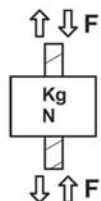


DS EUROPE

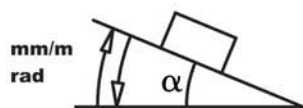
SHORT FORM CATALOGUE

MANUFACTURERS FOR 30 YEARS OF MEASURING INSTRUMENTS

TRANSDUCERS AND INDUSTRIAL MEASURING SYSTEMS



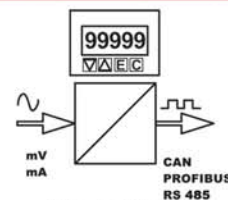
Force measures



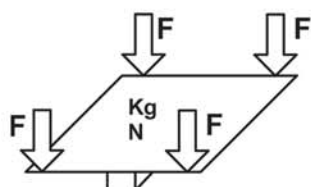
Inclination measures



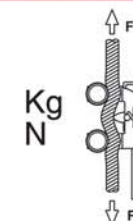
Acceleration measures



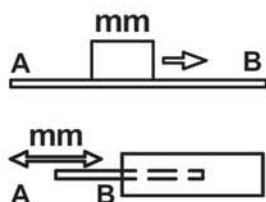
Panel meters
analog/digital electronics



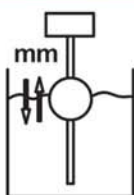
Industrial weighing



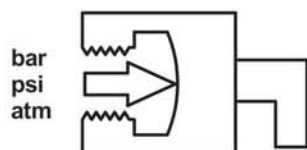
Rope traction measure



Position and velocity measures



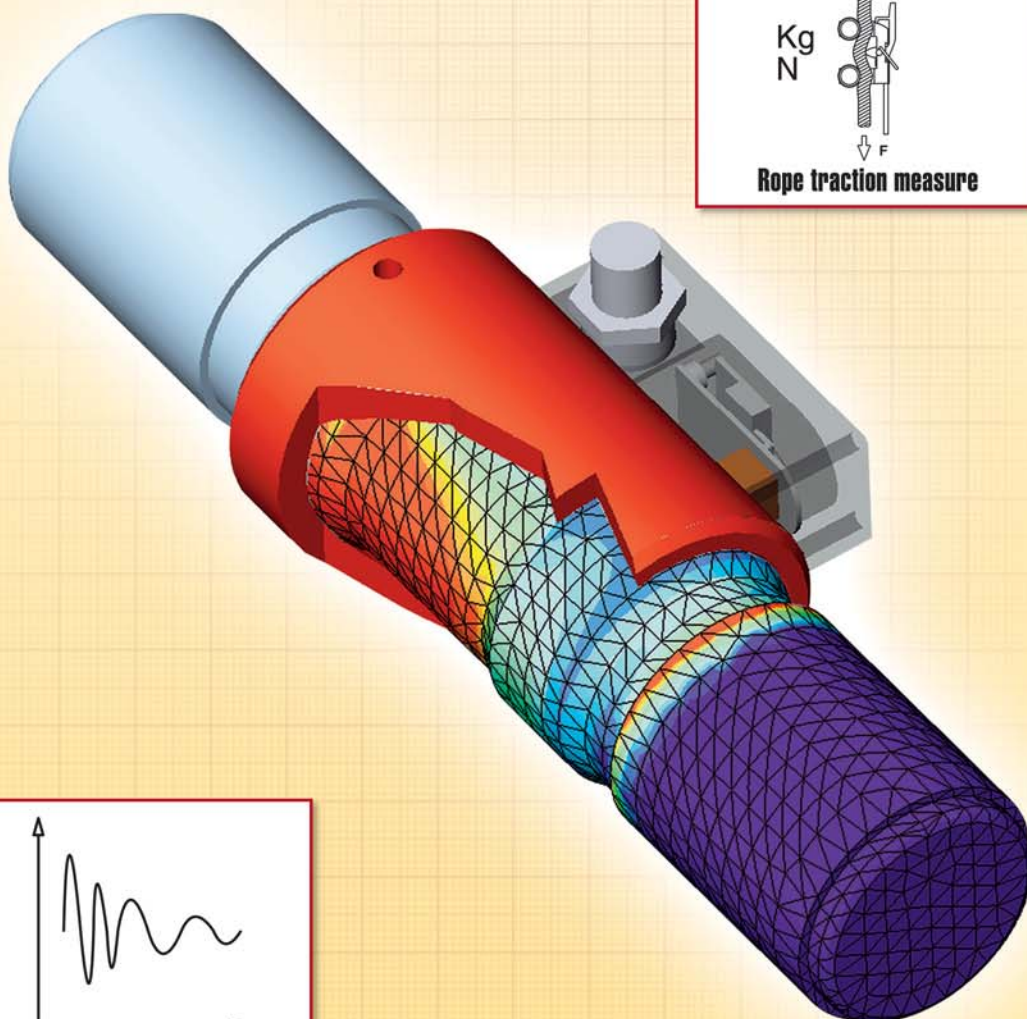
Liquid level measures



Pressure measures



Data acquisition



MORE THAN 250 MODELS DESIGNED AND MANUFACTURED BY DS EUROPE

MULTI CHANNEL DATA ACQUISITION SYSTEM MOD. DSIab



DSIab is a multi-channel data acquisition system including transducers that measure (forces, displacements, temperatures, etc.) and transmitting analog signals to the SAP digitizing electronics that retransmits, the measured values, by means of CAN Open, to a CAN/USB converter connected to the computer USB, where DSIab software is installed. DSIab data acquisition software shows, at the same time, all wave forms of each input channel on the computer screen where it is possible a data analysis, to save data on hard disk and to print graphs.

- **Graph:** "Strip Chart" type (Y = measured values, X = time), with engineering units.
- **Input channels:** up to 8pcs max. input channels on each SAP electronics with high resolution (24bit max. A/D converter).
- **Measure of fast signal changes:** up to 1KHz max. sampling rate on each channel.
- **Data saving:** on computer hard disk with text TXT file
- **Applications:** laboratory measures, automation, quality control, process control, leakage tests, testing machines, weighing, CAN bus data acquisition etc.

LOAD CELLS AND PRESSURE TRANSDUCERS WITH INTERNAL ELECTRONICS

