 °C	Nominal value:	24 VDC +/- 20 %
Weight:	ca. 0,1 kg	Admissable range:	12 - 30 VDC
Dimensions:	35x90x95 (WxDxH in mm)	Ripple:	< 5 %
Connection:	Screw with wire-protection	Wrong polarity prot.:	yes
Monting:	DIN-rail TS 35	Current consumpt.:	ca. 0,1 A
Protection class:	IP20		
Encoder signals			
Signal-Level:	5 - 30 VDC		
Frequency (12 - 30 V-Outputs):	100 kHz		
Frequency (RS 422-Outputs):	300 kHz		



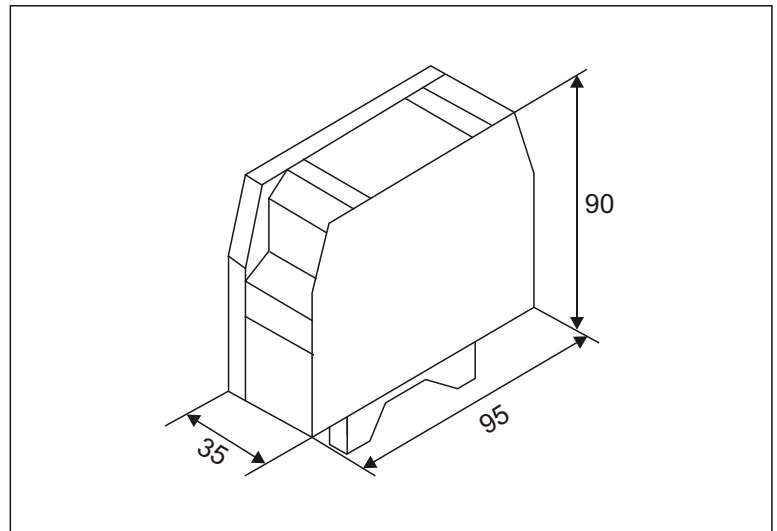
Subject to changes



Signal Converter SK10 for hand wheel

Conversion and Level Conditioning of Encoder Signals

- Signal level from 5 V to 24 V (PLC compatible)
- Galvanic insulation
- 1:1 conversion
- Conversion of encoder information into clock and direction signals
- Conversion of encoder information into clock-wise (c.w.) and counterclockwise (c.c.w.) signals



Ordering Code

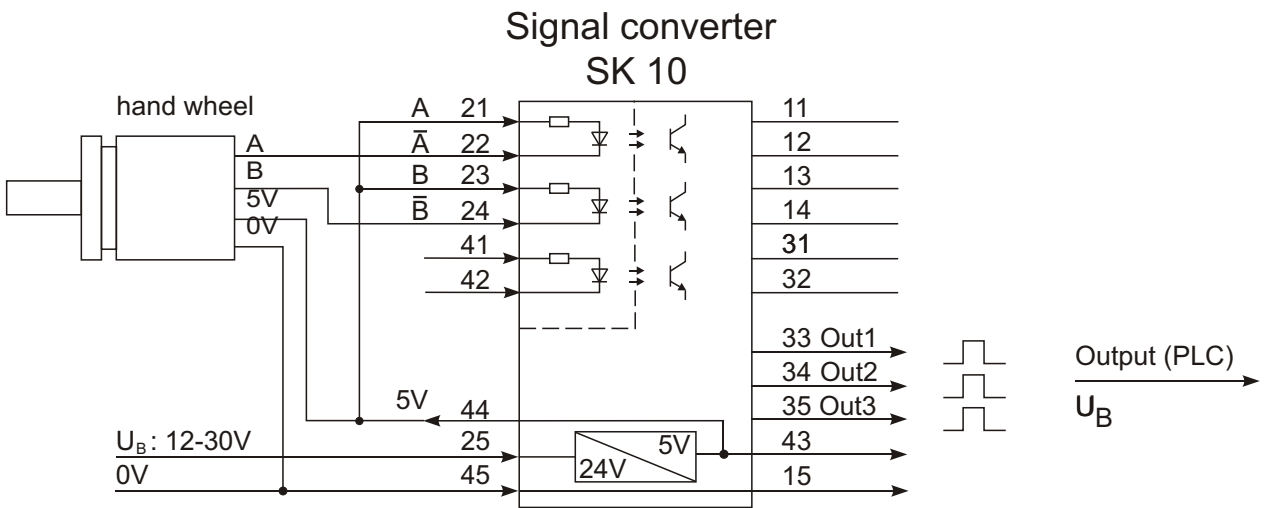
SK10.101	1:1 conversion; signal level transformation
SK10.201	Conversion into clock and direction signals
SK10.301	Conversion into c.w. and c.c. w. signals

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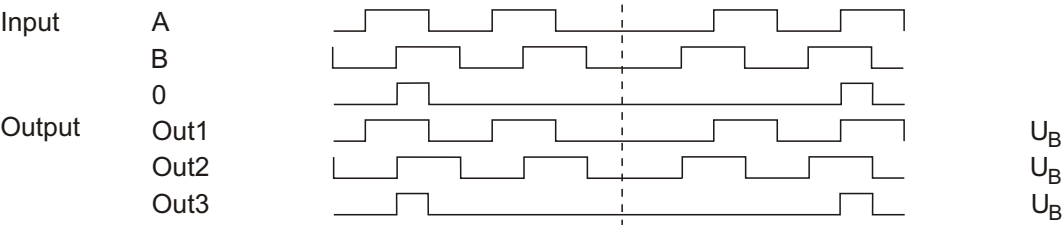
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Fax +49(0)7541-6000-11
E-Mail: info@esitron.de

General		Supply Voltage	
Ambient temperature:	0 to +50 C°	Input voltage	
Storage temperature:	-20 to +70 C°	Nominal:	24V DC +/- 20%
Weight:	ca. 0.1 kg	Permissible range:	12 - 30V DC
Dimensions:	35x90x95 (WxDxH in mm)	Ripple:	< 5%
Termination:	pressure screw with wire protector	Reverse polarity	
Mounting:	TS 35 rail	protected:	yes
Protective system:	IP20	Input current:	ca. 0.1A
		Hand wheel voltage:	5V; max. 80mA
Encoder Signals			
Signal level:	5 - 30V DC		
Clock frequency (12 - 30 V outputs):	100 kHz		

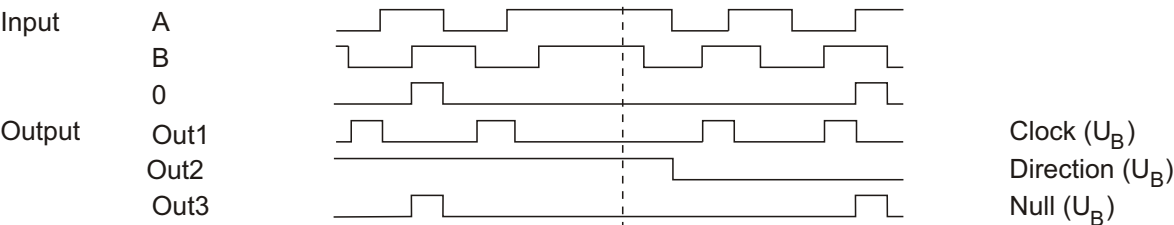


Forward Reverse

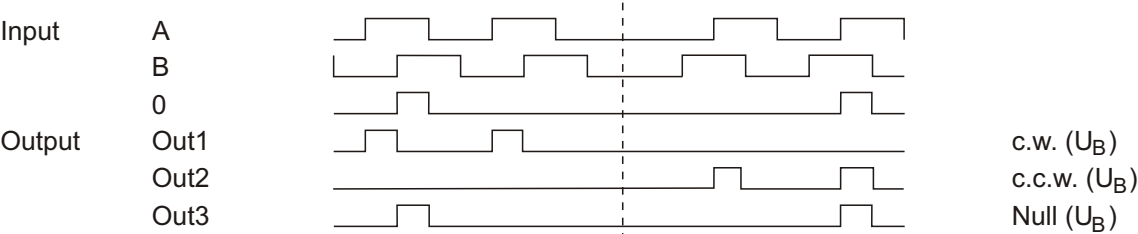
SK10.1 Signal level conversion from 5 V to 24 V signals (PLC compatible)



SK10.2 Conversion of encoder information into clock and direction signals



SK10.3 Conversion of encoder information into c.w. and c.c.w.signals





SK20

Signal Converter

Conversion of digital absolute encoder data into analog signal (voltage or current).

- Conversion of SSI-data (synchron serial interface) or Start/Stop-signals (transsonar / magnetostrictive transducers)
- Connection of digital position encoders to analog control systems
- Recording of position-time data or monitoring functions.
- Output signal selectable: 0-10 V / 4-20 mA / 0-20 mA
- Galvanic insulation
- High resolution (16 bit), cycle time 1 ms
- Stand alone or parallel connection
- Easy handling through teach-in programming
- Mounting on standardized TS 35 rail
- Comprehensive monitoring and diagnostics function with LEDs and ready/fault signal output



Order data

SK 20.2

Conversion of SSI data into analog signal

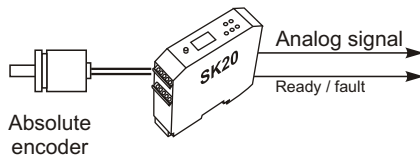
SK 20.4

Conversion of transsonar data (P-interface) into analog signal

Application examples

Stand-alone

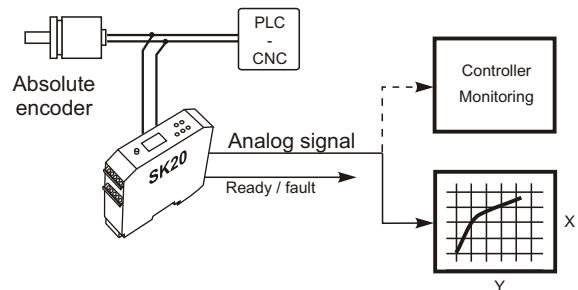
Connection of digital standard encoder to analog control systems.



Parallel connection

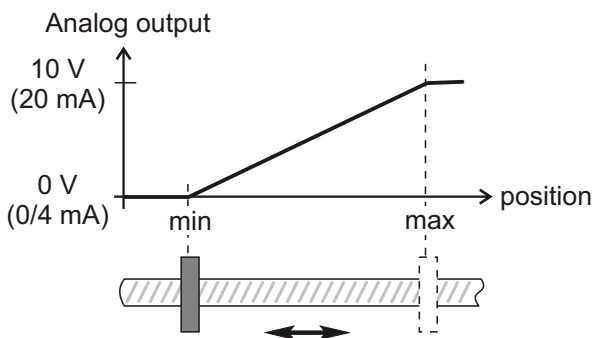
Connection to analog control- and monitoring systems.

Record and monitoring of position-time movement for example by plotter or measuring equipment.



Analog output

Selectable: 0-10 V / 4-20 mA / 0-20 mA



Easy programming

1. Activate programming



2. Store "min" position
Store "max" position



3. Quit programming



Technical data

General

Ambient temperature: 0 to +50 °C
Storage temperature: -20 to +70 °C
Dimensions: 22,5 x 91,5 x 90 mm (WxDxH)
Mounting: TS 35 rail
Protective system: IP 20

Supported Measurement-Systems:

Singleturn-, multiturn- and linear encoders

SSI-Encoders (SK20.2)

Signal level: RS422
Code: Gray-/binary-code
Clock frequency: 230 KHz (stand alone)
70-600 KHz (parallel connection)

Encoders with Start/Stop-Signal (SK20.4)

Interface: Digital P-interface/R-module
Resolution: 25 / 50 µm

Ready / fault signal

Transistor output: max. 50 mA

Supply voltages

Nominal: 24 VDC
Permissible range: 18 - 30 VDC
Input current: ca. 0,1 A
Reverse polarity protected by diode.

Analog output (current or voltage)

Resolution: 16 bit
Cycle time: 1 ms

Current output

- Signal level: 4 - 20 / 0 - 20 mA
- Max. error: 0,1%
- Load impedance: ≤ 600 Ω

Voltage output

- Signal level: 0 - 10 V
- Max. Error: 0,2%
- Output impedance: 0 Ω
- Load impedance: ≥ 1 KΩ

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SK30

Signal converter

Conversion of analog signals +/- 10V
to clock- and direction signals
for stepping motors.

- Scalable output frequency
- DIN mount rail
- Additional output incremental encoder simulation
- Additional stop input

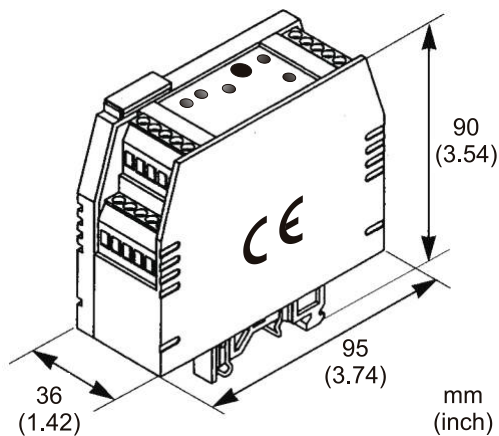


Description

The signal converter SK30 converts analog input voltages of +/- 10V DC into clock and direction signals. With the use of this converter stepping motors can be used in conjunction of a servo controller. An additional incremental encoder simulation is provided for position feedback signals.

Technical Data

Power supply:	24 VDC (18 ... 30 VDC)
Current consumption:	Ca. 100 mA
Analog voltage input:	Differential input +/- 10 V (-12 ... + 30 V) 27 kOhm impedance
Digital input (Stop):	24 VDC
Output clock/direction:	24 V 5 kHz ... 45 kHz Maximum frequency (scalable) 68 Ohm impedance 20 mA max. current
Incremental encoder output:	Balanced signals according to RS422 5 V max.
Ambient temperature:	0 ... 50 °C (32° ... 122°F)
Storage temperature:	-20 ... +70 °C (-4° ... 158°F)
Humidity	Max. 90 % non condensing
Connection:	Screw with wire protection
Emission:	EN 50081-2
Interference:	EN 50082-2
Protection class:	IP20
Dimension:	36 x 90 x 95 mm (WxDxH)
Weight:	Ca. 0,2 kg



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SK40.1

Signal converter

Conversion of analog signals into incremental encoder signals

- input signal 0-5V / 0-10V / +-10V / 4-20mA
- Output incremental encoder simulation 5V / RS422 level
- Galvanical insulation between input and output
- Resolution 16 Bit
- Maximal frequency 250kHz



Order data

SK40.1 Conversion of analog signal into incremental encoder signal

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General

Ambience temperature: 0 ... +50 °C
 Storage temperature: -20 ... +70 °C
 Weight: ca. 0,1 kg
 Dimensions: 23x92x90 (WxDxH mm)
 Connections: Screw type terminal
 Mounting: DIN rail TS 35
 Protection class: IP20

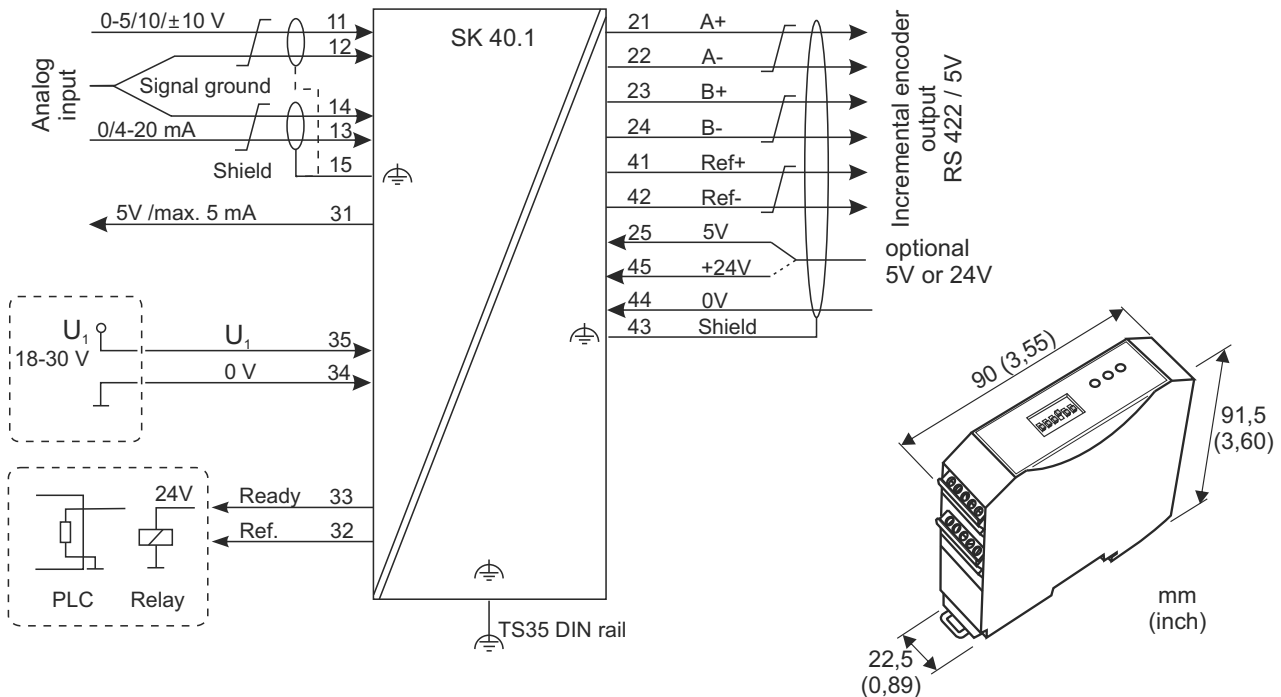
Power supply

Rated value: 24 VDC +/- 20 %
 Permissible range: 12 - 30 VDC
 Ripple: < 5 %
 Wrong polarity prot.: Yes
 Consumption: ca. 0,1 A

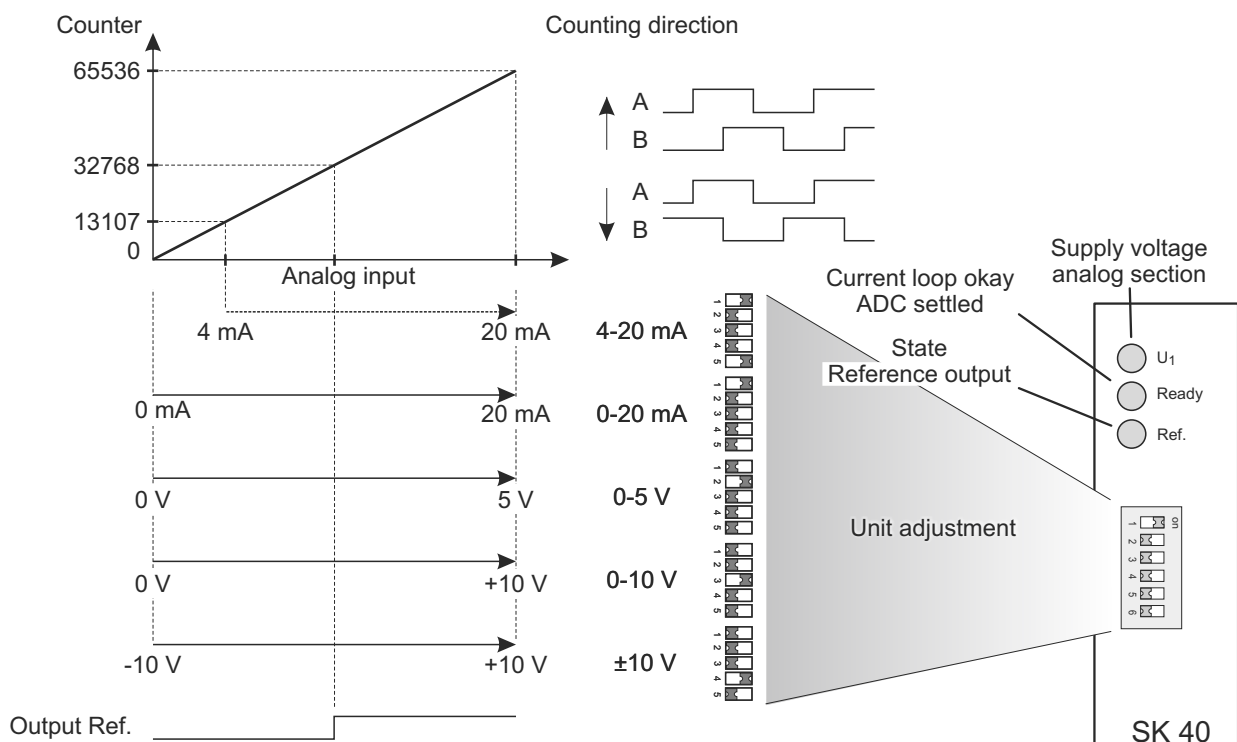
Incremental encoder output

Signal level: 5V / RS422
 Maximal clock frequency: 250 kHz
 Supply: 5V / 24V

Connector assignment



Function





SK40.2

Signal converter

Conversion of analog signals to SSI signals

- Input signal 0-5V / 0-10V / +-10V / 4-20mA
- Output SSI Gray / Binary
- Galvanic insulation between input and output
- Resolution 16 Bit



Order data

SK40.2 Conversion from analog signal to SSI

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General

Ambience temperature: 0 ... +50 °C
 Storage temperature: -20 ... +70 °C
 Weight: ca. 0,1 kg
 Dimensions: 23x92x90 (WxDxH mm)
 Connections: Screw type terminal
 Mounting: DIN rail TS 35
 Protection class: IP20

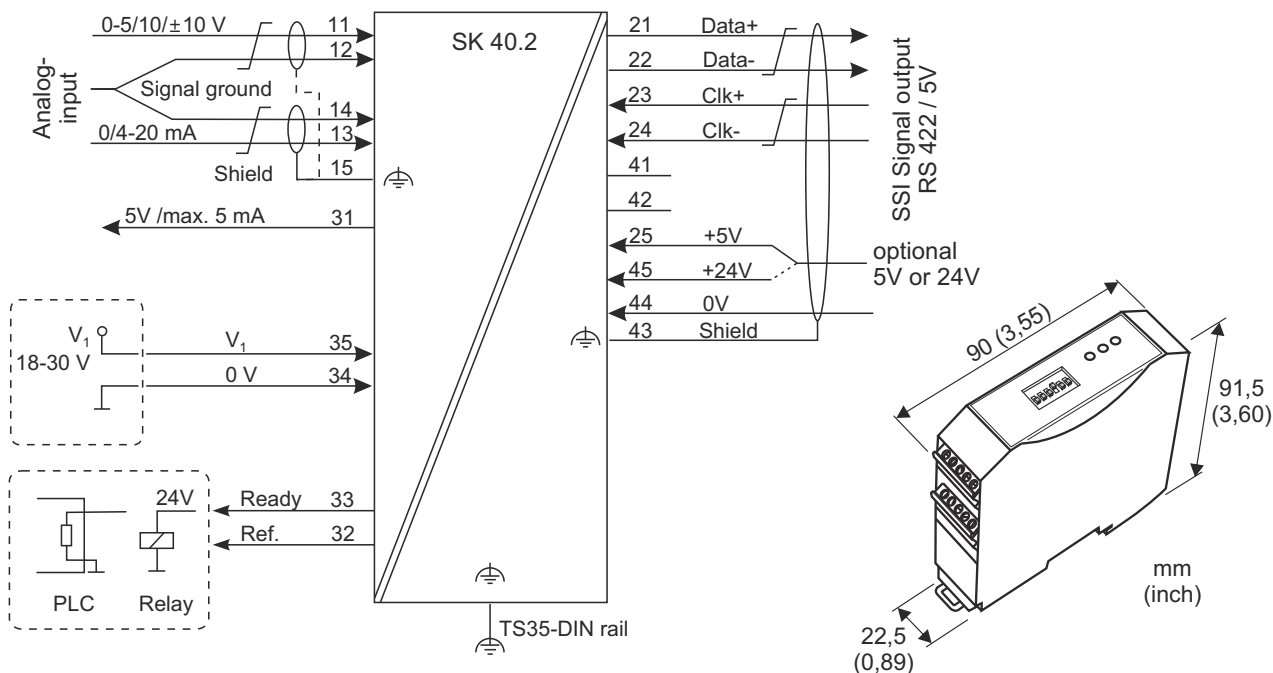
Power supply

Rated value: 24 VDC +/- 20 %
 Permissible range: 12 - 30 VDC
 Ripple: < 5 %
 Wrong polarity prot.: Yes
 Consumption: ca. 0,1 A

SSI output

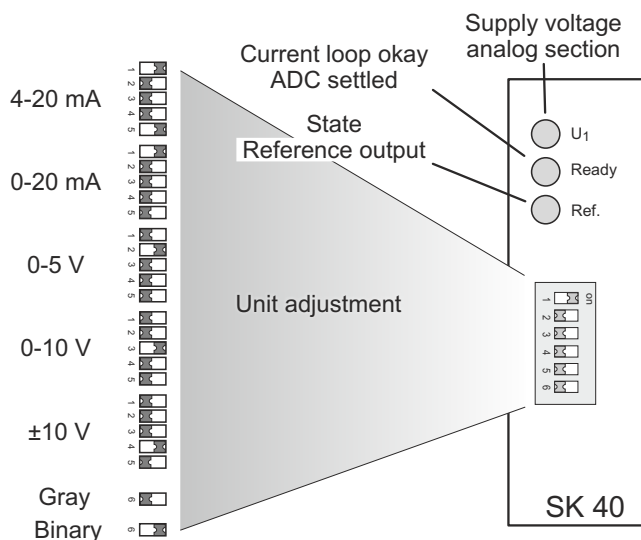
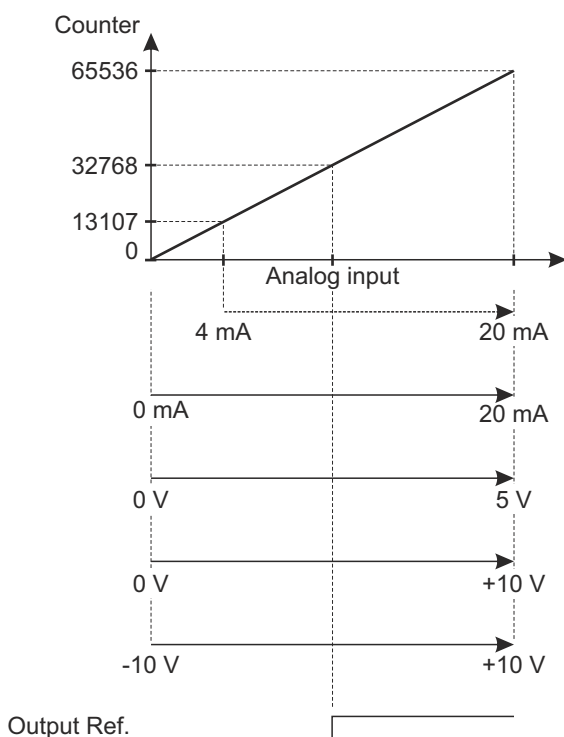
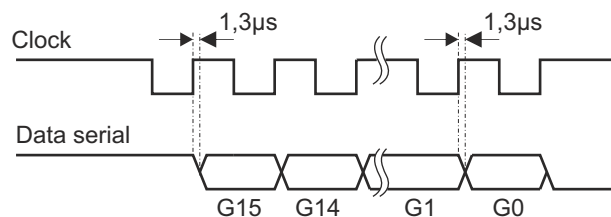
Signal level: 5V / RS422
 Clock frequency: 100 - 750 kHz
 Supply: 5V / 24V
 Monoflop time: 10µs - 15µs

Connector assignment



Function

Data format and delay time





Digital servo regulators

SC8



Servo Controller with integrated power electronics
functions like esiMot range
24 - 60V DC motor supply

SC10



Servo Controller as rack mount unit
Functions like esiMot - range
230V AC supply
integrated line filter
optional with fieldbus interface:
- Profinet
- Profibus-DP
- EtherCAT
- CANopen
- RS485
Motorfeedback: Resolver or Hiperface

SCE3



Servo Controller
3RU / 12HP plug-in module
230V AC supply
6A rated / 10A peak current
100W rated / 2,4kW peak ballast power

SC30



Servo Controller with direct 230V AC or
3-phase 400V AC supply
15A rated / 30A peak current
Integrated ballast circuit
various interfaces

UR100



Digital regulator for servo valves

PR120



Digital regulator for proportional valves.

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SC8

Servo Controller with integrated power electronics

- Positioning and speed/torque controller
- Digital 4-Q regulator
- Direct status- and diagnostic function through LED's
- Digital inputs and outputs (24V)
- RS232 interface for parameter setting
- 24 - 60V DC Motor power supply
- Motor currents up to $8A_{rated}$ $16A_{peak}$
- Integrated ballast circuit with resistor
- Control of stand-still brake
- Separate logic supply 24V, wrong polarity protected

Order options:

- Analogue speed set-point
+/- 10V DC / 0 ... 10 V DC with direction signal
0/4 ... 20 mA (amplifier mode)
- Recordable motion data (SPS-Interface)
- Galvanic insulated fieldbus-interface:
PROFIBUS-DP,
PROFINET-IO
CANopen DSP402
EtherCAT CoE
RS232 / RS485 - Modbus
Bus address and baud rate adjustable via switch
- Feedback - input for:
Absolute encoder (Hiperface, SSI)
Incremental encoder, Hall switch
- Safety functions: STO Safe Torque Off,
SBC Safe Brake Control



PROFI
BUS

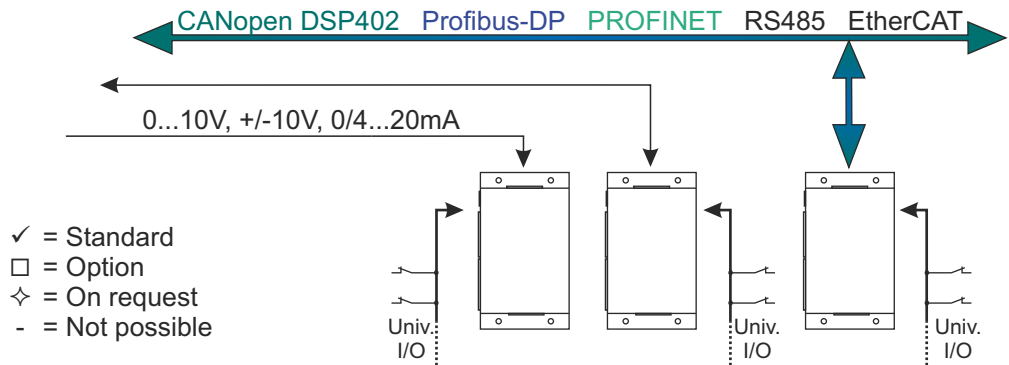
PROFI
NET

CANopen

EtherCAT

SC8

Features



- ✓ = Standard
- = Option
- ◇ = On request
- = Not possible

Characteristics	SC8 - Type	Without Fieldbus		With Fieldbus
		SC8/2.1xx.xx Amplifier mode	SC8/2.2xx.xx Positioning mode	SC8/2.3-7xx.xx All modes
	Integrated servo-amplifier	✓	✓	✓
	Integrated positioning logic (position loop)	-	✓	✓
	Digital 4Q speed and torque regulator	✓	✓	✓
	Position acquisition			
	- Incremental encoder, Hall switches	□	□	□
	- Absolute encoder Multi-Turn	-	□	□
	Profibus, Profinet, CANopen, EtherCAT, Modbus	-	-	□
	Analog set value	✓	-	◇
	Digital inputs	4	8 / □6	8 / □6
	Digital outputs	1	2 / □4	2 / □4
	Encoder output A/B/0 24V	✓	-	◇
	Integrated ballast circuit and -resistor	✓	✓	✓
	Connection for external ballast resistor	✓	✓	✓
	Wrong polarity protection	✓	✓	✓
	Control of a stand still brake	✓	✓	✓
	RS232 Programming interface (19,2kBaud)	✓	✓	✓

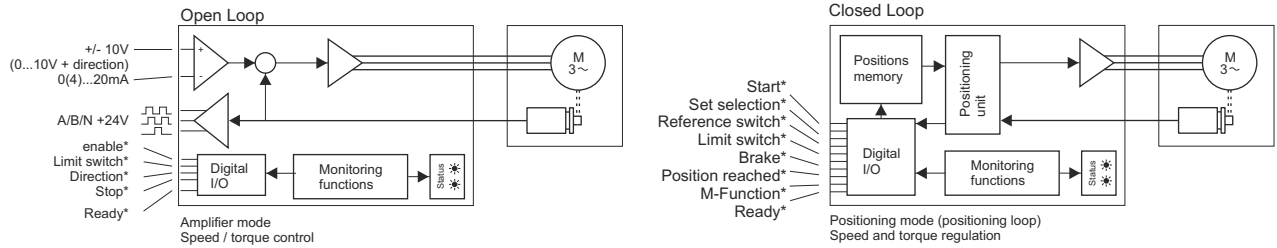
Functions and Programming	Programming/Parameter setting			
	- via RS232 Interface	✓	✓	✓
	- via Profibus-DP, Profinet, CANopen, EtherCAT	-	-	✓
	- Position-Teach-In	-	✓	-
	Reference run management	-	✓	✓
	Limit switch (Hard- and Software)	-	✓	✓
	Automatic brake management	□	□	□
	Free programmable move records	-	15	15
	- Speed	-	✓	✓
	- Acceleration/Deceleration (separate adjustable)	-	✓	✓
	- On-the-fly record change	-	✓	✓
	- Dwell time	-	✓	✓
	- Set outputs (M-functions)	-	✓	✓
	Regulating modes			
	- Electronic shaft/electronic gear	-	✓	✓
	- Speed / Torque (PI-Regulation)	✓	✓	✓
	- Absolute, Relative, Modulo Position (P-Regulation)	-	✓	✓

Monitoring	Status LEDs	2	2	3
	Signalling e.g. for:			
	- Motor temperature (I ² t)	✓	✓	✓
	- Motor temperature PTC	✓	✓	✓
	- Output stage temperature	✓	✓	✓
	- Ballast power internal	✓	✓	✓
	- Overvoltage/Undervoltage	✓	✓	✓
	Elapsed hour meter	✓	✓	✓
	Electronic type plate	✓	✓	✓

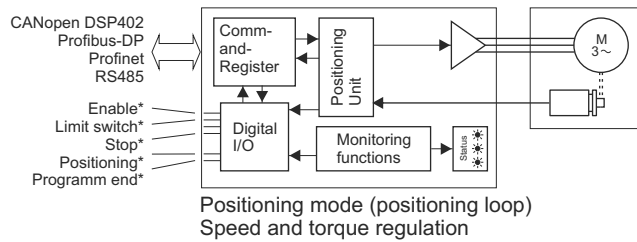
Accessories	Programming and parametrizing PC-software ServoLink	□	□	□
	Assembled feed cable	□	□	□
	Motors / Gearboxes / Switching power supplies	□	□	□
	RS232-Adapter / Interface converter	□	□	□

* Resolution see motor-data

Without Fieldbus



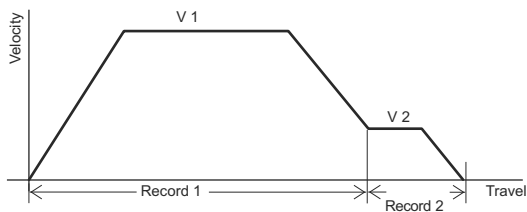
With Fieldbus



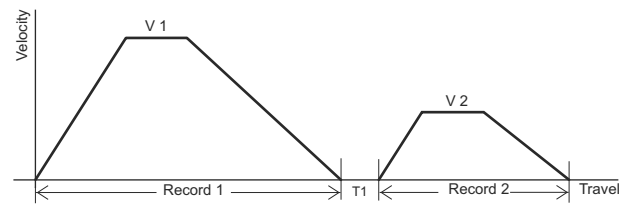
*) Example connection;
other I/O-Functions are assignable.

Sample-Driveprofile:

On-the-fly record change

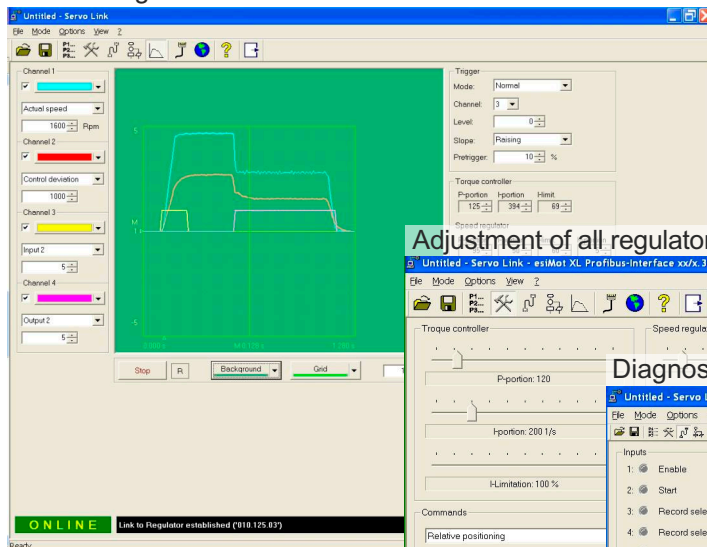


Record change with intermediate stop

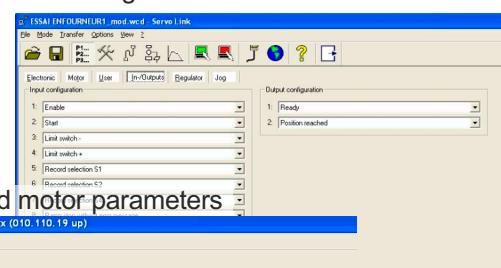


PC-Software:

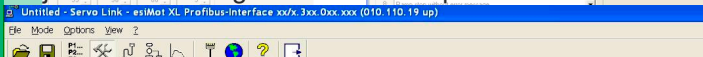
User settings



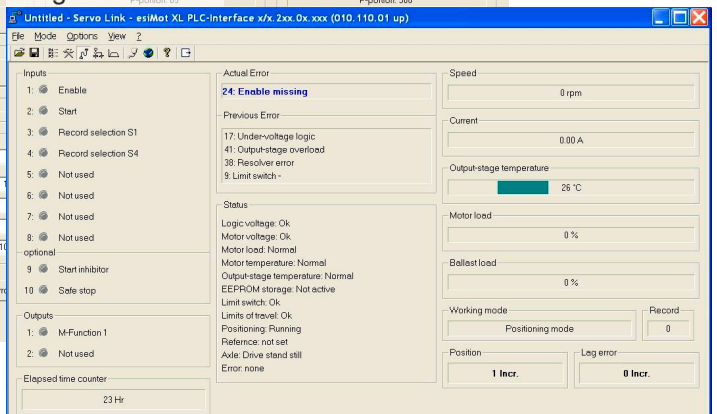
I/O-Configuration



Adjustment of all regulator and motor parameters



Diagnostic mode:



Other features:

- Display units mm, °, ...
- Project management
- Password protection
- User settings
- Oscilloscope
- Language selection German/English

Subject to changes

Digital Servo controller SC8

The SC8 is a servo controller for controlling the current, speed and position of servo and BLDC motors. To determine the rotor position hall switch, incremental encoder with commutation track, Hiperface or SSI absolute encoders are read.

A ballast circuit with ballast resistor is already integrated. An external ballast resistor can be connected for higher ballast power..

Optional incremental encoder outputs simulate an encoder.

Up to 15 positions (driving records) can be stored and retrieved via inputs.

Alternatively, an analogue +/- 10 V signal can specify the set point for speed or torque.

An optional communication interface (Profibus-DP, PROFINET, CANopen DSP402, EtherCAT or Modbus) allows direct access to all driving data and functions.

Data storage takes place in a maintenance-free EEPROM, without buffer battery.

The status and error display is provided by 3 LEDs and additional status outputs.

Due to the very compact design, the device requires little space in the control cabinet.

The PC software "ServoLink" comfortably enables all required settings.

