

LevelMaster PR 1250

global weighing technologies



- Complete System for typical level control applications
- Particularly easy to install and to commission: "Plug-and-Weigh"
- 100 % Maintenance free
- Accuracy not influenced by product
- Non-intrusive
- Robust and reliable
- Very economic
- Easy to retrofit
- For virtually all vessels with 3 or 4 legs
- Patent pending
DE 101 50 641 A1

Product profile

The LevelMaster System PR 1250 is specifically designed for typical level control applications in tanks and silos. It is easy to operate and requires virtually no maintenance.

The ultra low-profile design of the Pan-Cake Level Sensors make them ideal for retrofitting of existing tanks and silos.

Typical system accuracy is in the range of 0.5 % to 2 %. The combination of sensor and indicator allow a calibration of the system without moving a single test weight (Smart Calibration). The PanCake LevelCell is hermetically sealed to IP68 standards and keeps its calibration for many years without any drift or the need for recalibration. The indicator is protected by a robust field housing and sealed to IP65 standard.

Due to the gravimetric measuring principle the accuracy is totally unaffected by the product in the vessel. Whether liquids or solids, whether dust or foam- the sensors reliably indicate the correct content.



As the sensors are not in contact with the product this method completely avoids any contamination of the vessel contents or mechanical or chemical abrasion of the sensors by the product.

The simple mechanical application of the PanCake LevelCell provides perfect results with many tank shapes and sizes.

The complete system consists of several components that are:

- Indicating unit PR 1250 in IP65 field housing
- Connection Module "Plug-and-Weigh"
- 1 or 2 PanCake LevelCells PR 6251 with integrated cable and plug
- Extension cable with two plugs (5...50 m)

Digital display in field housing:



The indicating unit of the LevelMaster System is a combination of a modern digital industrial process indicator and a robust IP65 field housing. Both components are also available separately.

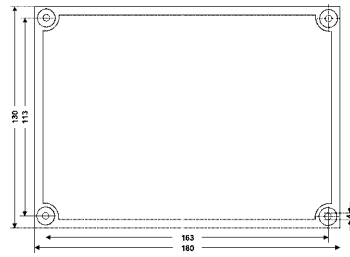
Power Supply: 85-250 V_{AC}, 50/60 Hz

Electrical protection class: II

Integrated Sensor Supply:

24 V_{DC}, 100 mA max.

Power Consumption: 15 VA max.



Depth, including transparent lid: 150mm

Operating Temperature Range: 0...+40 °C

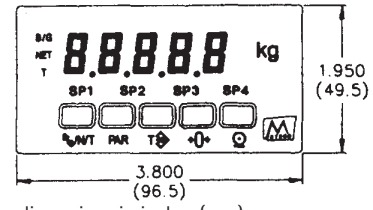
Storage Temperature Range: -40...+85 °C

Ingress protection: IP65

Digital Indicator

The digital process indicator is compact and precise instrument. It allows adjustment of zero signal and span.

Additional function like min/max peak detection is available.



dimensions in inches (mm)

Optional input/output cards are available to tailor the instruments to the specific requirements of the individual application. A choice of limits (relay or transistor), serial interfaces (RS-232 or RS-485) or an analogue output card (0/4...20 mA and 0/2...10 V) provide the necessary flexibility for easy integration into existing processes.

Weight <500 g

Technical Data for Digital display in field housing

Display settings

Display range: -19,999 to 99,999

Decimal point: 0 to 0.0000

Accuracy at 18-28 °C 0.02 %

Accuracy at 0-50 °C 0.12 %

Display

5-digit, 14 mm high red LED,

Unit user selectable

Power supply

85 to 250 V_{AC} 50/60 Hz 15 VA,

Option: 11 to 36 V_{DC}, 11W or

24 V_{AC}, +/-10 %, 50/60 Hz, 15 VA

Ingress Protection

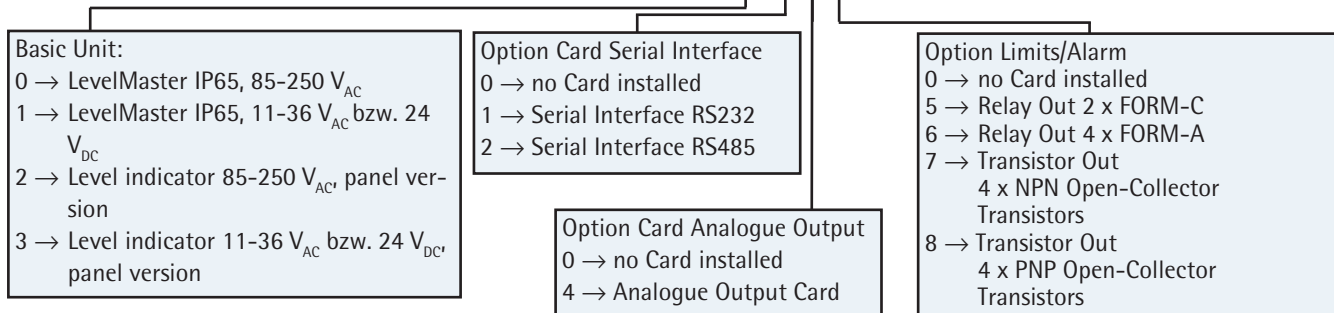
Front splash proof and dust proof to IP 65

