MOELLER

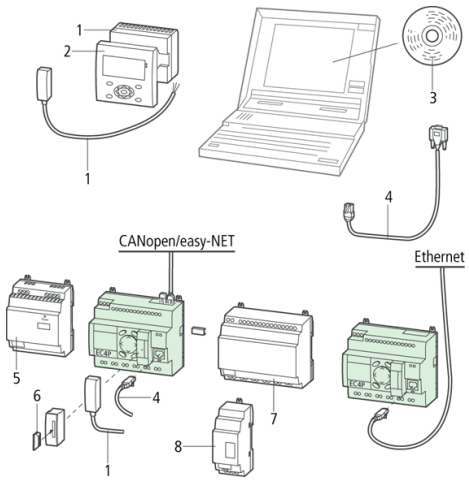
Type: **EC4P–221–MTAX1**
Article No.: **106396**
Sales text **24 VDC, Can,12E, 8Trans., Analog QA**

Expandable: Inputs/outputs and bus systems Individual laser inscription possible with EC4–COMBINATION–* 107600

Ordering information			
Description			easy–NET/CANopen on board
Inputs			
Digital			12
of which can be used as analog			4
Outputs			
Transistor			8
Analog			1
Additional features			
Supply voltage			24 V DC

Notes concerning the product group

Accessories	Page
1 Power supply unit/communication module	→ 274095
2 Display/keypad	→ 265251



3 Programming software → 106407

4 PC programming cable → 106726

5 Switched–mode power supply unit → 212319

6 Memory card → 106409

7 I/O expansion → 212314

8 Output expansion, bus module, coupling module → 212315

General			
Standards			EN 55011, EN 55022, IEC/EN 61000–4, IEC 60068–2–6, IEC 60068–2–27
Dimensions (W × H × D)		mm	107.5 × 90 × 72 without/79 with adapter for MCC (6 SU)
Weight		kg	0,32
Mounting			Top–hat rail IEC/EN 60715, 35 mm or screw fixing using 3 fixing brackets ZB4–101–GF1 (accessories)
Terminal capacities			
Solid		mm^2	0.2/4 (AWG 22 – 12)
Flexible with ferrule		mm^2	0.2/2.5 (AWG 22 – 12)
Standard screwdriver		mm	3.5 × 0.8
Max. tightening torque		Nm	0,6
Climatic environmental conditions			
Operating ambient temperature		°C	–25 ... 55, low temperatures to IEC 60068–2–1, high temperatures to IEC 60068–2–2
Condensation			Take appropriate measures to prevent condensation
LCD display (clearly legible)		°C	0...55
Storage		°C	... 40...+70
Relative humidity, non–condensing (IEC/EN 60068–2–30)		%	5...95
Air pressure (operation)		hPa	795...1080

Corrosion resistance			
IEC/EN 60068–2–42	4 days SO_2	cm^3/m^3	10
IEC/EN 60068–2–43	4 days H_2S	cm^3/m^3	1
Ambient conditions, mechanical			
Degree of protection IEC/EN 60529			IP 20
Vibrations (IEC/EN 60068–2–6)			
Constant amplitude 0.15 mm		Hz	5...9
Constant acceleration 2 g		Hz	8...150
Mechanical shock resistance (IEC/EN 60068–2–27) semi–sinusoidal 15 g/11 ms		Impacts	18
Drop to IEC/EN 60068–2–31	Drop height	mm	50
Free fall, packaged (IEC/EN 60068–2–32)		m	1
Mounting position			Horizontal/vertical
Electromagnetic compatibility (EMC)			
Electrostatic discharge (IEC/EN 61000–4–2, Level 3, ESD)			
Air discharge		kV	8
Contact discharge		kV	6
Electromagnetic fields (IEC/EN 61000–4–3, RFI)		V/m	10
Radio interference suppression (EN 55011)			EN 55011 Class B, EN 55022 Class B
Burst pulses (IEC/EN 61000–4–4, level 3)			
Supply cables		kV	2
Signal lines		kV	2
High–energy pulses (surge) (IEC/EN 61000–4–5)		kV	2 (supply cables, symmetrical, EASY...AC)
High–energy pulses (surge) (IEC/EN 61000–4–5, level 2)		kV	0.5 symmetrical, 1 asymmetrical
Immunity to line–conducted interference to (IEC/EN 61000–4–6)		V	10
Insulation resistance			
Clearance in air and creepage distances			EN 50178, UL 508, CSA C22.2, no. 142
Insulation resistance			EN 50178
Back–up/Accuracy of the real–time clock			