Technical Data:

SC8/2		
Logic supply (0,3A)	24 VDC	(18 - 30V)
Motor supply	24 - 60 VDC	
Rated current	8,0 A	
Peak current	16,0 A	
Internal ballast power	7 W rated power	60W Pulse
Peak ballast power	42W Continuous power	422W Pulse
Ext. ballast resistor min.	10 Ohm	
Digital inputs	4 - 8 St.	24V
Digital outputs	1 - 4 St.	24V
Analogue input	+/-10V	Resolution: 11Bit
Protection class	IP20	
Dimensions ca.	112 x 68 x 28mm (without plugs)	
weight ca.	0,2kg	

Order code:

SC8/2.ABx.DEF.GGG-HH

Design	Other options (if applicable)
housing = 2	Custom specific options
Interface	Address switches (only with fieldbus)
Amplifier-Mode, 4/1 dig. I/O = 1	0 = Without (Standard)
PLC-Interface, 8/2 dig. I/O = 2	1 = With address switches
Profibus-DP, 4/2 dig. I/O = 3	(no need with EtherCAT & Profinet)
CANopen, 4/2 dig. I/O = 4	Safety functions
RS485, 4/2 dig. I/O = 5	0 = none (Standard)
EtherCAT CoE, 4/2 dig. I/O = 6	1 = STO+SBC (EN13849-1 Cat.3 PLe)
Profinet, 4/2 dig. I/O = 7	Input options (only with fieldbus)
Position feedback	0 = 8/2 digital I/Os (Standard)
Incremental encoder (wt commutation) = 2	1 = 6/4 digital I/Os
or hall switches	2 = 4/2 dig. I/Os + Analog input
Hiperface - motor encoder = 5	3 = 4/1 dig. I/Os+Analog-I+Incr. output
SSI - motor encoder = 7	
Hiperface (Motor) + SSI (external) = B	

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SC10

Servo Controller

- Positioning and speed-/torque regulator
- Digital 4-Q regulator
- Integrated ballast circuit with ballast resistor
- Output for parking brake
- Direct status- and diagnostics function through LED's
- Digital In- and Outputs (24V)
- RS232 for parameter setting
- Motor supply 230V AC or 24 - 80 V DC
- Logic supply 24V, wrong polarity protected

Order options:

- Set value analog
+/- 10V DC / 0 ... 10 V DC with direction signal
0/4 ... 20 mA
- Galvanically insulated fieldbus interface:
Profibus-DP
Profinet-IO
CANopen DSP402
EtherCAT CoE
RS485
Via switch adjustable bus address/ baud rate
- Safe Torque Off Cat. 3 PL e (EN ISO 13849-1)
- Multiturn absolute encoder processing
- Input for external EnDat encoder for precise positioning

Low Cost

PROFI[®]
NET

PROFI[®]
BUS

CANopen[®]

EtherCAT[®]



Digital AC-Servo controller SC10

The SC10 is a servo controller for current, speed and positions control of AC servo motors with resolver technology. Optionally a HIPERFACE® interface can be integrated.

A ballast circuit with ballast resistor is already integrated. For higher ballast power an external ballast resistor can be connected.

Optional incremental outputs can simulate an encoder.

An analogue +/-10 V DC signal provides the set value for speed or torque. Alternatively up to 15 positions (driving data records) can be stored and called up over inputs.

An optional field bus interface (Profinet-IO, Profibus-DP, CANopen DSP402, EtherCAT or RS485) facilitate the direct access to all drive data and functions.

The data storage takes place in a maintenance-free EEPROM, without buffer battery.

3 LEDs and additional status exits provide status and error indication.

Through the very compact building method the equipment needs little place in the control cabinet.

The PC software "ServoLink" makes all necessary adjustments in a comfortably way possible.

Technical Data

General:

Ambient temperature:	0 ... +40°C at rated power
Derating:	2%/K at temperatures >40° ... 50°C
Humidity:	5 - 85%, non-condensing
Cooling:	Convection cooling and cooling though mounting plate
Dimensions:	65 x 196 x 118mm (WxHxD)

Power section:

Galvanic insulation from controller section according to VDE 0160, Short circuit and earthing proof for min. 2000 incidents.

	<u>SC10/1.xxx</u>	<u>SC10/3.xxx</u>	<u>SC10/2.xxx</u>
Continuos current:	24-60V DC	24-80V DC	230V AC
Peak current:	10A max.	40A max.	5A max.
	10A max.	60A max.	10A max.

Ballast circuit:

Continuos ballast power:	Automatic ballast threshold processing
Peak ballast power:	22W internal, 100W total
	500W 1sec internal, 2,4kW 1sec total (82 Ohm)

Controller section:

Supply voltage:	Full electrical isolation from the power section, see above.
Power consumption:	24V DC, unregulated (+20%, -10%)
Inrush current:	ca. 5 W
	$I_{max} = 6A$ for 0,8ms

Order code:

SC10/x.xxx.xxx.xxx

Power feed-in

- 24 - 60 V DC 10A = 1
- 230V AC 10A = 2
- 34 - 80 V DC 60A = 3

Basic version

- Amplifier-Mode, 4/1 dig. I/O = 1
- PLC-Interface, 8/2 dig. I/O = 2
- Profibus-DP, 8/2 dig. I/O = 3
- CANopen, 8/2 dig. I/O = 4
- RS485, 8/2 dig. I/O = 5
- EtherCAT, 8/2 dig. I/O = 6
- Profinet-IO, 8/2 dig. I/O = 7

Position aquisition

- Resolver = 4
- Multiturn Absolute encoder = 5
- Resolver (Motor) + EnDat2.2 (external) = A

Custom specific options

Safety functions

- 0 = None (Standard)
- 1 = Safe Torque Off (Category 3 PL e)

Address switches (only with fieldbus)

- 0 = Without (Standard)
- 1 = With address switches

I/O-options (only with fieldbus)

- 0 = 8 input / 2 outputs (Standard)
- 1 = 6 inputs / 4 outputs
- 2 = 6 inputs / 2 outputs / analogue input

Drive for standstill brake

- 0 = Without drive for brake
- 1 = With drive for brake (Standard)

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SCE3-0610

AC-Servo controller

- Positioning, speed and torque control
- Digital 4-Q control
- Speed set-point analogue
+/- 10 V DC / 0 ... 10 V DC with direction signal
- Stepper motor simulation, clock + direction inputs
- Integrated ballast circuit
- Brake control
- Direct status- and diagnostics
- Digital inputs and outputs (24 V DC)
- RS232 for parameter adjustment
- Motor supply 230 V AC
- Separate logic supply 24 V DC, wrong polarity protected

Order options:

- Galvanic insulated fieldbus interface:
RS232/RS422/RS485
PROFIBUS-DP
PROFINET-IO
CANopen DSP402
EtherCAT CoE
Through switch adjustable bus address & baud rate
- Motor feedback:
Resolver
Hiperface
EnDat 2.2



Digitale AC-Servo controller SCE3-0610

The SCE3 is a servo controller for current, speed and position control of AC servo motors with resolver technology, HIPERFACE® or EnDat2.2 encoder interface.

The power supply and a ballast circuit are already integrated.

Up to 31 positions (driving records) can be stored and retrieved via inputs.

Alternatively, an analogue +/- 10 V signal can specify the setpoint for speed or torque.

An optional fieldbus interface (PROFIBUS-DP, PROFINET-IO, CANopen DSP402, EtherCAT or RS232/RS422 / RS485) allows direct access to all travel data and functions.

Incremental encoder outputs simulate an encoder with a configurable pulse number. Alternatively, an input for encoders or clock direction signals can be activated as a position setpoint.

The status and error display is provided by a 7-segment display and additional status outputs.

Due to the very compact design, the device requires little space in the control cabinet.

The PC software "ServoLink" comfortably enables all required settings.

Technical Data

General:

Ambience temperature:	0 ... +40 °C at rated power
Derating:	2 %/K with temperatures > 40 °... 50 °C
Humidity:	5 - 85 %, non-condensing
Cooling:	Convective cooling
Dimensions:	3 RU / 12 HP (128 x 60,5 mm)

Output stage:

	Galvanic insulation from control stage according to VDE 0160, Short-circuit and ground-fault proof for < 2000 incidents
Supply voltage:	230 V AC
Rated current:	6 A
Peak current:	10 A

Ballast circuit:

	self-adjusting ballast threshold up to max. 400V
Rated power:	100 W
Peak power:	2,4 kW 1sec (82 Ohm)

Control stage:

	Complete galvanic insulation to power stage, see above
Supply voltage:	24 V DC, unregulated (+20 %, -10 %)
Power consumption:	ca. 5 W

Order code:

SCE3-0610.xx1.0x0-xxx	Omitted in standard design
Rated/Peak current $I_N = 6$ A, $I_P = 10$ A	Custom specific options
Interface	Safety functions
Without Fieldbus = 0	0 = Without (Standard)
PROFIBUS-DP = 3	1 = Safe Torque Off (EN ISO 13849-1)
CANopen = 4	
RS232 / RS422 / RS485 = 5	Address switch (fieldbus only)
EtherCAT = 6	0 = Without (Standard)
PROFINET-IO = 7	1 = With address switch
Motorfeedback	I/O Options
Resolver = 4	0 = 8 Inputs / 5 Outputs / 2 Analogue inputs
Hiperface = 5	
EnDat 2.2 = 6	Options
	0 = None (Standard)
	1 = Anti-condensation

All data in this folder are of informative character without warranty of characteristics. Changes without previous announcement reserved.

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SC30

Servo Controller

- Positioning, speed and torque control
- Digital 4-Q control
- Speed set-point analogue
+/- 10 V DC / 0 ... 10 V DC with direction signal
- Stepper motor simulation, clock + direction inputs
- Safe Torque Off Category 3 PL e (EN ISO 13849-1)
- Integrated ballast circuit
- Brake control
- Direct status- and diagnostics
- Digital inputs and outputs (24 V DC)
- RS232 for parameter adjustment
- Separate logic supply 24V DC, wrong polarity protected

Order options:

- Motor supply 230VAC / 400VAC
- Galvanic insulated fieldbus interface:
 - RS232/RS422/RS485
 - PROFIBUS-DP
 - PROFINET-IO
 - CANopen DSP402
 - EtherCAT CoE
 - Through switches adjustable bus address & baud rate
- Motor feedback:
 - Resolver
 - Hiperface
 - EnDat 2.2



Direct Mains supply
230V / 400V

**integrated
line filter !**

PROFI[®]
NET

PROFI[®]
BUS

EtherCAT[®]

CANopen[®]

Modbus

Digital AC-Servo controller SC30

The SC30 is a servo controller for current, speed and position control of AC servo motors with resolver technology, HIPERFACE® or EnDat2.2 encoder interface.

The power supply and a ballast circuit are already integrated.

Up to 31 positions (motion records) can be stored and retrieved via inputs.

Alternatively, an analogue +/- 10 V signal can specify the setpoint for speed or torque.

An optional fieldbus interface (PROFIBUS-DP, PROFINET-IO, CANopen DSP402, EtherCAT or RS232/RS422/RS485) allows direct access to all motion data and functions.

Incremental encoder outputs simulate an encoder with a configurable pulse number. Alternatively, an input for encoders or clock and direction signals can be activated as a position setpoint.

The status and error display is provided by a 7-segment display and additional status outputs.

Due to the very compact design, the device requires little space in the control cabinet.

The PC software "ServoLink" comfortably enables all required settings.

Technical Data

General:

Ambience temperature:	0 ... +40 °C at rated power
Derating:	2 %/K with temperatures > 40 ° ... 50 °C
Humidity:	5 - 85 %, non-condensing
Cooling:	Convective cooling
Dimensions:	86 x 238 x 205mm (WxHxD)

Output stage:

	Galvanic insulation from control stage according to VDE 0160, Short-circuit and ground-fault proof for < 2000 incidents
Supply voltage:	230 V AC / 400 V AC (see order code)
Rated current:	15 A
Peak current:	30 A

Ballast circuit:

self-adjusting ballast threshold
Integrated ballast resistor
Connection for external ballast resistor

Control stage:

	Complete galvanic insulation to power stage, see above
Supply voltage:	24 V DC, unregulated (+20 %, -10 %)
Power consumption:	ca. 8 W

Order code:

SC30-1530/vvv.xx0.0x1-xxx

Omitted in standard design

Rated/Peak current $I_R=15A$, $I_P=30A$

Supply voltage

230 V AC = 230
400 V AC = 400

Interface

Without Fieldbus = 0
PROFIBUS-DP = 3
CANopen = 4
RS232 / RS422 / RS485 = 5
EtherCAT = 6
PROFINET-IO = 7
CANopen + Interaxle-CAN = A
No Fieldbus + Interaxle-CAN = B
PROFINET-IO + Interaxle-CAN = C

Custom specific options

Safety functions

1 = Safe Torque Off (EN ISO 13849-1)

Address switch (Interface = 3/4/5/A only)

0 = Without (Standard)
1 = With address switch

I/O Options

0 = 8 Inputs / 5 Outputs / 2 Analogue inputs

Options

0 = None (Standard)
1 = Condensation protection

Motorfeedback

4 = Resolver
5 = Hipurface
6 = EnDat 2.2

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esiMot



Decentral Servo drive 120 600W with integrated power electronics. Digital 4Q regulator, amplifier mode with analog setpoint, positioning mode with PLC interface or fieldbus connection CANopen, Profibus-DP or RS485, 24...60VDC

esiMot5/2



Decentral Servo drive 160W with integrated power electronics. Different electronics assembly. Digital 4Q regulator, amplifier mode with analog setpoint, positioning mode with PLC interface or fieldbus connection CANopen, Profibus-DP or RS485, 24...60VDC

esiMot XL



Decentral Servo drive up to 4,5Nm with integrated power electronics. Digital 4Q regulator, amplifier mode with analog setpoint, positioning mode with PLC interface or fieldbus connection CANopen, Profibus-DP, EtherCAT or RS485, 230/400 V AC

esiMot SL



Decentral Servo drive up to 13,2Nm with integrated power electronics. Digital 4Q regulator, amplifier mode with analog setpoint, positioning mode with PLC interface or fieldbus connection CANopen, Profibus-DP, EtherCAT or RS485, 400 V AC

SBL2x ... 7x



AC-Servo motors 0,2 ... 32 Nm, with resolver technics, 230VAC or 400VAC

ESY 0xx ... 76xx



AC-Servo motors 0,1 ... 93Nm, 230VAC or 400VAC, various encoders feasible, IP65

PGA52/PGA60



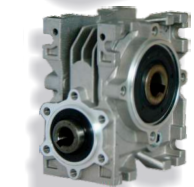
Planetary gearboxes with compact size for esiMot6

PGBxxx



Compact planetary gearboxes with reduced backlash and higher torques, suitable for esiMot and AC-Servo motors

FRTxx WPLx



Worm gearboxes and angled planetary gearboxes in various sizes and designs.

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esiMot

Decentral Servo - Drive

**all-in-one
Servomotor
highly dynamic
120 - 600 W**

- Brushless servo-motor with integrated electronics
- Positioning and speed-/torque regulator mode
- Digital 4-Q regulator
- Direct status- and diagnostics function through LED's
- Digital inputs and outputs (24V)
- RS232 for parameter setting
- 24 - 60V DC motor supply
- Separate logic supply 24V, wrong polarity protected

Order-Options:

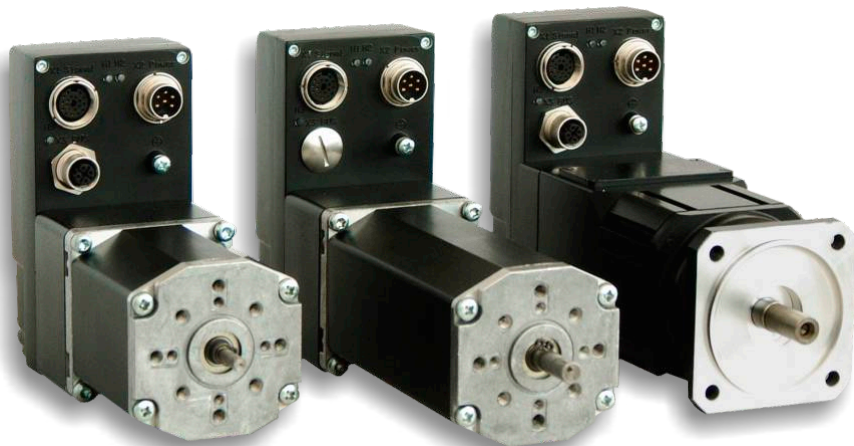
- Set value analog
+/- 10V DC / 0 ... 10 V DC with direction signal
0/4 ... 20 mA
- Recordable drive records (PLC-interface)
- Galvanically insulated fieldbus interface:
Profibus-DP
PROFINET
CANopen DSP402
EtherCAT CoE
RS485
Bus address and baud rate adjustable via switch



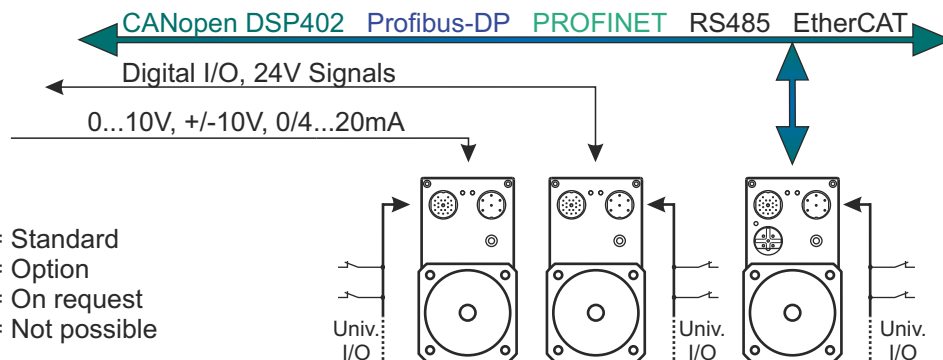
ATEX 114



- Safe Torque Off Cat. 3 Performance level e
- Multiturn absolute encoder (built-in)
- Standstill brake
- ATEX114, Zone 2 and 22
- Planetary and worm-gearboxes



esiMot Features



Characteristics	esiMot-Type	Without Fieldbus		With Fieldbus
		esiMot x/x.1xx.xx Amplifiermode	esiMot x/x.2xx.xx Positioningmode	esiMot x/x.3-7xx.xx All modes
	Integrated servo-amplifier	✓	✓	✓
	Integrated positioning logic (position loop)	-	✓	✓
	Digital 4Q speed and torque regulator	✓	✓	✓
	Position acquisition			
	- Incremental encoder* (Standard with esiMot7)	□	□	□
	- Absolute encoder Multi-Turn	□	□	□
	Fieldbus RS485, CANopen, Profibus-DP, Profinet	-	-	□
	Analog set value	✓	-	□
	Digital inputs	4	8	4 / ◇6
	Digital outputs	1	2	2 / ◇4
	Encoder output A/B/0 24V	✓	-	◇
	Integrated ballast circuit and -resistor	✓	✓	✓
	Connection for external ballast resistor	✓	✓	✓
	Wrong polarity protection	✓	✓	✓
	Stand still brake	□	□	□
	RS232 Programming interface (19,2kBaud)	✓	✓	✓

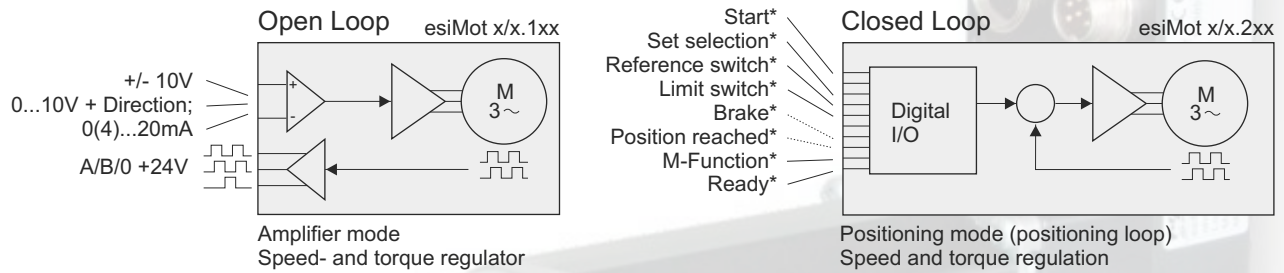
Functions and Programming	Programming/Parameter setting			
	- via RS232 Interface	✓	✓	✓
	- via Fieldbus RS485, CANopen, Profibus-DP, Profinet	-	-	✓
	- Position-Teach-In	-	✓	-
	Reference run management	-	✓	✓
	Limit switch (Hard- and Software)	-	✓	✓
	Automatic brake management	□	□	□
	Free programmable move records	-	15	15
	- Velocity	-	✓	✓
	- Acceleration/Deceleration (separate adjustable)	-	✓	✓
	- On-the-fly record change	-	✓	✓
	- Dwell time	-	✓	✓
	- Set outputs (M-functions)	-	✓	✓
	Regulating modes			
	- Electronic shaft/electronic gear	-	✓	✓
	- Speed / Torque (PI-Regulation)	✓	✓	✓
	- Absolute, Relative, Modulo Position (P-Regulation)	✓	✓	✓

Monitoring	Status LEDs	2	2	3
	Signalling e.g. for:			
	- Motor temperature (I²t)	✓	✓	✓
	- Motor temperature PTC (at esiMot7)	✓	✓	✓
	- Output stage temperature	✓	✓	✓
	- Ballast power internal	✓	✓	✓
	- Overvoltage/Undervoltage	✓	✓	✓
	Elapsed hour meter	✓	✓	✓
	Electronic type plate	✓	✓	✓

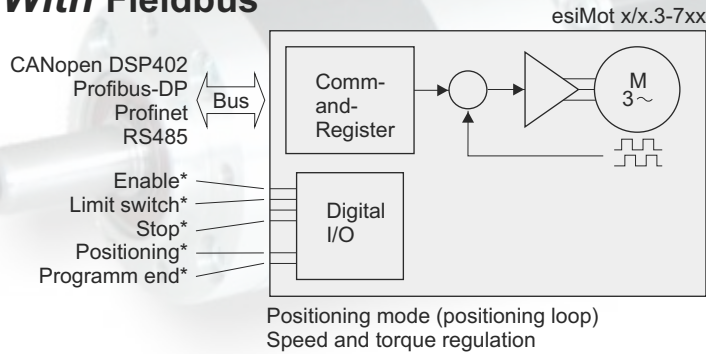
Accessories	Programming and parametrizing PC-software ServoLink	□	□	□
	Assembled feed cable	□	□	□
	Fitted gear boxes	□	□	□
	RS232-Adapter	□	□	□

* Resolution see motor-data

Without Fieldbus



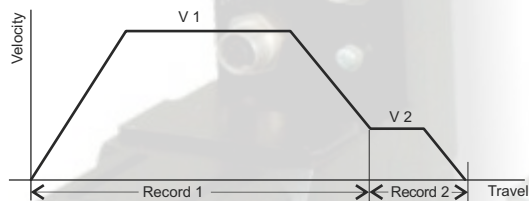
With Fieldbus



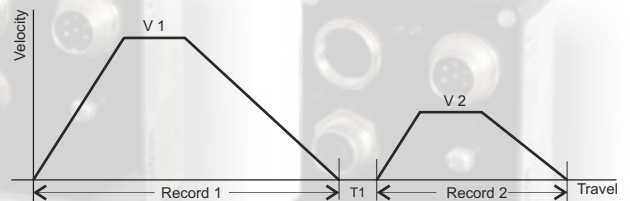
*) Example connection; other I/O-Functions are assignable.

Sample-Driveprofile:

On-the-fly record change

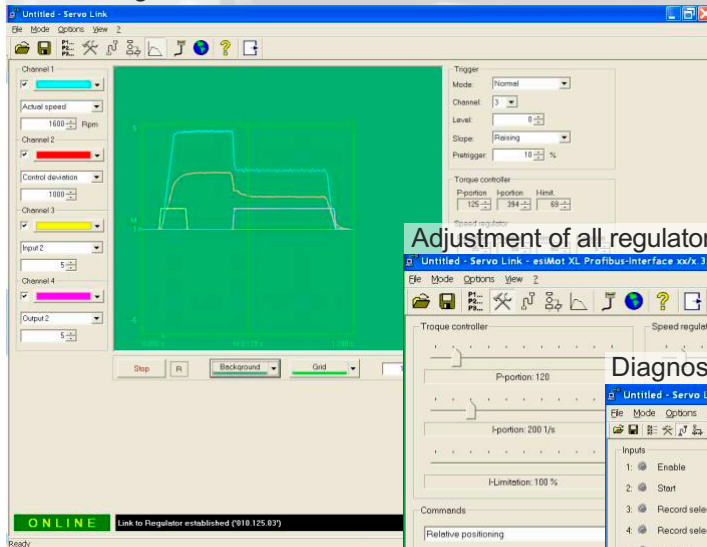


Record change with intermediate stop

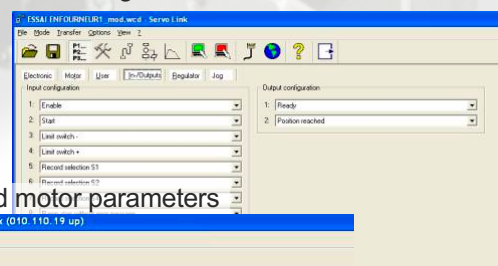


PC-Software:

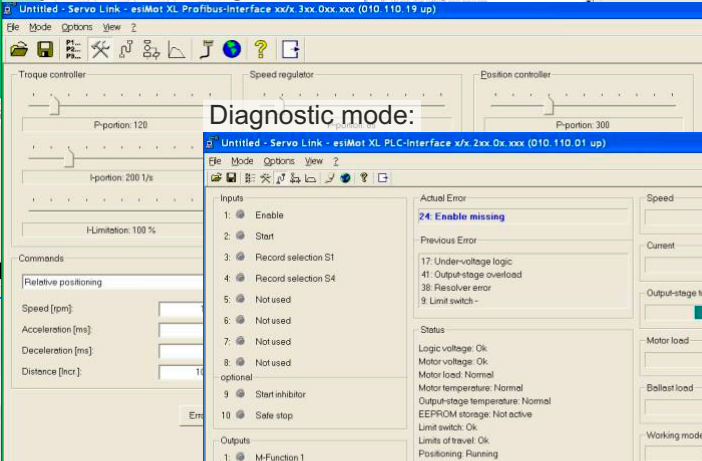
User settings



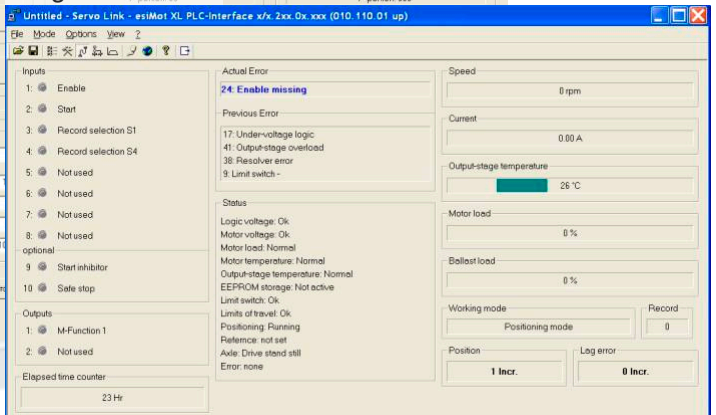
I/O-Configuration



Adjustment of all regulator and motor parameters



Diagnostic mode:



Other features:

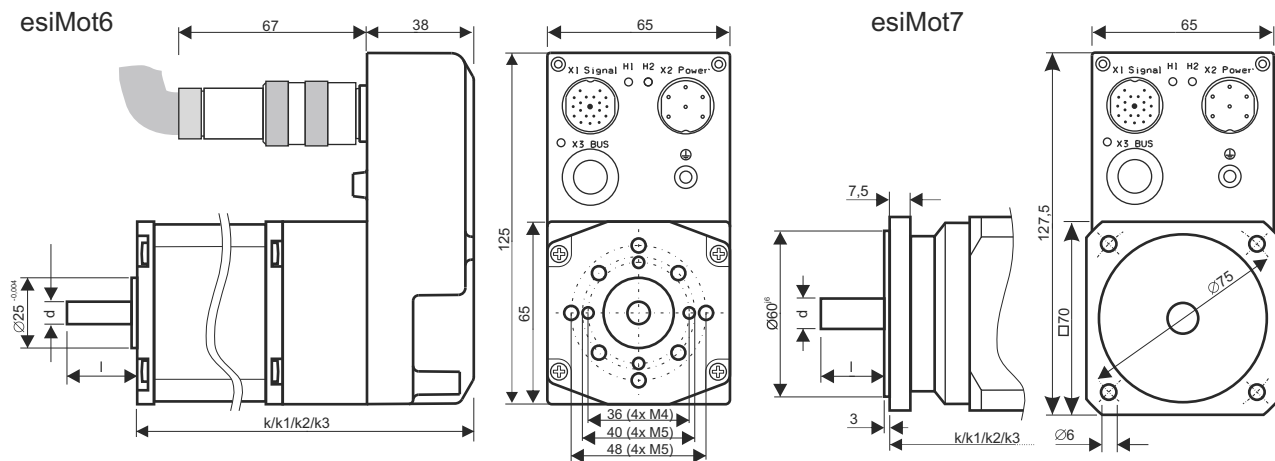
- Display units mm, °, ...
- Project management
- Password protection
- User settings
- Oscilloscope
- Language selection German/English

Subject to changes

Technical Data:

		24V		48V			60V	
esiMot size		6/1	6/2	6/5	7/1	7/2	7/1	7/2
Motor power (S3)	[W]	120	180	260	500	400	600	480
Rated power	[W]	70	110	200	340	300	430	380
Nominal torque	[Nm]	0,22	0,35	0,65	1,1	1,8	1,1	1,8
Impulse torque	[Nm]	0,50	0,70	1,2	1,6	2,3	1,6	2,3
Rated speed	[min ⁻¹]	3000	3000	3000	3000	1600	3750	2000
Inertia	[gcm ²]	71,6	128	172	530	530	530	530
Motor-supply	[VDC]	24	24	48	48	48	60	60
Rated current	[A]	4,0	5,6	3,5	9,0	8,0	9,0	8,0
Peak current	[A]	14	14	14	14	14	14	14
Logic supply (0,3A)	[VDC]	24	24	24	24	24	24	24
Resolution without incr.-enc.	[lpr]	30	30	30	-	-	-	-
with integrated incr.-enc.	[lpr]	2048	2048	2048	4096	4096	4096	4096
with integrated absolute enc.	[lpr]	4096	4096	4096	4096	4096	4096	4096
Protection class (mounting specific)		IP 64	IP 64	IP 64	IP 64	IP64	IP64	IP64
Weight ca.	[kg]	1,37	1,8	2,3	2,3	2,3	2,3	2,3

Dimensions:



esiMot	d	l	k	k1	k2	k3
6/1	5	20	148	188	188	on request
6/2	5	20	173	213	213	on request
6/5	8	25	198	238	238	on request
7/x	11	20	186	236	199	249

k = Hall sensors / incremental encoder
 k1 = Hs / incr. encoder + brake
 k2 = Absolute encoder
 k3 = Absolute encoder + brake

Order code:

esiMot x/x.xxx.xxX.XXX — Omitted in standard design

Size (see technical data)	Custom specific options
Basic version	Safety functions = Without (Standard) 1 = STO Cat.3 PLe (EN ISO 13849-1)
Amplifier-Mode, 4/1 dig. I/O = 1	Address switches (only with fieldbus) 0 = Without (Standard) 1 = With address switches
PLC-Interface, 8/2 dig. I/O = 2	Input options (only with fieldbus) 0 = 4/2 digital I/Os (Standard) 1 = 6/2 digital I/Os 2 = Analog input + 4/2 dig. I/Os
Profibus-DP, 4/2 dig. I/O = 3	Standstill brake 0 = Without brake (Standard) 1 = With standstill brake
CANopen, 4/2 dig. I/O = 4	
RS485, 4/2 dig. I/O = 5	
EtherCAT CoE, 4/2 dig. I/O = 6	
Profinet, 4/2 dig. I/O = 7	
Position feedback	
Hall sensors = 1	
Incremental encoder = 2	
Absolute encoder = 5	

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esiMot 5/2

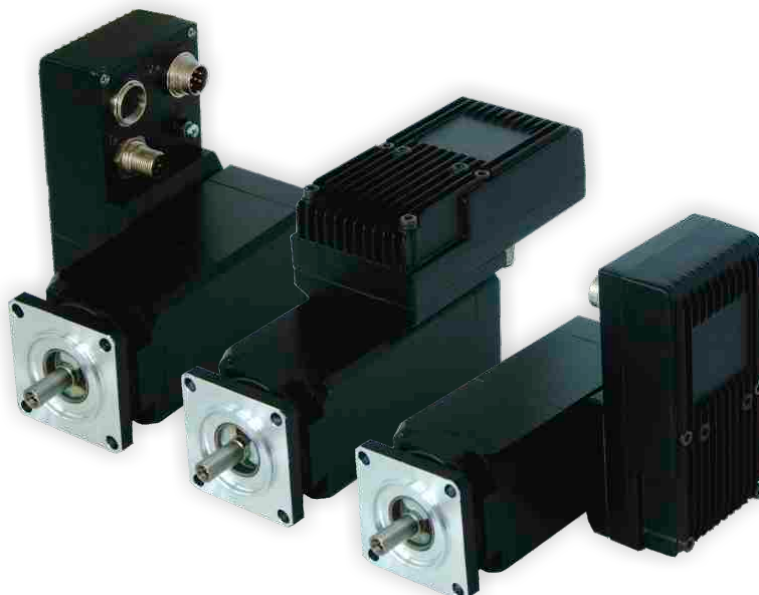
Decentral Servo - Drive

all-in-one
servo motor
variable design

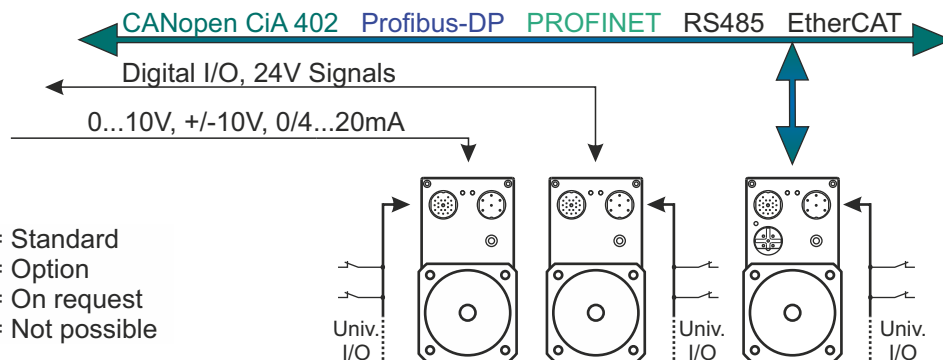
- Brushless servo-motor with integrated electronics
- Positioning and speed-/torque regulator mode
- Digital 4-Q regulator
- Direct status- and diagnostics function through LED's
- Digital inputs and outputs (24V)
- RS232 for parameter setting
- 24 - 60V DC motor supply
- Separate logic supply 24V, wrong polarity protected

Order-Options:

- Set value analog
+/- 10V DC / 0 ... 10 V DC with direction signal
0/4 ... 20 mA
- Recordable motion data (PLC-interface)
- Galvanically insulated fieldbus interface:
 - Profibus-DP
 - PROFINET
 - CANopen CiA 402
 - EtherCAT CoE
 - Modbus RS485
 - Bus address and baud rate adjustable via switch
- Safe Torque Off Cat. 3 Performance Level e
- Multiturn absolute encoder (built-in)
- Standstill brake
- Planetary gearboxes



esiMot Features



	esiMot-Type	Without Fieldbus		With Fieldbus
		esiMot x/x.1xx.xx Amplifier mode	esiMot x/x.2xx.xx Positioning mode	esiMot x/x.3-7xx.xx All modes
Characteristics	Integrated servo-amplifier	✓	✓	✓
	Integrated positioning logic (position loop)	-	✓	✓
	Digital 4Q speed and torque regulator	✓	✓	✓
	Position acquisition			
	- Incremental encoder* (Standard with esiMot7)	□	□	□
	- Absolute encoder Multi-Turn	□	□	□
	Fieldbusses (see order code)	-	-	□
	Analog set value	✓	-	□
	Digital inputs	4	8	4 / ◇6
	Digital outputs	1	2	2 / ◇4
	Encoder output A/B/0 24V	✓	-	◇
	Integrated ballast circuit and -resistor	✓	✓	✓
	Connection for external ballast resistor	✓	✓	✓
	Wrong polarity protection	✓	✓	✓
	Stand still brake	□	□	□
	RS232 Programming interface (19,2kBaud)	✓	✓	✓

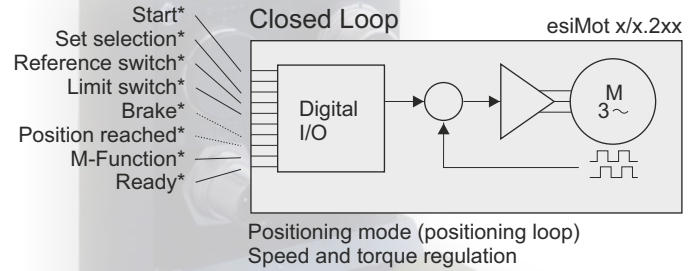
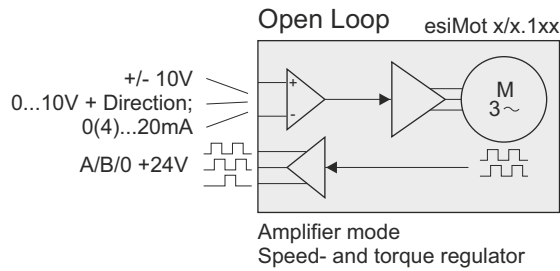
Functions and Programming	Programming/Parameter setting			
	- via RS232 Interface	✓	✓	✓
	- via Fieldbus	-	-	✓
	- Position-Teach-In	-	✓	-
	Reference run management	-	✓	✓
	Limit switch (Hard- and Software)	-	✓	✓
	Automatic brake management	□	□	□
	Free programmable move records	-	15	15
	- Velocity	-	✓	✓
	- Acceleration/Deceleration (separate adjustable)	-	✓	✓
	- On-the-fly record change	-	✓	✓
	- Dwell time	-	✓	✓
	- Set outputs (M-functions)	-	✓	✓
	Regulating modes			
	- Electronic shaft/electronic gear	-	✓	✓
	- Speed / Torque (PI-Regulation)	✓	✓	✓
	- Absolute, Relative, Modulo Position (P-Regulation)	-	✓	✓

Monitoring	Status LEDs	2	2	3
	Signalling e.g. for:			
	- Motor temperature (I²t)	✓	✓	✓
	- Motor temperature PTC	✓	✓	✓
	- Output stage temperature	✓	✓	✓
	- Ballast power internal	✓	✓	✓
	- Overvoltage/Undervoltage	✓	✓	✓
	Elapsed hour meter	✓	✓	✓
	Electronic type plate	✓	✓	✓

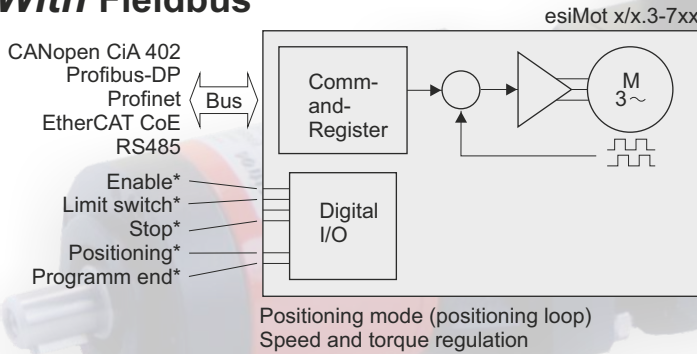
Accessories	Programming and parametrizing PC-software ServoLink	□	□	□
	Assembled feed cable	□	□	□
	Fitted gear boxes	□	□	□
	RS232-Adapter	□	□	□

* Resolution see motor-data

Without Fieldbus



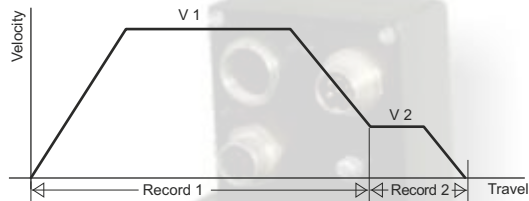
With Fieldbus



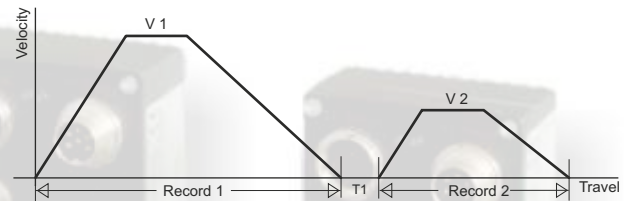
*) Example connection;
other I/O-Functions are assignable.

