DPS

The DPS is a family of digital panel indicators developed with a variety of features for the solution of field problems.
As part of ERO ELECTRONIC background, this family also maintains a high standard in quality, reliability and man/machine interface simplicity but it encompasses performances typically built in very expensive instruments.
Features like frequency input, square root extraction on the input variable, linearization by keyboard with setting of 9 breakpoints (10 segments), peak high and peak low visualisation offer the widest range of application possibilities.
In addition, the analog retransmission of the displayed variable transforms this instrument in a linearized transmitter while the serial communication interface makes it usable as an analog input for a computerized system.
The three-color customized integrated display with 2 alphanumerical characters, 4 digits and 6 indicators, is an example of the particular attention given to the design of the man/machine interface.

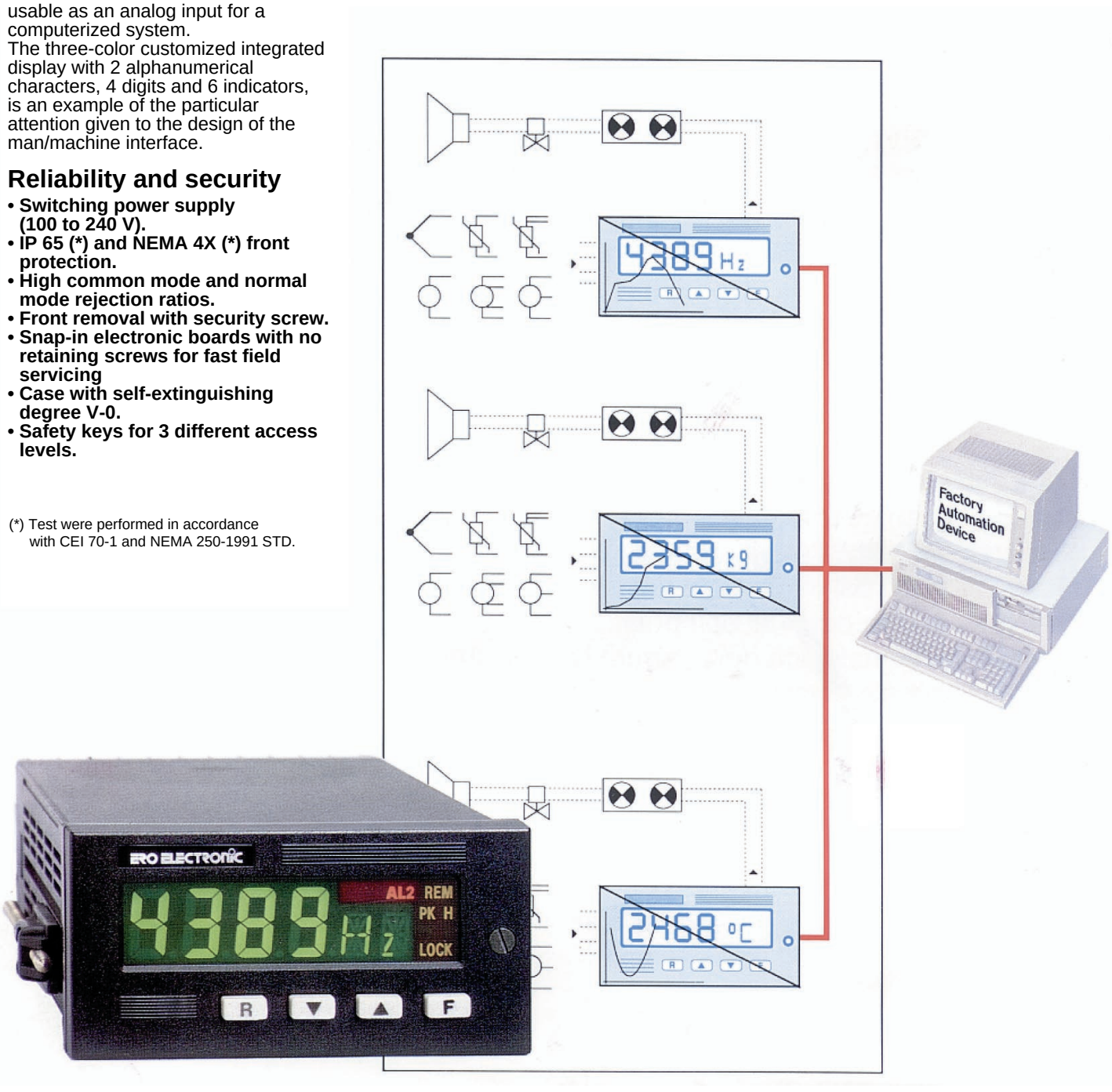
Reliability and security

- **Switching power supply (100 to 240 V).**
- **IP 65 (*) and NEMA 4X (*) front protection.**
- **High common mode and normal mode rejection ratios.**
- **Front removal with security screw.**
- **Snap-in electronic boards with no retaining screws for fast field servicing**
- **Case with self-extinguishing degree V-0.**
- **Safety keys for 3 different access levels.**

(*) Test were performed in accordance with CEI 70-1 and NEMA 250-1991 STD.