CANopen - Modbus - DSEnet



ANALOG ELECTRONICS (CE mark)

Voltage output: 0 to ± 5 V; 0 to ± 10 V.
Current output: 4 to 20 mA.

Advantages: protection against electrical noise, high resolution, compactness and good price (it is not necessary to install and calibrate an expensive and bulky external electronic box), pre calibrated, quick electrical connections, easy installation.

DIGITAL ELECTRONICS (CE mark)

Outputs: RS485 and RS422 (Modbus; DSEnet)
CAN (CANopen DS406; DEVICENET).

Advantages: High resolution (24bit max. A/D converter), protection against electrical noise, high sampling range (960Hz max.), digital filter, compactness and good price, pre calibrated, easy cabling (it is possible to parallel many transducers to a single PLC digital input), alarm levels, easy service (overload memory).

LOAD CELLS

500 QD Series

from 2 Kg to 2 tons fs



Withstanding billions of cycles
Insensitive to the load position

Measuring ranges (tension and compression):

514 QD: 0 \div 2 - 3 Kg.; 535 QD: 0 \div 6 - 12 - 25 Kg.
546 QD: 0 \div 60-110 Kg.; 546 QDT: 0 \div 220 - 330 - 550 Kg.
1000 - 2000 Kg.

Technical features:

off centre load cells with on axis clampings.

Non linearity: $\leq \pm 0,023\%$ FS for mod. 514QD and 535QD
 $\leq \pm 0,046\%$ FS for mod. 546QD and 546QDT.

Flexion parallelogram: insensitive to load position.

Options: internal analog electronics (± 5 V, ± 10 V, 4-20mA).
internal digital electronics (CANopen, RS485, RS422).

Applications:

The high accuracy, compactness and ruggedness allow series 500QD to be used for: general applications, automation, weighing systems, medical machines, plastic injection molding machines, general testing machines, textile machines, marble machines, on vehicles, machine tools, presses, research etc.

TENSIOMETERS FOR WEBS: RADIAL LOAD CELLS

LCR 200 Series

from 5 Kg. to 1500 Kg. fs



Measuring ranges:

LCR 215: 0 to ± 5 - 10 - 20 - 50 - 80 Kg.
LCR 220: 0 to ± 100 - 200 - 350 Kg.
LCR 240: 0 to ± 500 - 1000 - 1500 Kg.