Sample-Driveprofile:

On-the-fly record change

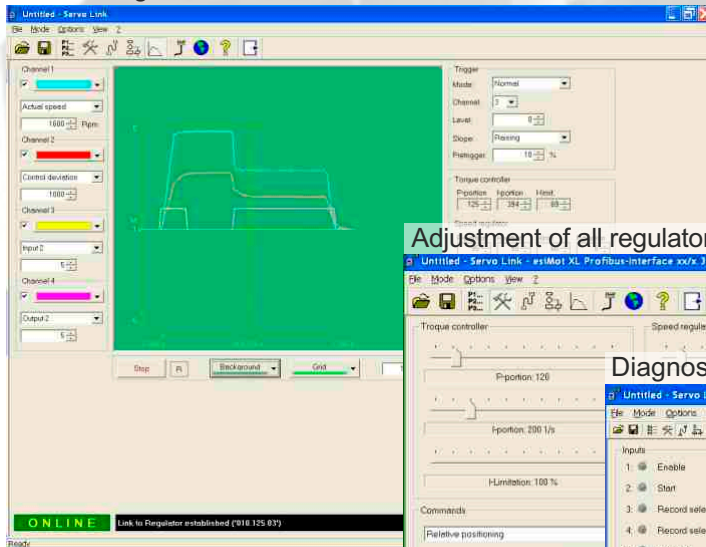


Record change with intermediate stop

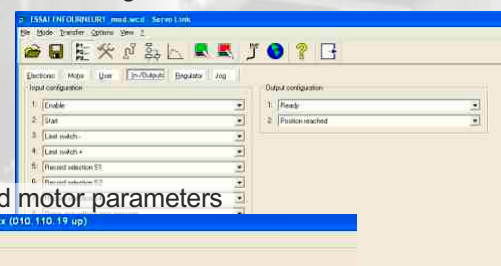


PC-Software:

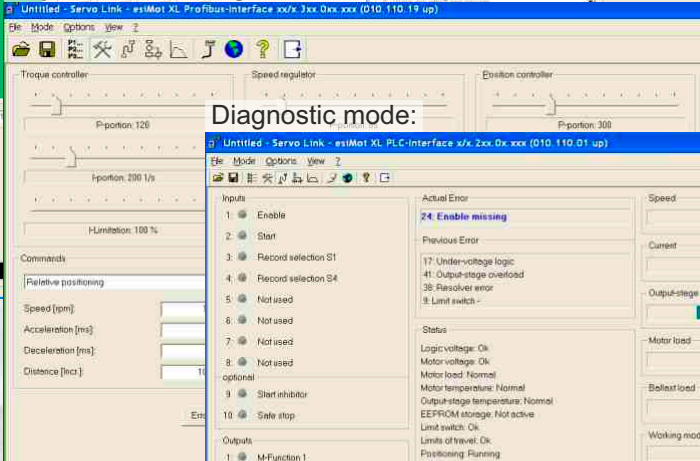
User settings



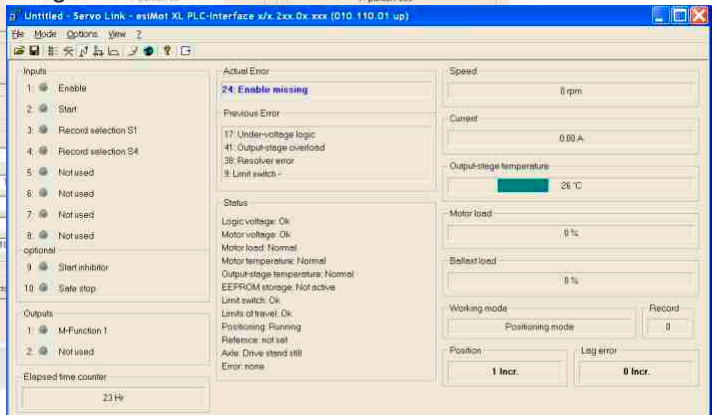
I/O-Configuration



Adjustment of all regulator and motor parameters



Diagnostic mode:



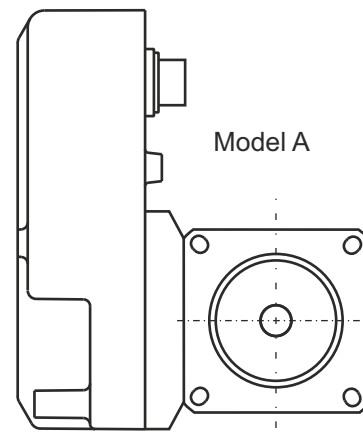
Other features:

- Display units mm, °, ...
- Project management
- Password protection
- User settings
- Oscilloscope
- Language selection German/English

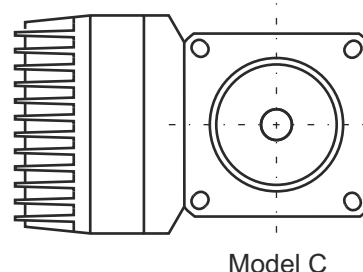
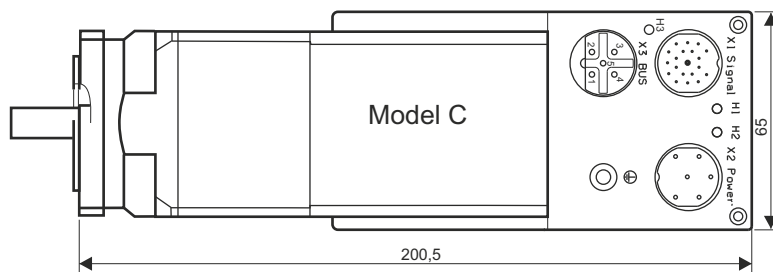
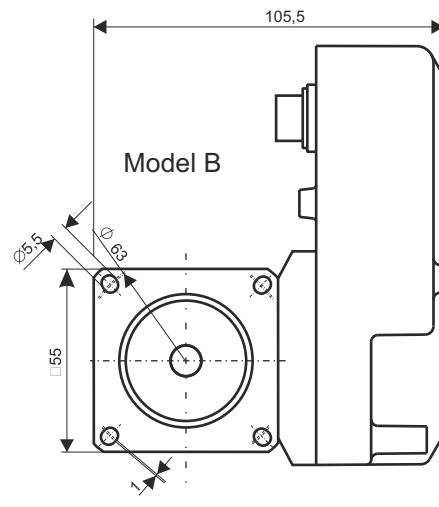
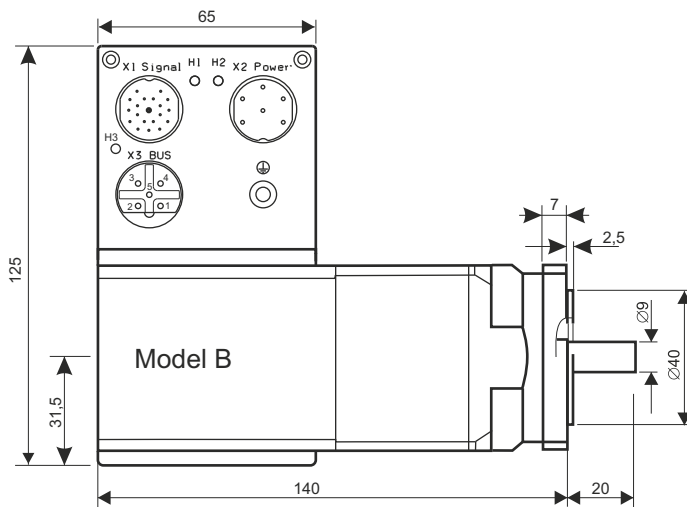
Subject to changes

Technical Data:

esiMot size		5/2
Motor power (S3)	[W]	240
Rated power	[W]	150
Nominal torque	[Nm]	0,5
Impulse torque	[Nm]	1,3
Rated speed	[min ⁻¹]	3000
Inertia	[gcm ²]	196
Motor-supply	[VDC]	48
Rated current	[A]	4,6
Peak current	[A]	12
Logic supply (0,3A)	[VDC]	24
Resolution incremental	[lpr]	4096
Resolution absolute enc.	[lpr]	4096
Protection class (mounting specific)		IP 64
Weight ca.	[kg]	1,6



Dimensions are mirrored to model B



Order code:

esiMot 5/2.xxx.xxX.yzz — Omitted in standard design

Size

Basic version

- Amplifier-Mode, 4/1 dig. I/O = 1
- PLC-Interface, 8/2 dig. I/O = 2
- Profibus-DP, 4/2 dig. I/O = 3
- CANopen, 4/2 dig. I/O = 4
- RS485, 4/2 dig. I/O = 5
- EtherCAT CoE, 4/2 dig. I/O = 6
- Profinet, 4/2 dig. I/O = 7

Position feedback

- Incremental encoder = 2
- Absolute encoder = 5

Standstill brake

- Without brake (Standard) = 0
- With standstill brake = 1

Custom specific options

Model

- A = Electronics left (view on axle)
- B = Electronics right (view on axle)
- C = Electronics in line

Safety functions

- = Without (Standard)
- 1 = STO Cat.3 PLe (EN ISO 13849-1)

Address switches (only with fieldbus)

- 0 = Without (Standard)
- 1 = With address switches

Input options (only with fieldbus)

- 0 = 4/2 digital I/Os (Standard)
- 1 = 6/2 digital I/Os
- 2 = Analog input + 4/2 dig. I/Os

All data in this folder have an informative character without warranty of characteristics. Changes without previous announcement reserved.

esitron-electronic GmbH

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esiMot XL

Decentral Servo - Drive

Mains power supply
1x 230VAC or
3x 400VAC

all-in-one
Servomotor
High Dynamic
0,8 - 3,2kW



ATEX 114



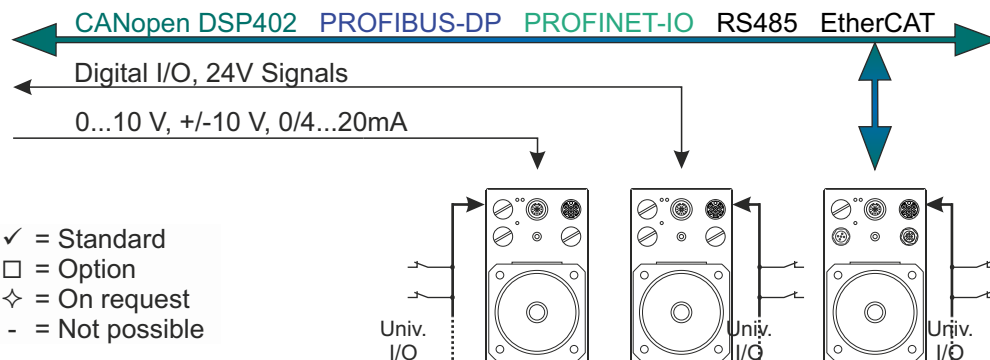
- Brushless servo-motor with integrated electronics
- Positioning and speed-/torque regulator mode
- Digital 4-Q regulator
- Direct status- and diagnostics function through LEDs
- Digital In- and Outputs (24 V)
- RS232 for parameter setting
- Motor supply 230 V AC or 400 V AC, 50/60Hz
- Separate logic supply 24 V DC, wrong polarity protected

Order options:

- Set value analog
 +/- 10 V DC / 0 ... 10 V DC with direction signal
 0/4 ... 20 mA
- Recordable motion data (PLC-interface)
- Galvanically insulated fieldbus interface:
 PROFIBUS-DP
 PROFINET-IO
 CANopen DSP402
 Modbus RS485
 EtherCAT CoE
 Via switch adjustable bus address/ baud rate
- Safe Torque Off Category 3 Performance Level e
- Multiturn absolute encoder
- Connection to external EnDAT2.2 encoder
- Standstill brake
- ATEX114 Zones 2 and 22
- Planetary and worm gearboxes



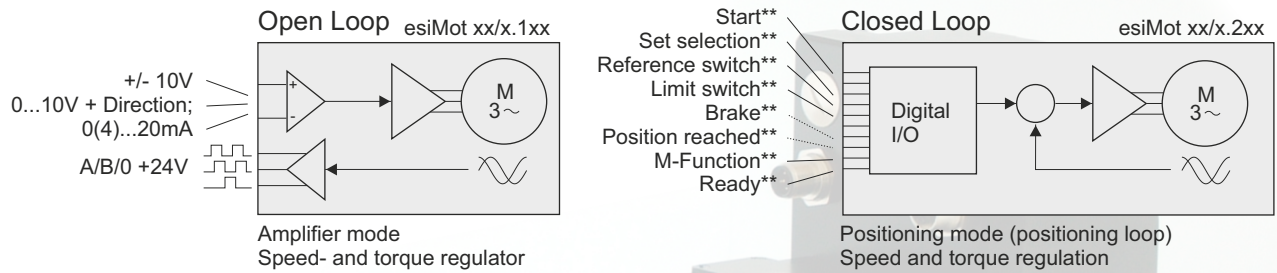
esiMot Features



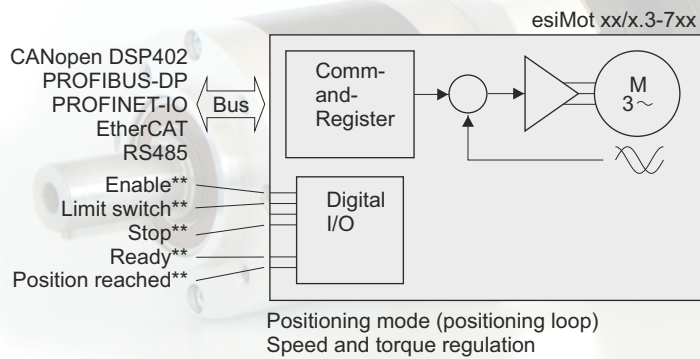
	esiMot XL - Type	Without Fieldbus		With Fieldbus
		xx/x.1xx.xx Amplifier mode	xx/x.2xx.xx Positioning mode	xx/x.3-7xx.xx All modes
Characteristics	Integrated servo-amplifier	✓	✓	✓
	Integrated positioning logic (position loop)	-	✓	✓
	Digital 4Q speed and torque regulator	✓	✓	✓
	Position acquisition**			
	- Resolver	✓	✓	✓
	- Absolute encoder Multi-Turn	-	□	□
	Fieldbuses (see order code)	-	-	□
	Analog set value	✓	-	◇
	Digital inputs	4	8	8 / ◇6
	Digital outputs	1	2	2 / ◇4
	Encoder output A/B/0 24V	✓	-	◇
	Integrated ballast circuit and -resistor	✓	✓	✓
	Connection for external ballast resistor	✓	✓	✓
	Wrong polarity protection	✓	✓	✓
	Safe Torque Off EN 13849-1 Cat. 3 PL e	□	□	□
	Stand still brake	□	□	□
	RS232 Programming interface (19,2kBaud)	✓	✓	✓
Functions and Programming	Programming/Parameter setting			
	- via RS232 Interface	✓	✓	✓
	- via Fieldbus	-	-	✓
	- Position-Teach-In	-	✓	-
	Reference run management	-	✓	✓
	Limit switch (Hard- and Software)	-	✓	✓
	Automatic brake management	-	□	□
	Free programmable move records	-	15	15
	- velocity	-	✓	✓
	- Acceleration/Deceleration (separate adjustable)	-	✓	✓
	- On-the-fly record change	-	✓	✓
	- Dwell time	-	✓	✓
	- Set outputs (M-functions)	-	✓	✓
	Regulating modes			
	- Electronic shaft/electronic gear	-	✓	✓
	- Speed / Torque (PI-Regulation)	✓	✓	✓
	- Absolute, Relative, Modulo Position (P-Regulation)	✓	✓	✓
Monitoring	Status LEDs	2	2	3
	Signalling e.g. for:			
	- Motor temperature (I ² t)	✓	✓	✓
	- Motor temperature PTC	✓	✓	✓
	- Output stage temperature	✓	✓	✓
	- Ballast power internal	✓	✓	✓
	- Overvoltage/Undervoltage	✓	✓	✓
	- Elapsed hour meter	✓	✓	✓
	Elektronik type plate	✓	✓	✓
Accessories	Programming and parametrizing PC-software ServoLink	□	□	□
	Assembled feed cable	□	□	□
	Fitted gear boxes	□	□	□
	RS232-Adapter	□	□	□

** Resolution see motor-data

Without Fieldbus



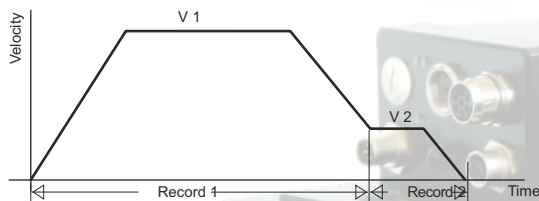
With Fieldbus



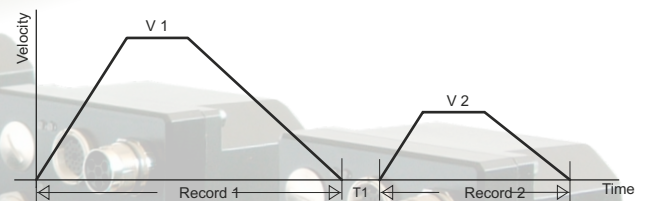
**) Example connection;
other I/O-Functions are assignable.

Sample-Driveprofile:

On-the-fly record change

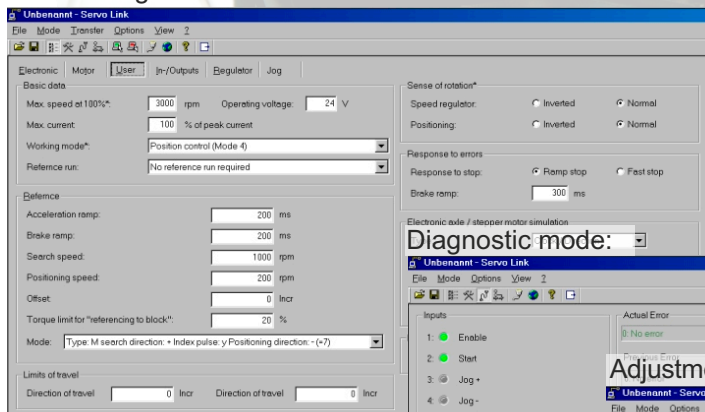


Record change with intermediate stop

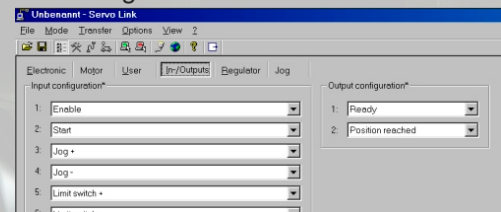


PC-Software:

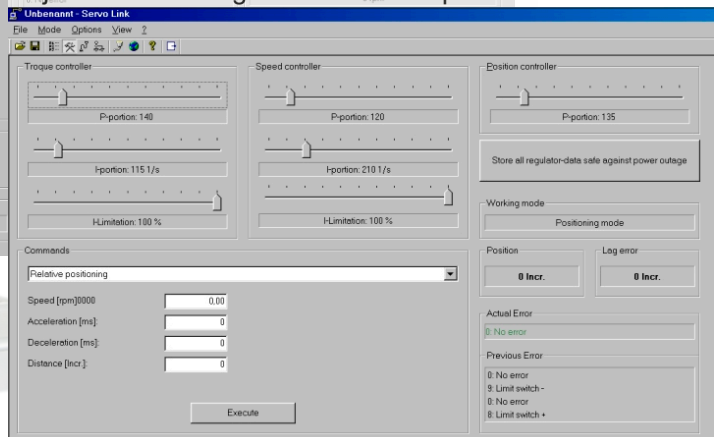
User settings



I/O-Configuration



Adjustment of all regulator and motor parameters



Other features:

- Display units mm, °, ...
- Project management
- Password protection
- Language selection German/English
- Oscilloscope

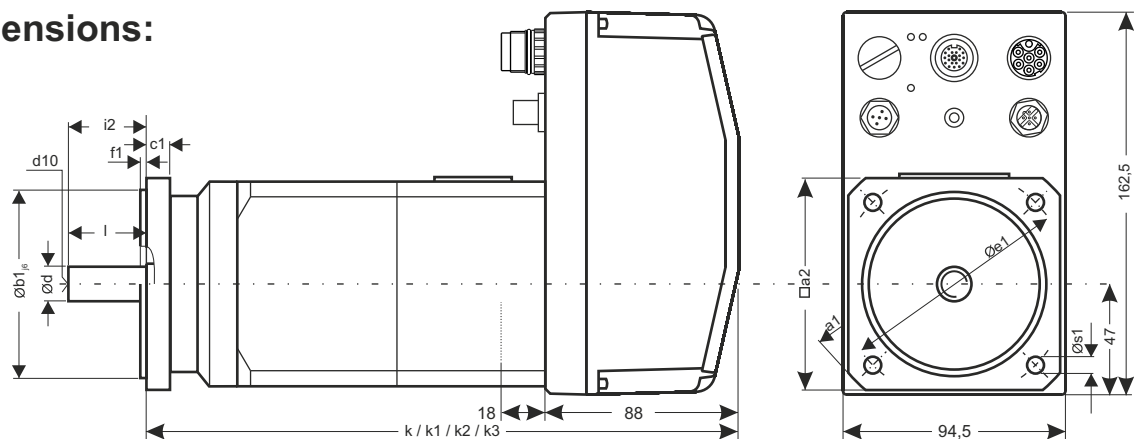
Technical Data:

esiMot XL 230V	size	21/3	22/3	31/3	32/3	33/2	41/2
Motor power (S3, 25%) 230V	[kW]	0,78	1,35	0,96	1,82	1,47	1,21
Rated power (S1)	[kW]	0,58	0,84	0,73	1,05	1,05	0,84
Rated speed	[min ⁻¹]	3500	3500	3500	3000	2000	2000

esiMot XL 400V	size	421/6	422/6	431/6	432/6	433/4	441/4
Motor power (S3, 25%)	[kW]	1,38	2,38	1,69	3,20	2,49	2,06
Motor power (S1)	[kW]	1,00	1,44	1,25	2,00	1,78	1,42
Rated speed	[min ⁻¹]	6000	6000	6000	6000	3400	3400

Impulse torque < 5 s	[Nm]	4,5	6,2	5,7	8,0	14,0	10,4
Rated torque (S3, 25%)	[Nm]	2,2	3,8	2,7	5,1	7,0	5,8
Rated torque (S1)	[Nm]	1,6	2,3	2,0	3,2	5,0	4,0
Holding Torque Brake	[Nm]	4,5	4,5	9,0	9,0	9,0	18
Inertia	[10 ⁻³ kgm ²]	0,058	0,099	0,08	0,16	0,24	0,28
Rated current	[A]	2,9	4,2	3,4	5,2	5,1	4,1
Logic supply (0,3A)	[VDC]	24	24	24	24	24	24
Axis Resolution	[lpr]	4096	4096	4096	4096	4096	4096
Protection class (mounting specific)		IP 65	IP 65	IP 65	IP 65	IP 65	IP 65
Weight ca.	[kg]	2,9	4,1	4,4	5,7	7,0	7,5

Dimensions:



esiMot	a1	a2	b1 _g	c1	d	d10	e1	f1	i2	k	k1	k2	k3	l	s1
(4)21/x	90	70	60	8	11	M4	75	2,5	23	226	274	252	301	23	6
(4)22/x	90	70	60	8	11	M4	75	2,5	23	266	314	292	341	23	6
(4)31/x	115	90	80	9	14	M4	100	3	30	230	274	248	292	30	6,5
(4)32/x	115	90	80	9	14	M4	100	3	30	270	314	288	332	30	6,5
(4)33/x	115	90	80	9	14	M4	100	3	30	310	354	328	372	30	6,5
(4)41/x	150	115	110	10	24	M8	130	3,5	50	246	301	266	301	50	9

k = Resolver
 k1 = Resolver + Brake
 k2 = Absolute encoder
 k3 = Absolute encoder + Brake

Order code:

esiMot x xx/x.xxx.xxx.xxx

Motor supply

230V AC =

400V AC = 4

Size

(see technical data)

Basic version

Amplifier-Mode, 4/1 dig. I/O = 1

PLC-Interface, 8/2 dig. I/O = 2

PROFIBUS-DP, 8/2 dig. I/O = 3

CANopen, 8/2 dig. I/O = 4

RS485, 8/2 dig. I/O = 5

EtherCAT CoE, 8/2 dig. I/O = 6

PROFINET-IO, 8/2 dig. I/O = 7

Position aquisition

Resolver = 4

Multiturn Absolute encoder = 5

Resolver(Motor) + EnDat2.2(external)* = A

*) not with CANopen or EtherCAT interface

Custom specific options

Safety functions

0 = None (Standard)

1 = Safe Torque Off Category 3

Performance Level e (EN ISO 13849-1)

Address switches (only with fieldbus)

0 = Without (Standard)

1 = With Address switches**

**) not with external encoder (Pos.acquis.=A)

I/O - Options (only with fieldbus)

0 = None (Standard = 8 DI, 2 DO)

1 = 6 DI, 4 DO

2 = 6 DI, Analog input, 2 DO

Standstill brake

0 = Without Brake (Standard)

1 = With standstill brake

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esiMot SL

Decentral Servo - Drive

- Brushless servo-motor with integrated electronics
- Positioning and speed-/torque regulator mode
- Digital 4-Q regulator
- Direct status- and diagnostics function through LED's
- Digital In- and Outputs (24V)
- RS232 for parameter setting
- Motor supply 400V AC, 50/60Hz
- Integrated ballast circuit with resistor
- Separate logic supply 24V, wrong polarity protected

Order options:

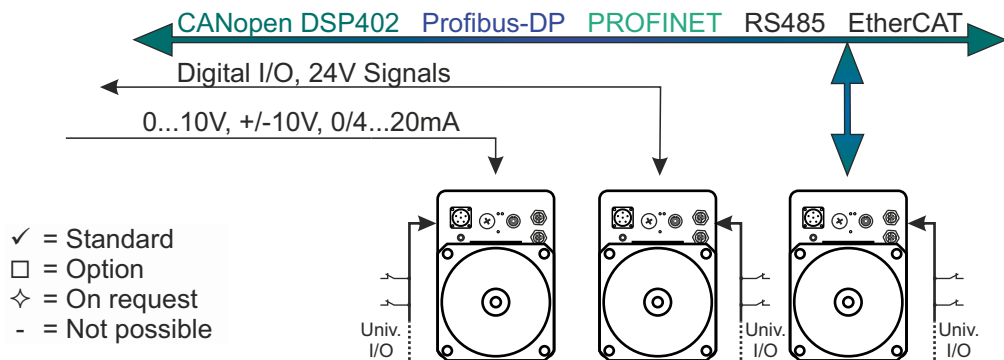
- Set value analog
+/- 10V DC / 0 ... 10 V DC with direction signal
0/4 ... 20 mA
- Recordable motion data (PLC-interface)
- Galvanically insulated fieldbus interface:
Profibus-DP
PROFINET
CANopen DSP402
Modbus RS485
EtherCAT CoE
Via switch adjustable bus address/ baud rate
- Safe Torque Off Category 3 Performance Level e
- Multiturn absolute encoder internal
- Connection to external EnDAT2.2 encoder
- Standstill brake
- Planetary and worm gearboxes

3x 400V AC

**all-in-one
Servomotor
High Dynamic
2,9 - 4,4kW_{s3}**



esiMot Features



	esiMot SL - Type	Without Fieldbus		With Fieldbus
		xx/x.1xx.xx Amplifier mode	xx/x.2xx.xx Positioning mode	xx/x.3-7xx.xx All modes
Characteristics	Integrated servo-amplifier	✓	✓	✓
	Integrated positioning logic (position loop)	-	✓	✓
	Digital 4Q speed and torque regulator	✓	✓	✓
	Position acquisition**			
	- Resolver	✓	✓	✓
	- Absolute encoder multi-turn	-	□	□
	Fieldbusses (see order code)	-	-	□
	Analog set value	✓	-	◇
	Digital inputs	4	8	8 / ◇6
	Digital outputs	1	2	2 / ◇4
	Encoder output A/B/0 24V	✓	-	◇
	Integrated ballast circuit and -resistor	✓	✓	✓
	Connection for external ballast resistor	✓	✓	✓
	Wrong polarity protection	✓	✓	✓
	Safe Torque Off EN 13849-1 Cat. 3 PL e	□	□	□
	Stand still brake	□	□	□
	RS232 Programming interface (19,2kBaud)	✓	✓	✓

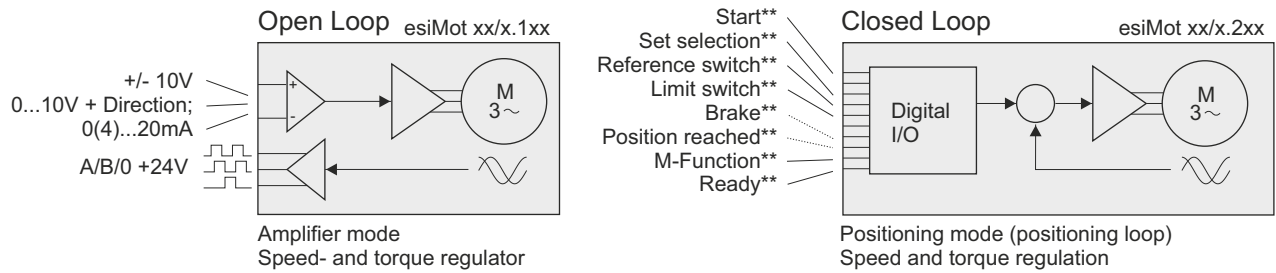
Functions and Programming	Programming/Parameter setting			
	- via RS232 Interface	✓	✓	✓
	- via Fieldbus	-	-	✓
	- Position-Teach-In	-	✓	-
	Reference run management	-	✓	✓
	Limit switch (hard- and software)	-	✓	✓
	Automatic brake management	-	□	□
	Free programmable move records	-	15	15
	- velocity	-	✓	✓
	- Acceleration/Deceleration (separate adjustable)	-	✓	✓
	- On-the-fly record change	-	✓	✓
	- Dwell time	-	✓	✓
	- Set outputs (M-functions)	-	✓	✓
	Regulating modes			
	- Electronic shaft/electronic gear	-	✓	✓
	- Speed / Torque (PI-regulation)	✓	✓	✓
	- Absolute, Relative, Modulo Position (PI-regulation)	-	✓	✓

Monitoring	Status LEDs	2	2	3
	Signalling e.g. for:			
	- Motor temperature (I ² t)	✓	✓	✓
	- Motor temperature PTC	✓	✓	✓
	- Output stage temperature	✓	✓	✓
	- Ballast power internal	✓	✓	✓
	- Overvoltage/Undervoltage	✓	✓	✓
	- Elapsed hour meter	✓	✓	✓
	Elektronik type plate	✓	✓	✓

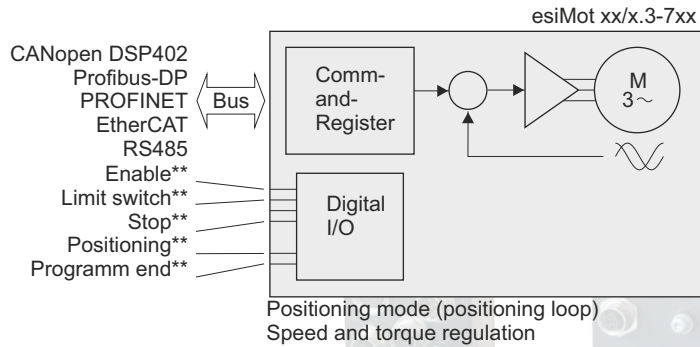
Accessories	Programming and parametrizing PC-software ServoLink	□	□	□
	Assembled feed cable	□	□	□
	Fitted gear boxes	□	□	□
	RS232-Adapter	□	□	□

** Resolution see motor-data

Without Fieldbus



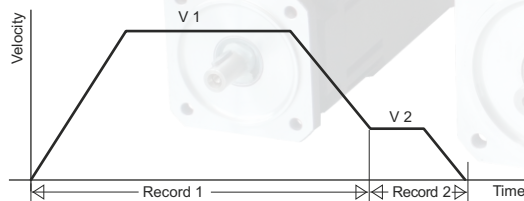
With Fieldbus



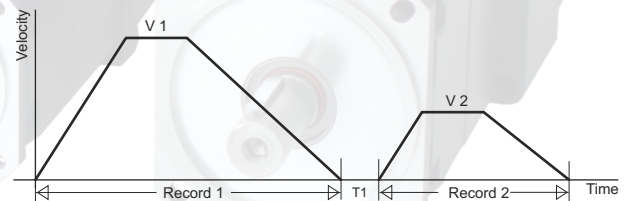
**) Example connection;
other I/O-Functions are assignable.

Sample-Driveprofile:

On-the-fly record change

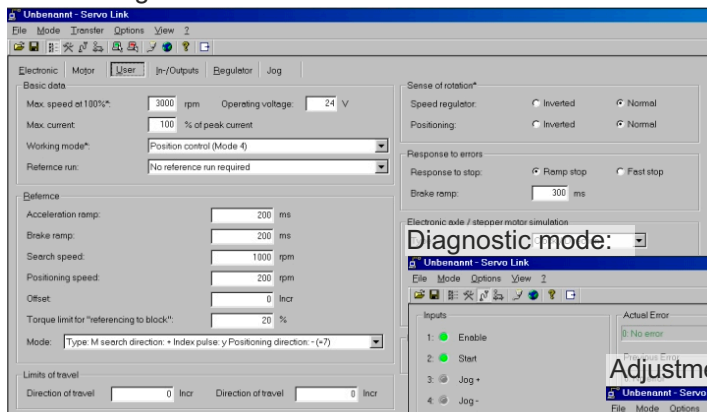


Record change with intermediate stop

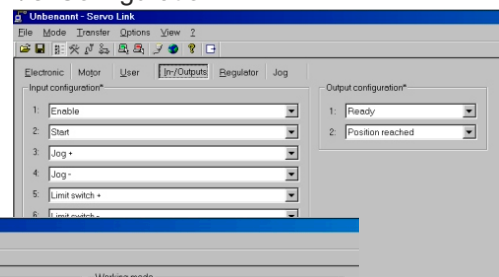


PC-Software:

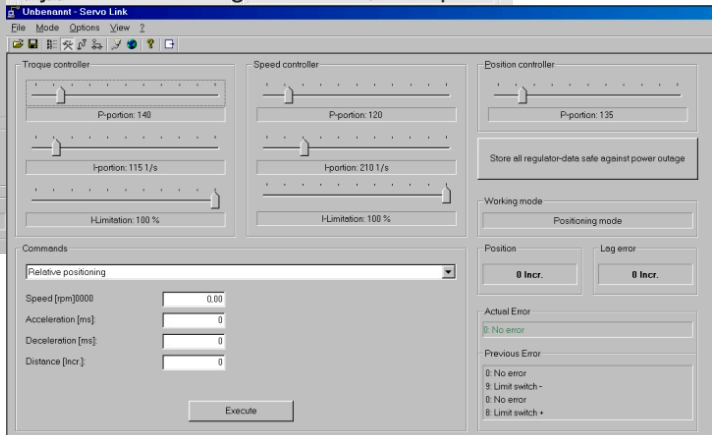
User settings



I/O-Configuration



Adjustment of all regulator and motor parameters



Other features:

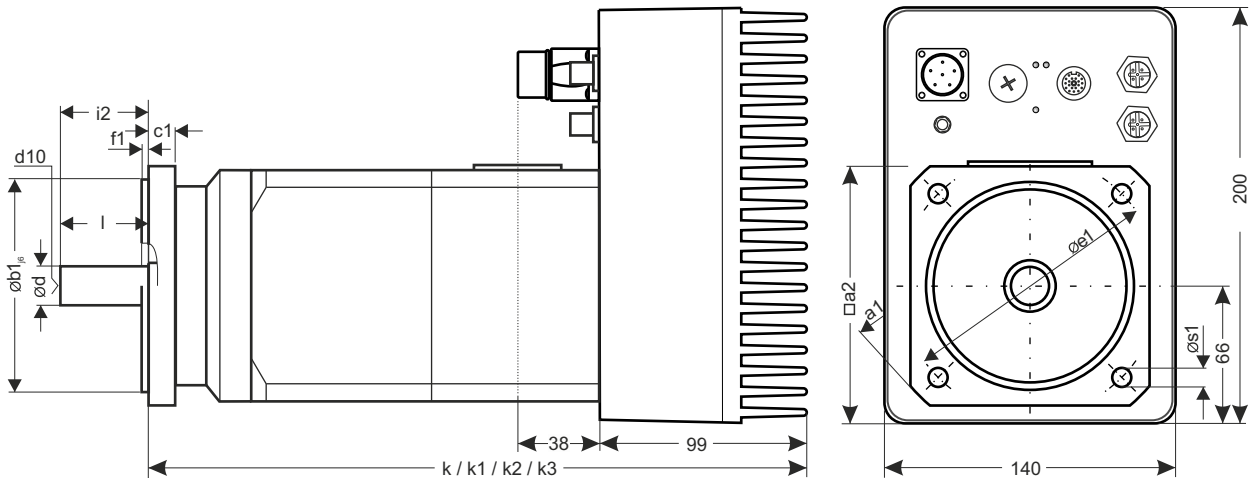
- Display units mm, °, ...
- Project management
- Password protection
- Language selection German/English
- Oscilloscope

Technical Data:

esiMot SL 400V	size	551/3	552/2	554/3	555/2
Motor power (S3, 25%)	[kW]	3,1	3,2	4,4	4,2
Rated power (S1)	[kW]	1,9	2,1	2,9	2,75
Rated speed	[min ⁻¹]	3000	2000	3000	2000

Impulse torque < 5 s	[Nm]	28,0	42,0	39	56
Rated torque (S3, 25%)	[Nm]	10,0	15,2	14,2	20,0
Rated torque (S1)	[Nm]	6,5	10,0	9,3	13,2
Inertia	[10 ⁻³ kgm ²]	0,8	1,58	2,87	4,65
Rated current AC	[A]	6,0	6,1	8,6	8,1
Logic supply (0,3A)	[VDC]	24			
Axis resolution	[lpr]	4096			
Protection class (mounting specific)		IP 65		IP 54	
Weight ca.	[kg]	12,8	14,8	12,9	17,0

Dimensions:



esiMot SL	a1	a2	b1 ₆	c1	d	d10	e1	f1	i2	k	k1	k2	k3	l	s1
551/3	190	140	130	12	32	M12	165	3,5	58	263	322	309	369	58	11
552/2	190	140	130	12	32	M12	165	3,5	58	303	362	349	409	58	11
554/3	190	140	130	12	32	M12	165	3,5	58	242	298	274	330	58	11
555/2	190	140	130	16	32	M12	165	3,5	58	282	338	314	370	58	11

- k = Resolver
- k1 = Resolver + Brake
- k2 = Absolute encoder
- k3 = Absolute encoder + Brake

Order code:

```
esiMot x xx/x.xxx.xxx.xxx
```

$$SL = 5$$

Size

(see technical data)