MAIN FEATURES

- Back lighted custom display.
- Accuracy 0.1% fsv.
- Sampling time: 100 ms typical.
- Universal input.
- Autoranging for K TC input.
- High resolution for frequency input with readout in engineering unit.
- Galvanically isolated auxiliary power supply for two or fourwire transmitters (OPT).
- Square root extraction on the input variable.
- Linearization by 10 programmable segments.
- Peak high visualisation.
- Peak low visualisation.
- Analog retransmission of the displayed value (OPT).
- RS-485 serial interface (OPT).
- Two independent alarms with automatic or manual reset.
- Alarms hysteresis, programmable.
- Digital filter for readout, alarms and analog retransmission.
- Two logic inputs.
- Upgradable in field by options.



INPUTS

A) **Thermocouple:**

Type: B - E - J - K - N - R - S - T - W - W3 - W5 - PIATINEL - Ni/Ni 18% Mo.
Type of TC and °C/°F selection via front pushbuttons.
External resistance: 100 Ω max, with maximum error 0.1% of span.
Cold junction: automatic compensation 0-50 °C.
Input impedance: > 1 MΩ.
Burn out: up scale or down scale, programmable.
Standard ranges: see table, others on request.
Calibration: according to IEC 584-1.

STANDARD RANGES TABLE

TC type	°F Ranges	°C	NOTE
B	+32/+3300	0/+1820	(1)
E	-328/+1470	-199.9/+800.0	
J	-328/+1860	-199.9/+999.9	
Fe-CuNi	-328/+1650	-199.9/+900.0	DIN 43710 - 1977
K	-328/+2500	-199.9/+1370	(2)
R	-58/+3200	-50/+1760	
S	-58/+3200	-50/+1760	
T	-328/+750	-199.9/+400.0	
Cu-CuNi	-328/+1110	-199.9/+600.0	DIN 43710 - 1977
N	+32/+2370	0/+1300	
W	+32/+4190	0/+2310	
W3	+32/+4190	0/+2310	ASTM-E 988/84
W5	+32/+4190	0/+2310	ASTM-E 988/84
Ni/Ni-Mo	+32/+2192	0/+1200	GE. Co.
Platinel II	+14/+2550	-10/+1400	GHOST

Note: 1) Accuracy and resolution guaranteed from 300 °C (570 °F)
2) Resolution 1/10 °C up to 999.9 °C.

B) **RTD input**
(Resistance Temperature Detector).

Input: for Pt100 Ω RTD and Ni 100 Ω RTD, 3-wire connection with °C/°F selectable by front pushbuttons.
Input circuit: current injection (100μA).
Line resistance: automatic compensation up to 3 Ω/wire with no measurable error.
Burn out: up scale or down scale programmable.
Calibration: according to DIN 43760.
Standard ranges: see table.

STANDARD RANGES TABLE

Input type	°F Ranges	°C
Pt 100 Ω RTD	-328/+1560	-199.9/+850.0
Ni 100 Ω RTD	-76/+660	-60.0/+350.0

C) **Current input**

Input type: 0-20 and 4-20 mA selectable via front pushbuttons.
Input impedance: 3 Ω.
Readout: keyboard programmable between -1999 and +9999.
Linearization: all types of non linear input signals may be linearized by setting up to 9 breakpoints (10 segments) on the input span.
Square root extraction: programmable.
Decimal point: programmable in any position.
Burn out: down scale.

STANDARD RANGES TABLE

Input type	Accurancy	Resolution
0 - 20 mA	0,1% ± digit @ 25 °C	1 digit
4 - 20 mA		

D) **Voltage Input**

Input type: 0-60 or 12-60 mV selectable via front pushbuttons;
0-5 V or 1-5 V selectable via front pushbuttons;
0-10 V or 2-10 V selectabie via front pushbuttons.
Input impedance: see table.
Internal readout: keyboard programmable between -1999 and +9999.
Linearization: all types of non linear inputs signals may be linearized by setting up to 9 breakpoints (10 segments) on the input span.
Square root extraction: programmable in any position.
Burn-out: up scale for millivoltage input. Down scale for voltage.

