Digital tank contents indicator DIT 10

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- For fuel oil EL, L, diesel fuel, biodiesel and water
- Universal application in tanks of up to 4 m in height or diameter
- No external supply voltage required
- Push-to-read function for extremely long battery service life



Application

Suitable for continuous level measurement in tanks containing fuel oil EL, L or diesel fuel and FAME 100 % as biodiesel (EN 14214). Specially suitable for underground tanks and basement tanks, also in flood hazard areas. For filling levels from 900 mm to 4,000 mm.

Description

The hydrostatic level indicator consists of a control unit with digital display and a submersible probe with integrated pressure measuring cell. High measuring accuracy due to electronic sensor (pressure measuring cell). Simple operation due to device setup via menus. No bearing charts required since all standard tank shapes are stored. Watertight up to 10 m water column.

Technical specifications

Functions
Push-to-read, selection of units, calculation of total volume

Measuring range
0/400 mbar

Measuring accuracy
±1.5 % FS

Operating temperature range
Medium: -5/+70 °C
Ambient: 0/45 °C
Storage: -5/+70 °C

Display
4-digit, 12 mm high LCD 7-segment display with additional symbols

Displayed values
Litres, m³, %, liquid level in mm

Submersible probe
Housing: Stainless steel 303
Cable: PVC, 6 m with breather tube
Diaphragm: Stainless steel 316 L
Seals: FKM (Viton)
Spacer: POM, PE

Supply voltage
1 x lithium battery 3.6 V (included)
Service life approx. 5 years

Housing
PA6, glass-loaded, blue,
Ø 75 mm, wall mounting

Degree of protection
IP 51 (EN 60529)

Scope of delivery
- Control unit with digital display
- 5 m connection cable to probe (can be extended by up to 10 m)
- Moisture-proof junction box
- Submersible probe with 6 m submersible cable
- Screw connector kit G1 x G1½ x G2
- Mounting kit for withdrawal flange (PG 9 gland)
- Wall mounting

DG: H, PG: 4	Part no.	Price €
DIT 10	52150	
Spare submersible probe (0/400 mbar)	52153	
Spare battery	68309	

Hydrostatic indicator TankControl 10



- For fuel oil EL, L, diesel fuel, biodiesel and water
- Graphical indication of consumption and remaining range
- With visual/audible alarms, Acknowledge button and 2 relays
- Remote measurements up to 15 m

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Application

Continuous level measurement with graphical display for indication of consumption (history), calculation of remaining range (forecast) and signalling of minimum or maximum levels as well as for level control. For tanks from 1,000 to 4,000 mm liquid level. Suitable for fuel oil EL, L, diesel fuel, FAME 100 % as biodiesel (EN 14214), water (no drinking water!) as well as similar liquids. In conjunction with an additional submersible probe for differential alarm also suitable for detecting level differences in communicating tanks (e.g. battery tanks) which may cause overfilling. It is also possible to connect a floating probe for backflow alarms (drain system, e.g. for rain water harvesting systems) or for additional minimum or maximum alarms. Specially designed for building technology. Suitable for use in flood hazard areas.

Description

The hydrostatic level indicator consists of a control unit with numerical and graphical display and a submersible probe with integrated pressure measuring cell. Optionally with additional submersible probe for differential alarm or with floating probe. The system displays either litres, m^3, % or liquid level (mm). When the level falls below or exceeds an adjustable minimum or maximum value, the control unit triggers visual and audible (can be acknowledged) alarms. The value for submersible probe 2 is displayed in mm. If an adjustable level difference between submersible probe 1 and submersible probe 2 is exceeded, an alarm is triggered. Two additional relay contacts are available for external alarm devices, for level control or for connection to telecommunication or building control systems. High measuring accuracy due to electronic sensing. Standard tank shapes are stored. Watertight up to 10 m water column.

Technical specifications

Functions
Selection of units, daily saving of level data, consumption monitoring, graphical evaluation of consumption values (up to 5 years), calculation of remaining range, alarm functions (min./max.), sensor error and short circuit alarms.

Measuring range
0/400 mbar

Measuring accuracy
±1.5 % FS

Operating temperature range
Medium:	-5/+70 °C
Ambient:	0/45 °C
Storage:	-5/+70 °C

Display
High-resolution, backlit graphical display (30 x 50 mm). Indication of either litres (6 digits), m^3, % or liquid level in mm. Symbols for alarm functions.