Basic version

Amplifier-Mode, 4/1 dig. I/O = 1

PLC-Interface, 8/2 dig. I/O = 2

Profibus-DP, 8/2 dig. I/O = 3

CANopen, 8/2 dig. I/O = 4

RS485, 8/2 dig. I/O = 5

EtherCAT CoE, 8/2 dig. E/A = 6

Profinet, 8/2dig. I/O= 7

Position aquisition

Resolver = 4

Multiturn Absolute encoder = 5

$$\text{Resolver(Motor)} + \text{EnDat2.2(external)}^* = A$$

*) not with CANopen or EtherCAT interface

Custom specific options

Safety functions

0 = None (Standard)

1 = Safe Torque Off Category 3

Performance Level e (EN ISO 13849-1)

Address switches (only with fieldbus)

0 = Without (Standard)

1 = With Address switches**

****)** not with external encoder (Pos.acquis.=A)

I/O - Options (only with fieldbus)

0 = None (Standard = 8 DI, 2 DO)

1 = 6 DI, 4 DO

2 = 6 DI, Analog input, 2 DO

Standstill brake + motor shaft

0 = Without brake, shaft with feather key (Standard)

1 = With standstill brake, shaft with feather key

2 = Without brake, shaft without feather key

3 = With standstill brake, shaft without feather key

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esiMot - Accessories

PC-Software/Programming kits
Interface converter
Gear boxes
Power supplies
Line filters
Connection boxes
Assembled cables
Controls

esiMot SL

3x400V AC
2,9 ... 4,4kW_{S3}

esiMot XL

1x230V AC
3x400V AC
0,8 ... 3,2kW_{S3}

esiMot

24 ... 60V DC
120 ... 600W_{S3}



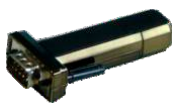
Commissioning



Programming kit ServoLink

Programming and parameter adjustment, files for Profinet, Profibus, CANopen, EtherCAT, Examples for Step7 + TIA
Optionally as cable version with T-Adapter or control cabinet version with AKB.01

Model	Art.-No.:
T-Adapter	611.01019-3
AKB.01	611.01019-8



USB - interface converter

Sub-D9 to USB-A	Art.-No.:	630.01900-0
-----------------	-----------	-------------



Testbox with 24V - power supply

For initial tests
Wiring of inputs to switches
Outputs on LEDs
Interface wired to connector

Art.-No.:	652.01022-0
-----------	-------------

Custom specific design on request

Gear boxes



PGA Planetary gear for esiMot6/1, 6/2, 6/5

Size 52 ... 60
4,5:1 ... 225:1
10000h

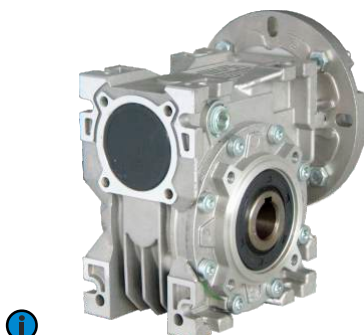
Art.-No.:	PGA ...
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PGB Planetary gear for esiMot, esiMotXL, esiMotSL

Size 40 ... 155
3:1 ... 100:1
20000h

Art.-No.:	PGB ...
-----------	---------



FRT Worm gear for esiMot-Baugröße 7/x and larger

Size 28 ... 60
5:1 ... 100:1
15000h

Art.-No.:	FRT ...
-----------	---------



Terminal block

Suitable for all esiMot, esiMotXL,
esiMotSL
Plugable screw terminals
USB interface converter
Fuse
Voltage okay indication

Art.-No.: 652.01028-0



Terminal block

Suitable for all esiMot, 24-60V

Switch
Fuse

Art.-No.: 652.01019-0



Switching power supply

DIN rail mount

U _{out}	Art.-No.:
24V 5A	690.01037-0
24V 10A	690.01036-0
48V 10A	690.01034-0
48V 20A	690.01041-0



Line filter

1-phase 3A
1-phase 8A
1-phase 20A
3-phase 18A
3-phase 33A

Art.-No.:
652.01001-1
652.01005-0
652.01003-1
652.01002-2
652.01004-2



Ballast resistors

35W 10 Ohm
50W 82Ohm
100W 100Ohm
180W 120Ohm
300W 33 Ohm

Art.-No.:
695.01207-0
695.01202-0
695.01201-0
695.01209-0
695.01203-0



Backfeed protection with buffer

Suitable for all esiMot, 24-60V,
8A
with plugable fuse

Art.-No.: 719.01001-1

Connectors

for self-assembly

esiMot (24-60VDC)

- Power connector for solder connection

6-pin cable socket
cable Ø 6-8mm
max. 0,75mm² (AWG20)

Model
straight
90°

Art.-No.:
630.01409-0
630.01409-5

esiMotXL (230V AC) esiMotXL (400V AC)

- Power connector for crimp connection

7-pin cable socket
cable-Ø 6-8mm
max. 1,5mm² (AWG19)

Model
straight

Art.-No.:
630.01502-0

esiMotSL (400V AC)

- Power connector for crimp connection

6-pin cable socket
cable-Ø 6-8mm
max. 1,5mm² (AWG19)

Model
straight

Art.-No.:
630.02009-0

esiMot (24-60VDC) esiMotXL (230VAC) esiMotXL (400VAC) esiMotSL (400VAC)

- Signal connector for solder connection

19-pin male cable connector
cable-Ø 6-8mm
max. 0,25mm² (AWG24)

Model
straight
90°

Art.-No.:
630.01409-1
630.01409-6

esiMot

esiMot5/2.xx (no ATEX version available)

esiMot6/1.xx

esiMot6/2.xx

esiMot6/5.xx (no ATEX version available)

esiMot7/1.xx

esiMot7/2.xx

Length	Power cable without ballast 5x0,75mm ² (> 25m)			Power cable with ballast 6x0,5mm ² (< 20m)		
	Standard	Drag-chain	ATEX	Standard	Drag-chain	ATEX
2m	-	-	-	630.01400-0	630.01400-7	630.01601-2
5m	-	-	-	630.01401-0	630.01401-7	630.01601-7
10m	-	-	-	630.01402-0	630.01402-7	630.01601-8
15m	-	-	-	630.01403-0	630.01403-7	630.01601-9
20m	-	-	-	630.01404-0	630.01404-7	630.01601-6
25m	630.01415-0	630.01415-3**	630.01602-1**	-	-	-
30m	<td>	<td>	630.01418-6**	-	-	-
35m	630.01416-0	<td>	630.01416-6**	-	-	-

Length	Signal cable 16x0,14mm ²		
	Standard	Drag-chain	ATEX
2m	630.01400-1	630.01400-8	630.01600-6
5m	630.01401-1	630.01401-8	630.01600-7
10m	630.01402-1	630.01402-8	630.01600-8
15m	630.01403-1	630.01403-8	630.01600-9
20m	630.01422-1	630.01404-8	630.01600-10
25m	630.01415-1	<td>	<td>
30m	630.01517-1	630.01517-8	<td>
35m	630.01416-1	<td>	<td>

<td> = No. will be defined in case of order

Assembled cables

esiMotXL 230V

esiMot21/3.xxx

esiMot22/3.xxx

esiMot31/3.xxx

esiMot32/3.xxx

esiMot33/2.xxx (no ATEX version available)

esiMot41/2.xxx (no ATEX version available)

Length	Power cable without ballast 3x1,0mm ²			Power cable with ballast 5x1,0mm ²		
	Standard	Drag-chain	ATEX	Standard	Drag-chain	ATEX
2m	630.01500-0	<tbd>	-	630.01510-0	630.01520-0	630.01530-6
5m	630.01501-0	<tbd>	-	630.01511-0	630.01521-0	630.01530-7
10m	630.01504-0	630.01504-1	-	630.01512-0	630.01522-0	630.01530-8
15m	630.01505-0	630.01505-1	-	630.01514-0	630.01523-0	630.01530-9
20m	630.01503-0	<tbd>	-	630.01516-0	630.01524-0	630.01530-10
25m	630.01507-0	630.01507-1	-	630.01515-0	630.01526-0	630.01530-11
30m	630.01506-0	<tbd>	-	630.01517-0	630.01525-0	<tbd>
35m	<tbd>	<tbd>	-	630.01416-5	<tbd>	630.01416-6

Length	24V Logic supply cable 2x0,25mm ²		Signal cable 16x0,14mm ²			Signal cable with STO-wires 18x0,14mm ²		
	Drag-chain	ATEX	Standard	Drag-chain	ATEX	Standard	Drag-chain	ATEX
2m	<tbd>	<tbd>	630.01400-1	630.01400-8	630.01400-6	630.01424-1	630.01430-1	<tbd>
5m	<tbd>	630.01439-2	630.01401-1	630.01401-8	630.01600-7	630.01425-1	630.01431-1	<tbd>
10m	630.01440-3	630.01439-3	630.01402-1	630.01402-8	630.01600-8	630.01423-2	630.01423-0	<tbd>
15m	<tbd>	630.01439-4	630.01403-1	630.01403-8	630.01600-9	630.01432-2	630.01432-1	<tbd>
20m	<tbd>	630.01439-5	630.01422-1	630.01404-8	630.01600-10	630.01434-2	630.01434-1	<tbd>
25m	630.01435-6	630.01439-6	630.01415-1	<tbd>	<tbd>	630.01437-2	630.01437-3	<tbd>
30m	630.01434-7	<tbd>	630.01517-1	630.01517-8	<tbd>	630.01436-2	<tbd>	<tbd>
35m	630.01435-8	<tbd>	630.01416-1	<tbd>	<tbd>	630.01416-2	<tbd>	<tbd>

<tbd> = No. will be defined in case of order

esiMotXL 400V

esiMot421/6.xxx

esiMot422/6.xxx

esiMot431/6.xxx

esiMot432/6.xxx

esiMot433/4.xxx

esiMot441/4.xxx

Länge	Power cable without ballast 3x1,0mm ²			Power cable with ballast 5x1,0mm ²		
	Standard	Drag-chain	ATEX*	Standard	Drag-chain	ATEX*
2m	-	630.01555-0	-	630.01541-0	630.01551-0-	
5m	-	630.01556-0	-	630.01542-0	630.01552-0	-
10m	-	630.01557-0	-	630.01543-0	630.01553-0	-
15m	-	630.01558-0	-	630.01544-0	630.01554-0	-
20m	-	<tbd>	-	630.01545-0	<tbd>	-
25m	-	<tbd>	-	<tbd>	<tbd>	-
30m	-	<tbd>	-	<tbd>	<tbd>	-
35m	-	<tbd>	-	<tbd>	<tbd>	-

Länge	24V Logic supply cable 2x0,25mm ²		Signal cable 16x0,14mm ²			Signal cable with STO-wires 18x0,14mm ²		
	Drag-chain	ATEX*	Standard	Drag-chain	ATEX*	Standard	Drag-chain	ATEX*
2m	<tbd>	-	630.01400-1	630.01400-8	-	630.01424-1	630.01430-1	-
5m	<tbd>	-	630.01401-1	630.01401-8	-	630.01425-1	630.01431-1	-
10m	630.01440-3	-	630.01402-1	630.01402-8	-	630.01423-2	630.01423-0	-
15m	<tbd>	-	630.01403-1	630.01403-8	-	630.01432-2	630.01432-1	-
20m	<tbd>	-	630.01422-1	630.01404-8	-	630.01434-2	630.01434-1	-
25m	630.01435-6	-	630.01415-1	<tbd>	-	630.01437-2	630.01437-3	-
30m	630.01434-7	-	630.01517-1	630.01517-8	-	630.01436-2	<tbd>	-
35m	630.01435-8	-	630.01416-1	<tbd>	-	630.01416-2	<tbd>	-

*) no ATEX-Version in 400V available

<tbd> = No. will be defined in case of order

esiMotSL 400V

esiMot551/3.xxx

esiMot552/2.xxx

esiMot554/3.xxx

esiMot555/2.xxx

Length	Power cable without ballast 3x1,0mm ²			Power cable with ballast 5x1,0mm ²		
	Standard	Drag-chain	ATEX*	Standard	Drag-chain	ATEX*
2m	-	<td>	-	-	630.02000-0	-
5m	-	<td>	-	-	630.02001-0	-
10m	-	<td>	-	-	630.02002-0	-
15m	-	<td>	-	-	630.02003-0	-
20m	-	<td>	-	-	630.02004-0	-
25m	-	<td>	-	-	630.02005-0	-
30m	-	<td>	-	-	630.02006-0	-
35m	-	<td>	-	-	630.02007-0	-

Length	24V Logic supply cable 2x0,25mm ²		Signal cable 16x0,14mm ²			Signal cable with STO-wires 18x0,14mm ²		
	Drag-chain	ATEX*	Standard	Drag-chain	ATEX*	Standard	Drag-chain	ATEX*
2m	<td>	-	630.01400-1	630.01400-8	-	630.01424-1	630.01430-1	-
5m	<td>	-	630.01401-1	630.01401-8	-	630.01425-1	630.01431-1	-
10m	630.01440-3	-	630.01402-1	630.01402-8	-	630.01423-2	630.01423-0	-
15m	<td>	-	630.01403-1	630.01403-8	-	630.01432-2	630.01432-1	-
20m	<td>	-	630.01422-1	630.01404-8	-	630.01434-2	630.01434-1	-
25m	630.01435-6	-	630.01415-1	<td>	-	630.01437-2	630.01437-3	-
30m	630.01434-7	-	630.01517-1	630.01517-8	-	630.01436-2	<td>	-
35m	630.01435-8	-	630.01416-1	<td>	-	630.01416-2	<td>	-

*) no ATEX-Version in 400V available

<td> = No. will be defined in case of order

Profibus cables

Length	assembled on one side M12 female 5-pin		assembled on both sides M12 male/female 5-pin	
	Drag-chain	ATEX*	Drag-chain	ATEX*
0,5m	<td>	<td>	630.01421-1	630.01612-0
1m	<td>	<td>	<td>	630.01612-8
2m	630.01400-3	630.01611-1	630.01400-6	630.01612-1
3m	<td>	<td>	<td>	630.01612-5
5m	630.01401-3	630.01611-2	630.01413-1	630.01612-2
8m	<td>	<td>	<td>	630.01612-6
10m	630.01402-2	630.01611-3	630.01414-1	630.01612-3
15m	630.01403-2	630.01611-4	630.01403-6	630.01612-4
20m	630.01404-2	630.01611-5	630.01417-1	630.01612-7
25m	630.01415-2	630.01611-6	<td>	<td>

<td> = No. will be defined in case of order

CAN-Bus cables

Length	assembled on one side M12 female 5-pin		assembled on both sides M12 male/female 5-pin	
	Drag-chain	ATEX*	Drag-chain	ATEX*
0,5m	<td>	<td>	630.01427-0	630.01614-0
1m	<td>	<td>	630.01443-1	<td>
2m	630.01405-0	<td>	630.01405-2	<td>
3m	<td>	<td>	630.01450-1	<td>
4m	<td>	<td>	630.01451-1	<td>
5m	630.01406-0	<td>	630.01406-1	<td>
6m	<td>	<td>	630.01444-1	<td>
8m	<td>	<td>	630.01445-1	<td>
10m	630.01407-0	<td>	630.01407-1	<td>
15m	630.01408-0	<td>	630.01408-1	630.01614-6
20m	630.01410-0	<td>	630.01410-1	<td>

<td> = No. will be defined in case of order



Servo positioning controller

Suitable for all esiMot, esiMotXL, esiMotSL with PLC-interface.

Art.-No.: CPS5.011



Kompakt positioning system for 1 - 6 Axes

Suitable for all esiMot, esiMotXL, esiMotSL with CANopen interface.

Art.-No.: CPS500

Optional as complete unit in table top housing, console or cabinet.



Compact positioning controller for 1 Axle

Suitable for all esiMot, esiMotXL, esiMotSL with +/-10V speed set-point (amplifier version)
Optional as complete unit in table top housing, console or cabinet.

Art.-No.: CPS20



Compact positioning controller for 1 - 6 Axes

Suitable for all esiMot, esiMotXL, esiMotSL with +/-10V speed set-point (amplifier version)
Optional as complete unit in table top housing, console or cabinet.

Art.-No.: CPS300



Automation, Positioning, PLC

Suitable for all esiMot, esiMotXL, esiMotSL with CANopen interface

Art.-No.: APS300

Programmable with CoDeSys V2.3

Custom specific programming on request.

All data in this brochure have an informative character without warranty of characteristics. Changes without previous announcement reserved.



Servo-Link

PC-Software for parameter setting and programming

- Programming and parameter setting of:
 - esiMot, esiMotXL, esiMotSL, decentral servo-drive
 - SC10, servo controller
 - DSD 6, servo amplifier
 - DSK-1, DSK-2 servo amplifier compact
- Online diagnosis / 4 channel oscilloscope
- Automatic identification of the connected regulator version
- Language selection German / English
- 3 different access levels, depending on required knowledge, password protected
- Offline-programming and parameter setting in expert mode

Intuitive operation



System requirements:
WINDOWS-PC
Monitor with 1024x768 pixel or better
100MB free HDD memory
RS232-Interface or USB-adapter
CD-ROM drive
Adobe Acrobat Reader (for documentation)

Sample - Screen-shots

Oscilloscope / Online Diagnosis

Channel 1: Actual speed (1600 rpm)

Channel 2: Control deviation (1000 rpm)

Channel 3: Input 2 (5 V)

Channel 4: Output 2 (5 V)

Trigger: Mode: Normal, Level: 0, Slope: Rising, Hysteresis: 10 %

Timebase: Position: 1000, Speed: 1000, Position controller: 1000, Speed regulator: 1000

Buttons: Stop, Background, Grid, 1.280 s

User-Parameter

Basic data: Max. speed at 100%: 3000 rpm, Motor supply: 24 V, Max. current: 100 % of peak current, Working mode: Position control (Mode 4), Reference run: No reference-run required

Reference: Acceleration ramp: 300 ms, Brake ramp: 300 ms, Search speed: 1000 rpm, Positioning speed: 100 rpm, Offset: 0 Inr, Preset: 0 Inr, Absolute encoder travelrange offset: 0.0 %, Torque limit for "referencing to block": 10 %

Mode: 7 Type: M search direction: Index pulse: y Positioning direction: -

Avistype: Type: Rotary axis, Resolution: 0 Inr/360°, Sense of rotation: Inverted, Positioning: Inverted, Normal

Response to errors: Response to stop: Ramp stop, Fast stop, Brake ramp: 300 ms

Electronic stop / stepper motor simulation: Type: Clock / Direction, Sense of rotation: Inverted, Normal, Edge detection: Positive edge, Ratio: 1, 1.000

Limits of travel (active after reference run): Dir. of travel "+": 0 Inr, Dir. of travel "-": 0 Inr

Buttons: ONLINE, Link to Regulator established (#10,110,14)

Status: Actual Error: 24 Enable missing, Previous Error: 17 Under-voltage logic, 41 Output-stage overload, 38 Resolver error, 9 Limit switch -

Speed: 0 rpm, Current: 0.00 A, Output-stage temperature: 26 °C, Motor load: 8 %, Ballast load: 0 %, Working mode: Positioning mode, Position: 1 Inr, Lag error: 0 Inr

Elapsed time counter: 23 Hz

Bottom status: BA:1 BS:2 COM1 13:13:21 27.06.2008

Online - Regulator adjustment

Basic data: Max. speed at 100%: 3000 rpm, Motor supply: 24 V, Max. current: 100 % of peak current, Working mode: Position control (Mode 4), Reference run: No reference-run required

Reference: Acceleration ramp: 300 ms, Brake ramp: 300 ms, Search speed: 1000 rpm, Positioning speed: 100 rpm, Offset: 0 Inr, Preset: 0 Inr, Absolute encoder travelrange offset: 0.0 %, Torque limit for "referencing to block": 10 %

Mode: 7 Type: M search direction: Index pulse: y Positioning direction: -

Avistype: Type: Rotary axis, Resolution: 0 Inr/360°, Sense of rotation: Inverted, Positioning: Inverted, Normal

Response to errors: Response to stop: Ramp stop, Fast stop, Brake ramp: 300 ms

Electronic stop / stepper motor simulation: Type: Clock / Direction, Sense of rotation: Inverted, Normal, Edge detection: Positive edge, Ratio: 1, 1.000

Limits of travel (active after reference run): Dir. of travel "+": 0 Inr, Dir. of travel "-": 0 Inr

Buttons: ONLINE, Link to Regulator established (#10,110,14)

Status: Actual Error: 24 Enable missing, Previous Error: 17 Under-voltage logic, 41 Output-stage overload, 38 Resolver error, 9 Limit switch -

Speed: 0 rpm, Current: 0.00 A, Output-stage temperature: 26 °C, Motor load: 8 %, Ballast load: 0 %, Working mode: Positioning mode, Position: 1 Inr, Lag error: 0 Inr

Elapsed time counter: 23 Hz

Bottom status: BA:1 BS:2 COM1 13:13:21 27.06.2008

Records

Record	Comment	Value 1	Value 2	Value 3	Value 4	Over time	Program end	Following record	M-Function	Tag
1	Absolute positioning	1500	80	150	50000	0	No	With start		0
2	Relative positioning	3000	100	150	200000	1000	No	Direct after delay time 1		0
3	Functions					2000	No	Direct after delay time 1		0
4	Relative positioning	1000	50	50	-200000	0	No	Direct after delay time 2		0
5	Absolute positioning	1500	80	150	0	0	No	None		0
6	Empty record									
7	Empty record									
8	Empty record									
9	Empty record									
10	Empty record									
11	Empty record									
12	Empty record									
13	Empty record									
14	Empty record									
15	Empty record									

Buttons: Empty record

Bottom status: BA:1 BS:3 COM1 10:13:01 27.05.2009

Scope of delivery:

CD-content:

PC-Programm
Documentation
GSD files for Profibus
GSDML files for PROFINET
EDS files for CANopen
XML files for EtherCAT
Programming example for Step7
Programming example for TIA Portal
Tool for Firmware-Update
CAN-Library for CoDeSys

Control cabinet version:

AKB.01 Terminal block
- Galvanic insulated USB interface converter
- Fuse for 24V supply
- Indicator LED for 24V
- 3m USB cable



Art.-No.: 611.01019-8 (esiMot - series)

Cable version:

T-Adaptor for insertion into signal cable (esiMot)
RS232 connection cable
USB interface converter



Art.-No.: 611.01019-3 (esiMot - series)



Art.-No.: 611.01019-7 (SC10-..., DSK-..., DSD-...)



Art.-No.: 630.01900-0 (USB interface converter)



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SBL...

AC - Servomotoren

AC - servo motors

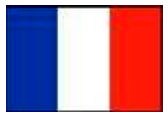
AC - servo moteurs



- Bürstenlose Servomotoren mit Neodym Permanentmagneten
- Durchgängige Baureihe 0,2 ... 32Nm
- Resolver - Lagerückmeldung



- Brushless servo motors with Neodym permanent magnets
- Uniform series 0,2 ... 32Nm
- Resolver - feedback

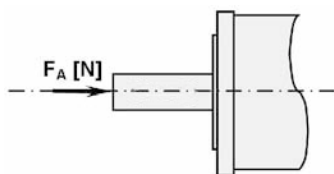


- Servo-moteurs sans balais, à aimants permanents Neodym
- Série uniforme 0,2 ... 32Nm
- Résolveur feed-back



Motortyp	Bemessungs- drehzahl	Stillstands- moment	Bemessungs- moment	Stillstands- strom	Rotorträgheits- moment	Gewicht
Motor type	Rated speed	Standstill tor- que	Rated torque	Standstill current	Rotor inertia	Weight
Choix du moteur	Vitesse nominale	Couple à l'arrêt	Couple nominal	Courant à l'arrêt	Moment d'inertie	Poids
	n_{N_r} [min ⁻¹]	M_0 [Nm]	M_{N_r} [Nm]	I_0 [A]	J_{rot} [kgm ² *10 ⁻³]	G, [kg]
SBL2-0020	4500	0,20	0,19	0,59	0,006	0,90
SBL2-0040	4500	0,40	0,36	0,93	0,008	1,06
SBL2-0060	4500	0,60	0,55	1,21	0,011	1,21
SBL2-0080	4500	0,80	0,72	1,56	0,013	1,36
SBL2-0095	4500	0,95	0,85	1,82	0,018	1,52
SBL3-0065	3000	0,65	0,60	1,06	0,050	1,75
SBL3-0130	3000	1,30	1,15	1,67	0,065	2,25
SBL3-0190	3000	1,90	1,60	2,50	0,092	2,70
SBL3-0250	3000	2,50	2,15	3,00	0,140	3,20
SBL3-0300	3000	3,00	2,50	3,50	0,150	3,65
SBL4-0260	3000	2,60	2,30	3,15	0,190	4,5
SBL4-0390	3000	3,90	3,30	4,80	0,225	5,1
SBL4-0530	3000	5,30	4,60	6,50	0,265	5,6
SBL4-0750	3000	7,50	6,40	9,10	0,415	7,7
SBL4-0950	3000	9,50	8,50	11,30	0,605	10,5
SBL5-0660	3000	6,60	5,70	7,7	0,40	7,5
SBL5-1050	3000	10,5	8,80	12,2	0,62	10,0
SBL5-1350	3000	13,5	11,0	17,4	0,73	11,2
SBL5-1700	3000	17,0	14,5	21,2	0,95	13,7
SBL5-2200	3000	22,0	17,0	25,6	1,17	16,2
SBL6-1350	3000	13,5	13,0	14,6	1,31	13,9
SBL6-1900	3000	19,0	17,0	20,5	1,87	18,2
SBL6-2200	3000	22,0	19,0	22,9	2,15	20,3
SBL7-2700	3000	27,0	21,0	28,1	3,60	23,5

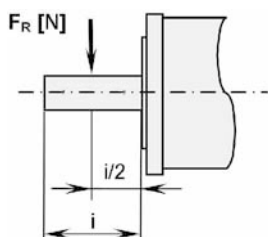
Zulässige Axialkräfte
Permitted axial force
Forces axiales admissibles



	F_A [N]
SBL2...	45
SBL3	65
SBL4	115
SBL5	130
SBL6	170
SBL7	170

Maximal zulässige Axialkraft gilt nur für Druckbelastung
Maximum permitted axial force only applies to pressure load
La force axiale maximale admissible ne vaut que pour la charge de pression

Zulässige Radialkräfte
Permitted radial force
Forces radiales admissibles



F_R	Min. [N]	Max. [N]
SBL2...	220	265
SBL3	335	440
SBL4	595	735
SBL5	675	810
SBL6	700	815
SBL7	850	910

Die Min.-Werte gelten für den kleinsten Motor einer Baureihe. Die Max-Werte für den größten mit Bremse.
Angaben für 20.000h bei 3000 Upm.
The min-values are for the smallest motor of a series. The max-values are for the largest with brake.
Values for 20.000h at 3000 rpm.
Le min-valeurs sont pour le smalest moteur d'une série. Le maxi-valeurs sont pour le plus grand avec frein. Les valeurs de 20.000h à 3000 tr / min.

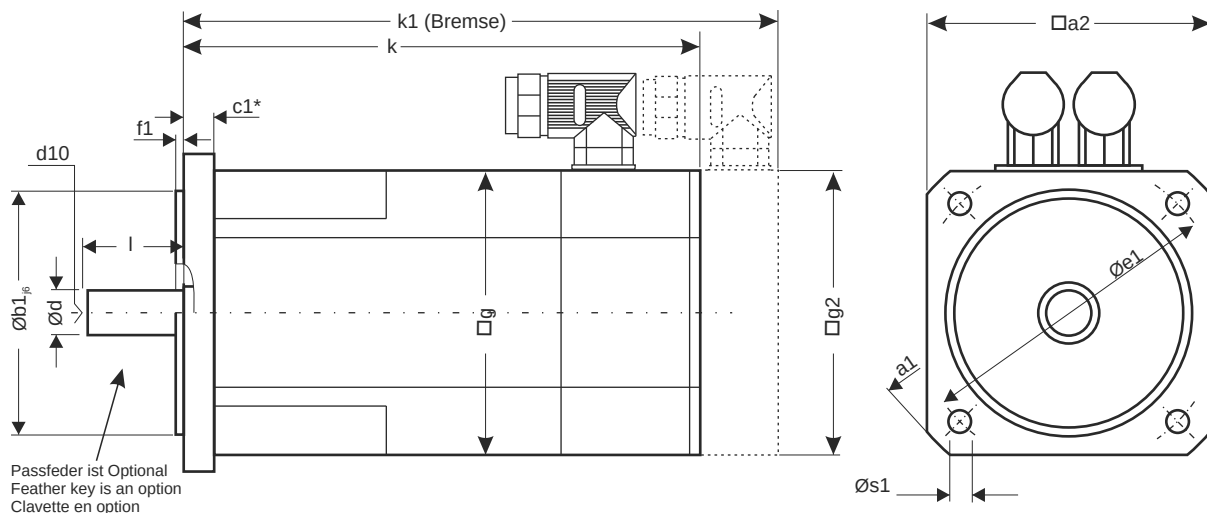
Kraftangriffspunkt Radialkraft: Mitte Abtriebswelle
Radial force application point: middle of driven shaft
Point d'application de la force radiale : centre de l'abre moteur

Motortyp	Bemessungs- drehzahl	Stillstands- moment	Bemessungs- moment	Stillstands- strom	Rotorträgheits- moment	Gewicht
Motor type	Rated speed	Standstill tor- que	Rated torque	Standstill current	Rotor inertia	Weight
Choix du moteur	Vitesse nominale	Couple à l'arrêt	Couple nominal	Courant à l'arrêt	Moment d'inertie	Poids
	$n_N, [\text{min}^{-1}]$	$M_0, [\text{Nm}]$	$M_N, [\text{Nm}]$	$I_0, [\text{A}]$	$J_{\text{rot}}, [\text{kgm}^2 \cdot 10^{-3}]$	$G, [\text{kg}]$
SBL2-0020/400	4500	0,20	0,19	0,47	0,006	0,90
SBL2-0040/400	4500	0,40	0,36	0,54	0,008	1,06
SBL2-0060/400	4500	0,60	0,55	0,73	0,011	1,21
SBL2-0080/400	4500	0,80	0,72	0,91	0,013	1,36
SBL2-0095/400	4500	0,95	0,85	1,15	0,018	1,52
SBL3-0065/400	3000	0,65	0,60	0,65	0,050	1,75
SBL3-0130/400	3000	1,30	1,15	1,01	0,065	2,25
SBL3-0190/400	3000	1,90	1,60	1,42	0,092	2,70
SBL3-0250/400	3000	2,50	2,15	1,80	0,140	3,20
SBL3-0300/400	3000	3,00	2,50	2,08	0,150	3,65
SBL4-0260/400	3000	2,60	2,30	1,92	0,190	4,5
SBL4-0390/400	3000	3,90	3,30	2,90	0,225	5,1
SBL4-0530/400	3000	5,30	4,60	4,10	0,265	5,6
SBL4-0750/400	3000	7,50	6,40	4,80	0,415	7,7
SBL4-0950/400	3000	9,50	8,50	6,60	0,605	10,5
SBL5-0660/400	3000	6,60	5,70	4,5	0,40	7,5
SBL5-1050/400	3000	10,5	8,80	7,3	0,62	10,0
SBL5-1350/400	3000	13,5	11,0	11,2	0,73	11,2
SBL5-1700/400	3000	17,0	14,5	11,4	0,95	13,7
SBL5-2200/400	3000	22,0	17,0	16,4	1,17	16,2
SBL6-1350/400	3000	13,5	13,0	8,2	1,31	13,9
SBL6-1900/400	3000	19,0	17,0	11,5	1,87	18,2
SBL6-2200/400	3000	22,0	19,0	14,6	2,15	20,3
SBL6-2900/400	3000	29,0	24,0	17,2	3,28	26,7
SBL6-3500/400	3000	35,0	26,0	23,5	4,60	35,2
SBL7-2700/400	3000	27,0	21,0	16,0	3,6	23,5
SBL7-3200/400	3000	32,0	23,0	19,0	3,9	26,0
SBL7-4000/400	3000	40,0	26,0	24,7	4,5	31,5

Bremse
Brake
Frein

Motorgröße	Haltemoment	Nennspannung	Nennstrom	Trägheitsmoment	Gewicht
Motor size	Holding torque	Rated voltage	Rated current	Moment of inertia	Weight
Grandeur moteur	Couple d'arrêt	Tension nominale	Courant nominal	Moment d'inertie	Poids
	[Nm]	[V]	[A]	kgcm ²	[kg]
SBL2...	2	24	0,46	0,007	0,2
SBL3...	4,5	24	0,5	0,02	0,47
SBL4...	9,0	24	0,75	0,082	0,82
SBL5...	18	24	1,0	0,185	1,85
SBL6...	36	24	1,1	0,58	2,85
SBL7...	36	24	1,1	0,60	3,25

Abmessungen Dimensions



	a1	a2	b1 ₆	c1*	d	d10	e1	f1	g	g2	k*	k1*	l	s1
SBL2-0020	74	55	40	7	9	--	63	2,5	50	50	98	131	24	5,8
SBL2-0040	74	55	40	7	9	--	63	2,5	50	50	113	146	24	5,8
SBL2-0060	74	55	40	7	9	--	63	2,5	50	50	128	161	24	5,8
SBL3-0065	115	86	80	11	14	M4x10	100	3	74	74	109	142	30	7
SBL3-0130	115	86	80	11	14	M4x10	100	3	74	74	127	160	30	7
SBL3-0250	115	86	80	11	14	M4x10	100	3	74	74	163	196	30	7
SBL4-0260	130	98	95	14	19	M5x14	115	3	98	98	146	178	40	9
SBL4-0530	130	98	95	14	19	M5x14	115	3	98	98	176	208	40	9
SBL4-0750	130	98	95	14	19	M5x14	115	3	98	98	221	253	40	9
SBL4-0950	130	98	95	14	19	M5x14	115	3	98	98	276	308	40	9
SBL5-0660	188	142	130	14	24	M8x20	165	3,5	128	98	185	228	50	12
SBL5-1050	188	142	130	14	24	M8x20	165	3,5	128	98	219	262	50	12
SBL5-1350	188	142	130	14	24	M8x20	165	3,5	128	98	236	279	50	12
SBL5-1700	188	142	130	14	24	M8x20	165	3,5	128	98	270	313	50	12
SBL5-2200	188	142	130	14	24	M8x20	165	3,5	128	98	304	347	50	12
SBL6-1350	250	190	180	12	24	M8x19	215	3,5	158	98	201	254	50	13
SBL6-1900	250	190	180	12	24	M8x19	215	3,5	158	98	235	288	50	13
SBL6-2200	250	190	180	12	24	M8x19	215	3,5	158	98	252	305	50	13
SBL7-2600	250	190	180	15	28	M10x22	215	4	190	98	242	299	58	15
SBL7-3200	250	190	180	15	28	M10x22	215	4	190	98	257	311	58	15
SBL7-4000	250	190	180	15	28	M10x22	215	4	190	98	287	341	58	15

c1*: Option W (IP65 mit Wellendichtring) verlängert Maß c1 um ca. 7mm, damit auch Maße k und k1.

c1*: Option W (IP65 with shaft seal ring) extends dimension c1 by ca. 7mm, so also dimensions k and k1.

c1*: Option W (IP65 avec joint d'arbre) c1 niveau étendu d'environ 7 mm, de sorte que les dimensions k et k1.

Abmessungen Passfeder (Option) nach DIN 6885 Dimensions optional feather key according to DIN 6885 Dimensions de la clavette (en option) selon DIN6885

SBL	2	3	4	5	6	7
Welle Axle Arbre	9x24	14x30	19x40	24x50	24x50	28x58
Passfeder Feather key Clavette	3x3x18	5x5x24	6x6x32	7x8x40	7x8x40	7x8x40

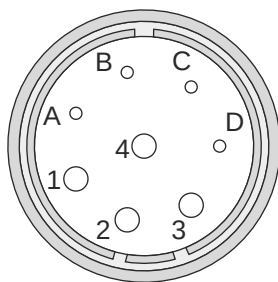
Beispiel Example Exemple	SBL 2 -0130 -30 -3 /400 /...
Motorgrundtyp Basic motor type Type de base moteur	
Baugröße Frame size Taille	
Stillstandsmoment Stall torque Couple à l'arrêt	
Bemessungsdrehzahl (/100) in min ⁻¹ Rated speed (/100) in min ⁻¹ Vitesse nominale (/100) en min ⁻¹	
Wicklungsschutz (siehe unten) Winding protection (see below) Protection de la bobine (voir plus bas)	
Bemessungsspannung Rated Voltage Tension nominale	
Varianten der Grundtype (B, S-A u.s.w., siehe unten) Variants of the basic type (B, S-A etc., see below) Variantes du type de base (B, S-A etc., voir plus bas)	

Wicklungsschutz	Winding protection	Protection de la bobine
1 PTC, Anschlüsse auf Motor-Stecker A+B	PTC fed to motor-connector A+B	PTC nourris à moteur connecteur A+B
2 NTC, Anschlüsse auf Motor-Stecker A+B	NTC fed to motor-connector A+B	NTC nourris à moteur connecteur A+B
3 PTC, Standard, Anschlüsse auf Resolverstecker	PTC, Standard fed to resolver connector	PTC, Standard nourris à resolver connecteur
4 Thermoschalter, Anschlüsse auf Resolverstecker	Thermo switch fed to resolver connector	Interrupteur thermo nourris à resolver connecteur
5 NTC, Anschlüsse auf Resolverstecker	NTC fed to resolver connector	NTC nourris à resolver connecteur

Varianten der Grundtype	Variants of the basic type	Variantes du type de base
B Haltebremse	Brake	Frein
P Passfeder nach DIN 6885	Feather key DIN 6885	clavette
R Rundlauf / Planlauf DIN 42955R	Concentricity DIN 42955R	concentricité DIN 42955R
S-A Winkelflanschdosen/-stecker, Ausrichtung zur A-Seite	Angled connectors facing A-side	connexions angulaire direction A - flanc
S-B Winkelflanschdosen/-stecker, Ausrichtung zur B-Seite	Angled connectors facing B-side	connexions angulaire direction B - flanc
V Schutzart IP65 ohne Wellendichtring	Protection class IP65 without axle seal	Type de protection IP 65 sans le joint sur l'arbre
W Schutzart IP65 mit Wellendichtring, Motor baut ca. 10mm länger	Protection class IP65 with axle seal motor lengthened by 10mm	Type de protection IP 65 avec joint sur l'arbre Le moteur est plus longue de 10mm
X Sonderausführung, z.B. Sonderwelle/-flansch 2. Wellenende mit Geber- anbauflansch/-gehäuse, in Klartext beschrieben	Special designed model i.e. special axle or flange 2 nd axle end with encoder mounting flange or housing described in plain words	Version spéciale p.e. bride spéciale Deuxième bout d'arbre avec capteur montage additionnel décrit dans le texte

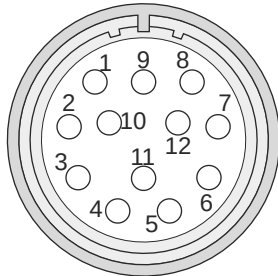
Signalbelegung
Signal assignments
Affectation des signaux

Motoranschluss:
 8-pol Anschlussdose
 mit Kontaktstifen
 1...4 Ø 2mm
 A... D Ø 1mm



Pin	Motor Signal	Motor Signal	Moteur Signal
1	M1 (U)	M1 (U)	M1 (U)
2	PE	PE	PE
3	M3 (W)	M3 (W)	M3(W)
4	M2 (V)	M2(V)	M2(V)
A	frei (optional therm. Motorschutz)	N.C. (opt. motor protect.)	N.C. (opt. protection du moteur)
B	frei (optional therm. Motorschutz)	N.C. (opt. motor protect.)	N.C. (opt. protection du moteur)
C	Bremse +	Brake +	Frein +
D	Bremse -	Brake -	Frein -

Resolver:
 12-pol Anschlussdose
 mit Kontaktstifen
 Ø 1mm



Pin	Resolverl Signal	Resolver Signal	Resolveur Signal
1	Schirm	Shield	écran
2	Therm Motorschutz	Motor protection	protection du moteur
3	cos+	cos+	cos+
4	sin+	sin+	sin+
5	Speisung +	Supply +	alimentation +
6	Therm. Motorschutz	Motor protection	protection du moteur
7	cos-	cos-	cos-
8	sin-	sin-	sin-
9	Speisung -	Supply -	alimentation -
10	frei	N.C.	N.C.
11	frei	N.C.	N.C.
12	frei	N.C.	N.C.