Main specifications: Axial through hole: for the endshaft of the roller.
Thin thickness: for extending the installation possibilities on new machines and on retrofits.

Possibility of rotation of the central measuring body: for an accurate alignment of the measuring axis.

Very effective protection of the rolling bearings against dust.

All axes overload protections.

Outputs: 2 mV/V, ± 5 V, ± 10 V, 4-20 mA, RS485, RS422, CAN open.

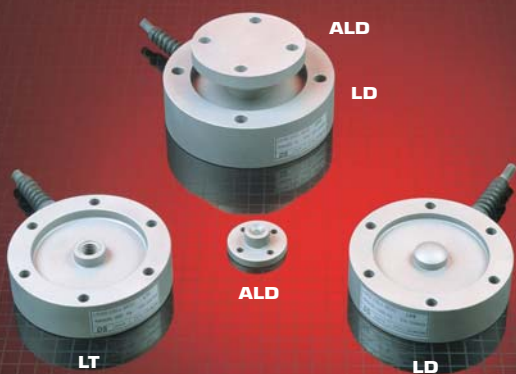
Main applications: to be installed on measuring rollers; on textile machines, in paper, plastic, metal foil, in printing machines, to control the radial force of webs.

LOAD CELLS

(only some standard series)

LD-LT Series

from 10 Kg. to 500 tons fs



Measuring ranges:

Series LD for compression:

Mod. LD 1: 0 ÷ 10 - 20 - 50 - 100 - 200 - 500 Kg.

Mod. LD 5: 0 ÷ 1 - 2 - 5 tons.; Mod. LD 10: 0 ÷ 5 - 10 tons.

Mod. LD 100: 0 ÷ 20 - 50 - 100 tons.; Mod. LD 300: 0 ÷ 300 - (500) tons.

Series LT: for tension and compression:

Mod. LT 05: 0 ÷ ± 10-20-50-100-200 Kg.; Mod. LT 1: 0 ÷ ± 200-500-1000 Kg.;

Mod. LT 5: 0 ÷ ± 2 - 3 tons. Mod. LT 50: 0 ÷ ± 5 - 10 - 30 tons.

Main specifications: Round and thin pancake load cells:

Total error: < ± 0,2 % fs; Low price; Hermetically sealed; N° of strain gauges increasing from 4 to 12 with the diameter: for a better insensitivity to the transversal loads; Internal calibrator; Final test certificate; Options: internal analog (5V, 10V, 4-20mA) or digital (CANopen, RS485, RS422) electronics.

Main applications:

for general purpose; for machine tools, for actuators, for weighing systems.

Measuring ranges:

HC 2001: 0 ÷ 50 - 100 - 200 - 300 Kg. (Al). HC 2002: 0 ÷ 2 ton.

HC 2001: 0 ÷ 500 - 1000 Kg. (Fe). HC 2015: 0 ÷ 10 - 15 ton.

HC 2005: 0 ÷ 5 ton. HC 7050: 0 ÷ 50 ton.

HC 2030: 0 ÷ 30 ton. HC 7100: 0 ÷ 100 ton.

Main specifications:

washer load cells:

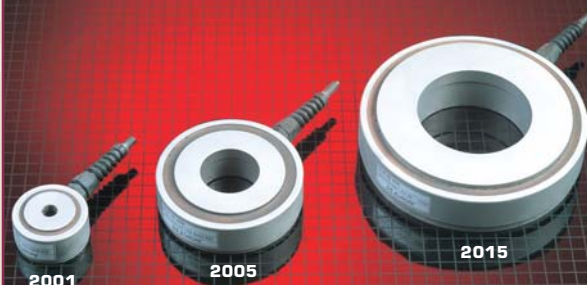
flat, with large central hole. Internal calibration. Final test certificate.

Main applications:

for general purpose, for automatic control of axial thrusts: on punching machines; on machine tools, presses, power hammers, actuators.

HC 2000 Series

from 50 Kg. to 100 tons fs



MD 5000 Series

from 1 to 60 tons fs



Measuring ranges:

MD 5005: 0 to 1 - 3 - 5 tons.