Accuracy of the real–time clock		s/day	Normally ± 5 (± 0.5 hyear)
Retentive memory			
Write cycles of the retentive memory			10000000000 (10^1) (Read–write cycles)
Power supply			
Rated operational voltage	U_e	V	24 DC (–15/+20%)
Admissible range		V DC	20,4...28,8
Residual ripple		%	5
Input current			
Input current 115/230 V AC		mA	Normally 140
Voltage dips (IEC/EN 61131–2)		ms	10
Heat dissipation		W	typ.*A*3.4*C*
CPU			
Microprocessor			Infineon XC161
Memory			
Program code/data		kByte	256/14 segments of 16 KB each
Marker/Input/Output/Retain data		KByte	16/4/4/8
Cycle time for 1 k of instructions (Bit, Byte)		ms	<0,3
Interfaces			
CANopen/easy–NET			
Data transfer rate/distance			500 kBit/s, 25 m 250 kBit/s, 60m 125 kBit/s, 125 m 50 kBit/s, 300 m 20 kBit/s, 700 m 10 kBit/s, 1000 m
Potential isolation			
From power supply			Yes
From the inputs			Yes
From the outputs			Yes
Bus termination (first and last station)			EASY–NT–R plug (incl. bus terminating resistor 120)
Connection types			2 × RJ45, 8 pole
easy–NET operating mode			
Number of users			8
CANopen operating mode			
Stations		Number	max. 8
PDO type			Asynchronous, cyclic, acyclic
Control contact rated current			to DS301V4

Control voltage for remote control max.			No
Digital inputs 12 V DC			
Number			12
Inputs can be used as analog inputs			4 (I7, I8, I11, I12)
Status indication			LCD display (if provided)
Potential isolation			
From power supply			No
Between digital inputs			No
From the outputs			Yes
Rated operational voltage	*U*e	V DC	24
On 0 signal	*U*e	V DC	< 5 (I1 – I6, I9, I10) < 8 (I7, I8, I11, I12)
On 1 signal	*U*e	V DC	> 15.0 (I1 – I6, I9, I10) > 8.0 (I7, I8, I11, I12)
Input current on 1 signal			
I1 to I6		mA	3.3 (at 24 V DC)
I7, I8		mA	2.2 (at 24 V DC)
Cable length (unscreened)		m	100
Pulse pause ratio			01:01
Cable length screened		m	< 3
Digital inputs 24 V DC			
Number			12
Inputs can be used as analog inputs			4 (I7, I8, I11, I12)
Status indication			LCD display (if provided)
Potential isolation			
From power supply			No
Between digital inputs			No
From the outputs			Yes
From the PC interface, memory card NET network, EASY–Link			Yes
Rated operational voltage	*U*e	V DC	24
On 0 signal	*U*e	V DC	< 5 (I1 – I6, I9, I10) < 8 (I7, I8, I11, I12)
On 1 signal	*U*e	V DC	> 15.0 (I1 – I6, I9, I10) > 8.0 (I7, I8, I11, I12)
Input current on 1 signal			
I1 to I6		mA	3.3 (at 24 V DC)
I7, I8		mA	2.2 (at 24 V DC)
I9, I10		mA	3.3 (at 24 V DC)