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ESY...

AC - Servomotoren

AC - servo motors

AC - servo moteurs



- Bürstenlose, hochdynamische Servomotoren mit Permanentmagneten
- Hohe Kurzzeit-Überlastbarkeit
- Optimierte Blechschnitte

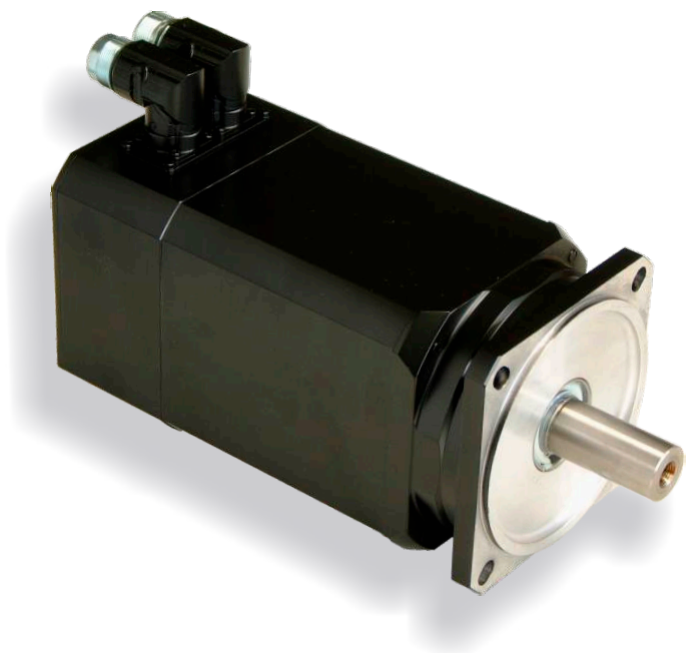


- Brushless, high dynamic servo motors with permanent magnets
- High short-term overload capabilities
- Optimized laminates



- Servo-moteurs hautement dynamique sans balais, à aimants permanents
- Bar de surcharge à court terme élevé
- Coupes de tôle optimisées

Made in Germany
Fabriqué en Allemagne



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Motortyp	Bemessungs- drehzahl	Stillstands- moment	Bemessungs- moment	Stillstands- strom	Rotorträgheits- moment	Gewicht
Motor type	Rated speed	Standstill tor- que	Rated torque	Standstill current	Rotor inertia	Weight
Choix du moteur	Vitesse nominale	Couple à l'arrêt	Couple nominal	Courant à l'arrêt	Moment d'inertie	Poids
	n_{N_i} [min ⁻¹]	M_{0_i} [Nm]	M_{N_i} [Nm]	I_{0_i} [A]	J_{rot_i} [kgm ² *10 ⁻³]	G, [kg]
ESY061.60 -R4/230	6000	0,10	0,09	0,60	0,006	0,37
ESY063.60 -R4/230	6000	0,20	0,18	0,97	0,008	0,45
ESY162.34 -R4/230	3400	0,50	0,35	0,87	0,0098	0,80
ESY164.34 -R4/230	3400	0,90	0,70	1,23	0,0196	1,30
ESY168.34 -R4/230	3400	1,60	1,40	2,10	0,0392	2,00
ESY162.60 -R4/230	6000	0,50	0,35	1,50	0,0098	0,80
ESY164.60 -R4/230	6000	0,90	0,70	2,13	0,0196	1,30
ESY168.60 -R4/230	6000	1,60	1,40	3,64	0,0392	2,00
ESY264.34 -R4/230	3400	1,80	1,60	2,85	0,058	2,00
ESY268.34 -R4/230	3400	3,10	2,70	4,36	0,099	3,10
ESY264.60 -R4/230	6000	1,80	1,60	4,93	0,058	2,00
ESY268.60 -R4/230	6000	3,10	2,70	7,55	0,099	3,10
ESY364.34 -R4/230	3400	2,50	1,90	3,40	0,08	3,50
ESY368.34 -R4/230	3400	4,80	3,60	5,65	0,16	4,80
ESY3612.34 -R4/230	3400	6,80	5,00	8,10	0,24	6,10

Bremse
Brake
Frein

Motorgröße	Haltemoment	Nennspannung	Nennstrom	Schaltzeiten*	Trägheitsmoment	Gewicht
Motor size	Holding torque	Rated voltage	Rated current	Switching times*	Moment of inertia	Weight
Grandeur moteur	Couple d'arrêt	Tension nominale	Courant nominal	Temps de commutation*	Moment d'inertie	Poids
	M_{BR_i} [Nm]	U_{NBR_i} [V]	I_{NBR_i} [A]	t, [ms]	J_{BR_i} [10 ⁻³ kgm ²]	G_{BR_i} [kg]
ESY 06..	0,4	24 V	0,33	10/6	0,0015	0,08
ESY 16..	2,0	24 V	0,46	25/6	0,012	0,21
ESY 26..	4,5	24 V	0,50	35/7	0,019	0,38
ESY 36..	9,0	24 V	0,75	40/7	0,056	0,53
ESY 46..	18,0	24 V	1,00	50/10	0,19	1,10
ESY 56..	36,0	24 V	1,10	90/22	0,62	1,90
ESY 66..	36,0	24 V	1,10	90/22	0,62	3,25
ESY 76..	145,0	24 V	2,10	190/65	5,6	9,50

* 24 VDC on/off

Motortyp	Bemessungs- drehzahl	Stillstands- moment	Bemessungs- moment	Stillstands- strom	Rotorträgheits- moment	Gewicht
Motor type	Rated speed	Standstill tor- que	Rated torque	Standstill current	Rotor inertia	Weight
Choix du moteur	Vitesse nominale	Couple à l'arrêt	Couple nominal	Courant à l'arrêt	Moment d'inertie	Poids
	n_N , [min ⁻¹]	M_0 , [Nm]	M_N , [Nm]	I_0 , [A]	J_{rot} , [kgm ² *10 ⁻³]	G, [kg]
ESY162.60 R4/400	6000	0,50	0,35	0,87	0,0098	0,80
ESY164.60 -R4/400	6000	0,90	0,70	1,23	0,0196	1,30
ESY168.60 -R4/400	6000	1,60	1,40	2,10	0,0392	2,00
ESY264.60 -R4/400	6000	1,80	1,60	2,85	0,058	2,00
ESY268.60 -R4/400	6000	3,10	2,70	4,36	0,099	3,10
ESY364.60 -R4/400	6000	2,50	1,90	3,40	0,08	3,50
ESY368.60 -R4/400	6000	4,80	3,60	5,65	0,16	4,80
ESY3612.60 -R/400	6000	6,80	5,00	8,10	0,24	6,10
ESY464.30 -R4/400	3000	5,00	4,00	3,83	0,28	4,80
ESY468.30 -R4/400	3000	10,00	8,00	7,80	0,64	9,00
ESY4612.30 -R4/400	3000	14,00	12,00	11,5	0,96	13,5
ESY564.30 -R4/400	3000	8,00	7,00	5,60	0,80	7,50
ESY568.30 -R4/400	3000	15,00	13,0	10,6	1,58	11,0
ESY5616.30 -R4/400	3000	28,0	24,0	19,4	3,18	18,0
ESY669.30 -R6/400	3000	27,0	21,0	13,2	3,60	23,5
ESY6611.30 -R6/400	3000	32,0	23,0	15,7	3,90	26,0
ESY6614.30 -R6/400	3000	40,0	26,0	20,4	4,60	31,50
ESY7616.20 -R6/400	2000	68,0	56,0	22,5	11,4	56,0
ESY7623.20 -R6/400	2000	93,0	70,0	29,4	15,3	73,0

Bremse
Brake
Frein

Motorgröße	Haltemoment	Nennspannung	Nennstrom	Schaltzeiten*	Trägheitsmoment	Gewicht
Motor size	Holding torque	Rated voltage	Rated current	Switching times*	Moment of inertia	Weight
Grandeur moteur	Couple d'arrêt	Tension nominale	Courant nominal	Temps de commutation*	Moment d'inertie	Poids
	M_{BR} , [Nm]	U_{NBR} , [V]	I_{NBR} , [A]	t, [ms]	J_{BR} [10 ⁻³ kgm ²]	G_{BR} , [kg]
ESY 06..	0,4	24 V	0,33	10/6	0,0015	0,08
ESY 16..	2,0	24 V	0,46	25/6	0,012	0,21
ESY 26..	4,5	24 V	0,50	35/7	0,019	0,38
ESY 36..	9,0	24 V	0,75	40/7	0,056	0,53
ESY 46..	18,0	24 V	1,00	50/10	0,19	1,10
ESY 56..	36,0	24 V	1,10	90/22	0,62	1,90
ESY 66..	36,0	24 V	1,10	90/22	0,62	3,25
ESY 76..	145,0	24 V	2,10	190/65	5,6	9,50

*¹) 24 VDC on/off

Mechanische Ausführung Mechanical data Exécution mécanique

Anbaunormen

Flanschmotor. Flansch nach DIN 42 677
Sonderflansch auf Anfrage

Anbaulage

Beliebig

Bauformen

Kurzzeichen nach DIN IEC 34 Teil 7
IM B 5.

Sonderbauformen auf Anfrage

Flanschgenauigkeit

Normal nach DIN 42 955
Erhöhte Genauigkeit auf Wunsch

Lagerschmierung

K3N nach DIN 51 825 Teil 1

Lackierung

Schwarz matt, RAL 9005

Lagerschilde und Gehäuse

Hochwertige Leichtmetall-Legierung

Schwingstärke

Rotor dynamisch ausgewuchtet nach
Schwingstärkestufe R, auf Wunsch
Schwingstärkestufe S nach DIN EN 60034-14 (VDE 0530-14).

Rotor

Rotor mit Selten-Erd-Dauermagneten

Schutzart

IP65, Wellenabdichtung mit Radialdichtring

Wellenende

Nach DIN 748, Teil 3, jedoch genauere
Passung k5, Zentrierung mit Gewinde ähnlich
DIN 332 Bl. 2. Standardwelle ohne
Paßfeder.

Welle mit Keilnut: Sonderausführung /S23.
Spezielle Wellenenden auf Anfrage.

Elektrische Ausführung Electrical data Exécution électrique

Vorschriften

Die Motoren sind Drehstrom- Synchron-
motoren. Sie entsprechen den Bestimmun-
gen für elektrische Maschinen DIN EN
60034-1 (VDE 0530).

Spannung

Die Motoren sind in Standardausführung
für den Anschluss an Servoverstärker mit
einer Zwischenkreisspannung von 325 V=
oder wahlweise 565 V= ausgelegt. Andere
Spannungen sind möglich.

Isolation

Wärmeklasse F nach DIN VDE 0530.
Für Einsatz in tropischen Gebieten geeig-
net.

Leistung

Die Motornennleistung in der Typenaus-
wahltablette gilt für die nach DIN EN 60034-1 (VDE 0530) festgelegten Betriebsbedin-
gungen.

Aufstellungsort <1000 m über NN, Kühlluft-
temperatur < 40°C, Betriebsart S1.

Wicklungsschutz

Durch im Wickelkopf eingebaute, unterein-
ander in Reihe geschaltete PTC Kaltleiter
(WK: 155°C), andere Varianten auf Anfrage

Bremse

Brake

Frein

Die Bremse ist eine Dauermagnetbremse.
Die Anschlussspannung der Bremse be-
trägt 24 VDC +6% - 10%.
Die Bremse ist als Haltebremse konzipiert,
sie dient zum Feststellen der Motorwelle im
Stillstand. Gelegentliche Lastbremsungen
z. B. im Not-Aus-Fall sind zulässig. Es
empfiehlt sich, den Bremsgleichrichter
durch einen spannungsabhängigen Wider-
stand (Varistor) zu schützen.

Mounting standards

Flange-mounted motor. Flange according
to DIN 42 677 special flange on inquiry

Mounting position

At choice

Types of mounting

Abbreviations according to DIN IEC 34
part 7 IM B 5.

Special types of mounting on inquiry

Flange dimensions

Machined to "normal tolerances" according
to DIN 42 955. Better on request.

Bearing lubrication

K3N according to DIN 51825 part 1

Finish

Mat black, RAL 9005

Endshields and casing

Made of high-quality light-alloy

Vibration intensity

Rotor dynamically balanced according to
vibration intensity stage R, on request vi-
bration intensity stage S according DIN EN
60034-14 (VDE 0530-14).

Rotor

Rotor equipped with rare earth-magnets.

Protection class

IP65, with rotary shaft seal

Shaft end

According to DIN 748, part 3, but more pre-
cise fit k5, threaded on centerline similar to
DIN 332, sheet 2.

Standard shaft without key.

Shaft with keyway special execution /S23.

Special shaft ends on request.

Regulations

The motors are three-phase synchronous
motors.

They comply with the "Rules for Electrical
Machines" DIN EN 60034-1 (VDE 0530).

Voltage

In standard execution the motors are rated
for the connection to AC-servo-amplifiers
with a bus voltage of 325 V= or optional
565 V=. Different voltages are possible.

Insulation

Insulation class F according to DIN VDE
0530.

Suitable for use in tropical climates.

Performance

The rated outputs are valid for the operat-
ing conditions specified in DIN EN 60034-1
(VDE 0530), if operated at an altitude be-
low 3000 feet (1000 m) above sea level, at
an ambient temperature less than 100°F
(40°C), duty class S1.

Winding protection

Several series-connected PTC-thermistors
(WK:155°C) incorporated in the overhang
of coils, other variants on request

Normes de montage

Moteur à flasque. Flasque selon DIN 42
677 flasque spécial sur demande

Position de montage

au choix

Formes de construction

Symboles selon DIN CEI 34 Partie 7
IM B 5. Formes de construction spéciales
sur demande

Précision des flasques

Standard selon DIN 42 955. Précision plus
élevée sur demande

Graissage des roulements

K3N selon DIN 51 825 partie 1

Peinture

Couleur noir mat, RAL 9005

Flasques et carcasse

Alliage léger de haute qualité

Amplitude des vibrations

Rotor équilibré dynamiquement selon
classe d'amplitude R, sur demande selon
classe d'amplitude S conforme DIN EN
60034-14 (VDE 0530-14).

Rotor

Rotor équipé d'aimants à terres rares.

Type de protection

IP65, avec bague radiale pour étanchéiser
l'arbre

Bout d'arbre

Selon DIN 748, partie 3 mais tolérance ré-
duite k5, centrage avec taraudage sembla-
ble à DIN 332, page 2. Arbre standard sans
rainure de clavette. Arbre avec clavetage
exécution spéciale /S23.

Bouts d'arbre spéciaux sur demande.

Prescriptions

En qualité de moteurs synchrones tripha-
sés, ces moteurs sont conformes aux dis-
positions régissant les machines électri-
ques selon DIN EN 60034-1 (VDE 0530).

Tension

En exécution standard, les moteurs sont
conçus pour être raccordés aux servo-
amplificateurs à C.A. à l'aide d'une tension
bus 325 V= ou facultatif de 565 V=. Autres
tensions sont possibles.

Isolation

Classe d'isolation F selon DIN VDE 0530.
Le moteur est apte à être utilisé dans des
régions tropicales.

Puissance

La puissance nominale du moteur est vala-
ble pour les conditions de service définies
dans la norme DIN EN 60034-1 (VDE0530)
lorsque l'emplacement est à une altitude
< 1000 m, avec une température de l'air de
refroidissement < 40°C, type de service S1.

Protection des enroulements

Plusieurs résistances PTC (WK : 155°C)
couplées en série, montées dans la tête de
bobine, autres variantes sur demande.

Le frein est un frein à aimant permanent.

La tension d'alimentation du frein est
24 VDC +6% - 10%.

Le frein est conçu comme frein d'arrêt pour
le blocage de l'arbre à l'arrêt. Des freinages
occasionnels sous charge, par exemple en
cas d'arrêt d'urgence, sont admissibles. Il
est recommandé de protéger le redresseur
du frein par une varistance (varistor).

Flansch-Bauformen
Flange mounting
Fixation à flasque

ESY ...

Flansch-Bauformen Flange mounting Fixation à flasque	ESY 06..	ESY 16..	ESY 26..	ESY 36..	ESY 46..	ESY 56..	ESY 66..	ESY 76..
DIN/IEC	außerhalb Norm exterior to standard hors norme		45	56	71	80	100	132
IM B 5			A 90	A 120	A 160	A 200	A 250	A 300

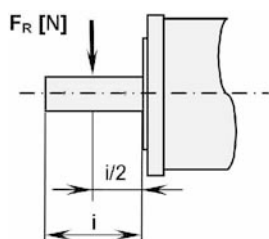
Maximal zulässige Drehzahlen
Maximum permitted speeds
Vitesses maximales admissibles

Für Motoren mit Resolver, andere Geber auf Anfrage
For motors with resolvers, other encoders on request
Pour moteurs avec résolveur, autres codeurs sur demande

ESY 06..	ESY 16..	ESY 26..	ESY 36..	ESY 46..	ESY 56..	ESY 66..	ESY 76..
12000 (10000*)	18000 (10000*)	18000 (10000*)	10000	8000	6000	6000	3600

*) mit Bremse / with brake / avec frein

Zulässige Radialkräfte
Permitted radial force
Forces radiales admissibles



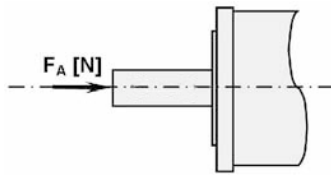
Kraftangriffspunkt Radialkraft: Mitte Abtriebswelle
Radial force application point: middle of driven shaft
Point d'application de la force radiale : centre de l'arbre moteur

Drehzahl Speed Vitesse	1000 min ⁻¹	2000 min ⁻¹	3000 min ⁻¹	4500 min ⁻¹	6000 min ⁻¹
ESY 06..	233/128*	185/102*	161/189*	141/177*	128/70*
ESY 16..	290	230	200	180	160
ESY 26..	400	320	270	240	220
ESY 36..	500	400	350	300	270
ESY 46..	800	640	560	490	440
ESY 56..	1420	1120	980	860	780
ESY 66..	1944	1543	1348	1177	1070
ESY 76..	2454	1948	1702	1487	1351

*) ohne/mit Bremse / without/with brake / sans/avec frein

Zulässige Axialkräfte
Permitted axial force
Forces axiales admissibles

ESY ...



Maximal zulässige Axialkraft gilt nur für Druckbelastung
 Maximum permitted axial force only applies to pressure load
 La force axiale maximale admissible ne vaut que pour la charge de pression

Drehzahl Speed Vitesse	1000 min ⁻¹	2000 min ⁻¹	3000 min ⁻¹	4500 min ⁻¹	6000 min ⁻¹
ESY 06..	44/24*	35/19*	31/17*	25/15*	24/13*
ESY 16..	100	90	85	80	65
ESY 26..	100	90	85	80	65
ESY 36..	150	130	120	110	90
ESY 46..	280	230	185	150	125
ESY 56..	480	400	340	280	240
ESY 66..	369	293	256	224	203
ESY 76..	466	370	323	282	257

*) ohne/mit Bremse / without/with brake / sans/avec frein

Die zulässigen Kräfte beziehen sich auf eine Lebensdauer von 20.000 Stunden. Die Werte gelten nur für eine Belastungsrichtung (entweder axial oder radial)

The permitted forces relate to a service life of 20,000 hours. Values only apply to one load direction (either axial or radial)

Les forces admissibles se rapportent à une durée de vie de 20.000 heures. Les valeurs ne sont valables que pour un sens de sollicitation (axial ou radial).

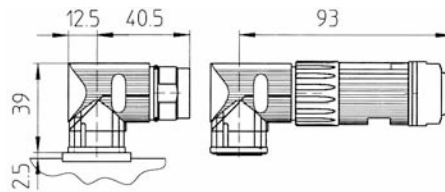
Rotorlagegeber
Rotor position encoder
Codeur de position du rotor

Motorbezeichnung Motor designation Désignation du moteur	Geber Encoder Codeur	Eigenschaften Properties Propriétés
R4, R6	Resolver (Standard)	1 Periode/rev, U _S /U _R =0,5
RC	ERN 1185, Heidenhain	Sin/Cos (Z1) + Ref/r. + 512 Inc./r.
RJ	ERN 1185, Heidenhain	Sin/Cos (Z1) + Ref/r. + 2048 Inc./r.
RF	ERN 1387, Heidenhain	Sin/Cos (Z1) + Ref/r. + 2048 Inc./r.
RH	SRM 50, Sick-Stegmann	Hiperface Multiturn 4096r. + 1024 Inc./r.
RQ	SKM 36, Sick-Stegmann	Hiperface Multiturn 4096r. + 128 Inc./r.

Geberbestückung
Encoder equipping
Equipement des codeurs

Motor Motor Moteur	R4	R6	RC	RJ	RF	RH	RQ
ESY 06..	x						
ESY 16..	x		x	x			x
ESY 26..	x		x	x	x	x	x
ESY 36..	x		x*	x*	x	x	x*
ESY 46..	x				x	x	
ESY 56..	x				x	x	
ESY 66..		x			x	x	
ESY 76..		x			x	x	

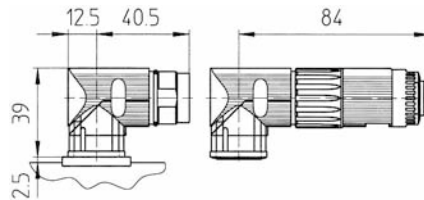
*) Auf Anfrage / on request / sur demande



Motoranschluss: 8-pol. drehbare Anschlussdose mit Kontaktstiften (außer ESY 06.. und ESY 76..)

Motor connection: 8-pin rotating connector with contact pins (except ESY 06.. and ESY 76..)

Raccordement du moteur : boîte de connexion pivotante à 8 pôles et fiches de contact (sauf ESY 06.. et ESY 76..)

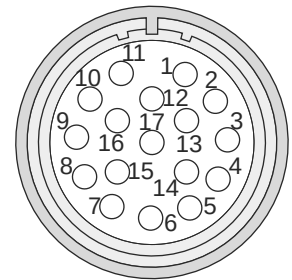
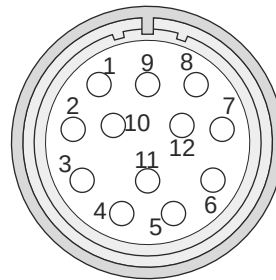
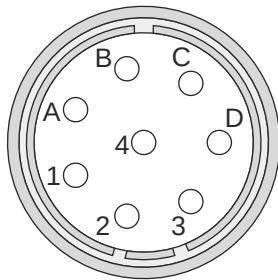


Geberanschluss: 12-pol. oder 17-pol. drehbare Anschlussdose mit Kontaktstiften (außer ESY 06..)

Encoder connection: 12-pin or 17-pin rotating connector with contact pins (except ESY 06..)

Raccordement du codeur : boîte de connexion pivotante à 12 ou 17 pôles et fiches de contact (sauf ESY 06..)

Signalbelegung
Signal assignments
Affectation des signaux



Motoranschluss: 8-pol. Anschlussdose mit Kontaktstiften (1...4 Ø 2 mm, A...D Ø 1 mm). ESY 16.. bis ESY 66..
Motor connection: 8-pin connecting box with contact pins (1 to 4 Ø 2 mm, A to D Ø 1 mm). ESY 16.. to ESY 66..
Raccordement du moteur : boîte de connexion à 8 pôles et fiches de contact (1...4 Ø 2 mm, A...D Ø 1 mm). ESY 16.. à ESY 66..

Geberanschluss: 12-pol. oder 17-pol. Anschlussdose mit Kontaktstiften (Ø 1 mm). ESY 16.. bis ESY 76..
Encoder connection: 12-pin or 17-pin connecting box with contact pins (Ø 1 mm). ESY 16.. to ESY 76..
Raccordement du codeur : boîte de connexion à 12 ou 17 pôles et fiches de contact (Ø 1 mm). ESY 16.. à ESY 76..

R4, R6

Motor Motor Moteur		Geber, 12-pol Resolver	
Pin	Signal	Pin	Signal
1	W	1	S4 SIN-
2	PE	2	S1 COS+
3	U	3	PTC
4	V	4	PTC
A	N.C.	5	R1 REF+
B	N.C.	7	R2 REF-
C	BR+	10	S2 SIN+
D	BR-	11	S3 COS-
		6, 8, 9, 12	N.C.

RH, RQ

Motor Motor Moteur		Geber, 12-pol Hiperface	
Pin	Signal	Pin	Signal
1	W	1	DATA-
2	PE	2	V _{cc} (+8V)
3	U	4	SIN
4	V	5	COS
A	PTC	6	DATA+
B	PTC	7	GND
C	BR+	8	REFSIN
D	BR-	9	REFCOS
		3, 10, 11, 12	N.C.

RC, RJ, RF

Motor Motor Moteur		Geber, 17-pol Heidenhain SinCos	
Pin	Signal	Pin	Signal
1	W	1	V _{cc} Sensor
2	PE	2	R-
3	U	3	R+
4	V	4	GND _{Sensor}
A	PTC	7	V _{cc} (+5V)
B	PTC	8	D-
C	BR+	9	D+
D	BR-	10	GND
		12	B+
		13	B-
		14	C+
		15	A+
		16	A-
		17	C-
		5, 6, 11	N.C.

BR- Bremse / Brake / Frein

PTC - Wicklungsschutz / Winding protection / Protection des enroulements

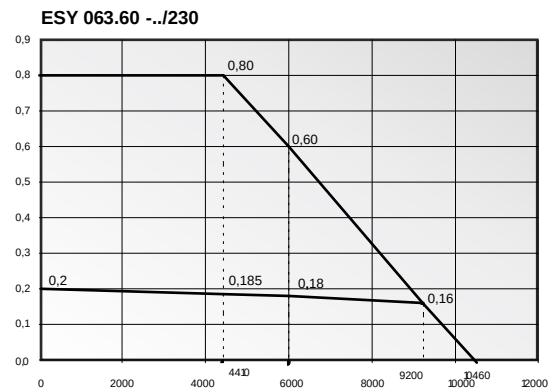
N.C. - Nicht belegt / Not connected / Non connecté

ESY	061.60- ../230	063.60- ../230
Bemessungsspannung, U_N (V) Rated voltage Tension nominale	230	230
Bemessungsdrehzahl, n_N (1/min) Rated speed Vitesse nominale	6000	6000
Bemessungsleistung, P_N (kW) Rated power Puissance nominale	0,056	0,113
Bemessungsdrehmoment, M_N (Nm) Rated torque Couple nominale	0,09	0,18
Stillstandsmoment, M_0 (Nm)** Standstill torque Couple à arrêt	0,10	0,20
Spitzenmoment, M_{Max} (Nm)*** Peak torque Couple de crête	0,40	0,80
Massenträgheitsmoment, J_{rot} (10^{-3} kgm ²) Moment of inertia Moment d'inertie	0,006	0,008
Bemessungsstrom, I_N (A) Rated current Courant nominal	0,59	0,87
Bemessungsdrehmomentkonstante, K_{TN} (Nm/A) Rated torque constant Constante de couple nominal	0,15	0,21
Stillstandsstrom, I_0 (A)** Standstill current Courant à l'arrêt	0,60	0,97
Stillstandsdrehmomentkonstante, K_{TO} (Nm/A) Standstill torque constant Constante de couple à l'arrêt	0,17	0,21
Spitzenstrom, I_{max} (A)*** Peak current Courant de crête admissible	2,80	4,30
Spitzendrehmomentkonstante, K_{TMax} (Nm/A) Peak torque constant Constante de crête admissible	0,14	0,18
EMK-Konstante, K_E (V/1000 1/Min)* EMF constant Constante TEN	10,0	12,5
Rastmoment (% M_0) Detent torque Couple de repos	0,9	0,9
Ständerwiderstand R_{U-V} (Ω)** Stator resistance Resistance statorique	38,5	18,8
Ständerinduktivität L_{U-V} (mH) Stator inductivity Inductance statorique	6,5	4,5
Elektrische Zeitkonstante T_{el} (ms) Electrical time constant Constante de temps électrique	0,17	0,2
Thermische Zeitkonstante T_{th} (min) Thermal time constant Constante de temps thermique	18	20
Motorgewicht, m_{mot} (kg) Motor weight Poids du moteur	0,37	0,45

)* Werte bei 20°C / Values at 20°C / Valeurs à 20°C

**) Werte bei 200 U/min / Values at 200 rpm / Valeurs à 200 tr/mn

***) Kurzzeitbetrieb 5 Sekunden / Short-time operation 5 seconds / Service de courte durée 5 secondes

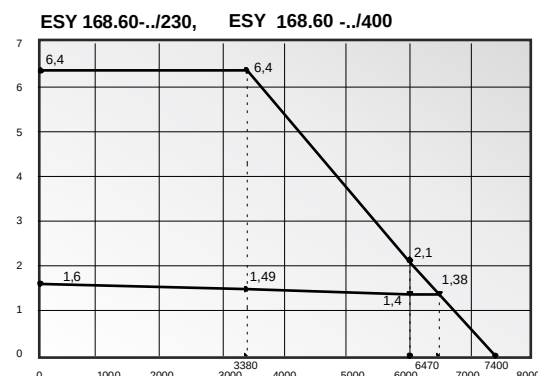
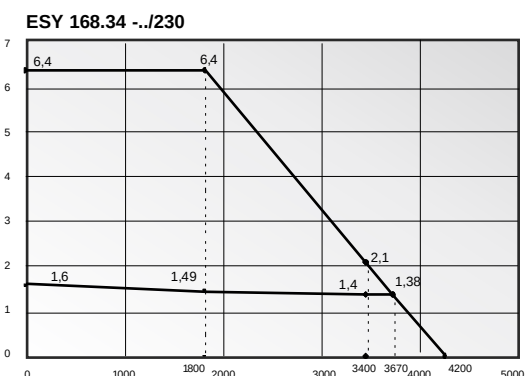
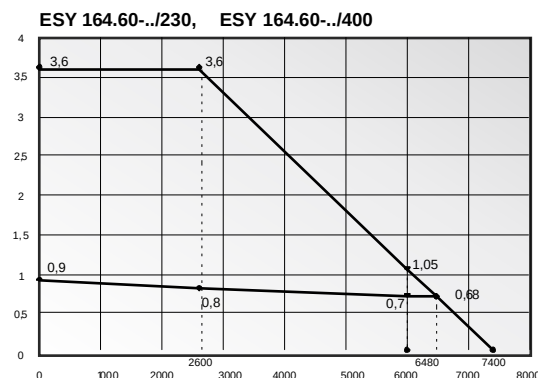
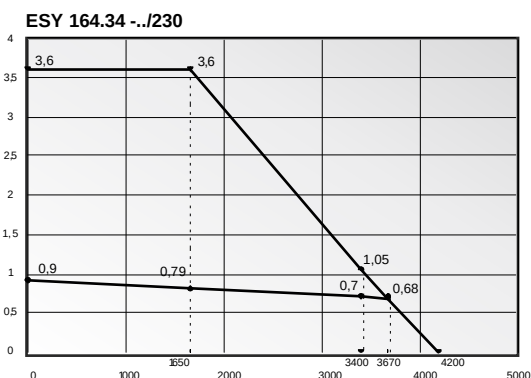
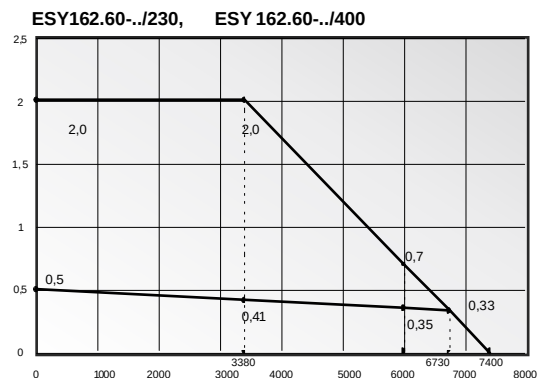
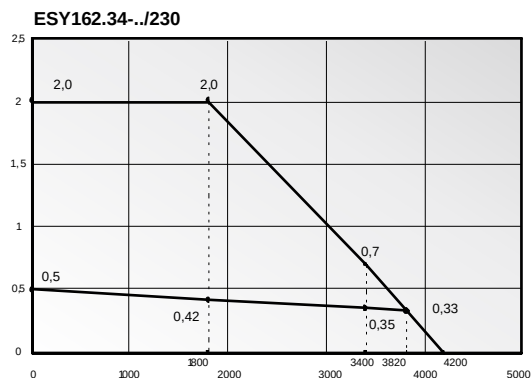
[illegible]11

ESY	162.34- ../230	164.34- ../230	168.34- ../230	162.60- ../230	164.60- ../230	168.60- ../230	162.60- ../400	164.60- ../400	168.60 ../400
Bemessungsspannung, U_N (V) Rated voltage Tension nominale	230	230	230	230	230	230	400	400	400
Bemessungsdrehzahl, n_N (1/min) Rated speed Vitesse nominale	3400	3400	3400	6000	6000	6000	6000	6000	6000
Bemessungsleistung, P_N (kW) Rated power Puissance nominale	0,12	0,25	0,50	0,22	0,43	0,87	0,22	0,43	0,87
Bemessungsdrehmoment, M_N (Nm) Rated torque Couple nominale	0,35	0,70	1,40	0,35	0,70	1,40	0,35	0,70	1,40
Stillstandsmoment, M_0 (Nm)** Standstill torque Couple à arrêt	0,50	0,90	1,60	0,50	0,90	1,60	0,50	0,90	1,60
Spitzenmoment, M_{Max} (Nm)*** Peak torque Couple de crête	2,00	3,60	6,40	2,00	3,60	6,40	2,00	3,60	6,40
Massenträgheitsmoment, J_{rot} (10^{-3} kgm ²) Moment of inertia Moment d'inertie	0,0098	0,0196	0,0392	0,0098	0,0196	0,0392	0,0098	0,0196	0,0392
Bemessungsstrom, I_N (A) Rated current Courant nominal	0,87	1,23	2,10	1,50	2,13	3,64	0,87	1,23	2,10
Bemessungsdrehmomentkonstante, K_{TN} (Nm/A) Rated torque constant Constante de couple nominal	0,43	0,56	0,66	0,23	0,33	0,38	0,43	0,56	0,66
Stillstandsstrom, I_0 (A)** Standstill current Courant à l'arrêt	0,87	1,23	2,10	1,50	2,13	3,64	0,87	1,23	2,10
Stillstandsdrehmomentkonstante, K_{TO} (Nm/A) Standstill torque constant Constante de couple à l'arrêt	0,57	0,73	0,76	0,33	0,42	0,44	0,57	0,73	0,76
Spitzenstrom, I_{max} (A)*** Peak current Courant de crête admissible	3,48	4,92	8,40	6,00	8,52	14,6	3,48	4,92	8,40
Spitzendrehmomentkonstante, K_{TMax} (Nm/A) Peak torque constant Constante de crête admissible	0,57	0,63	0,76	0,33	0,42	0,44	0,57	0,63	0,76
EMK-Konstante, K_E (V/1000 1/Min)* EMF constant Constante TEN	54,0	54,0	54,0	31,1	31,1	31,1	54,0	54,0	54,0
Rastmoment (% M_0) Detent torque Couple de repos	0,9	0,9	0,9	0,9	0,9	0,9	0,9	0,9	0,9
Ständerwiderstand R_{U-V} (Ω)** Stator resistance Resistance statorique	70,0	35,0	14,1	22,9	12,5	4,50	70,0	35,0	14,1
Ständerinduktivität L_{U-V} (mH) Stator inductivity Inductance statorique	272	136	57,4	90,6	45,3	19,1	272	136	57,4
Elektrische Zeitkonstante T_{el} (ms) Electrical time constant Constante de temps électrique	3,31	3,88	4,07	3,95	3,62	4,24	3,31	3,88	4,07
Thermische Zeitkonstante T_{th} (min) Thermal time constant Constante de temps thermique	22	24	28	22	24	28	22	24	28
Motorgewicht, m_{mot} (kg) Motor weight Poids du moteur	0,80	1,30	2,00	0,80	1,30	2,00	0,80	1,30	2,00

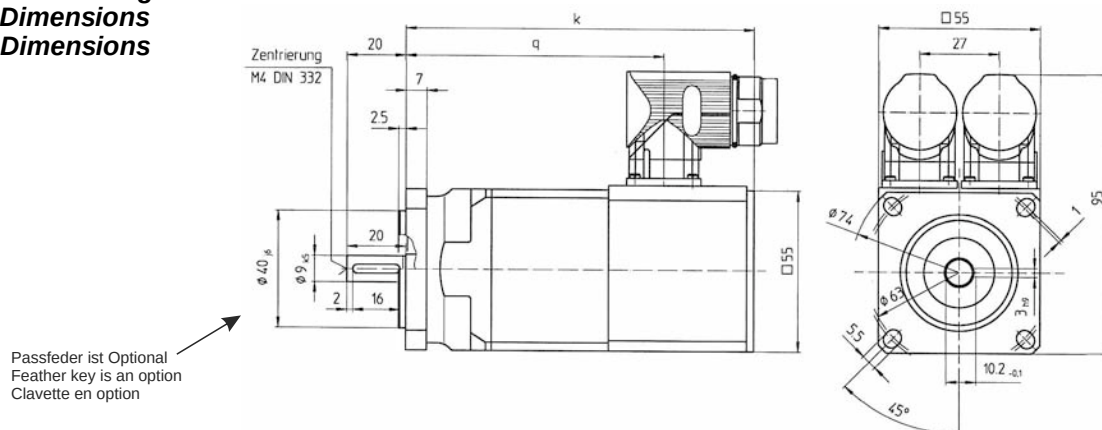
)* Werte bei 20°C / Values at 20°C / Valeurs à 20°C

**) Werte bei 200 U/min / Values at 200 rpm / Valeurs à 200 tr/mn

***) Kurzzeitbetrieb 5 Sekunden / Short-time operation 5 seconds / Service de courte durée 5 secondes



Abmessungen
Dimensions
Dimensions



TYP	q	mit Resolver with resolver avec résolveur	mit Resolver und Bremse with resolver and brake avec résolveur et frein	mit Drehgeber with encoder avec codeur	mit Drehgeber und Bremse with encoder and brake avec codeur et frein
		k	k	k	k
ESY 162../(S23)	68	99	143	max 140	max 185
ESY 164../(S23)	88	119	163	max 160	max 205
ESY 168../(S23)	128	159	203	max 200	max 245