MD 5015: 0 to 10 - 15 tons.

MD 5025: 0 to 25 tons.

MD 5060: 0 to 40 - 60 tons.

Main specifications: Pin load cells:

Body of the pin: in solid rod (no tube).

Sensors: on all the diaphragms of the 4 cavities.

Extreme sturdiness: for use also outdoor and in industrial environmental conditions.

Each model supplied with 2 lengths: standard or as long as requested.

Options: internal analog or digital electronics.

Main applications: for industrial machines, in substitution of pins: of wheels, of pulleys, of cranes, of hydraulic actuators, for the measure of fix or of mobile reservoirs.

Measuring ranges:

Tension and compression: 0 ÷ 250 - 500 Kg

0 ÷ 1 - 3 - 5 - 10 - 25 - 50 - 100 tons.

Main specifications: column load cells:

For tension and compression. Rugged load cells for high loads.

For applications in industrial environments and outdoor.

Options: built-in analog electronics (5V, 10V, 4-20mA)

or digital (RS485, RS422 with Modbus or DSEnet protocols or CANOpen).

Main applications:

General use, weighing, automation, cranes, machine tools, test machines, vehicles, general use.

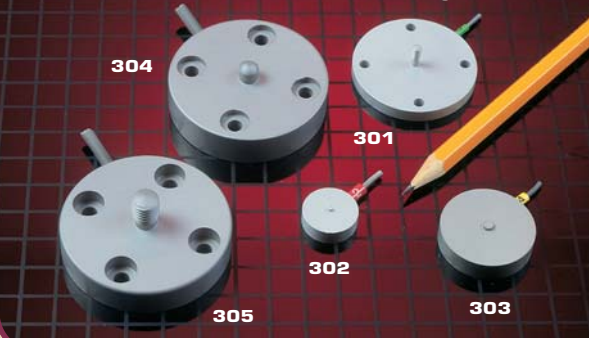
AP 7000 Series

from 250 Kg. to 100 tons fs



BC 300 Series

from 3 Kg. to 2 tons fs



Measuring ranges:

Compression:

BC 302: 0 to 3 - 6 - 12 - 20 - 30 - 60 - 100 Kg.

BC 303: 0 to 150 - 350 - 500 Kg.

BC 304: 0 to 500 - 1000 - 2000 Kg.

Tension and compression:

BC 301: 0 to 3 - 6 - 12 - 20 - 30 - 60 - 100 - 150 Kg.

BC 305: 0 to 500 - 1000 - 1500 Kg.

Main specifications: button load cells:

miniaturized, ultraflat, price convenient.

Main applications: for general purposes, for industrial and medical weighing platforms, textile machines, vehicle tests benches.

COLUMN LOAD CELLS

Series 560QDT

From 300Kg to 4000Kg fs



S - TYPE LOAD CELL

Measuring ranges:

Tension and compression 0 ÷ ±350 - 400 - 500 - 1000 - 2000 - 3000 - 4000 Kg

Main specifications:

S - type load cells with coaxial fixing threaded holes.

Rugged, convenient and accurate load cells.

Non linearity: ≤ ±0,05 % FS; environment protection: IP65;

zinc plated high strength steel; Connection: cable or connector.

Outputs: 2 mV/V typ.; 5V; 10 V; 4 -20 mA.

Main applications:

general use, automation, textile machine, weighing, machine tools, testing machines, presses, vehicles, food machines, converting machines etc.

OFF-CENTRE LOAD CELLS

Measuring ranges:

0 ÷ 3-6-12-25Kg (additional measuring ranges available under request).

Main specifications:

Off-centre load cell for scale pans up to 400x400mm.

Non linearity: < ±0,03 % FS; CE marked;

Connection: cable; Aluminum metal frame.

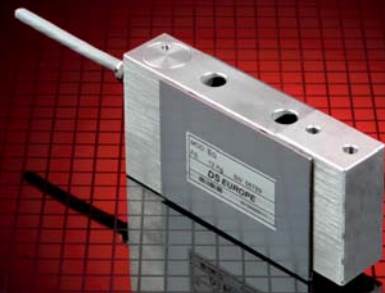
Outputs: 2 mV/V tip.; 5 V; 10 V; 4 -20 mA.