Submersible probe
Housing:	Stainless steel 303
Cable:	PVC, 6 m with breather tube
Diaphragm:	Stainless steel 316 L
Seals:	FKM (Viton)
Spacer:	POM, PE

Supply voltage
AC 230 V
Lithium battery for data backup (calendar function)

Switching outputs
Relay contacts:	2 voltage-free changeover contacts
Contact rating:	AC 230 V, 2 A

Hydrostatic level indicator TankControl 10

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Technical specifications

Visual alarm
Red LED

Audible alarm
Integrated piezo buzzer, can be acknowledged

Housing
Wall mounting housing made of impact-resistant plastic (ABS)
W x H x D 100 x 188 x 65 mm
Degree of protection: IP 54 (EN 60529)

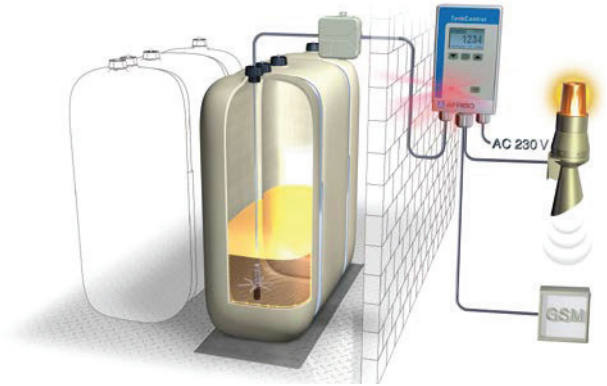
Scope of delivery
- Control unit with graphical display and 15 m connection cable to the probe (cannot be extended)
- Submersible probe with 6 m submersible cable
- Moisture-proof junction box
- Screw connector kit G1 x G1½ x G2
- Mounting kit for withdrawal flange at plastic battery tanks

Options
- Submersible probe for differential alarm
- Floating probe (spare probe Minimelder)

Application examples TankControl 10



Monitoring of the levels in two communicating tanks. A submersible probe is installed in each tank. If the level difference exceeds a defined value, the unit triggers an alarm. The causes of the uneven levels can be removed prior to filling. Potential damage as a result of different levels in the two tanks is avoided.



Monitoring of the level in a fuel oil tank with early signalling of minimum level. With combined alarm light and horn as additional alarm equipment outside of the building and transmission of alarm messages, level data and reaming range to a central building control system.



Monitoring of the level in an outdoor rain water tank. A combined alarm light and horn is connected in the vicinity of the tank; TankControl 10 is installed inside the building. It is also possible to connect a float switch to monitor for backflow from the drain. The system can be extended by a GSM-based event reporting system.

i See "Spare probes Minimelder", page 20, for additional float switch.

DG: H, PG: 4	Part no.	Price €
TankControl 10	52151	
Spare submersible probe (0/400 mbar)	52153	
Additional probe differential alarm	52152	

Hydrostatic level indicator HydroFox® DMU 08



- Compact and sturdy stainless steel design
- Special calibration for all standard pressure units possible
- Version with PUR or FEP cable
- Optional ATEX version


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Application

For electronic, continuous level measurement, e.g. in wells, drilling holes, water, containers or in waste water systems. Suitable for groundwater, drinking water, waste water (with optional FEP cable), diesel fuel, fuel oil; also for use in flood hazard areas.

Description

The level indicators HydroFox® DMU 08 use silicon technology and feature calibrated, amplified sensor signals which are available as standardised voltage or current outputs.

Technical specifications

Measuring accuracy
Deviation from the characteristic curve according to IEC 60770 – limit point calibration (non-linearity, hysteresis, repeatability): < ±0.35 % FSO (measuring ranges 0/100 mbar to 0/400 mbar < ±0.5 % FSO)

Measuring ranges
Relative pressure: 0/100 mbar to 0/25 bar

Overpressure safety
Depends on pressure range
4 x FS to 15 x FS (burst pressure)
3 x FS to 8 x FS (overload)

Operating temperature range
Medium: -10/+70 °C
Ambient: -10/+70 °C
Storage: -25/+70 °C
For Ex version -20/+60 °C
with P_{atm} 0.8 bar to 1.1 bar

Temperature error band
In compensated range
0/70 °C ≤ 400 mbar ≤ ±1 % FSO/10 K
≥ 400 mbar ≤ ±0.75 % FSO/10 K

Dynamic characteristics
Response time ≤ 10 ms

Materials
Housing: Stainless steel 316 L
Diaphragm: Stainless steel 316 L
Seals: FKM (Viton)

Pressure transmission liquid
Silicone oil

Supply voltage
DC 8–32 V
EX version DC 10–28 V

Output signal
4–20 mA, 2-wire

Load
4–20 mA: $R_{max} = [(U_B - U_{Bmin})/0.02\ A]\ \Omega$

Current input
4–20 mA < 25 mA

Electrical protection
Short circuit proof and protected against reverse polarity

Electrical connection (degree of protection)
PUR cable (IP 68)
With integrated breather tube for reference to the ambient atmospheric pressure

Accessories (options)
- Screw connector kit
- Junction box
- Anchor clamp
- Extended weight

Options
- Ex version (II 1G Ex ia IIC T4 Ga, II 1D Ex ia IIIC T85 °C Da)
- Measuring accuracy 0.1 % FSO
- FEP cable
- SIL 2 (IEC 61508/61511)

SIL Protect your process!