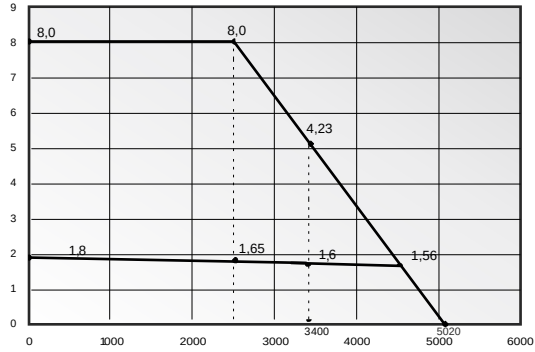
ESY	264.34- ..I230	268.34- ..I230	264.60- ..I230	268.60- ..I230	264.60- ..I400	268.60- ..I400
Bemessungsspannung, U_N (V) Rated voltage Tension nominale	230	230	230	230	400	400
Bemessungsdrehzahl, n_N (1/min) Rated speed Vitesse nominale	3400	3400	6000	6000	6000	6000
Bemessungsleistung, P_N (kW) Rated power Puissance nominale	0,57	0,96	1,00	1,70	1,00	1,70
Bemessungsdrehmoment, M_N (Nm) Rated torque Couple nominale	1,60	2,70	1,60	2,70	1,60	2,70
Stillstandsmoment, M_0 (Nm)** Standstill torque Couple à arrêt	1,80	3,10	1,80	3,10	1,80	3,10
Spitzenmoment, M_{Max} (Nm)*** Peak torque Couple de crête	8,00	12,7	8,00	12,7	8,00	12,7
Massenträgheitsmoment, J_{rot} (10^{-3} kgm ²) Moment of inertia Moment d'inertie	0,058	0,099	0,058	0,099	0,058	0,099
Bemessungsstrom, I_N (A) Rated current Courant nominal	2,85	4,36	4,93	7,55	2,85	4,36
Bemessungsdrehmomentkonstante, K_{TN} (Nm/A) Rated torque constant Constante de couple nominale	0,56	0,62	0,32	0,35	0,56	0,62
Stillstandsstrom, I_0 (A)** Standstill current Courant à l'arrêt	2,85	4,36	4,93	7,55	2,85	4,36
Stillstandsdrehmomentkonstante, K_{TO} (Nm/A) Standstill torque constant Constante de couple à l'arrêt	0,63	0,71	0,36	0,41	0,63	0,71
Spitzenstrom, I_{max} (A)*** Peak current Courant de crête admissible	12,7	17,9	22,0	31,0	12,7	17,9
Spitzendrehmomentkonstante, K_{TMax} (Nm/A) Peak torque constant Constante de crête admissible	0,71	0,71	0,36	0,40	0,71	0,71
EMK-Konstante, K_E (V/1000 1/Min)* EMF constant Constante TEN	39,7	45,8	22,9	27,5	39,7	45,8
Rastmoment (% M_0) Detent torque Couple de repos	0,8	0,8	0,8	0,8	0,8	0,8
Ständerwiderstand R_{U-V} (Ω)** Stator resistance Resistance statorique	6,55	3,70	2,35	1,24	6,55	3,70
Ständerinduktivität L_{U-V} (mH) Stator inductivity Inductance statorique	3,10	2,88	1,03	0,96	3,10	2,88
Elektrische Zeitkonstante T_{el} (ms) Electrical time constant Constante de temps électrique	0,47	0,77	0,42	0,77	0,47	0,77
Thermische Zeitkonstante T_{th} (min) Thermal time constant Constante de temps thermique	28	33	28	33	28	33
Motorgewicht, m_{mot} (kg) Motor weight Poids du moteur	2,00	3,10	2,00	3,10	2,00	3,10

)* Werte bei 20°C / Values at 20°C / Valeurs à 20°C

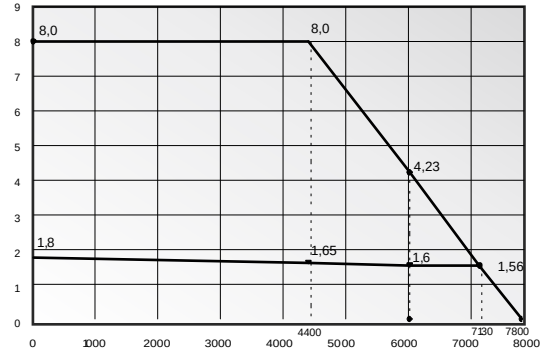
)** Werte bei 200 U/min / Values at 200 rpm / Valeurs à 200 tr/mn

)***) Kurzzeitbetrieb 5 Sekunden / Short-time operation 5 seconds / Service de courte durée 5 secondes

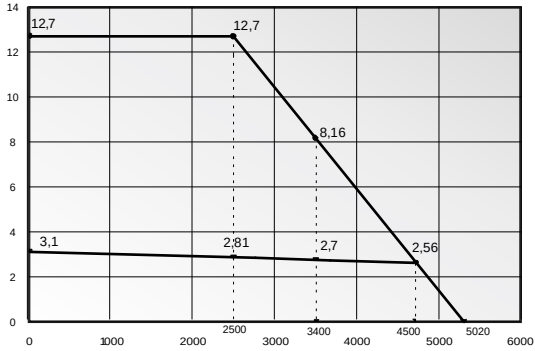
ESY 264.34-../230



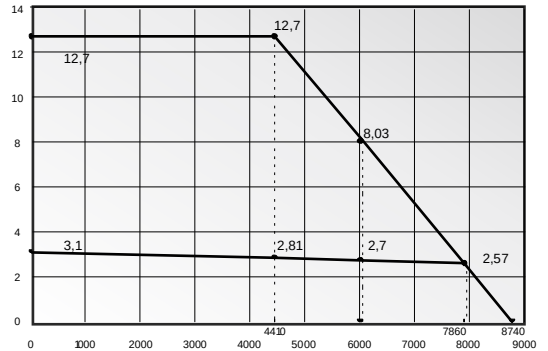
ESY 264.60-../230, ESY 264.60-../400



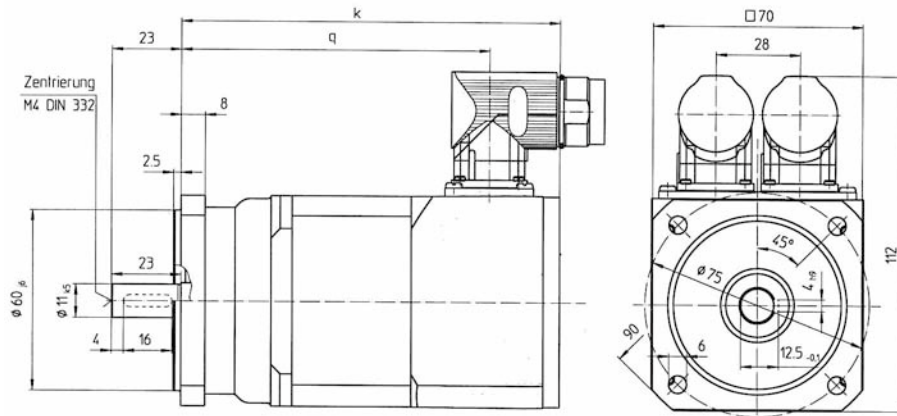
ESY 268.34-../230



ESY 268.60-../230, ESY 268.60-../400



Abmessungen
Dimensions
Dimensions



Passfeder ist Optional
 Feather key is an option
 Clavette en option

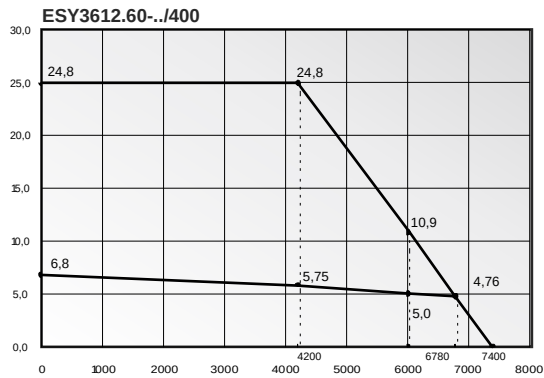
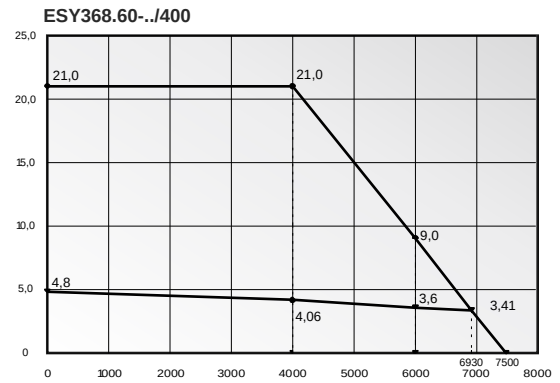
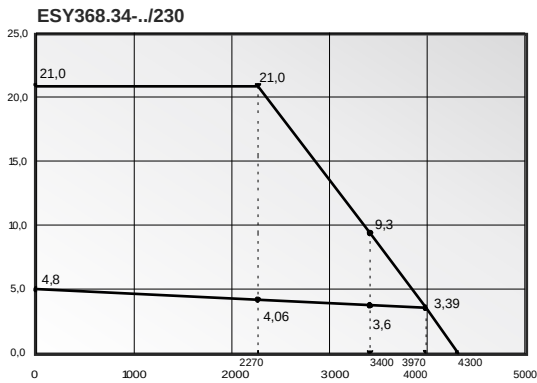
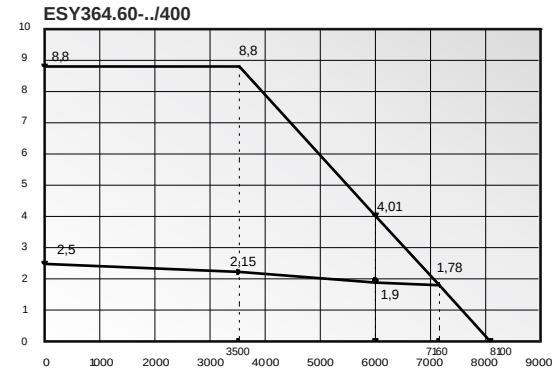
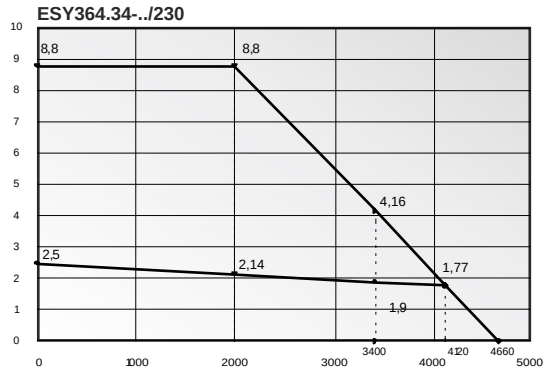
TYP	q	mit Resolver with resolver avec résolveur	mit Resolver und Bremse with resolver and brake avec résolveur et frein	mit Drehgeber with encoder avec codeur	mit Drehgeber und Bremse with encoder and brake avec codeur et frein
		k	k	k	k
ESY 264-../S23)	104	127	176	max 167	max 216
ESY 268-../S23)	144	167	216	max 207	max 256

ESY	364.34- ..I230	368.34- ..I230	364.60- ..I400	368.60- ..I400	3612.60- ..I400
Bemessungsspannung, U_N (V) Rated voltage Tension nominale	230	230	400	400	400
Bemessungsdrehzahl, n_N (1/min) Rated speed Vitesse nominale	3400	3400	6000	6000	6000
Bemessungsleistung, P_N (kW) Rated power Puissance nominale	0,68	1,28	1,20	2,26	3,26
Bemessungsdrehmoment, M_N (Nm) Rated torque Couple nominale	1,90	3,60	1,90	3,60	5,00
Stillstandsmoment, M_0 (Nm)** Standstill torque Couple à arrêt	2,50	4,80	2,50	4,80	6,80
Spitzenmoment, M_{Max} (Nm)*** Peak torque Couple de crête	8,80	21,0	8,80	21,0	24,8
Massenträgheitsmoment, J_{rot} (10^{-3} kgm ²) Moment of inertia Moment d'inertie	0,08	0,16	0,08	0,16	0,24
Bemessungsstrom, I_N (A) Rated current Courant nominal	2,70	4,50	2,70	4,50	6,13
Bemessungsdrehmomentkonstante, K_{TN} (Nm/A) Rated torque constant Constante de couple nominale	0,71	0,80	0,71	0,80	0,81
Stillstandsstrom, I_0 (A)** Standstill current Courant à l'arrêt	3,40	5,65	3,40	5,65	8,10
Stillstandsdrehmomentkonstante, K_{TO} (Nm/A) Standstill torque constant Constante de couple à l'arrêt	0,73	0,85	0,73	0,85	0,84
Spitzenstrom, I_{max} (A)*** Peak current Courant de crête admissible	16,4	35,0	16,4	35,0	41,5
Spitzendrehmomentkonstante, K_{TMax} (Nm/A) Peak torque constant Constante de crête admissible	0,54	0,60	0,54	0,60	0,60
EMK-Konstante, K_E (V/1000 1/Min)* EMF constant Constante TEN	49,4	53,8	49,4	53,8	54,3
Rastmoment (% M_0) Detent torque Couple de repos	0,7	0,7	0,7	0,7	0,7
Ständerwiderstand R_{U-V} (Ω)** Stator resistance Resistance statorique	6,43	3,17	6,43	3,17	1,78
Ständerinduktivität L_{U-V} (mH) Stator inductivity Inductance statorique	18,2	8,21	18,2	8,21	4,85
Elektrische Zeitkonstante T_{el} (ms) Electrical time constant Constante de temps électrique	2,83	2,59	2,83	2,59	2,72
Thermische Zeitkonstante T_{th} (min) Thermal time constant Constante de temps thermique	37	39	37	39	42
Motorgewicht, m_{mot} (kg) Motor weight Poids du moteur	3,50	4,80	3,50	4,80	6,10

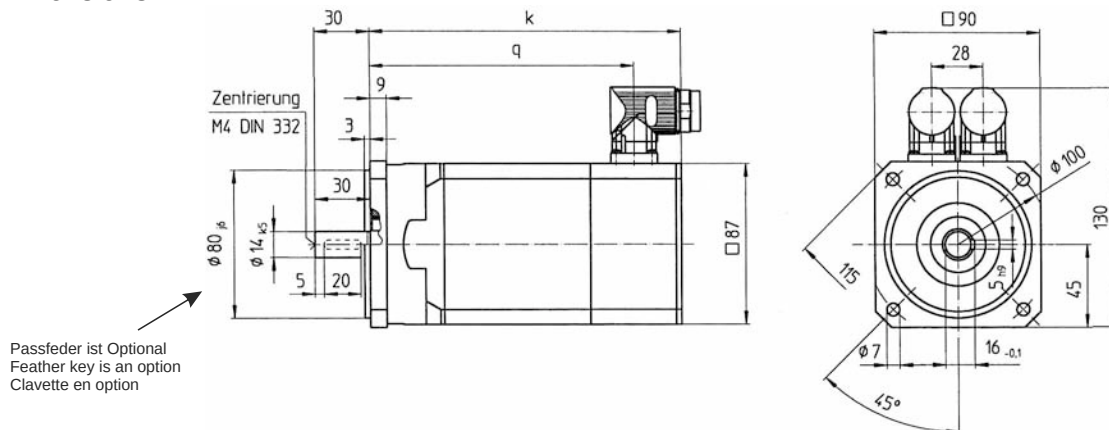
)* Werte bei 20°C / Values at 20°C / Valeurs à 20°C

**) Werte bei 200 U/min / Values at 200 rpm / Valeurs à 200 tr/mn

***) Kurzzeitbetrieb 5 Sekunden / Short-time operation 5 seconds / Service de courte durée 5 secondes



Abmessungen
Dimensions
Dimensions



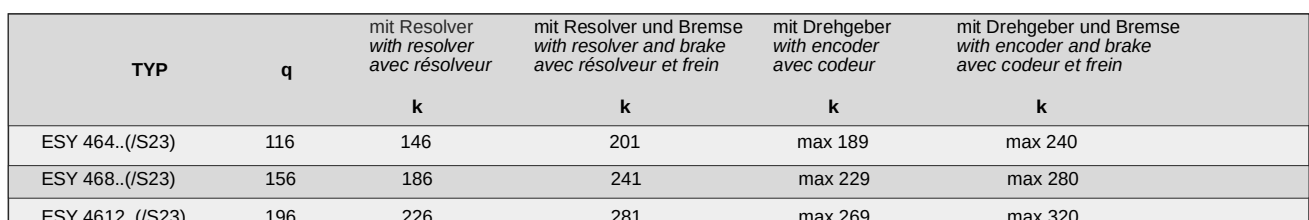
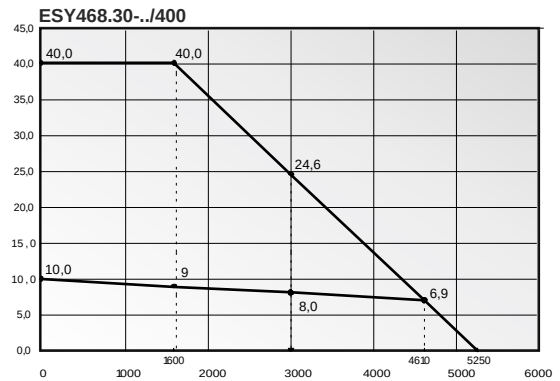
TYP	q	mit Resolver with resolver avec résolveur	mit Resolver und Bremse with resolver and brake avec résolveur et frein	mit Drehgeber with encoder avec codeur	mit Drehgeber und Bremse with encoder and brake avec codeur et frein
		k	k	k	k
ESY 364-../(S23)	104	130	174	max 174	max 213
ESY 368-../(S23)	144	170	214	max 214	max 253
ESY 3612-../(S23)	184	210	254	max 254	max 293

ESY	464.30- ..I400	468.30- ..I400	4612.30- ..I400
Bemessungsspannung, U_N (V) Rated voltage Tension nominale	400	400	400
Bemessungsdrehzahl, n_N (1/min) Rated speed Vitesse nominale	3000	3000	3000
Bemessungsleistung, P_N (kW) Rated power Puissance nominale	1,25	2,51	3,76
Bemessungsdrehmoment, M_N (Nm) Rated torque Couple nominale	4,00	8,00	12,0
Stillstandsmoment, M_0 (Nm)** Standstill torque Couple à arrêt	5,00	10,0	14,0
Spitzenmoment, M_{Max} (Nm)*** Peak torque Couple de crête	20,0	40,0	48,0
Massenträgheitsmoment, J_{rot} (10^{-3} kgm ²) Moment of inertia Moment d'inertie	0,28	0,64	0,96
Bemessungsstrom, I_N (A) Rated current Courant nominal	3,83	7,80	11,5
Bemessungsdrehmomentkonstante, K_{TN} (Nm/A) Rated torque constant Constante de couple nominal	1,04	1,02	1,04
Stillstandsstrom, I_0 (A)** Standstill current Courant à l'arrêt	3,83	7,80	11,5
Stillstandsdrehmomentkonstante, K_{TO} (Nm/A) Standstill torque constant Constante de couple à l'arrêt	1,31	1,28	1,21
Spitzenstrom, I_{max} (A)*** Peak current Courant de crête admissible	15,3	30,7	45,9
Spitzendrehmomentkonstante, K_{TMax} (Nm/A) Peak torque constant Constante de crête admissible	1,31	1,30	1,04
EMK-Konstante, K_E (V/1000 1/Min)* EMF constant Constante TEN	85,6	85,6	88,4
Rastmoment (% M_0) Detent torque Couple de repos	0,6	0,6	0,6
Ständerwiderstand R_{U-V} (Ω)** Stator resistance Resistance statorique	3,46	1,73	1,28
Ständerinduktivität L_{U-V} (mH) Stator inductivity Inductance statorique	11,4	5,70	4,11
Elektrische Zeitkonstante T_{el} (ms) Electrical time constant Constante de temps électrique	3,29	3,29	3,21
Thermische Zeitkonstante T_{th} (min) Thermal time constant Constante de temps thermique	38	42	47
Motorgewicht, m_{mot} (kg) Motor weight Poids du moteur	4,80	9,0	13,5

)* Werte bei 20°C / Values at 20°C / Valeurs à 20°C

**) Werte bei 200 U/min / Values at 200 rpm / Valeurs à 200 tr/mn

***) Kurzzeitbetrieb 5 Sekunden/ Short-time operation 5 seconds / Service de courte durée 5 secondes



ESY	564.30- ..I400	568.30- ..I400	5616.30- ..I400	568.60- ..I400
Bemessungsspannung, U_N (V) Rated voltage Tension nominale	400	400	400	400
Bemessungsdrehzahl, n_N (1/min) Rated speed Vitesse nominale	3000	3000	3000	6000
Bemessungsleistung, P_N (kW) Rated power Puissance nominale	2,20	4,08	7,54	4,08
Bemessungsdrehmoment, M_N (Nm) Rated torque Couple nominale	7,00	13,0	24,0	6,5
Stillstandsmoment, M_0 (Nm)** Standstill torque Couple à arrêt	8,00	15,0	28,0	15
Spitzenmoment, M_{Max} (Nm)*** Peak torque Couple de crête	28,0	52,0	96,0	52
Massenträgheitsmoment, J_{rot} (10^{-3} kgm ²) Moment of inertia Moment d'inertie	0,80	1,58	3,16	1,58
Bemessungsstrom, I_N (A) Rated current Courant nominal	5,60	10,6	19,4	9,5
Bemessungsdrehmomentkonstante, K_{TN} (Nm/A) Rated torque constant Constante de couple nominal	1,25	1,22	1,23	0,68
Stillstandsstrom, I_0 (A)** Standstill current Courant à l'arrêt	5,60	10,6	19,4	19
Stillstandsdrehmomentkonstante, K_{TO} (Nm/A) Standstill torque constant Constante de couple à l'arrêt	1,42	1,41	1,44	0,79
Spitzenstrom, I_{max} (A)*** Peak current Courant de crête admissible	22,6	42,3	77,6	78
Spitzendrehmomentkonstante, K_{TMax} (Nm/A) Peak torque constant Constante de crête admissible	1,23	1,22	1,23	0,66
EMK-Konstante, K_E (V/1000 1/Min)* EMF constant Constante TEN	90,1	90,1	83,1	50,6
Rastmoment (% M_0) Detent torque Couple de repos	0,5	0,5	0,5	0,5
Ständerwiderstand R_{U-V} (Ω)** Stator resistance Resistance statorique	2,38	1,19	0,71	0,37
Ständerinduktivität L_{U-V} (mH) Stator inductivity Inductance statorique	12,1	3,01	0,90	0,90
Elektrische Zeitkonstante T_{el} (ms) Electrical time constant Constante de temps électrique	5,08	2,53	1,27	2,43
Thermische Zeitkonstante T_{th} (min) Thermal time constant Constante de temps thermique	46	50	55	50
Motorgewicht, m_{mot} (kg) Motor weight Poids du moteur	7,50	11,0	18,0	11,0

)* Werte bei 20°C / Values at 20°C / Valeurs à 20°C

**) Werte bei 200 U/min / Values at 200 rpm / Valeurs à 200 tr/mn

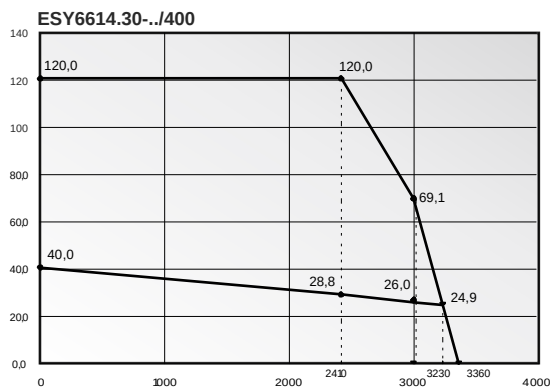
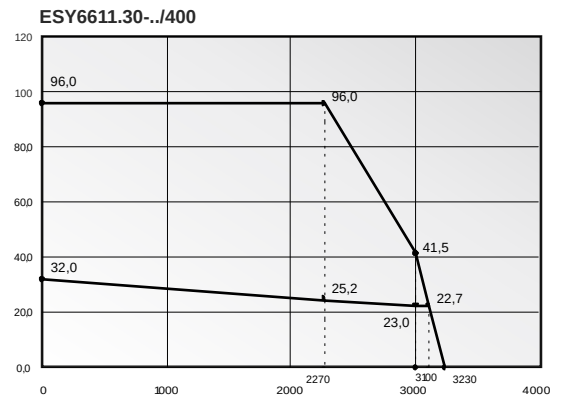
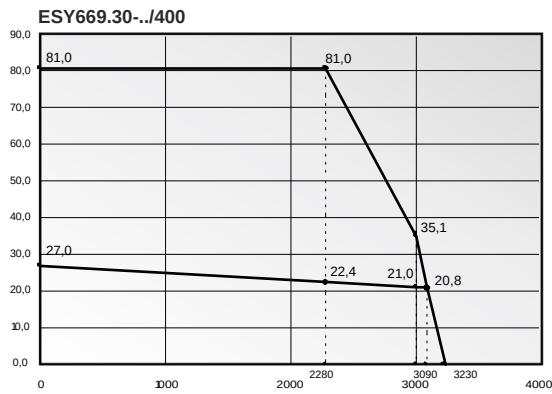
***) Kurzzeitbetrieb 5 Sekunden / Short-time operation 5 seconds / Service de courte durée 5 secondes

ESY	669.30- ..I400	6611.30- ..I400	6614.30- ..I400
Bemessungsspannung, U_N (V) Rated voltage Tension nominale	400	400	400
Bemessungsdrehzahl, n_N (1/min) Rated speed Vitesse nominale	3000	3000	3000
Bemessungsleistung, P_N (kW) Rated power Puissance nominale	6,59	7,22	8,16
Bemessungsdrehmoment, M_N (Nm) Rated torque Couple nominale	21,0	23,0	26,0
Stillstandsmoment, M_0 (Nm)** Standstill torque Couple à arrêt	27,0	32,0	40,0
Spitzenmoment, M_{Max} (Nm)*** Peak torque Couple de crête	81,0	96,0	120
Massenträgheitsmoment, J_{rot} (10^{-3} kgm ²) Moment of inertia Moment d'inertie	3,60	3,90	4,60
Bemessungsstrom, I_N (A) Rated current Courant nominal	13,5	15,0	17,9
Bemessungsdrehmomentkonstante, K_{TN} (Nm/A) Rated torque constant Constante de couple nominal	1,55	1,53	1,45
Stillstandsstrom, I_0 (A)** Standstill current Courant à l'arrêt	13,2	15,7	20,4
Stillstandsdrehmomentkonstante, K_{TO} (Nm/A) Standstill torque constant Constante de couple à l'arrêt	2,05	2,03	1,96
Spitzenstrom, I_{max} (A)*** Peak current Courant de crête admissible	51,2	61,1	79,2
Spitzendrehmomentkonstante, K_{TMax} (Nm/A) Peak torque constant Constante de crête admissible	1,58	1,61	1,51
EMK-Konstante, K_E (V/1000 1/Min)* EMF constant Constante TEN	124	124	116
Rastmoment (% M_0) Detent torque Couple de repos	0,5	0,5	0,5
Ständerwiderstand R_{U-V} (Ω)** Stator resistance Resistance statorique	0,76	0,52	0,33
Ständerinduktivität L_{U-V} (mH) Stator inductivity Inductance statorique	6,46	5,58	3,96
Elektrische Zeitkonstante T_{el} (ms) Electrical time constant Constante de temps électrique	8,50	10,7	12,0
Thermische Zeitkonstante T_{th} (min) Thermal time constant Constante de temps thermique	60	62	67
Motorgewicht, m_{mot} (kg) Motor weight Poids du moteur	23,5	26,0	31,5

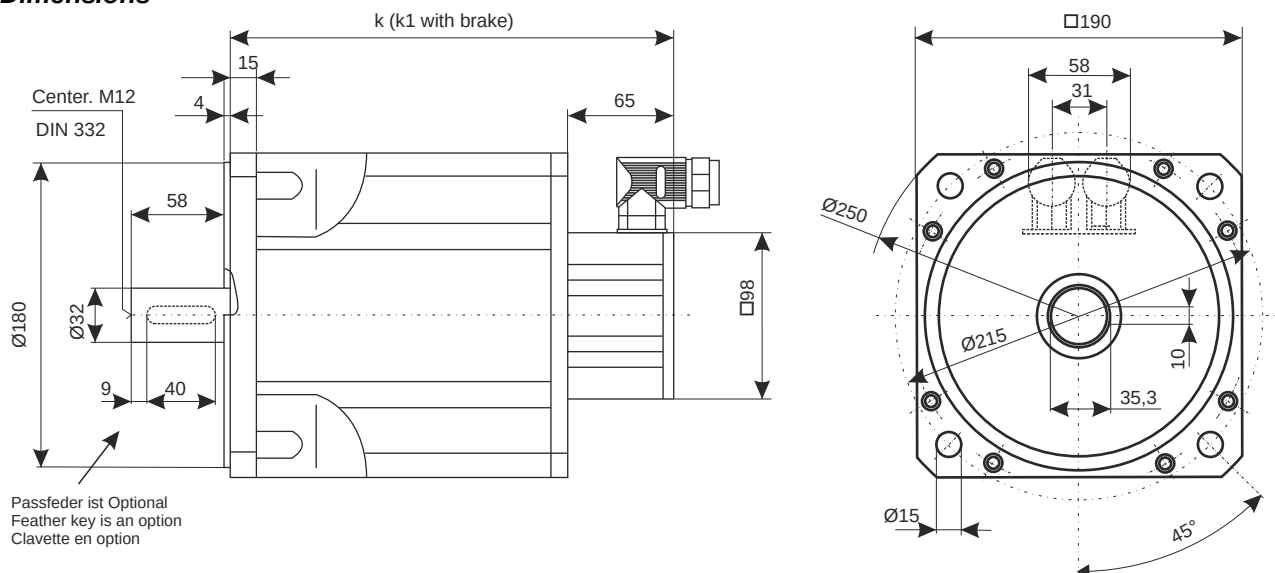
)* Werte bei 20°C / Values at 20°C / Valeurs à 20°C

** Werte bei 200 U/min / Values at 200 rpm / Valeurs à 200 tr/mn

*** Kurzzeitbetrieb 5 Sekunden / Short-time operation 5 seconds / Service de courte durée 5 secondes



Abmessungen Dimensions Dimensions



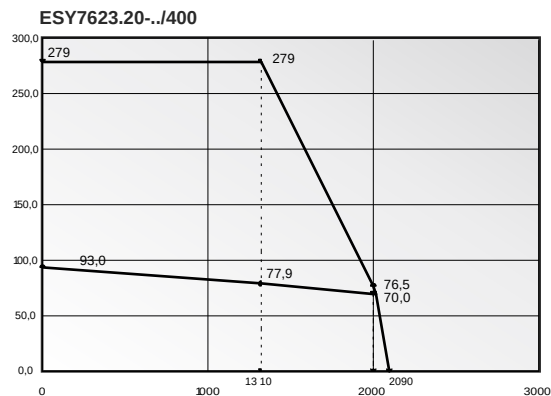
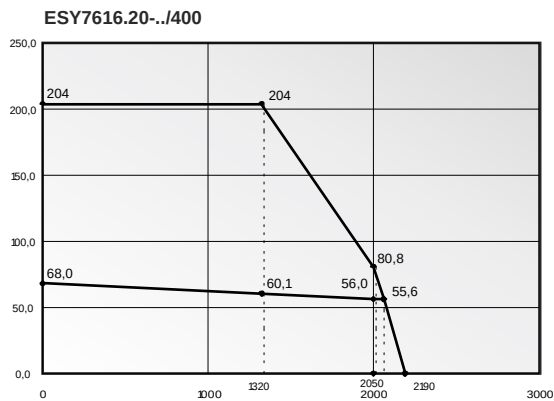
TYP	mit Resolver with resolver avec résolveur	mit Resolver und Bremse with resolver and brake avec résolveur et frein	mit Drehgeber with encoder avec codeur	mit Drehgeber und Bremse with encoder and brake avec codeur et frein
	k	k	k	k
ESY 669../(S23)	242	296	262	316
ESY 6611../(S23)	257	311	277	331
ESY 6614../(S23)	287	341	307	361

ESY	7616.20- ..J400	7623.20- ..J400
Bemessungsspannung, U_N (V) Rated voltage Tension nominale	400	400
Bemessungsdrehzahl, n_N (1/min) Rated speed Vitesse nominale	2000	2000
Bemessungsleistung, P_N (kW) Rated power Puissance nominale	11,7	14,6
Bemessungsdrehmoment, M_N (Nm) Rated torque Couple nominale	56,0	70,0
Stillstandsmoment, M_0 (Nm)** Standstill torque Couple à arrêt	68,0	93,0
Spitzenmoment, M_{Max} (Nm)*** Peak torque Couple de crête	204	279
Massenträgheitsmoment, J_{rot} (10^{-3} kgm ²) Moment of inertia Moment d'inertie	11,4	15,3
Bemessungsstrom, I_N (A) Rated current Courant nominal	22,0	25,3
Bemessungsdrehmomentkonstante, K_{TN} (Nm/A) Rated torque constant Constante de couple nominal	2,54	2,76
Stillstandsstrom, I_0 (A)** Standstill current Courant à l'arrêt	22,5	29,4
Stillstandsdrehmomentkonstante, K_{TO} (Nm/A) Standstill torque constant Constante de couple à l'arrêt	3,02	3,16
Spitzenstrom, I_{max} (A)*** Peak current Courant de crête admissible	87,9	114,5
Spitzendrehmomentkonstante, K_{TMax} (Nm/A) Peak torque constant Constante de crête admissible	2,32	2,43
EMK-Konstante, K_E (V/1000 1/Min)* EMF constant Constante TEN	182	191,5
Rastmoment (% M_0) Detent torque Couple de repos	0,4	0,4
Ständerwiderstand R_{U-V} (Ω)** Stator resistance Resistance statorique	0,30	0,19
Ständerinduktivität L_{U-V} (mH) Stator inductivity Inductance statorique	8,00	6,09
Elektrische Zeitkonstante T_{el} (ms) Electrical time constant Constante de temps électrique	26,6	32,0
Thermische Zeitkonstante T_{th} (min) Thermal time constant Constante de temps thermique	65	79
Motorgewicht, m_{mot} (kg) Motor weight Poids du moteur	56,0	73,0

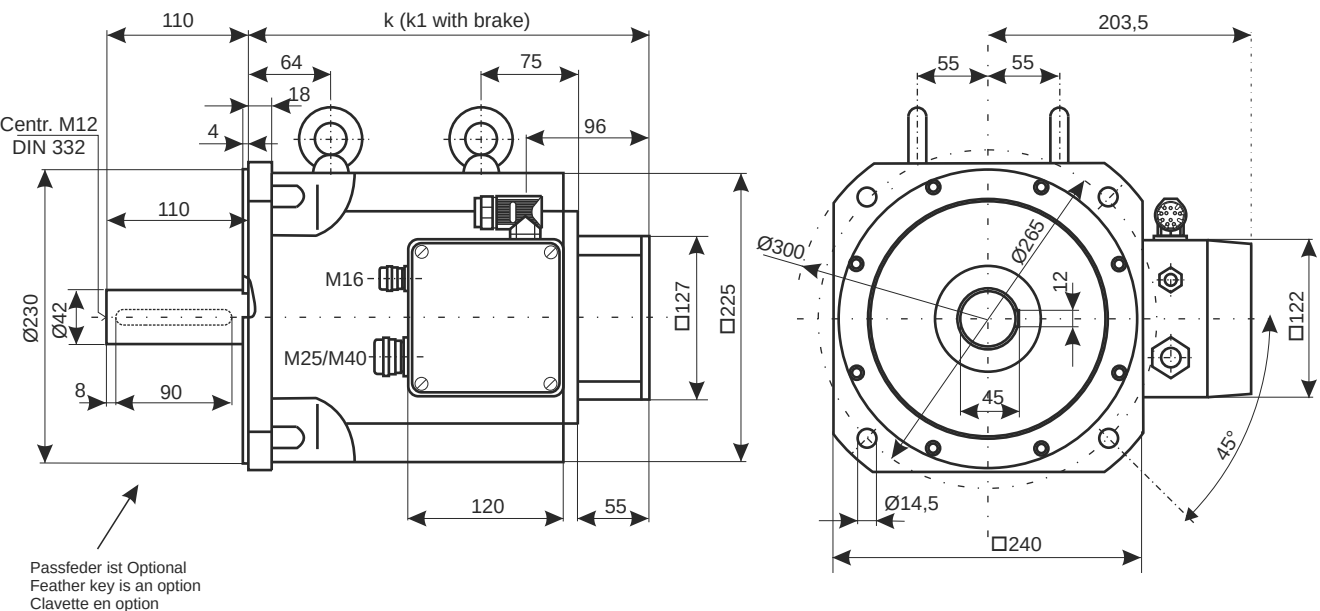
)* Werte bei 20°C / Values at 20°C / Valeurs à 20°C

**) Werte bei 200 U/min / Values at 200 rpm / Valeurs à 200 tr/mn

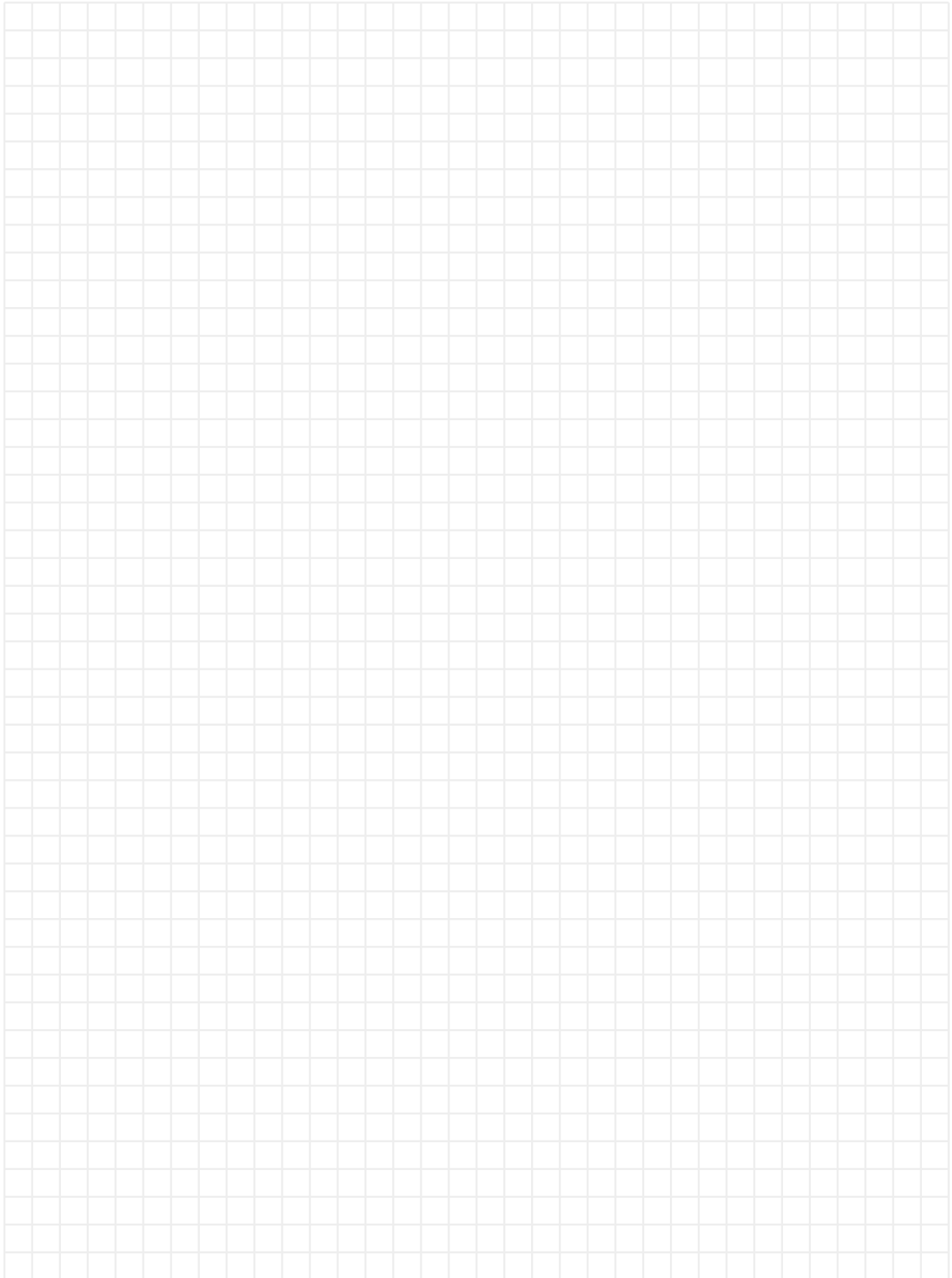
***) Kurzzeitbetrieb 5 Sekunden/ Short-time operation 5 seconds / Service de courte durée 5 secondes



Abmessungen
Dimensions
Dimensions



TYP	mit Resolver with resolver avec résolveur k	mit Resolver und Bremse with resolver and brake avec résolveur et frein k	mit Drehgeber with encoder avec codeur k	mit Drehgeber und Bremse with encoder and brake avec codeur et frein k
ESY 7616../(S23)	379	446	390	458
ESY 7623../(S23)	446	514	458	526



Sämtliche Angaben in diesem Prospekt haben informativen Charakter ohne Zusicherung von Eigenschaften. Änderungen ohne Ankündigung vorbehalten.
All data in this brochure have an informative character without warranty of characteristics. Changes without previous announcement reserved.
Toutes les indications dans cette chemise ont un caractère informatif sans l'assurance des caractéristiques. Des modifications sans annonce réserver.