CAN open; RS485 Modbus.

Main applications:

general use, automation, textile machine, weighing, machine tools, testing machines, presses, vehicles, food machines, converting machines etc.

Series EG



400x400mm scale pan

Series PT500

from 100 to 500Kg fs



BEAM LOAD CELLS

Measuring ranges:

0 ÷ 100 - 200 - 500 Kg

Main specifications:

Rugged, convenient and accurate load cells.

Non linearity: < ±0,05 % FS; Environment protection: IP65;

CE marked; Connection: cable and connectors.

Outputs: 2 mV/V tip.; 5 V; 10 V; 4 -20 mA.

CAN open; RS485 Modbus.

Main applications:

general use, automation, textile machine, weighing, machine tools, testing machines, presses, vehicles, food machines, converting machines etc.

SERIES KCI BEAM LOAD CELLS

Measuring ranges:

0 to 2500-6800Kg FS (compression).

Main specifications:

Sensitivity: 2mV/V typical.

Non linearity: < ± 0,2% FS.

Internal calibration circuit.

Fit for industrial applications, IP65 environment protection.

Main applications:

Industrial weighing (tanks, silos, hoppers), load control systems (cranes, winches, lifting equipment), automation, machine tools, on vehicles, for research etc.

Serie KCI

2500 - 6800 Kg. fs



LOW COST LOAD CELLS

SERIES MB490 BEAM LOAD CELLS:

Measuring ranges:

Mod. MB491 0 ÷ 300-400-500-600-700Kg (compression).

Mod. MB491-P 0 ÷ ±300-400-500-600-700Kg (tension and compression).

Main specifications:

Beam load cells with low price and compactness.

Main applications:

For general purpose, automation, machine tools, weighing, medical machines, vehicles.

SERIES MP WASHER LOAD CELLS.

Measuring ranges:

0 ÷ 500-1000-1500-2000-2500Kg.

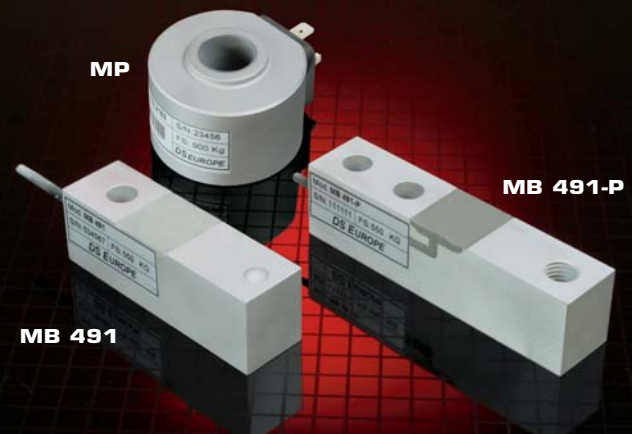
Main specifications:

Flat with central hole and connector.

Outputs: 2 mV/V, 5 V, 10 V, 4-20 mA.

Main applications:

To be applied onto actuators or tie rods for force measurements and for general use.



SERIES AN601 PORTABLE INSTRUMENT

Series AN601



Main specifications:

Portable handheld instrument with batteries, compact, 5 digits hi-brightness red LEDs display, with lid for battery housing, one input channel with connector for analog signals: $\pm 80\text{mV}$, $\pm 5\text{V}$, $\pm 10\text{V}$, $4\text{--}20\text{mA}$, it feeds power supply to connected transducers, 9pcs push buttons for easy and quick parameter setting, functions: zeroing-hold-peak memory.

Applications: calibration control of transducers in production machines, weighing systems, automation, medical machines, metrology, on presses, civil engineering and geophysical tests, on vehicles etc.

Can be connected to many transducer types: load cells, dynamometers, weighing systems, temperature probes, liquid level measuring systems, pressure transducers, inclinometers, accelerometers etc.

LOAD CONTROL SYSTEMS FOR: ELEVATORS - MACHINES - VEHICLES



DIGITAL LIFTSENTRY: for elevator cars and beams • machines and vehicles force measures

Mod. 942: sensor measures the load applied on a steel frame by measuring the proportional flexion strain.