STANDARD RANGE TABLE

Input type	Input impedance	Accurancy
0 - 60 mV	≥ 800 kΩ	0,1% ± digit @ 25 °C
12 - 60 mV		
0 - 5 V	≥ 200 kΩ	
1 - 5 V		
0 - 10 V		
2 - 10 V		

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ALARMS

Number of alarms:	two, independent.
Threshold:	from 0 to 100% of the readout span.
Hysteresis:	programmable from 0.1 to 5.0% of the readout span.
Type of alarm:	high or low alarm, programmable.
Reset:	automatic or Manual, programmable. The manual reset of the alarms is possible by front pushbuttons individually or by external contact collectively.
Software filter:	it is possible to select the same filter chosen for readout value.
Alarm outputs:	two relays, SPST, NC or NO selectable by jumpers.
Contact rating:	2 A - 30 V DC on resistive load 0.6 A - 110 V DC on resistive load 0.5 A - 250 V AC on resistive load 0.3 A - 110 V DC on inductive load.
Relays status:	relay energized in non alarm condition.
Alarms indication:	AL1 and AL2 lit for alarm ON.

OPTIONS

COMMUNICATION INTERFACE

Type:	RS-485, optoisliated.
Communication type:	bi-directional half duplex.
Protocol:	type “Polling/Selecting”.
Baud rate:	from 150 baud to 19200 baud.
Byte:	7 bits + parity bit. 8 bits + parity bit. 8 bits no parity bit.
Stop bit:	one.
Parity:	even or odd.
Address:	from 0 to 31.

ANALOG RETRANSMISSION

Retransmission of the process variable.

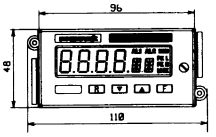
Output type:	0-20 mA or 4-20 mA, maximum load 500 Ω, optoisolated.
Selection:	between 0-20 mA, 4-20 mA by internal jumper and frontal keyboard.
Resolution:	± 0.1% of the output span.
Accuracy:	0.2% of the output span @ 25 °C.
Temperature drift:	< 100 ppm/°C.
Digital filter:	it is possible to select the same filter chosen for readout value.
Note:	the analog retransmission excludes the serial interface option.

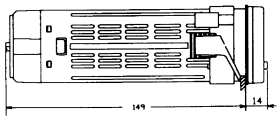
AUXILIARY POWER SUPPLY

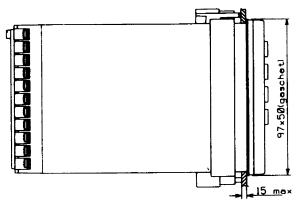
Isolation:	galvanically isolated from instrument input and output.
Voltage output:	5, 10, 12 or 24 V DC.
Accuracy:	± 5%.
Max. current:	25 mA.

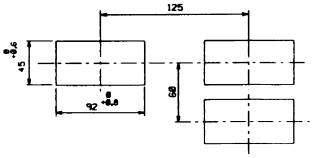
ADDITIONAL FUNCTIONS

Peak detection:	visualisation of the min. and max. value measured by the instrument.
Digital filter:	during configuration procedure, it is possible to set a software filter on the readout with a time constant of 0,4, 1, 2, 3, 4 or 5 s. This filter can be set for analog retransmission and alarms threshold also but it is disabled for frequency input.
Logic input:	1 input by external contact for: a) Holding the measured value. b) Manual reset of the alarms.
Safety lock:	for protection of the alarm threshold value.
Dip switch:	to select between the 3 modes: a) configuration mode. b) calibration mode. c) operative mode.