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PGA52/PGA60

Planetary gear boxes for esiMot6/x

PGA52

- Ratio 4,5 - 400
- Driving torque max. 24 Nm
- Play
 - max. 40' (1-stage)
 - max. 50' (2-stage)
 - max. 60' (3-stage)

Compact size
Value for money

PGA60

- Ratio 3 -49
- Driving torque max. 25 Nm
- Play
 - max. 25' (1-stage)
 - max. 30' (2-stage)



Selecting the right size

PGA52		
Stages	Ratio	M _N [Nm]
1	4,5	1,2
	6,25	1,2
2	20,25	8,0
	28,125	8,0
	36	8,0
	50	8,0
3	91,12	24
	126,56	24
	162	24
	225	24

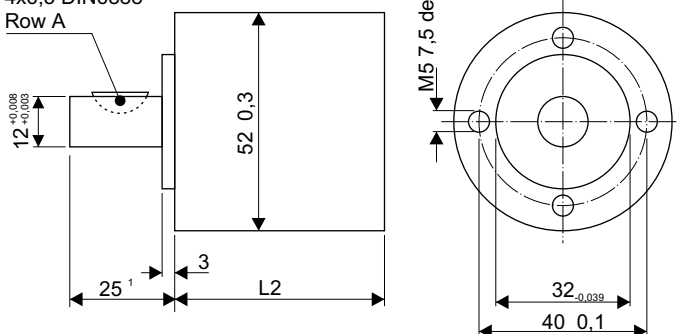
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PGA60		
Stages	Ratio	M _N [Nm]
1	3	5
	4	5
	7*	5
2	12	25
	16	25
	21*	25
	49*	25

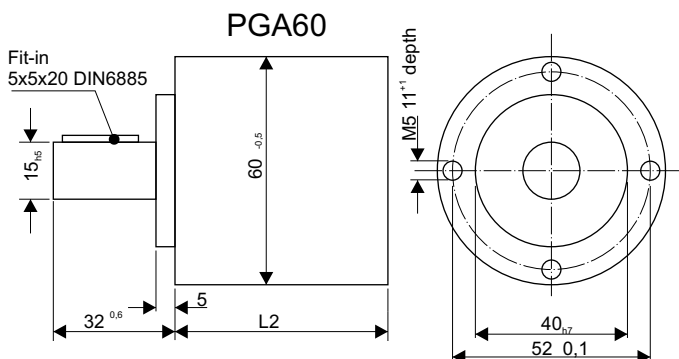
*) Special made, only on request

PGA52			
Stages	1	2	3
Play [']	40	50	60
Efficiency [%]	90	81	73
Axial-Load max. [N]	500		
Radial-Load max.[N]	350		
L2 (esiMot6) [mm]	50	65,5	80,5

round-ended
feather key
4x6,5 DIN6888
Row A



PGA60		
Stages	1	2
Play [']	15	30
Efficiency [%]	90	81
Axial-Load max. [N]	500	
Radial-Load max.[N]	350	
Length L2 [mm]	56	83



Subject to changes.



PGB040 ... 155

Planetary gearboxes for esiMot
and AC-Servomotors

Rugged design
Low backlash

- 5 sizes PGB040 to PGB155*
- Torque range from 4Nm to 290Nm
- Ratios from 3:1 to 100:1
- Tripple emergency stop torque
- Service life 20.000h
- High efficiency
- Maintenance free by lifetime lubrication
- Simple motor mounting through clamping ring technology

* on request

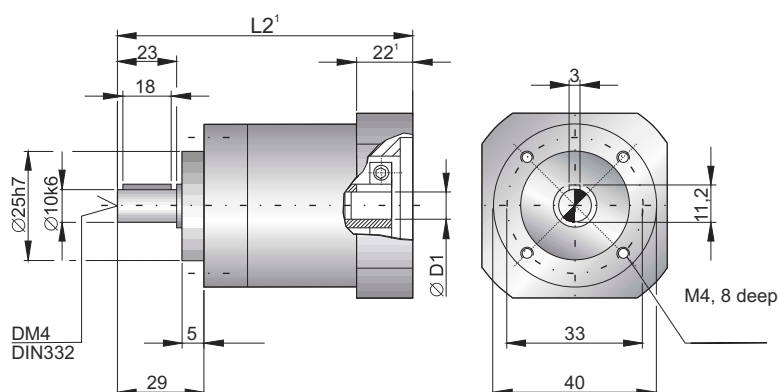


Selecting the right size

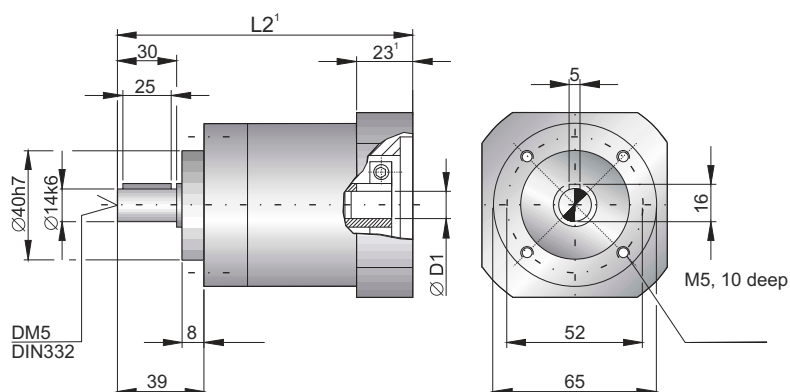
Size		PGB040	PGB065	PGB085	PGB120	PGB155*
Stages	Ratio	Nominal driving torque [Nm]				
1	3	-	13	35	85	160
	4	4	14	45	90	250
	5	4,5	16	45	110	270
	7	4,5	15	43	90	270
	9	4	-	-	-	-
	10	-	14	35	80	160
2	16	5	19	55	100	270
	20	5	19	55	100	270
	25	5	21	58	110	290
	28	5	21	55	100	270
	35	5	21	55	110	290
	40	-	21	55	100	270
	49	5	-	-	-	-
	50	-	21	58	110	290
	70	-	17	50	95	290
	100	-	16	35	85	170

*) on request

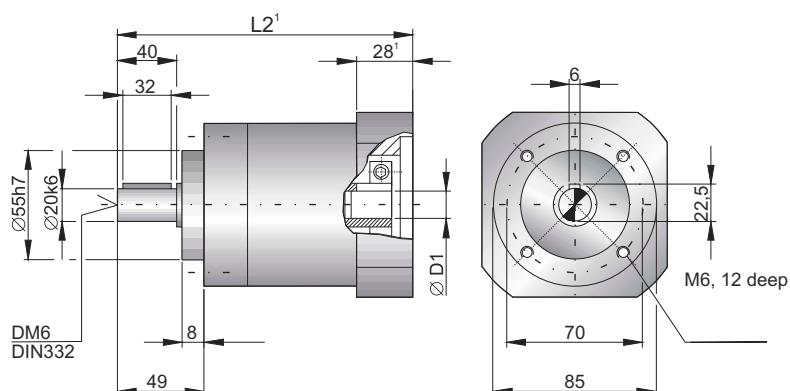
PGB040		
Stages	1	2
Backlash [']	20	25
Efficiency [%]	95	92
Torsional rigidity [Nm/arcmin]	0,4	0,5
Axial-Load max. [N]	330	
Radial-Load max. [N]	220	
L2 (esiMot6) [mm]	100	116
L2 (esiMot7) [mm]	95	111
Weight [kg]	0,3	0,4



PGB065		
Stages	1	2
Backlash [']	12	15
Efficiency [%]	97	94
Torsional rigidity [Nm/arcmin]	1,6	2,0
Axial-Load max. [N]	1.080	
Radial-Load max. [N]	930	
Length L2 [mm]	127,5	151,5
Weight [kg]	1,3	1,95

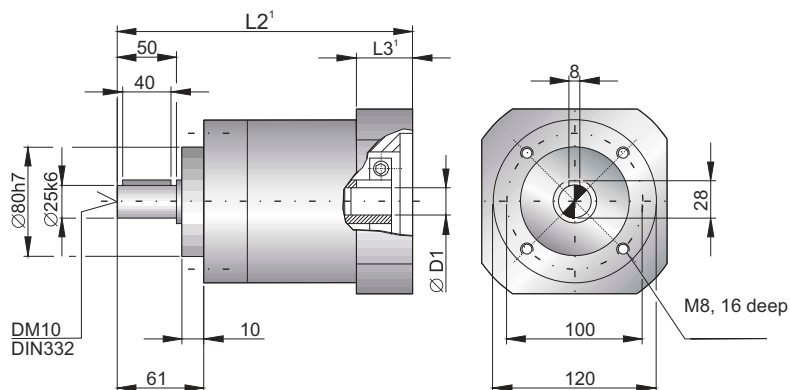


PGB085		
Stages	1	2
Backlash [']	10	15
Efficiency [%]	96	93
Torsional rigidity [Nm/arcmin]	4,8	6,0
Axial-Load max. [N]	2.180	
Radial-Load max. [N]	1.770	
Length L2 [mm]	161	192
Weight [kg]	2,6	3,5

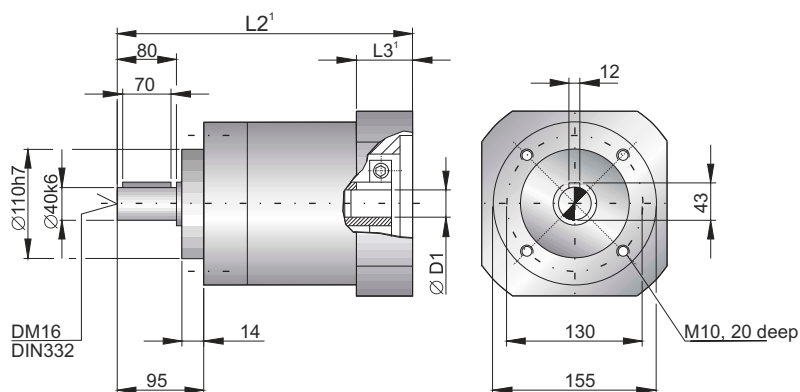


¹ Dimensions depending on motor

PGB120		
Stages	1	2
Backlash ['']	10	15
Efficiency [%]	96	94
Torsional rigidity [Nm/arcmin]	10	13
Axial-Load max. [N]	3730	
Radial-Load max. [N]	3000	
L2 [mm]	196	232
Weight [kg]	6,0	8,6



PGB155*		
Stages	1	2
Backlash ['']	10	15
Efficiency [%]	96	94
Torsional rigidity [Nm/arcmin]	34	37
Axial-Load max. [N]	7730	
Radial-Load max. [N]	6770	
L2 [mm]	262	306
Weight [kg]	12,6	17



*) on request

Motor Flange

Size	PGB040	PGB065	PGB085	PGB120	PGB155*
Motor axle D1 x L1 ¹	3-11 x 14-30	6-14 x 19-40	9-19 x 24-45	14-24 x 27-69	19-32 x 30-79
Centering Ø	22 - 50	30-80	50-95	50-110	70-130
Hole circle	32-70	45-100	60-130	75-165	90-215
Thread / bore	M3-M5	M3-M6	M4-M8	M4-M10	M5-M12
Flange dimension	40-85	65-100	85-120	120-180	155-220
Flange width	22-31	20-35	26-40	31-50	37-50

¹ Dimensions depending on motor

*) on request

Other technical Data

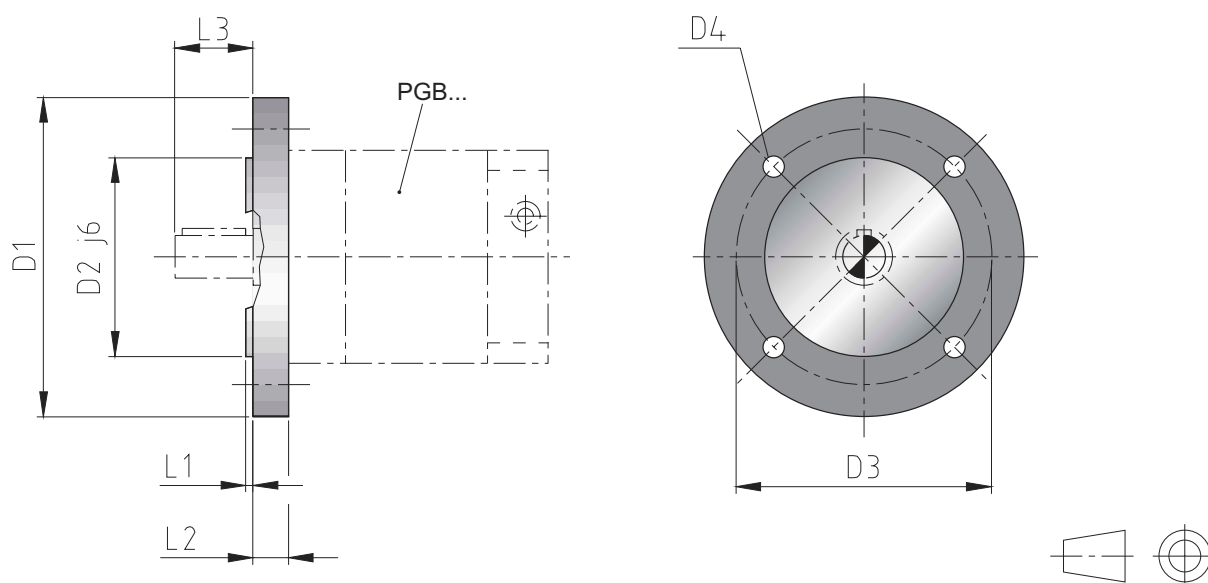
Size	PGB040	PGB065	PGB085	PGB120	PGB155
Protection class	IP64				
Service life	20.000 h				
Running noise****	< 70 dB(A)				
rated input speed	3000	3000	3000	3000	2600/3000**
max. input speed	6000	6000	5000	5000	3600
operating temp.***	-25 to +90°C				

**) 2600 rpm 1-stage / 3000 rpm 2-stage

***) on housing surface (not ambience)

****) Determined at a distance of 1m, rated speed, no load

Optional output flange



size	IEC flange type		flange dimensions							
	B5	B14	D1	D2	D3	L1	L2	L3	D4/B5	D4/B14
PGB040	B5-Ø80	B14-Ø80	80	50	65	2,5	6	23	Ø5,5	M5
	B5-Ø90	B14-Ø90	90	60	75	2,5	6	23	Ø5,5	M5
PGB065	B5-Ø90	B14-Ø90	90	60	75	2,5	9	30	Ø5,5	M5
	B5-Ø105	B14-Ø105	105	70	85	3	9	30	Ø6,6	M6
	B5-Ø120	B14-Ø120	120	80	100	3	9	30	Ø6,6	M6
	B5-Ø160	B14-Ø160	160	110	130	3,5	9	30	Ø9,0	M8
PGB085	B5-Ø120	B14-Ø120	120	80	100	3	9	40	Ø6,6	M6
	B5-Ø160	B14-Ø160	160	110	130	3,5	9	40	Ø9,0	M8
PGB120		B14-Ø160	160	110	130	3,5	11	50		M8
	B5-Ø200	B14-Ø200	200	130	165	3,5	11	50	Ø11	M10
PGB155*		B14-Ø200	200	130	165	3,5	15	80		M10
	B5-Ø250	B14-Ø250	250	180	215	4	15	80	Ø14	M12

*) on request

all dimensions in mm

other output flanges on request

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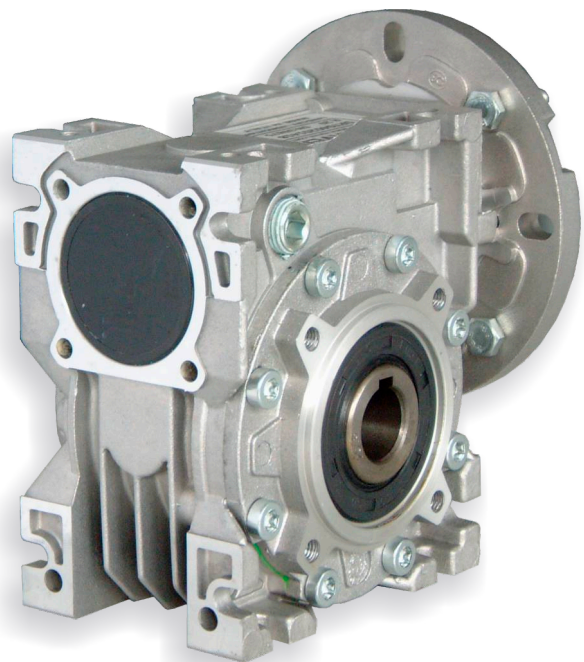
Tel. +49(0)7541-6000-0
Fax +49(0)7541-6000-11
E-Mail: info@esitron.de



FRT 28 / 40 / 50 / 60

Worm gear box with IEC motor flange

- Universal mounting facility
- Housing made of aluminium-diecast
- Hollow shaft output with keyway
- Optional with solid axle output
- Optional with torque arm
- Optional in ATEX114 design



Admissible torque and efficiency

FRT28		2800 min ⁻¹		1400 min ⁻¹		900 min ⁻¹		700 min ⁻¹	
i	β	T _{2n}	h	T _{2n}	h	T _{2n}	h	T _{2n}	h
7	23°11'	13	0,86	18	0,84	22	0,82	23	0,81
10	16°41'	14	0,83	18	0,81	20	0,78	23	0,77
15	11°18'	14	0,79	18	0,77	21	0,72	22	0,71
20	10°23'	13	0,77	16	0,74	19	0,70	21	0,69
28	6°06'	15	0,69	20	0,66	22	0,61	24	0,60
40	5°14'	14	0,64	17	0,62	20	0,56	21	0,55
49	4°19'	13	0,61	17	0,57	19	0,52	20	0,51
56	3°03'	12	0,54	15	0,51	16	0,45	17	0,44
70	2°27'	11	0,49	12	0,45	13	0,43	13	0,40
80	2°37'	10	0,49	12	0,45	11	0,40	11	0,39
100	2°20'	7	0,46	8	0,43	8	0,37	8	0,36

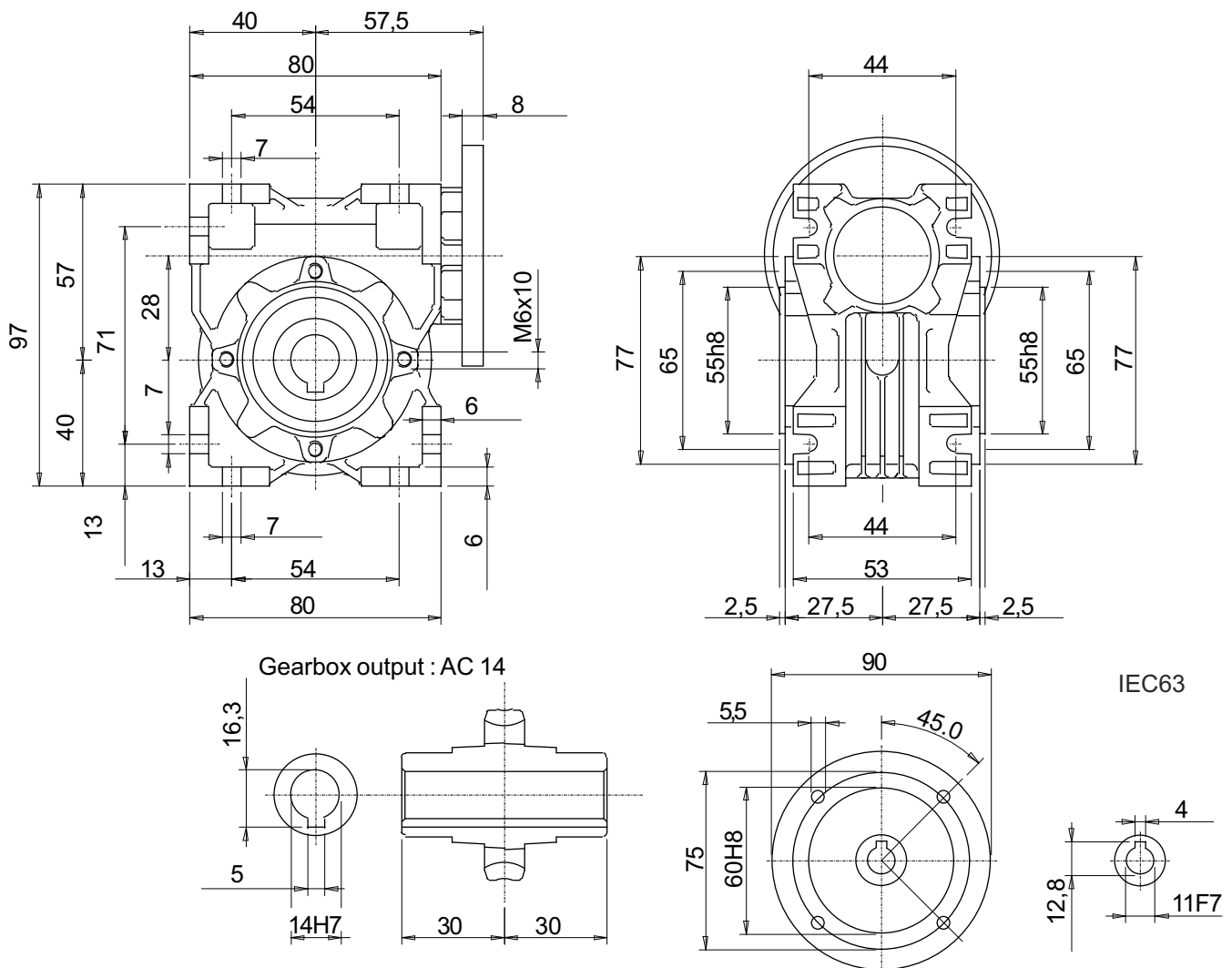
i = ratio

 β = Spiral angle

Self locking:

Spiral angle	$\beta > 20^\circ$	$20^\circ > \beta > 10^\circ$	$10^\circ > \beta > 5^\circ$	$5^\circ > \beta > 3^\circ$	$3^\circ > \beta > 1^\circ$
Reversability	full	high	good	low	none
Self locking	none	none	low	good	full

Dimensions:



Available motor flange: IEC56, IEC63

FRT40

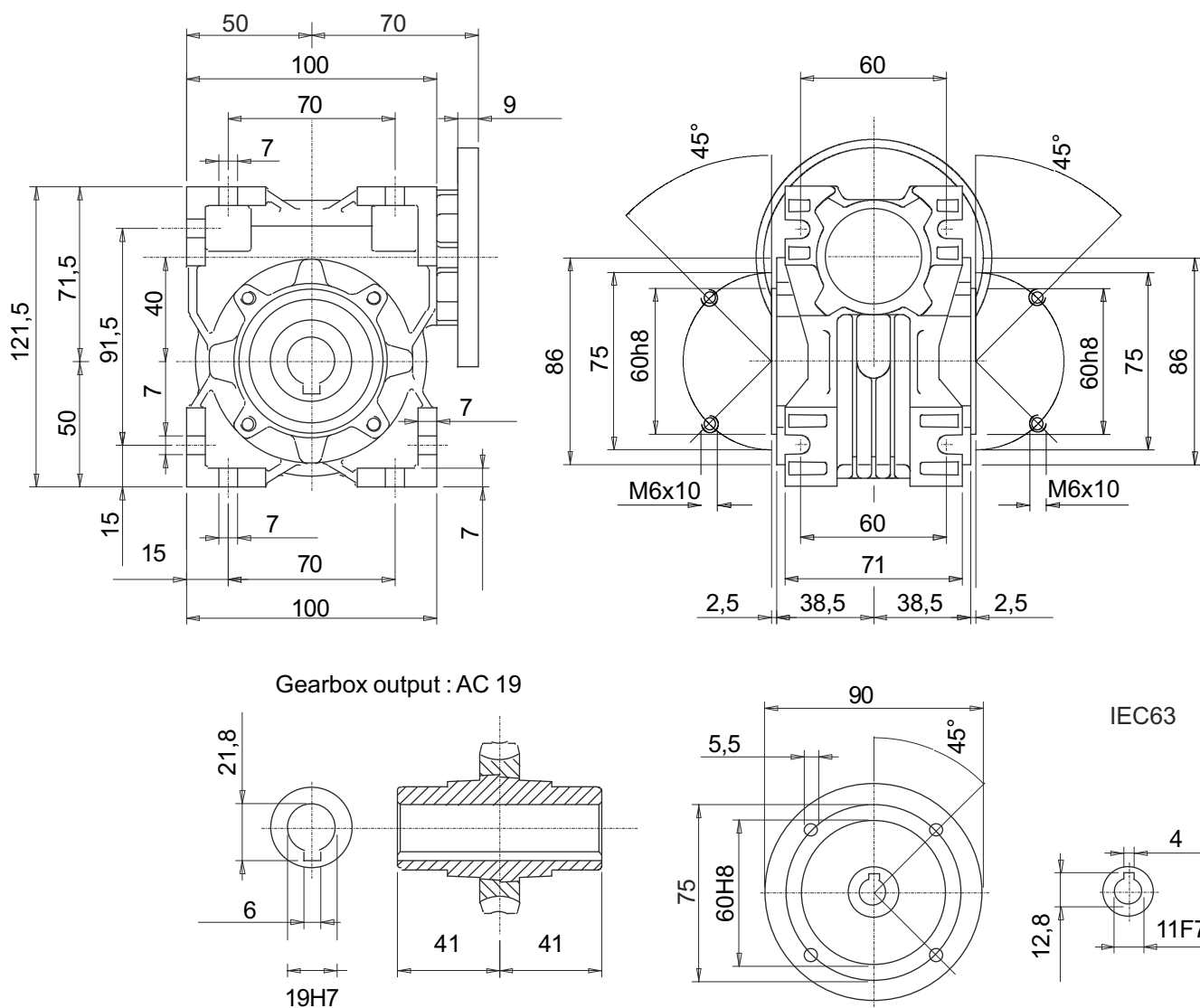
Admissible torque and efficiency

FRT40		2800 min ⁻¹		1400 min ⁻¹		900 min ⁻¹		700 min ⁻¹	
i	β	T _{2n}	h	T _{2n}	h	T _{2n}	h	T _{2n}	h
5	30°57'	32	0,89	45	0,857	54	0,86	59	0,85
7	21°36'	31	0,87	45	0,85	52	0,83	58	0,82
10	16°41'	34	0,85	46	0,83	54	0,80	58	0,79
15	11°18'	34	0,81	44	0,78	52	0,74	58	0,73
20	8°31'	30	0,78	39	0,75	45	0,70	49	0,68
28	5°39'	34	0,72	48	0,68	52	0,63	55	0,59
40	4°17'	32	0,66	42	0,61	46	0,56	49	0,53
49	3°48'	31	0,62	41	0,58	43	0,52	46	0,51
56	3°25'	30	0,60	38	0,56	41	0,49	45	0,48
70	3°01'	29	0,57	36	0,52	40	0,46	43	0,44
80	2°51'	28	0,54	32	0,50	39	0,44	41	0,42
100	2°38'	26	0,51	29	0,46	36	0,2	38	0,39

i = Ratio

β = Spiral angle

Dimensions:



Available motor flange: IEC56, IEC63, IEC71

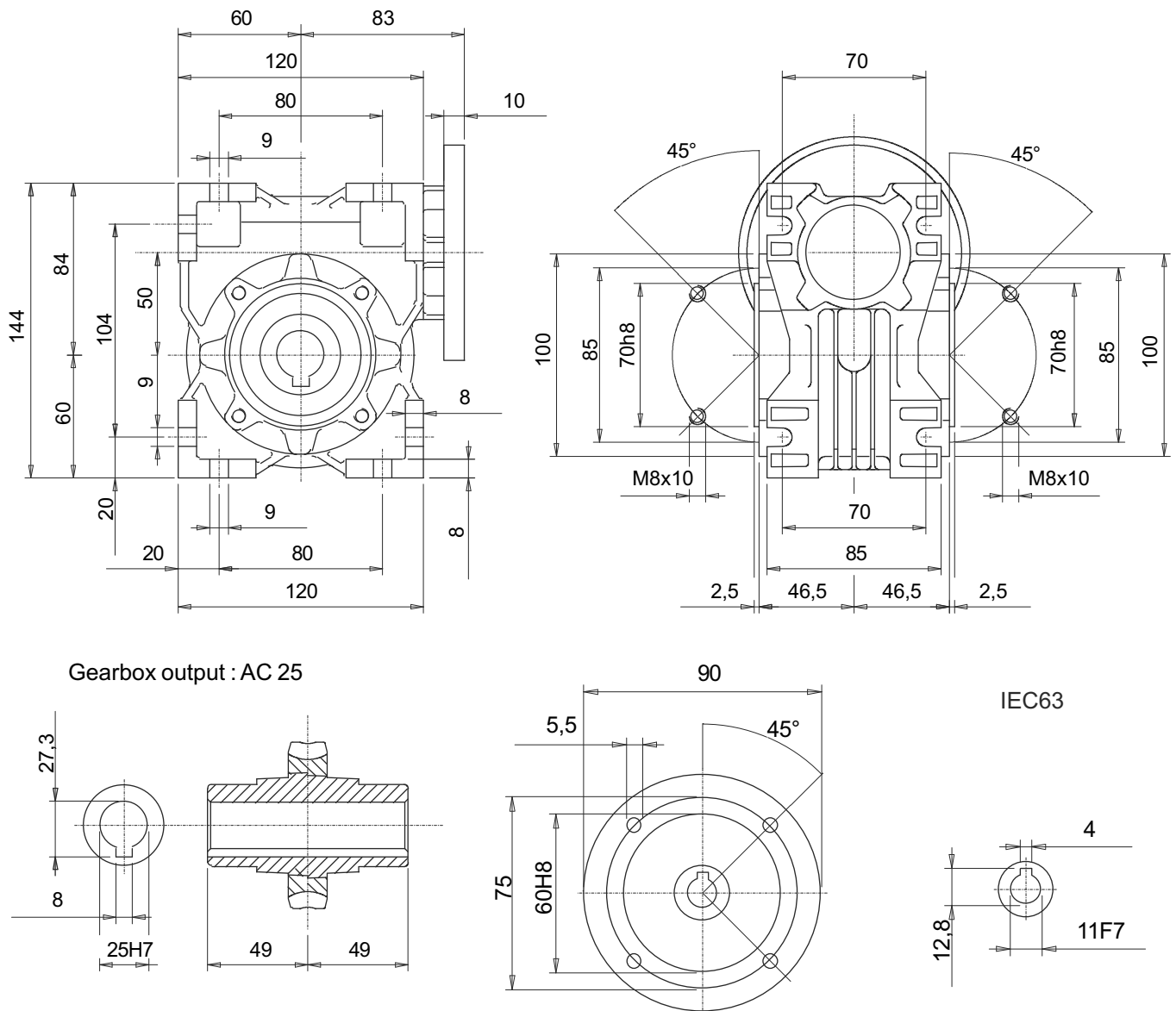
Admissible torque and efficiency

FRT50		2800 min ⁻¹		1400 min ⁻¹		900 min ⁻¹		700 min ⁻¹	
i	β	T _{2n}	h	T _{2n}	h	T _{2n}	h	T _{2n}	h
5	30°57'	58	0,90	81	0,88	96	0,86	106	0,86
7	23°52'	62	0,88	75	0,86	95	0,85	110	0,83
10	16°41'	59	0,86	75	0,84	95	0,81	100	0,80
15	11°18'	61	0,82	74	0,78	91	0,76	99	0,75
20	8°59'	52	0,80	65	0,76	79	0,72	86	0,71
28	6°19'	66	0,75	85	0,71	99	0,65	106	0,64
40	4°31'	59	0,69	72	0,64	85	0,58	91	0,57
49	4°14'	56	0,66	76	0,62	81	0,56	87	0,54
56	3°42'	53	0,64	71	0,60	80	0,54	83	0,52
70	2°44'	46	0,58	63	0,53	67	0,47	70	0,45
80	2°51'	49	0,58	58	0,52	67	0,46	72	0,44
100	2°17'	40	0,52	43	0,47	55	0,42	62	0,39

i = Ratio

 β = Spiral angle

Dimensions:



Available motor flange: IEC63, IEC71, IEC80

FRT60

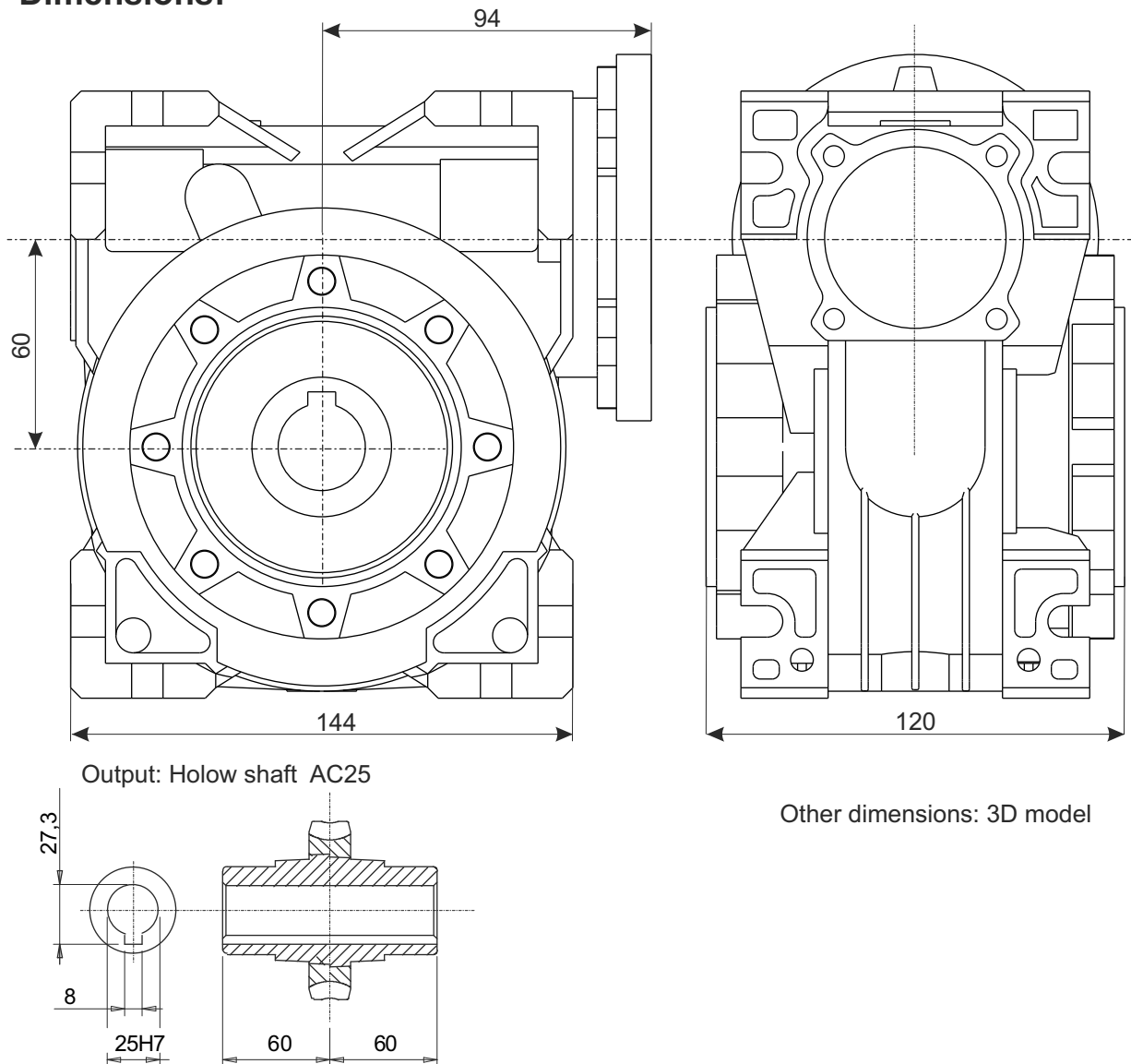
Admissible torque and efficiency

FRT60		2800 min ⁻¹		1400 min ⁻¹		900 min ⁻¹		700 min ⁻¹	
i	β	T _{2n}	η	T _{2n}	η	T _{2n}	η	T _{2n}	η
5	36°32'	90	0,90	125	0,89	150	0,87	165	0,87
7	25°33'	93	0,88	113	0,86	150	0,85	164	0,84
10	19°0'	104	0,87	133	0,84	163	0,83	177	0,81
15	12°55'	110	0,84	130	0,81	166	0,75	178	0,77
20	11°18'	108	0,82	122	0,77	161	0,76	175	0,74
28	6°49'	116	0,76	139	0,71	175	0,68	187	0,67
40	5°42'	105	0,73	135	0,66	152	0,64	165	0,62
49	5°11'	85	0,71	128	0,62	135	0,61	140	0,59
56	3°55'	92	0,66	123	0,60	130	0,55	139	0,54
70	3°38'	92	0,64	122	0,55	125	0,53	128	0,51
80	2°51'	85	0,60	106	0,53	115	0,48	120	0,46
100	2°51'	68	0,58	83	0,49	94	0,47	100	0,44

i = Ratio

β = Spiral angle

Dimensions:



Available motor flange: IEC71, IEC80, IEC90

- SERVICE FACTORS $FS = F_1 \cdot F_2$
for lifespan of 15.000h

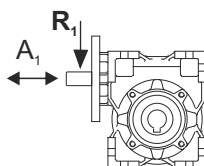
F_1	a	b	c	F_2	d
3 - 4 h	0.8	1.0	1.5	6	1.0
8 - 10 h	1.0	1.2	1.8	60	1.2
10 - 24 h	1.4	1.6	2.0	120	1.4

a = Uniform load
b = Variable load
c = Shock load
d = Start/stops per hour

- WEIGHTS & LUBRICANTS

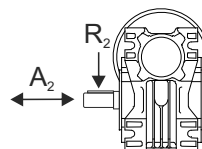
FRT	kg	l
28	1.1	0.03
40	2.5	0.08
50	3.8	0.13
60	6.5	0.20

- INPUT RADIAL LOADS R_1 [daN]
 $A_1 = 0.2 \times R_1$



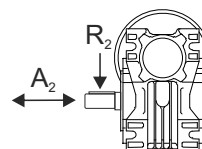
min^{-1}	2800	1400	900	700	500	300
FRT 28	5	7	8	9	10	12
FRT 40	11	15	16	17	18	20
FRT 50	15	20	22	25	28	30
FRT 60	23	30	33	35	37	40

- RADIAL LOADS R_2 [daN] WITH STANDARD BEARINGS
 $A_2 = 0.2 \times R_2$



min^{-1}	280	200	140	93	70	50	35	29	25	20	18	14	Bearing
FRT28	---	45	50	55	60	62	70	75	80	90	95	100	16005
FRT40	100	100	110	120	135	150	160	170	180	190	200	230	16006
FRT50	145	125	145	170	190	200	230	240	260	280	290	320	16008
FRT60	225	240	250	290	330	360	390	430	320	500	420	560	6008

- RADIAL LOADS R_2 [daN] WITH HEAVY DUTY BEARINGS
 $A_2 = 0.2 \times R_2$



min^{-1}	280	200	140	93	70	50	35	29	25	20	18	14	Bearing
FRT28	---	65	75	82	90	93	105	112	120	130	130	130	6005
FRT40	140	150	155	165	190	210	225	240	250	260	260	260	32006
FRT50	200	175	200	240	260	300	340	360	390	420	420	420	32008
FRT60	290	300	320	370	420	480	510	570	610	660	660	660	30208

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PC-Software



ServoLink: Parameter setting and programming of esiMot, SC8, SC10 and DSE3 kit with cable and interface converter

WinCPS: CPS20 and CPS300 programming kit with cable and USB-stick

AKB.01



Terminal block for esiMot plugable clamps, fuse for 24V logic supply USB - converter

AKB



Terminal block for esiMot 24 - 48V clamps, switches and fuses for power and electronic supply RS232-interface feed to Sub-D9

Backfeed protection



Buffer module and backfeed protection for switching power supplies DIN-rail mount

Power supplies



Transformer and switching power supplies AC adaptor plugs.