Mod. 699: digital electronics easy to install, with 4 digits LEDs display, with relays alarm levels, auto zeroing function, towed chain and relays block functions (for elevator applications).

Applications: load weighing device for new and modernized elevator cars and beams, for parking systems, cranes, machine tools, load control on vehicles (fork lifts, aerial platforms, trucks, agriculture machines etc.), tank weighing etc.

MULTIROPE: load weighing device for traction elevators and lifting equipment

MR sensor is installed on all the ropes at the same time for measuring the applied load by measuring the proportional rope tensions.

Easy and quick to install, compact, installed also on belts and can be field adapted to ropes with different diameters (option).

Applications: load weighing device for new and modernized traction elevators, tension control on civil engineering structures, theater machines, tie rod tension control on radar and antennae, tension control on boat lines etc.

MR



OT



ROPE LIFTSENTRY: load weighing device for traction elevators and lifting equipment

OT sensor installed on each single rope for measuring the applied load proportional to the rope tension.

Easy and quick to install (without tools), compact, pre-calibrated, installed also on belts and can be field adapted to ropes with different diameters (option).

Applications: load weighing device for new and modernized traction elevators, tension control on civil engineering structures, theater machines, tie rod tension control on radar and antennae, tension control on boat lines etc.

SMARTANK = LEVEL INTO TANKS

Liquid level measuring system with float and tank shape linearization.

Measuring strokes: from 100 mm to 3 meters (as for PC series).

Units of the system: PC probe, one or two AFC-2S floats, MLPS electronic box, Fastset software.

MPLS electronics: 5 digits LED display, LED warning messages, switching from "mm" to "liters", 2 level alarms. Mains: 220 Vac or 24 Vdc.

Fastset software: on a 3 1/2 disk. Easy to use, RS232 computer connection, Windows. Linearization table (fig. C) up to 1000 points: to adapt to any tank shape. Level visualisation (fig. A). Probe calibration (fig. B). Wave filtering. Resolution: 0,2 mm. Non-linearity: 0,025% fs (on mm measures). Option: RS485 output.

Applications:

for food applications compatible with stainless steel Aisi 316L. On fix or mobile tanks, for milk, wine, oil, basins, rivers and for all the not-explosive fluids and areas. CE mark.

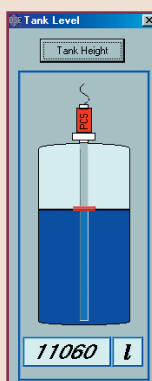


Fig. A



Fig. B

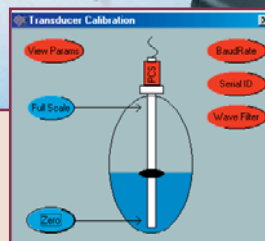


Fig. C

PANEL METERS - SIGNAL CONDITIONERS



Pitagora

PANEL METER MOD. PITAGORA:

Panel meter display with microprocessor, easy to use, compact and convenient. The PROFIBUS digital data transmission allows to transmit, in an easy and convenient way, up to 8pcs analog signals of connected transducers to a SIEMENS PLC.

Main specifications: high background brightness LCD display with 7 digits (± 9999999) and alphanumeric line (= easy to use), shows the measures of connected transducers in engineering units, with 4 slots for built-in optional input/output cards, with 24bit A/D converter (= high resolution) and It can be connected to all DS Europe transducers.

Main functions: gross, nett, tare, piece counting, positive or negative peak memory, hold, digital filtering, sum of up to 8 transducers signals.

Up to 8pcs max. input channels: $\pm 80\text{mV}$, $\pm 5\text{V}$, $\pm 10\text{V}$, 4-20mA 2 and 3 wires.

Outputs: PROFIBUS, CAN Open, RS485, RS422, RS232, 5V, 10V, 4-20mA.

Alarm levels: up to 8pcs with relays or optically insulated contacts.

Applications: high accuracy load cell sum for weighing systems, connection of analog transducers for SIEMENS PLCs, control of necessary force for blocking a pin inserted into an hole, baricenter control of boats and airplanes, automation, on vehicles, research, machine tools, textile machines, marble machines, plastic machines, glass etc.

PANEL METER MOD. AN401PLUS:

AN401Plus is like PITAGORA but with a 5 digits red LEDs display (± 99999) with high brightness fit for low environment luminosity applications.