Order Information

Order code:

Equivalent model name:

9405-312-5 ■■■■
PR 125 ■/■■■



Serial Interfaces RS 232 (PR 1256/31) or RS 485 (PR 1256/32)

Fully galvanically isolated from sensor and other I/O circuits

configuration: Databits: 7/8,

Baudrate: 300-19,200, Parity:

none/odd/even

Bus Address: selectable 0-99;

max. 32 Indicators (RS 485)

Max cable length: RS 232: up to 15 m

RS 485: up to 1,200 m

Option cards for indicator

Analogue output PR 1256/20

2 Analogue Outputs:

0/4-20 mA or 0/2-10 V_{DC}

Accuracy: 0.17 % FSD (18 to 28 °C)

Resolution: 1/3500

Relais Output PR 1256/10

Type: 2 FORM-C Relays

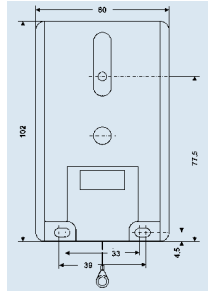
Max. current: 5 A at 120/240 V_{AC} or 28 V_{DC}

Limit alarm Gross/Net user selectable

Connection Module PR 6051/02



With the connection module all components are optimal connected. All system components are fitted with plugs/bushings. Over integrated LED's you can control the right connection and working of all components. A mix up of the connections is impossible because the plugs/bushings are mechanically coded.



This system is right for one or two level sensors with integrated amplifier and switches automatically between 2...10 mA/ 4...20 mA according to the number of sensors.

The connection to the indicating unit is realized with assembled feed lines.

Advantages of the connection module:

- easy to connect without any soldering in the field
- wrong connection of the wires is nearly impossible
- easy test of the system
- easy exchange of components without any wiring knowledge

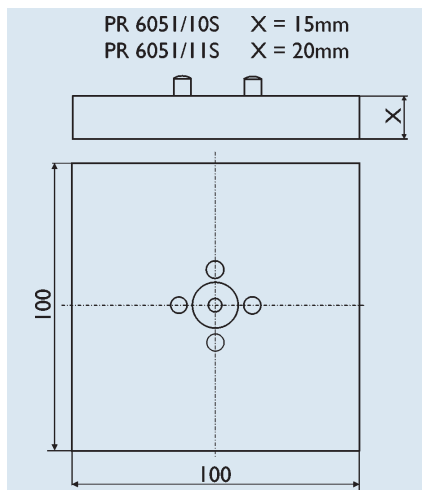
"Level-by-Weight"-Sensor



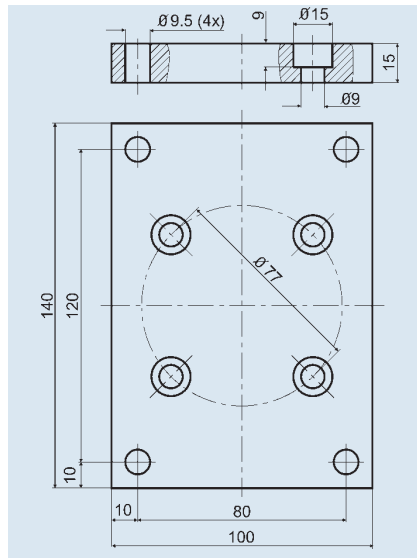
Type: PanCake®

Optimized Levelsensor for fill level measuring of vessels. Easy mounting at one or two vessel feet at smallest height

- easy mounting
- only 25/35 mm installation height
- hermetically welded IP68 (NEMA 6)
- full stainless steel construction
- direct 4...20 mA output



Base Plate
PR 6051/10S (500 kg...5 t)
PR 6051/11S (10 t...16 t)



Transition Plate PR 6051/00S

Technical Data

| | | | |
|-----------------------------|---|-------------|--|
| Accuracy class | | | |
| Minimum dead load | lowest limit of specified measuring range | E_{min} | |
| Rated capacity | highest limit of specified measuring range | E_{max} | |
| Safe overload | upper limits for measurement | E_u | |
| Destructive load | danger of mechanical destruction | E_d | |
| Tolerance on rated output | permissible deviation from rated output | d_c | |
| Repeability error | max. change in load cell output for repeated loading | e_R | |
| Creep, during 30 min. | max. change in load cell output under nominal load | d_{cr} | |
| Non-Linearity | max. deviation from best straight line through zero | d_{lin} | |
| Hysteresis | max. difference in load cell output when loading from zero to nominal load and unloading back to zero | d_{hy} | |
| Nominal ambient temp. range | to hold the specified performance | B_T | |
| Usable ambient temp. range | permissible for continuous operation without damage | B_{Tu} | |
| Permissible eccentricity | permissible displacement from nominal load line | S_{ex} | |
| Vibration resistance | resistance against oscillation (IEC 68-2-6 Fc) | - | |
| Air pressure effects | influence of ambient air pressure on S_{min} | PK_{Smin} | |
| Nominal deflection | max. elastic deformation under nominal load | S_{nom} | |