Linefilter



EMC-Filter with various power ranges suitable for our servo amplifiers and motors.

Cables



Standard- and dragchain suitable cables for
- Motors
- Encoders
- Controllers
- Operator terminals

Racks and Cardholders



Assembled to customer requirement one or both sides with connectors.
for
- MP100 single or multiaxis
- DSD3
- Special made units

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Switching power supplies

For DIN-rail

- High performance, Low ripple
- Reliable switching power supplies with high MTBF
- 100% Burn-in tested
- LED status indication
- Comprehensive protection circuitry:
 - Overcurrent
 - Overvoltage
 - Overtemperature
- Built-in EMC-Filter
- PFC correction
- UL508 approved
- EN61000-6-2 (EN50082-2) compliant for industry
- DIN rail TS35/7,5 or TS35/15

**High
Reliability
Low cost**



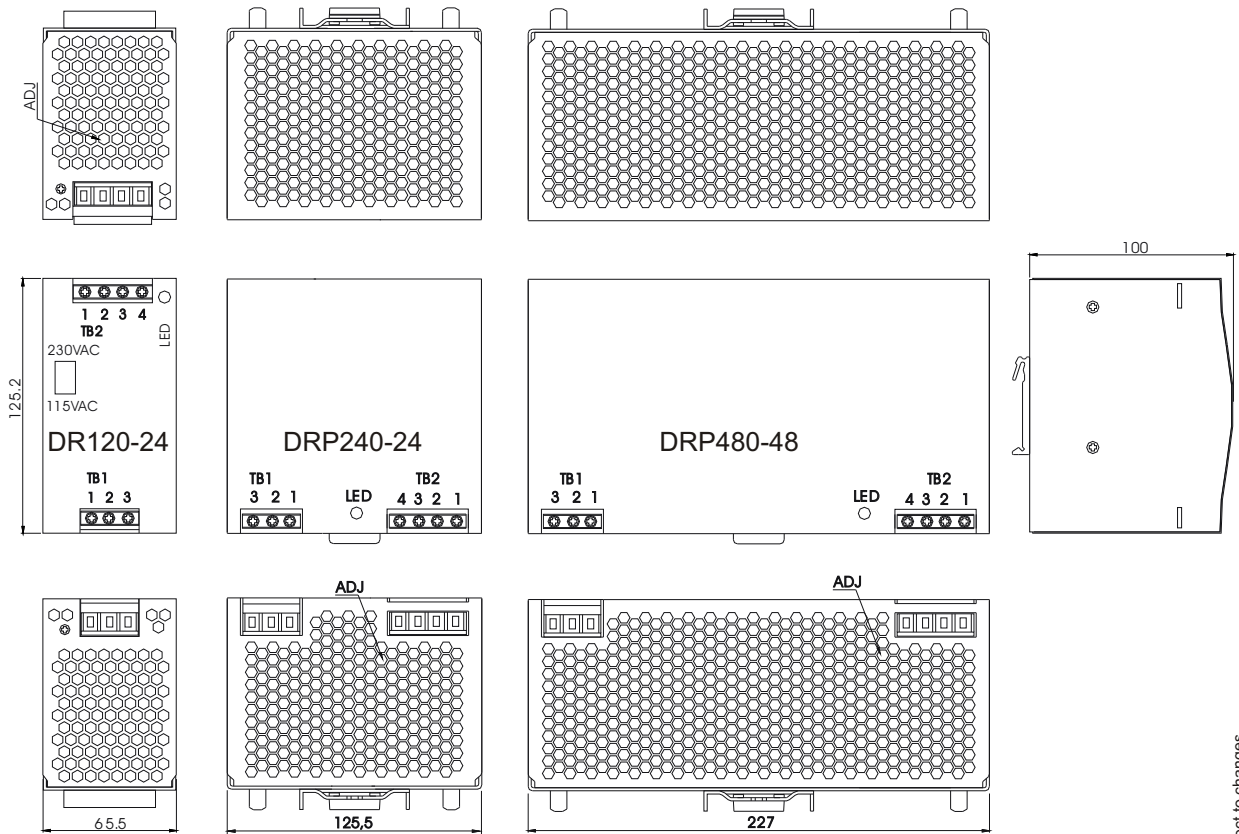
Output	Technical Data	Type	DR120-24 690.01037-0	DRP240-24 690.01036-0	DRP480-48 690.01034-0
	DC voltage		24V	24V	48V
	Rated current		5A	10A	10A
	Current range		0...5A	0...10A	0...10A
	Rated power		120W	240W	480W
	Ripple & noise		80mVp-p	80mVp-p	120mVp-p
	Voltage adjustment range		24...28V	24...28V	48...53V
	Voltage tolerance		+/-1%	+/-1%	+/-1%
	Line regulation		+/-0,5%	+/-0,5%	+/-0,5%
	Load regulation		+/-1%	+/-1%	+/-1%
	Setup time		500ms	800ms	1200ms
	Rise time		70ms	40ms	40ms
	Hold time		30ms	20ms	16ms

Input	Voltage range (AC)	176...264V*	85...264V	180...264V
	Frequency range	47...63Hz		
	Efficiency (typ.)	84%	84%	89%
	AC current (230V)	2A	1,8A	6A
	Inrush current max.	60A	50A	50A
	Leakage current	<3,5mA		

* 88...132V über Schalter

Protection	Overload	105...150%		
	Protection type	Current limitation		
	Overvoltage	29...33V	30...36V	54...60V
	Protection type	Shut down o/p voltage		
	Overtemperature	90+/-5°C	100+/-5°C	100+/-5°C
	Protection type	Shut down o/p voltage		

Environment	Working temperature	-10...+60°C (with derating)
	Humidity	20...90% Rel. non-condensing
	Storage temperature	-20...+85°C
	Temperature coefficient	+/-0,03%/°C
	Vibration	10...500Hz 2G





DRT-960-48

960W Three Phase DIN Rail Power Supply

**High Efficiency
up to 92%**

- Input 340 ... 550 VAC, 3-phase, 4 wires
- Protections:
Short circuit / Overload / Over voltage / Over temperature
- Optional parallel function (1+1)
- Installed on DIN rail TS35/7,5 or 15
- EN61000-6-2 industrial immunity level
- 100% full load burn-in test
- Cooling by free air convection



Output:

Voltage	48V DC
Adj. range	48 ... 55V
Current	0 ... 20A,
Tolerance	+/- 1%
Ripple & Noise	80mV
Efficiency	92%

Input:

Voltage	340 ... 550 V AC
	3-phase 4 wires
AC inrush current	50A cold start

Protection:

Overload protection	105% ... 125% constant current limiting, shut-off after 3 sec.
Over voltage protection	59 ... 66V shut off, AC recycle to re-start
Over temp. protection	Shut down output voltage, recovers automatically after temperature goes down
Withstand voltage	I/P - O/P: 3kV AC, I/P-FG: 1.5kV AC, O/P-FG 0,5kVAC, 1 minute

Working temperature

-20 ... +45°@100%, 60° @ 50% load

Safety standards

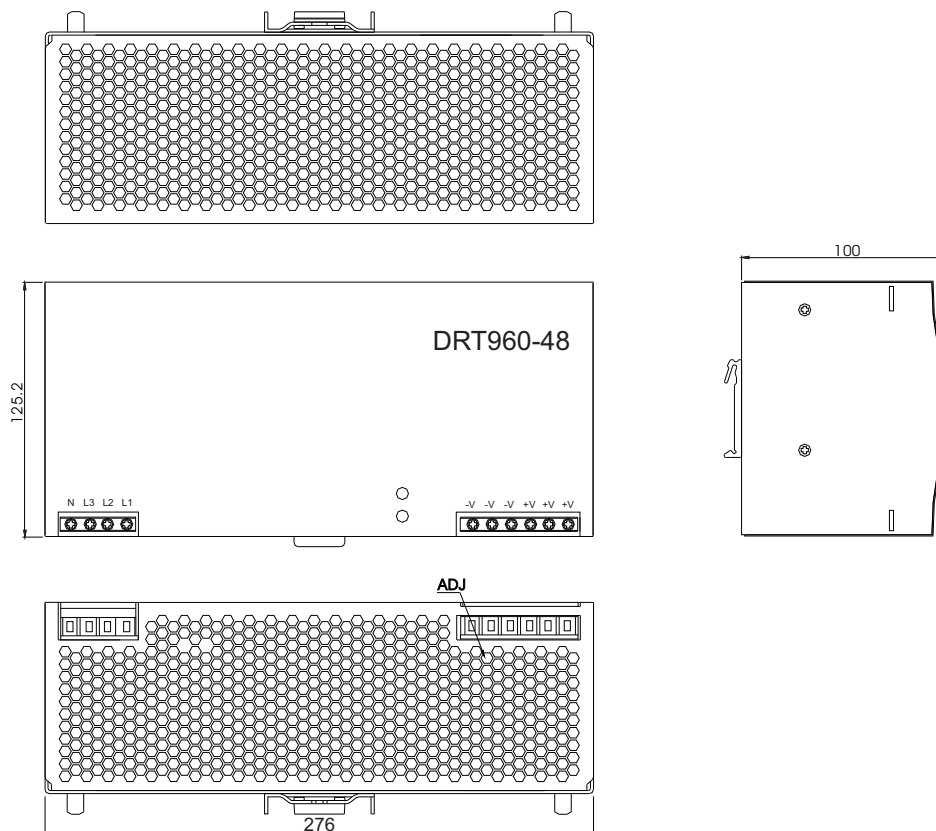
UL508, UL60950-1, TÜV EN60950-1 approved

EMC standards

EN55022 class B, EN61000-3-2,3 ENV50204, EN61000-4-21,3,4,5,6,8,11, EN61000-6-2 heavy industry level, EN61204-3

Connection

I/P: 4 poles, O/P 6 poles screw DIN terminal



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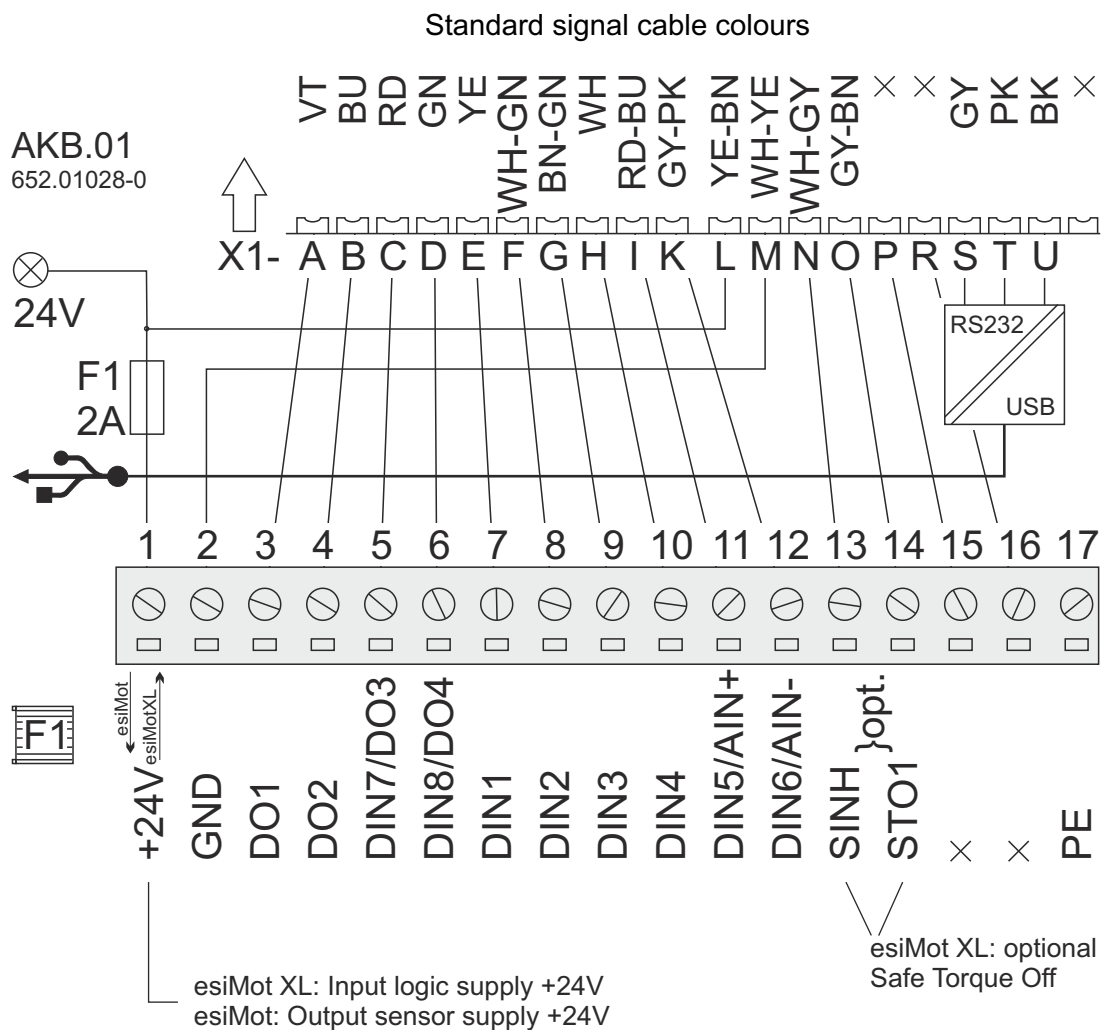
AKB.01

Terminal block for esiMot and esiMot XL

- Plug-in screw terminal for signal connections
- USB interface converter with galvanic insulation
- Integrated fuse for 24V supply
- Indicator light for 24V
- DIN-rail module 22,5mm width



Schematic:



DIN.. : Digital input
DO...: Digital output
AIN...: Analogue input
SINH: Start inhibitor
STO1: Safe Torque Off
GND: Ground
PE: Protective earth

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AKB

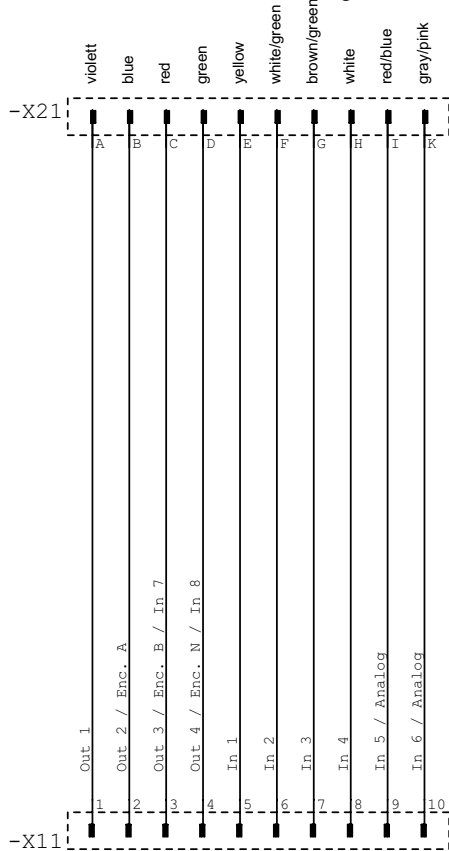
Terminal block for esiMot

- Simplified wiring
- RS232-interface fed to Sub-D-connector
- Two fuses for logic and motor supply
- On/Off-switch
- External SSI-encoder (optional) on Sub-D connector

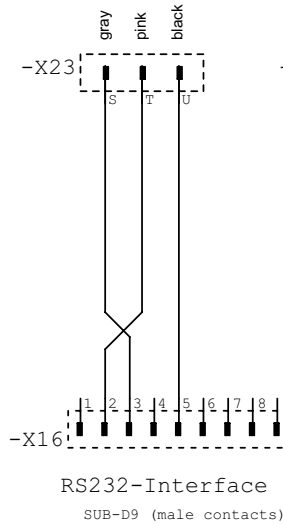


Schematic:

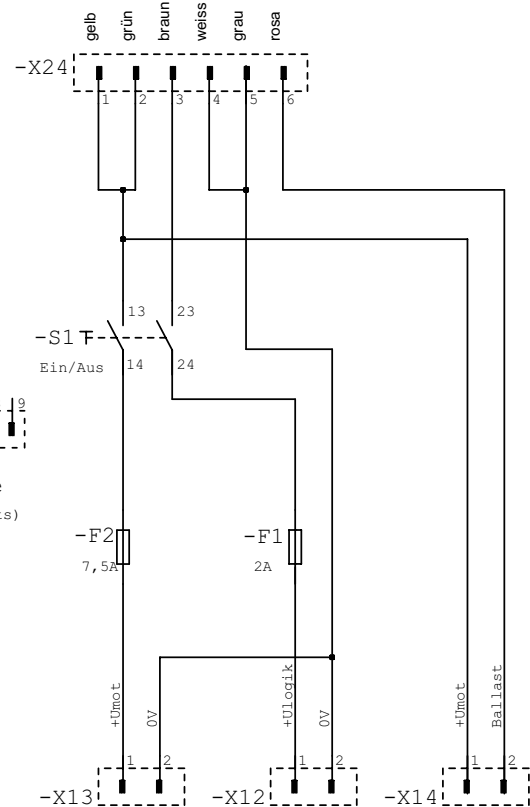
Standard cable colours signal cable



Inputs and outputs



Standard cable colours power cable

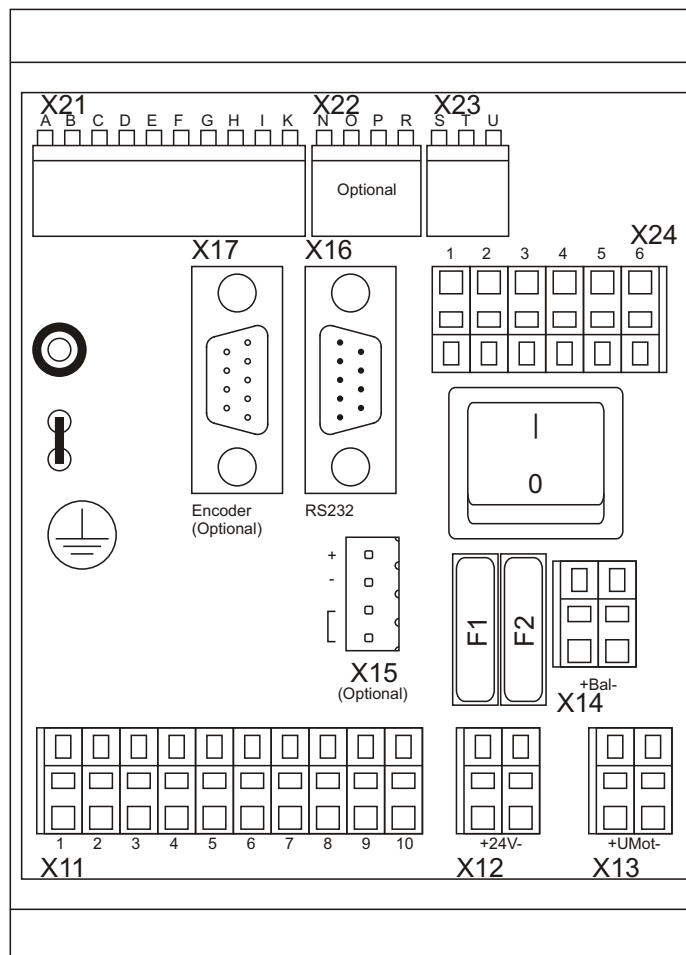


Motor
supply
24-60VDC

Logic
supply
24VDC

external
ballast-
resistor

Connector assignment:





Line filter 1- phase

All-purpose filter to Protection class I

Conform to EN133200, UL1283, IEC60950

Abstract:

These filters are generally used as protection against interference voltages from power supply, and are mounted inside the control rack as close as possible to the supply voltage input. At the same time possible interference generated from the amplifiers are strongly attenuated and therefore will not reach other equipment on the same DC-supply rail.

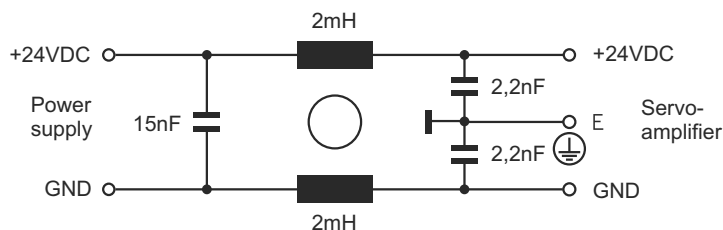


Order No: 652.01001-1

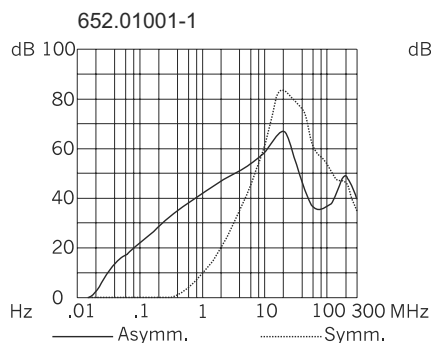
Technical Data:

Nominal current:	3A
Rated voltage U_R (U_{max}):	250VAC 50/60Hz
Attenuation:	for Standard applications
Leakage current:	0,25 mA
Test voltages:	L/N - E 2.7 kVDC, 2 sec L - N 1.7 kVDC, 2 sec
Climatic category:	25/085/21 acc. to IEC60068-1
50% saturation typ:	2 to 3 x I_N @ 20°C
Inrush current:	1,5 x I_N 1min. per hour
MTBF @ 40°C / U_R (U_{max}):	>200.000 h acc. to MIL-HB-217F

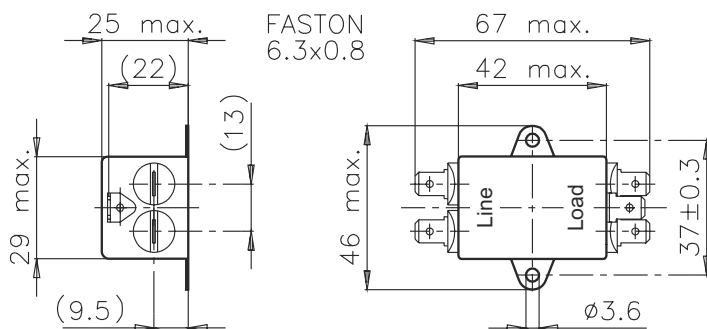
Circuit diagramm



Insertion loss:



Dimensions:



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Line filter 1- phase

Universal RFI-Filter

Conform to EN 60939-1

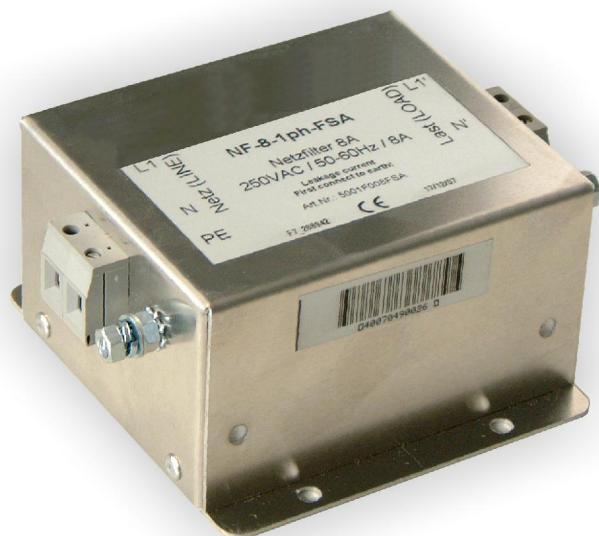
General:

Rated current 8A
Voltage 250V

Class of application: HPF according to DIN 40040

High attenuation from 150kHz up to 30 MHz
Compact style housing
Finger-proof terminals

Metal housing for control cabinets

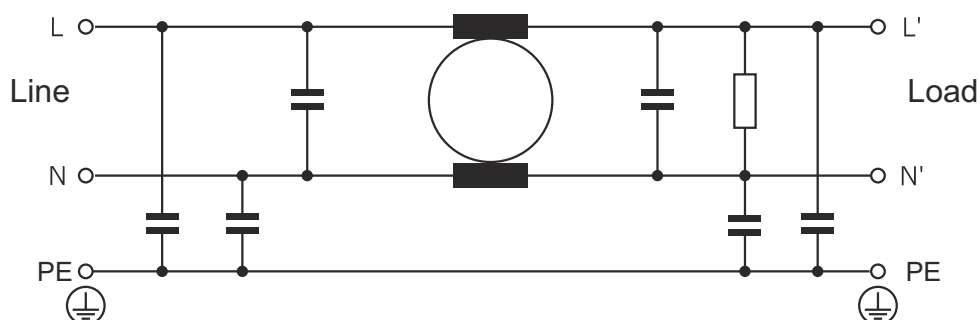


Order No: 652.01005-0

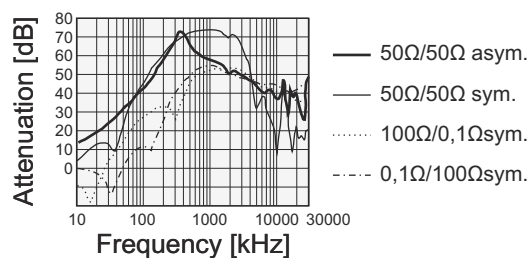
Technical Data:

Class of application	HPF according to DIN 40040
Nominal current:	8A
Nominal voltage U_R	250V 1-phase
Frequency range	DC up to 62 Hz
Leakage current	4,9 mA
Overload capability	4 times rated current at switch on 1,5 times rated current 1 minute once per hour
IEC-Climate category:	25/85/21 -25°C up to + 85°C
Protection class	IP20
Operation and storage	According to EN60068

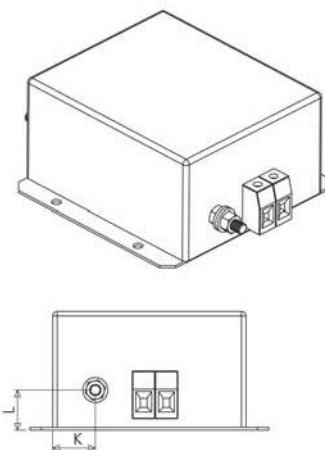
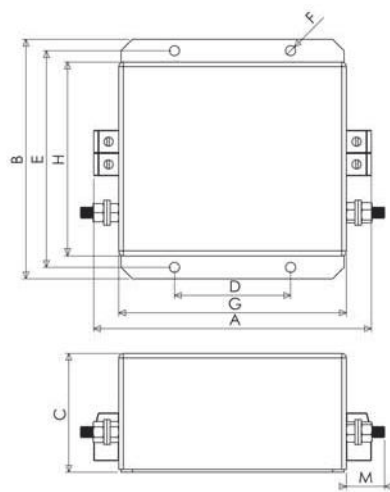
Schematic circuit



Typical insertion loss per CISPR17



Dimensions:



Dimension
(mm)

A	122
B	105
C	57
D	51
E	95
F	Ø4,4
G	100
H	85
K	20
L	40
M	13

Connection Line-Load
max. 4,0mm² (flex wires)

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Line filter 1- phase

Filter for electrical drives

Conform to EN 60939-1

General:

Rated current 16A
Voltage 250V

Class of application: HPF according to DIN 40040

High attenuation from 10kHz up to 30 MHz
Compact style housing
Possible mounting in book style or flat style
Finger-proof terminals

Metal housing for control cabinets

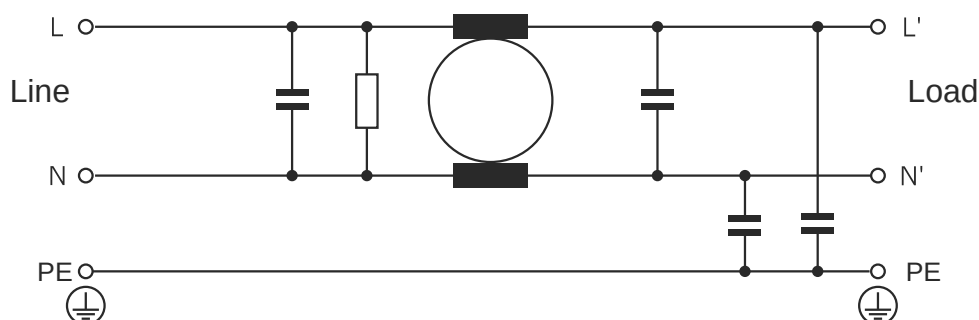


Order No: 652.01003-2

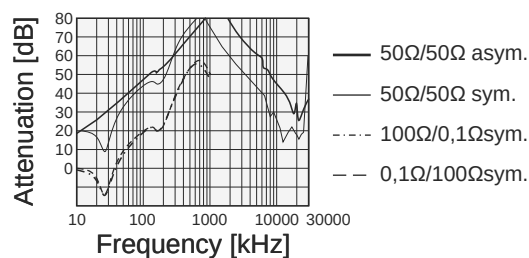
Technical Data:

Class of application	HPF according to DIN 40040
Nominal current:	16A
Nominal voltage U_R	250V 1-phase
Frequency range	DC up to 62 Hz
Leakage current	7,0 mA
Overload capability	4 times rated current at switch on 1,5 times rated current 1 minute once per hour
IEC-Climate category:	25/85/21 -25°C up to + 85°C
Protection class	IP20
Operation and storage	According to EN60068

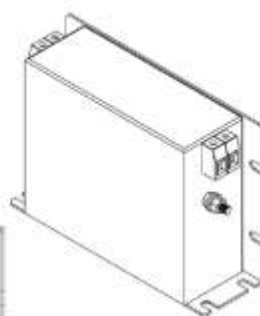
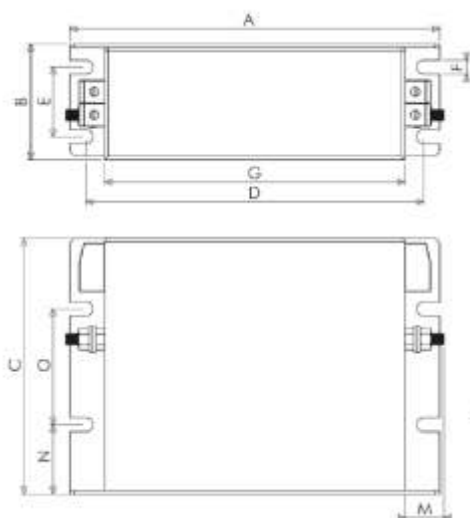
Schematic circuit



Typical insertion loss per CISPR17



Dimensions:



Dimension
(mm)

A	160
B	50
C	109
D	146
E	30
F	5,2
G	130
K	66
L	29
M	14
N	30
O	50
PE	M5

Connection Line-Load
max. 6,0mm² (flex wires)

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Line filter 1- phase

High Current Line Filter to Protection class I

Conform to EN133200, UL1283, IEC60950

Abstract:

These filters are generally used as protection against interference voltages from mains, and are mounted inside the control rack as close as possible to the mains input. At the same time possible interference generated from the amplifiers are strongly attenuated and therefore will not reach the mains.

For maximal filter performance:

- separate physically filter input and output lines
- separate physically from amplifiers
- use dedicated earth connection for the filter (min 10mm²)



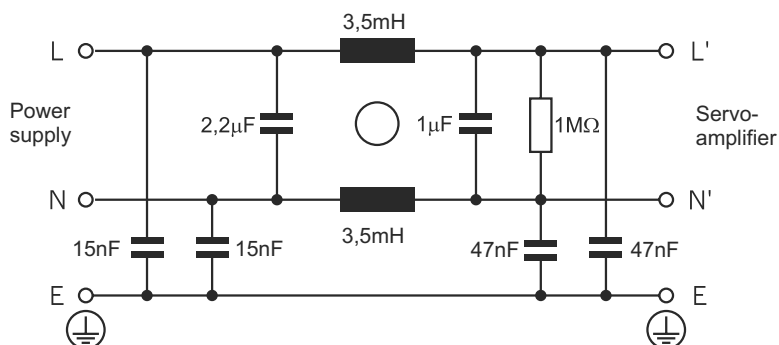
Order No: 652.01003-1

Technical Data:

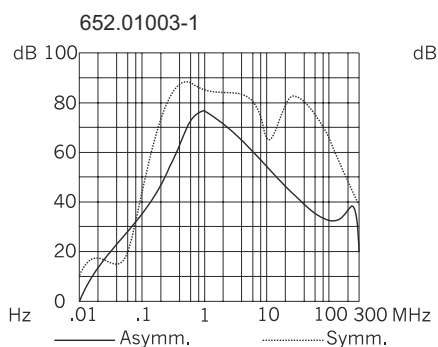
Nominal current:	20A
Rated voltage U_R (U_{max})	250VAC 50/60Hz
Attenuation	High
Leakage current	for industrial applications
Test voltages:	L/N - E 2.7 kVDC, 2 sec L - N 1.7 kVDC, 2 sec
Climatic category:	25/100/21 acc. to IEC60068-1
50% saturation typ:	2 to 3 x I_N @ 20°C
Inrush current:	1,5 x I_N 1min. per hour
Resistance L - L'	5,8 mOhm (+/-15%)
Power dissipation total	4,6W (+/-15%)
MTBF @ 40°C / U_R (U_{max}):	>200.000 h acc. to MIL-HB-217F

* Without resistor

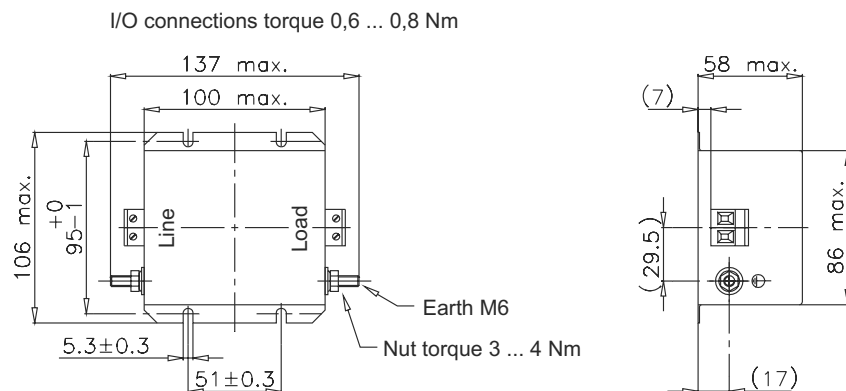
Circuit diagramm



Insertion loss:



Dimensions:



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Line filter 3- phase

High Current Line Filter to Protection class I

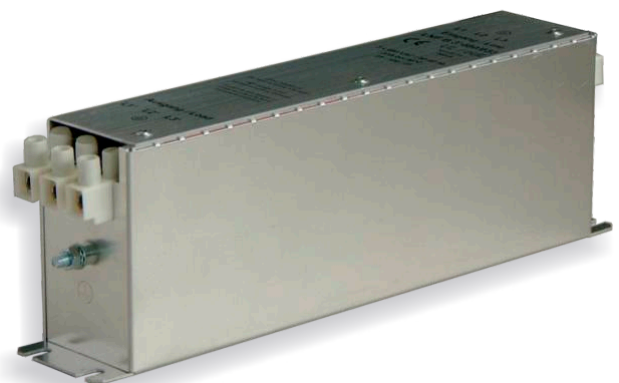
Conform to EN133200, UL1283, IEC60950

Abstract:

These filters are generally used as protection against interference voltages from mains, and are mounted inside the control rack as close as possible to the mains input. At the same time possible interference generated from the amplifiers are strongly attenuated and therefore will not reach the mains.

For maximal filter performance:

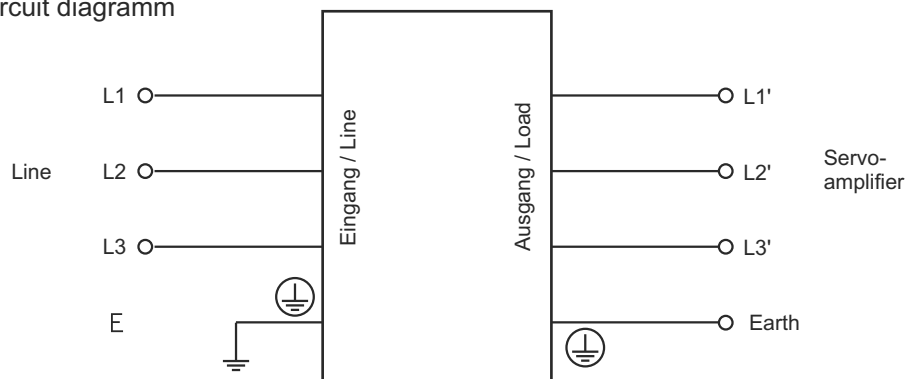
- separate physically filter input and output lines
- separate physically from amplifiers
- use dedicated earth connection for the filter (min 10mm²)



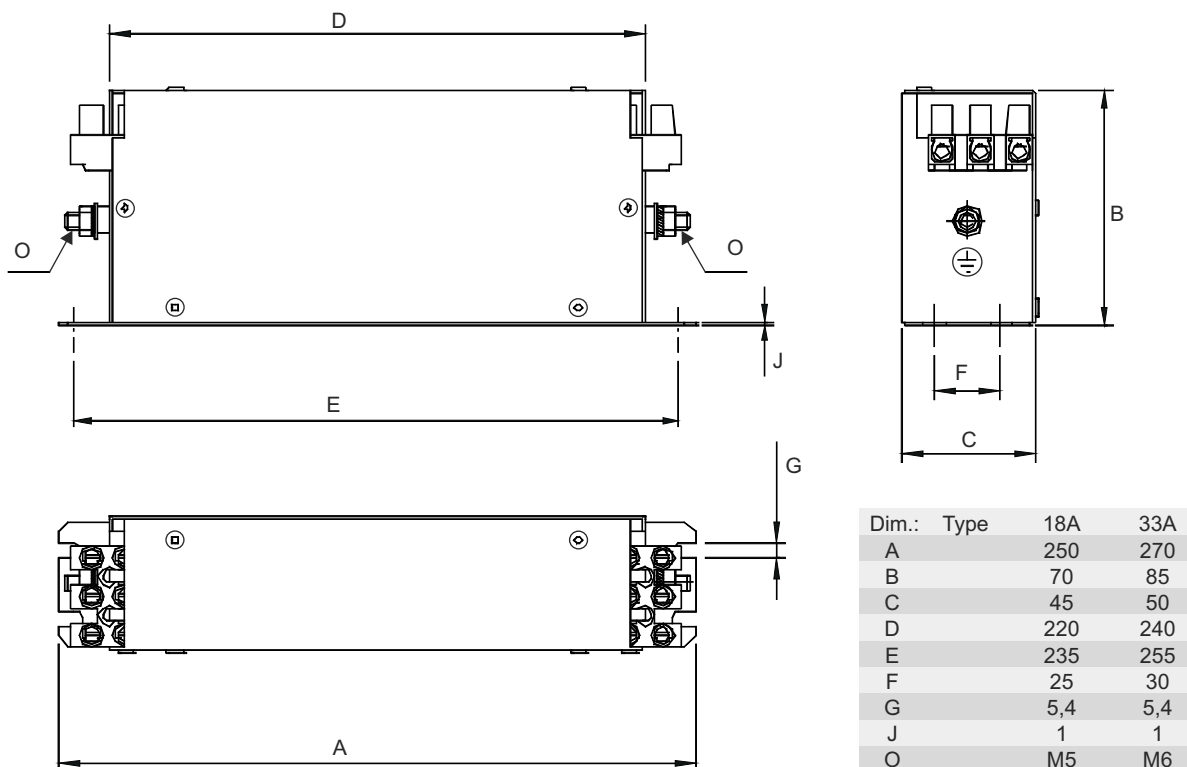
Technical Data:

Rated current:	18A	33A
Rated voltage U_R (U_{max}):	3x 480 VAC	50/60Hz
Leakage current:	33mA	33mA
Power dissipation:	6W	12W

Circuit diagramm



Dimensions:



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