AN 401 Plus

DATA ACQUISITION AND CONVERTING ELECTRONICS MOD. SAP

SAP



658



SAP-Pitagora is a digital electronics that can be connected to transducers for digitizing their analog electrical signals and then It digitally transmits the measured data to a computer, PLC or data acquisition system.

- **High resolution:** 24bit max. A/D converter.
- **Slow and fast sampling rates:** up to 3,8KHz max.
- **Analog inputs up to 8pcs max.:** $\pm 80\text{mV}$, $\pm 5\text{V}$, $\pm 10\text{V}$, 4-20mA.
- **Outputs:** analog up to 4pcs max. 5V, 10V, 4-20mA (with D/A 16 bit max.) and 16pcs max. alarm levels.
- **Digital outputs:** RS485, RS422, RS232 (Modbus and DSEnet), CAN Open (DS406).
- **Main functions:** zeroing, filtering, positive/negative peaks memorization, digital transmission and 10 point linearization.
- **Option:** software DSLab for data acquisition with graph measure/time, data saving on hard disk and printing.
- **Applications:** for industrial applications, data acquisition, laboratory, weighing, automation, machine tools, medical machines, textile machines, vehicles etc.

DIGITAL CONVERTER MOD. 658

Mod. 658 is connected to a computer for converting RS485 and RS422 digital transmissions into RS232.

It allows an easy connection between the data acquisition system together with a computer.

Mod. 658 is powered by digital line and do not need external power supply source.

SERIES EL600 ANALOG SIGNAL CONDITIONING CARDS



Conditioning cards for analog signals from strain gauge transducers (load cells, pressure transducers, torque meters, strain gauges etc.) and LVDT position transducers.

EL600 cards feed power supply to the connected transducer and give an amplified output proportional to the measured value.

Easy to calibrate: with zero and gain trimmers and with built-in calibration circuit without known load (only for DS Europe strain gauge transducers).

EL600 can be provided with 3 versions: card with 4 fixing holes, on DIN rail and inside a box with cable glands.

CE / EMC certified against electromagnetic noise (also for industrial applications).

Easy cabling with extractable screw terminal boards.

EL621-EL631	Strain gauge signal amplifier.	Outputs: EL621= $\pm 10\text{V}$; EL631= $\pm 10\text{V}$.
EL624-EL634	Strain gauge signal amplifier.	Outputs: EL624= 4-20mA (2 wires); EL634=4-20mA (3 and 4 wires).
EL625-EL635	Strain gauge signal amplifier.	Outputs: EL625= $\pm 5\text{V}$; EL635= $\pm 5\text{V}$.
EL626	Strain gauge signal amplifier.	Output: 100Hz to 1MHz frequency.
EL646	Signal conditioner for LVDT position transducer.	Output: $\pm 5\text{V}$; $\pm 10\text{V}$.
EL674	Summing card for up to 6pcs load cells.	Outputs: $\pm 5\text{V}$, $\pm 10\text{V}$, 4-20mA (3 and 4 wires), 100Hz to 1MHz frequency.

SERIES LP660 PRESSURE TRANSDUCERS (very convenient prices)



Pressure transducer series LP 660: with ceramic sensor, rugged, with hammer shock protection, with zero regulation and good price.
Measuring ranges: 0 ÷ 1 - 2 - 5 - 10 - 20 - 50 - 100 - 200 - 400 - 600 bar. (LP 650 Series, measuring ranges: up to 1400 bars).
Hydraulic connections: G 1/4" or G 1/2".
Electrical connection: by connector (central hole for zero regulation).

Model	Internal electr.	N. of wires	Power supply	Output
LP665	Voltage amplifiers	3	0 to 12 up to 36 Vdc	0 ÷ 5 V
LP661				0 ÷ 10 V
LP664	Current amplif.	2	0 to 8 up to 36 Vdc	4 ÷ 20 mA
LP668	Digital			Output: RS485 and RS422 (DSEnet, Modbus)
LP669				Output: CAN (CANopen DSP406, DEVICENET)

SERVOINCLINOMETERS - SERVOACCELEROMETERS - MEASURING SYSTEMS

Serie ES261

down to microns/meter



Measuring ranges: inclination: $\pm (5,75^\circ ; 14,5^\circ ; 30^\circ ; 45^\circ ; 90^\circ)$ degrees.
 acceleration : $\pm (100 ; 250 ; 500 ; 700 ; 1000)$ millig.
 With electronics inside: supply: ± 15 V; Output: ± 5 V (± 10 V).