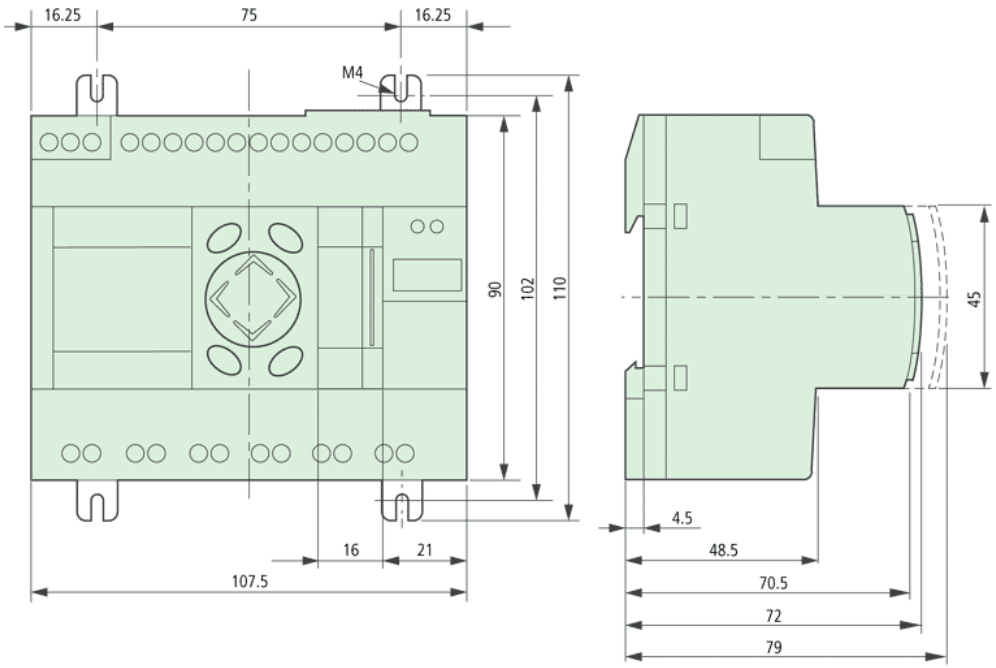
I11, I12		mA	2.2 (at 24 V DC)
Delay time from 0 to 1			
			Normally 0.02 (I1 – I4), Normally 0.25 (I5 – I12)
Delay time from 1 to 0			
			Normally 0.02 (I1 – I4), Normally 0.25 (I5 – I12)
Cable length (unscreened)		m	100
Incremental counter			
Quantity			1 (I1, I2, I3, I4)
Value range			32 Bit
Counter frequency		kHz	40
Pulse shape			Square
Counter inputs I1 and I2, I3 and I4			1
Counter inputs			I1, I2
Reference input			I3
Input for reference switch			I4
Signal offset			90°
Pulse pause ratio			01:01
Rapid counter inputs			
Number			2 (I1, I2) at 16 Bit or 1 (I1) at 32 Bit
Counter frequency		kHz	< 50
Pulse shape			Square
Pulse pause ratio			01:01
Cable length, screened		m	< 20
Digital inputs 24 V DC			
Inputs can be used as analog inputs			4 (I7, I8, I11, I12)
Status indication			LCD–display (if present)
Rated operational voltage	U_e	V	24 DC (–15/+20%)
Input current on 1 signal			
I1 to I6		mA	3.3 (at 24 V DC)
I7, I8		mA	2.2 (at 24 V DC)
I9, I10		mA	3.3 (at 24 V DC)
I11, I12		mA	2.2 (at 24 V DC)
Digital inputs 115/230 V AC			
Status indication			LCD–display (if present)
Analog inputs			
Quantity			4 (I7, I8, I11, I12)