Definitions acc. VDI /VDE 2637

LA/LAC

| | | |
|--|------------------------------|-------------|
| | 0.5 | % |
| | 5 | % E_{max} |
| | s. order data P. 4 | |
| | 100 | % E_{max} |
| | 300 | % E_{max} |
| | <4 | % C_n |
| | <0.1 | % C_n |
| | <0.1 | % C_n |
| | <0.25 | % C_n |
| | <0.15 | % C_n |
| | -10...+55 | °C |
| | -30...+70 | °C |
| | 10 | mm |
| | 20 g, 100 h, 10...150 Hz | |
| | ≤20 | g/kPa |
| | up to 10 t <0.1/16 t <0.2 mm | |

Recommended preference types, for most applications:

| Type | Order code | Description |
|-------------|----------------|--|
| PR 1250/000 | 9405-312-50000 | Digital indicator in field housing, 85-250VAC, without options |
| PR 1250/045 | 9405-312-50045 | Digital indicator in field housing, 85-250VAC, with options: Analogue output and relay card with 2 x changeover contacts |
| PR 1250/105 | 9405-312-50105 | Digital indicator in field housing, 85-250VAC, with options: Serial interface RS232 and relay card with 2 x changeover contacts |
| PR 1250/205 | 9405-312-50205 | Digital indicator in field housing, 85-250VAC, with options: Serial interface RS232 and relay card with 2 x changeover contacts |
| PR 1252/000 | 9405-312-52000 | Digital indicator, 85-250VAC, without options |

Order codes for Level Sensor

| Type | Order code | Description | Type | Order code | Description |
|--------------|----------------|----------------------------------|--------------|----------------|-----------------------------------|
| PR6251/52LAC | 9405-551-19150 | PanCake 500 kg with fitted plug | PR6251/53LAC | 9405-551-19250 | PanCake 5000 kg with fitted plug |
| PR6251/13LAC | 9405-551-19210 | PanCake 1000 kg with fitted plug | PR6251/14LAC | 9405-551-19310 | PanCake 10000 kg with fitted plug |
| PR6251/23LAC | 9405-551-19220 | PanCake 2000 kg with fitted plug | PR6251/24LAC | 9405-551-19316 | PanCake 16000 kg with fitted plug |
| PR6251/33LAC | 9405-551-19230 | PanCake 3000 kg with fitted plug | | | |

Order code for additional option cards:

| Type | Order code | Description |
|-------------|----------------|--|
| PR 1256/31 | 9408-800-30311 | RS 232 serial interface (TXD, RXD, COM) |
| PR 1256/32 | 9408-800-30321 | RS 485 serial interface (A+, B-, COM) |
| PR 1256/20 | 9408-800-30201 | Analogue output card, 2 outputs 0/4-20 mA, 0-10 V |
| PR 1256/10 | 9408-800-30101 | Relay card with 2 x changeover contacts (FORM C) |
| PR 1259/000 | 9405-312-59000 | IP 65 field housing only without digital indicator |

Connection Module

| Type | Order code | Description |
|------------|----------------|--|
| PR 6051/02 | 9405-360-51021 | Connection module for 1 or 2 sensors |
| PR 6051/01 | 9405-360-51011 | Connection cable for direct connection for only 1 sensor to digital display in Field housing |

Connection Cable

The connection cable is used to link the indicating unit to the connection module.

Two types are available: C2 with 2 connectors and C1 with 1 connector. The C1 type has to be chosen if the panel meter without the field housing is used instead of the complete indicating unit!

Connection cable with two plugs, to connect connection module with Digital display in field housing.

| Type | Order code | Description |
|-------------|----------------|-----------------------|
| PR6151/05C2 | 9405-361-51052 | Connection cable 5 m |
| PR6151/11C2 | 9405-361-51102 | Connection cable 10 m |
| PR6151/21C2 | 9405-361-51202 | Connection cable 20 m |
| PR6151/31C2 | 9405-361-51302 | Connection cable 30 m |
| PR6151/51C2 | 9405-361-51502 | Connection cable 50 m |

Connection cable with one plug, to connect connection module with Digital indicator.

| Type | Order code | Description |
|-------------|----------------|-----------------------|
| PR6151/05C1 | 9405-361-51051 | Connection cable 5 m |
| PR6151/11C1 | 9405-361-51101 | Connection cable 10 m |
| PR6151/21C1 | 9405-361-51201 | Connection cable 20 m |
| PR6151/31C1 | 9405-361-51301 | Connection cable 30 m |
| PR6151/51C1 | 9405-361-51501 | Connection cable 50 m |