Main specifications: measuring ranges extended to low values down to one millionth of the full scale. Linearity: $\pm 0,05\%$ fs. Bandwidth: from gravity (zero) to 55 Hz. High repeatability, resolution, sturdiness.

Indicator - conditioner AN 401: 5 full digits with direct reading in sessagesimal degrees. 4 alarm levels. With microprocessor.

Shock absorber box ES 291: on x-y-z- axes. Up to 2 units ES261 for x-y axes.

POSITION TRANSDUCERS AND MEASURING SYSTEMS

PC SERIES: MAGNETOSTRICTIVE; one or two cursors or floats.
Measures of: position; velocity; level.

Measuring strokes: from 100 to 1000 mm.: intervals of 50 mm.
 from 1000 to 3000 mm.: intervals of 100 mm.

PCR: displacement rule.

PCS: standard with screwed electronic head.

PCP: with probe extraction from the well, screwed to the reservoir.

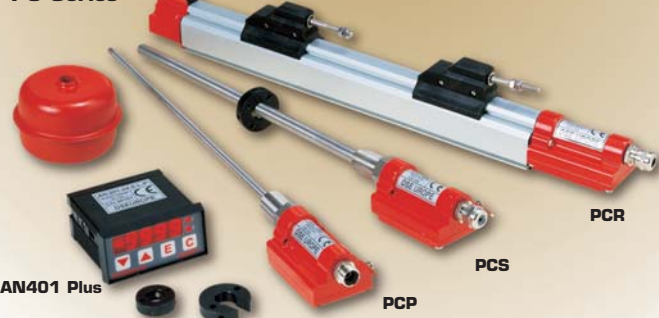
PCM: with miniaturised measuring probe.

Main specifications: no electrical contact between fix probe and cursor or float: no frictions, no wears. Operating probe pressure: 350 bars (700 max.). Digital technology. Outputs: 0÷10V, 4-20mA, RS485, CAN open, Start Stop, SSI.

Applications: for oil and air actuators and pistons, on operating machines, for level measures on reservoirs (see also Smartank)

PC Series

Strokes from 100 mm to 3 meters



SP Series LVDT

Strokes: $\pm 2,5 \div \pm 100$ mm

AN 401

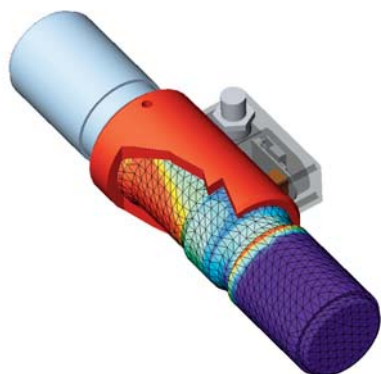


Measuring strokes: $\pm 2,5 ; \pm 5 ; \pm 12,5 ; \pm 25 ; \pm 50 ; \pm 100$ mm.
 Non linearity: $< \pm 0,2\%$ fs. Resolution: infinite.

Main specifications:

- no mechanical contact between fix and movable parts: no frictions, no wears.
- external surfaces and side boards: in stainless steel.
- central tube for the sliding core: in stainless steel.
- extremely robust and environment protected.
- high number of coil turns: to warranty a linear signal without jumps.

DEVELOPMENT AND MANUFACTURING OF CUSTOM PRODUCTS



DS Europe technical department, with 30 years experience, can develop products accordingly to customers' technical specifications with the following tools:

- 3D mechanical design CAD software stations.
- Finite Element Analysis FEA software stations.
- Digital and analog electronic development accordingly to EMC (= CE) stricter industrial marking regulations (with tests in anechoic room at Competent Body third party laboratory).
- Software and embedded firmware development accordingly to most popular industrial bus systems (CANopen, Modbus, PROFIBUS etc.)
- Fast prototyping.

DS Europe develops new products or modifies existing ones in order to realize the fittest and more convenient product.