Potential isolation			
From power supply			No
From the digital inputs			No
From the outputs			Yes
From the PC interface, memory card NET network, EASY–Link			Yes
Input type			DC voltage
Signal range		V DC	0 – 10
Resolution, analog		V	0,01
Resolution, digital		V	0,01
Resolution, digital		Bit	10 (value 0 – 1023)
Input impedance		k	11,2
Accuracy of actual value			
Two EASY devices		%	± 3
Within a single device		%	± 2, (I7, I8, I11, I12) ± 0.12 V
Conversion time, analog/digital		ms	Every CPU cycle
Input current		mA	< 1
Cable length screened		m	< 3
Analog outputs			
Potential isolation			
From power supply			Yes
Conversion time, analog/digital		ms	Every CPU cycle
Transistor outputs			
Number			8
Rated operational voltage	*U*e	V DC	24
Admissible range	U_e	V DC	20,4 – 28,8
Residual ripple		%	5
Supply current			
On 0 signal	Normallymax.	mA	18/32
On 1 signal	Normallymax.	mA	24/44
Protection against polarity reversal			Yes (Attention: A short–circuit will occur if voltage is applied to the outputs on account of reverse polarity.)
Potential isolation			
From power supply			Yes
From the inputs			Yes
			Yes

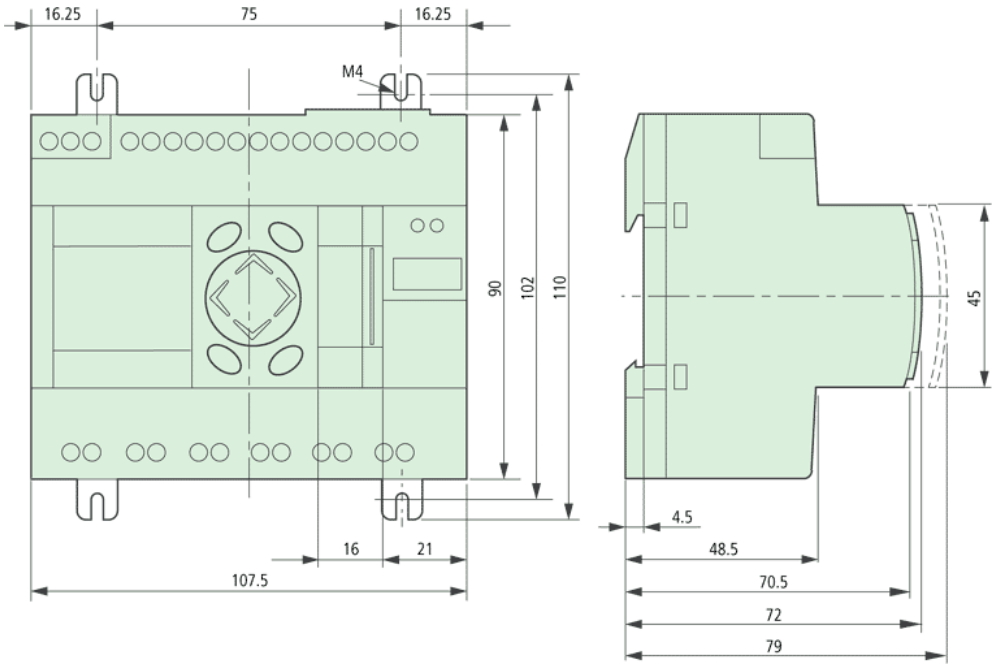
From the PC interface, memory card NET network, EASY–Link			
Rated operational current on 1 signal DC	*Ie*	A	Max. 0.5
Lamp load without R_v		W	5
Residual current on 0 signal per channel		mA	< 0,1
Max. output voltage			
On 0 signal with external load < 10 M		V	2,5
On 1 signal with I_e = 0.5 A		V	$U = U_e$ –1 V
Short–circuit protection			Yes, electronic (Q1 – Q4), thermal (Q5 – Q8), (analysis via diagnostics input I16, I15)
Short–circuit tripping current for R_a 10 m		A	0.7 I_e 2 per output
Total short–circuit current		A	16
Peak short–circuit current		A	32
Thermal cutout			Yes
Max. operating frequency with constant resistive load R_L < 100 k (depending on number of active channels and their load)		Ops./h	40000
Parallel connection of outputs			
With resistive load, inductive load with external suppressor circuit, combination within a group			Group 1: Q1 – Q4 Group 2: Q5 – Q8
Number of outputs	max.		4
Max. total current		A	2 (Caution! Outputs must be actuated simultaneously and for the same length of time.)
Output status indication			LCD–display (if present)
Inductive load			
Without external suppressor circuit			
$T_{0.95}$ = 1 ms, R = 48 , L = 16 mH			
Utilization factor		g	0,25
Duty factor		% DF	100
Max. switching frequency f = 0.5 Hz (max. DF = 50 %)		Operations	1500
DC–13, $T_{0.95}$ = 72 ms, R = 48 , L = 1.15 H			
Utilization factor		g	0,25
Duty factor		% DF	100