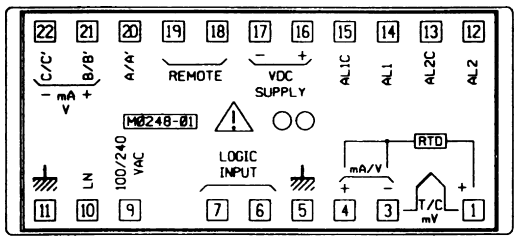








REAR TERMINAL BLOCK



PRODUCT SPECIFICATIONS

Case:	PC/ABS black color; self-extinguishing degree V-0 according to UL.
Front protection:	designed and tested for IP 65 (*) and NEMA 4X (*) for indoor locations (when panel gasket is installed).
Rear terminal block:	with screw terminals and completed with identification labels, connection diagrams and safety rear cover.
Dimensions:	48 x 96 mm, DIN 43700, depth 144 mm.
Cut-out:	45 x 92 mm +0,8 mm -0,0 mm.
Weight:	600 g max.
Displays:	LCD with high brightness solid state back lighter. - Numerical display: 4 digits, 7 segments with decimal point, 14.5 mm high, from -1999 to 9999. - Alphanumerical display: 2 digits,16 segments with decimal point, 9 mm high.
Front indication:	AL1-AL2-PK H-PK L-LOCK-REM.
Power supply:	100 V to 240 V A.C. 50/60 Hz; 24 V AC/DC.
Power supply variations:	±10% of the nominal value.
Power consumption:	6 VA max.
Insulation resistance:	> 100 MΩ according to IEC 1010-1.
Dielectric strength:	according to IEC 1010-1.
Conversion:	dual slope integration.
Resolution:	25000 counts.
Sampling time:	100 ms typical.
Display updating time:	400 ms typical.
Accuracy:	± 0.1% fsv ±1 digit @ 25 °C ambient temperature.
Common mode reiection ratio:	120 dB @ 50/60 Hz.
Normai mode reiection ratio:	60 dB @ 50/60 Hz.
Electromagnetic compatibility and safety requirements:	This instrument is marked CE. Therefore, it is conforming to council directives 89/336/EEC (reference harmonized standard EN-50081-2 and EN-50082-2) and to council directives 73/23/EEC and 93/68/EEC (reference harmonized standard EN 61010-1).
Installation category:	II.
Temperature drift:	< 200 ppm/°C on fsv (CJ excluded).
Ambient temperature:	0-50 °C.
Storage temperature:	-20 to +70 °C.
Humidity:	85% RH, non condensing.
Protections:	1) WATCH DOG circuit for noise protection. 2) DIP SWITCHES for protection against tampering of configuration and calibration parameters.

(*) Test were performed in accordance with CEI 70-1 and NEMA 250-1991 STD.

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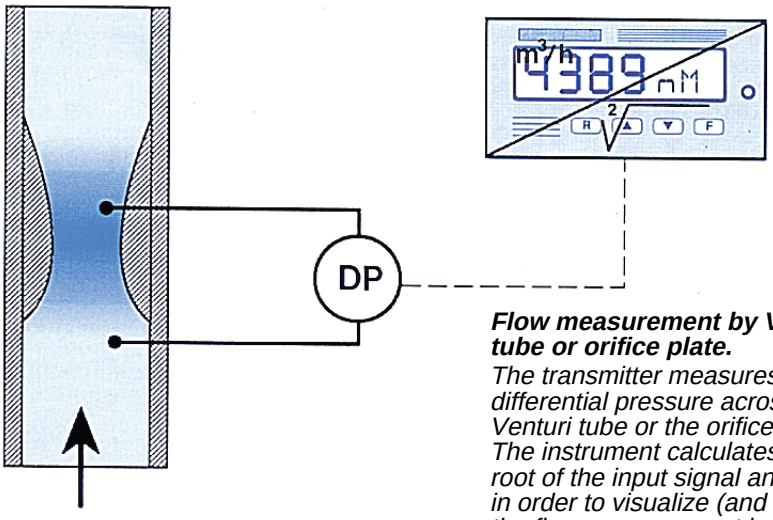
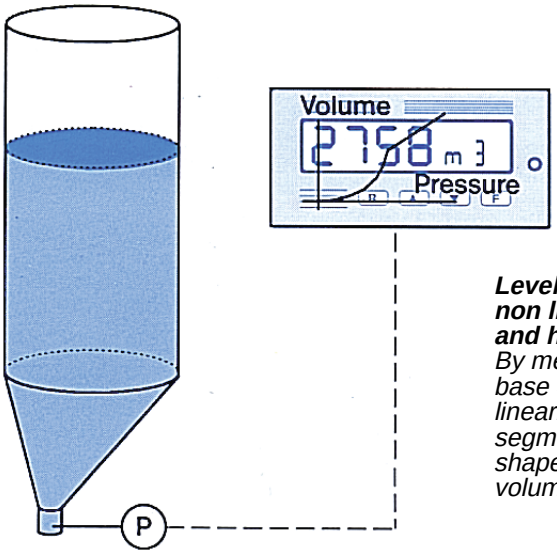


Flow measurement by Venturi tube or orifice plate.
The transmitter measures the differential pressure across the Venturi tube or the orifice plate. The instrument calculates the square root of the input signal and scales it in order to visualize (and retransmit) the flow measurement in engineering unit (e.g. m³/h or l/h).



Level measurement in a tank with non linear ratio between volume and height.
By measuring the pressure at the base of the tank, it is possible to linearize the measured value by 10 segments according to the tank shape in order to visualize the volume in engineering unit (e.g. m³).

HOW TO ORDER

MODEL
DPS = Digital Panel Indicator

POWER SUPPLY
3 = 100 - 240 V AC
5 = 24 V AC/DC Available on request

INPUTS
9 = TC, mV, mA, V, RTD

ALARMS
1 = 2 alarms

OPTIONS
1 = Auxiliary power supply
2 = mA analog retransmission + Auxiliary power supply
3 = RS-485 + Auxiliary power supply
4 = RS-485
5 = mA analog retransmission

DPS		9	1	1		0	0