Max. switching frequency f = 0.5 Hz (max. DF = 50 %)		Operations	1500
$T_{0.95}$ = 15 ms, R = 48 , L = 0.24 H			
Utilization factor		g	0,25
Duty factor		% DF	100
Max. switching frequency f = 0.5 Hz (max. DF = 50 %)		Operations	1500
With external suppressor circuit			
Utilization factor		g	1
Duty factor		% DF	100
Max. switching frequency, max. duty factor		Operations	Depending on the suppressor circuit
NET network			
Stations		Number	max. 8
Bus termination (first and last station)			EASY–NT–R plug (incl. bus terminating resistor 120)

Back–up of the real–time clock



Dimensions



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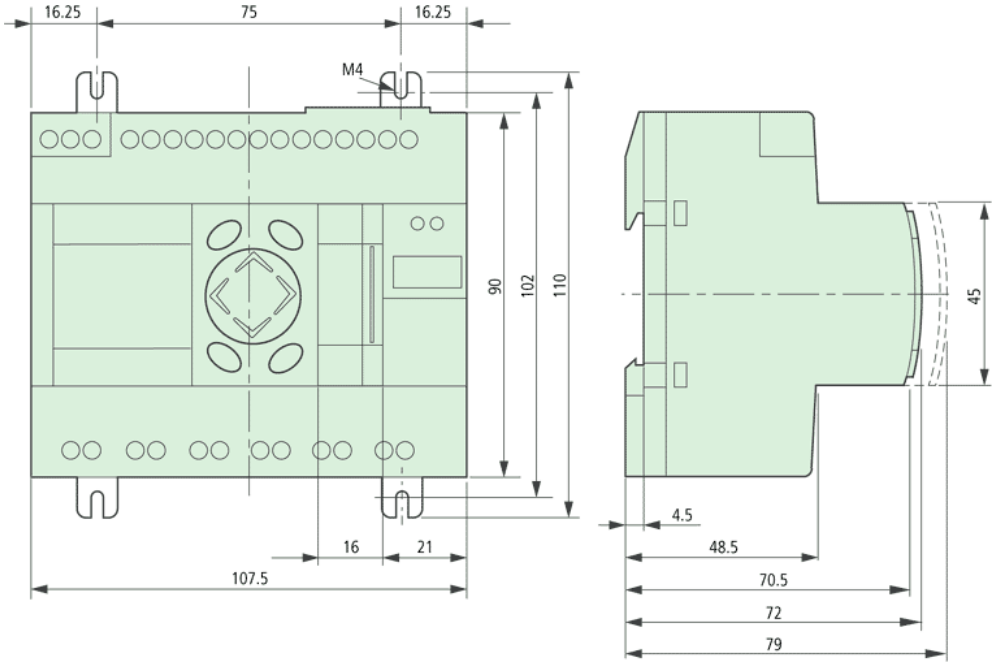

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