DG: H	PG	Part no.	Price €
DMU 08 with 5 m PUR cable			
Measuring range			
0/100 mbar	4	31555	
0/160 mbar	4	31556	
0/200 mbar	4	31557	
0/250 mbar	4	31558	
0/300 mbar	4	31519	
Screw connector kit plastic, G2 x 1½ x 1	1	52125	
Junction box with pressure relief port	1	31824	

i Complete range of pressure transducers see catalogue INDUSTRIAL TECHNOLOGY.

Digital display units DA 10/12/14

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- Grey display with excellent readability
- Text-based user interface
- Linearisation for volume indication (24 points)
- Scalable units, displayed as bar chart
- Integrated supply voltage for transducer



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Application

Universal application for displaying measured values (DA 10), optionally with additional relay outputs (DA 12/14) for electronic transducers.

Description

Digital display unit in plastic housing for control panel mounting. With grey display and automatic off function for the backlight. The universal measurement input can be configured as a current input or a voltage input. Standard bearing charts for cylindrical horizontal tanks and spherical tanks are pre-programmed, additional units can be selected or set up. The units are scalable and shown as bar charts. Limit values can be displayed via a window and a trend function (rising/falling). With display message (flashing error text) if values are exceeded, parameter backup for restoring previous configurations and potentiometer for test purposes.

Technical specifications

Display
5-digit graphical LC display, backlit (white), text-based user interface, user interface language selectable (German/English/French/Italian), selectable units, custom units can be defined

Measuring range
± 99,999 digits (start and end values scalable as required)

Linearity
± 0.1 % of measuring range

Resolution
Decimal point position can be set as required

Response time
< 0.2 s

Operating temperature range
Ambient: 0/50 °C

Supply voltage
AC 50–253 V / DC 20–253 V
2.5 W / AC 4.4 V

Sensor supply
Integrated, galvanically isolated supply voltage for transducer: DC 21 V/20 mA

Sensor input
All analogue standard signals, e.g. 4–20 mA, 0–20 mA, 0–10 V as well as potentiometer

Analogue output
0/4–20 mA, galvanically isolated

Housing
Standard rack mounting housing
W x H x D: 96 x 48 x 135 mm

Panel cut out
W x H: 92 x 45 mm

Degree of protection (front)
IP 65 (EN 60529)

Electrical connection
Plug-in screw terminals (1.5 mm²)

Linearisation
Customer-specific linearisation with a max. of 24 points for the indication of volume (e.g. litres) in non-linear tanks. Bearing charts for cylindrical horizontal tanks and spherical tanks are pre-programmed.

Min./max. value memory
The highest and lowest values reached during operation can be displayed

Additional functions DA 12 / 14

Analogue output 2
0–10 V, galvanically isolated

Switching outputs
Relay contacts: 2 x (DA 12) / 4 x (DA 14) voltage-free changeover contacts (adjustable switching hysteresis)
Contact rating: AC 250 V, 2 A, 100 VA

DG: H, PG: 4	Part no.	Price €
DA 10	31281	
DA 12	31282	
DA 14	31283	
DG: H, PG: 3		
Wall mounting housing WAG 01 for one DA*	31287	
WAG 02 for two DA*	31288	
WAG 03 for three DA*	31289	
WAG 04 for four DA*	31290	

* Price includes mounting if DA and WAG are ordered together.

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See the catalogue INDUSTRIAL TECHNOLOGY for the complete range of "Digital Display Units".

AFRISO

Digital display and control units VarioFox® 12/14



- **Can be used as compact, ready-to-connect filling or emptying controller**
- **Text-based user interface**
- **Freely selectable units**
- **2 or 4 switching outputs**
- **Data logger function**



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Application

Universal application for indication of measured values and for control systems. Can also be used as a data logger in conjunction with an SD card.

Description

Compact, ready-to-connect display and control unit in a robust wall-mounting housing. With integrated sensor supply and 2 relay outputs. Together with a transducer (e.g. for pressure, temperature, level, etc.), VarioFox® forms an autonomous measuring and control system. VarioFox® is universally applicable and freely configurable.

Technical specifications

Display
5-digit graphical LC display, backlit (white), text-based user interface, user interface language selectable (German/English/French), selectable units

Measuring range
99,999...– 9.999 (start and end values as well as decimal point scalable as required)

Linearity
±0.1 % of measuring range

Resolution
10 bits, decimal point position can be set as required

Response time
< 0.2 s, filter can be activated

Operating temperature range
Ambient: 0/50 °C

Supply voltage
AC 50–253 V
DC 20–253 V
2.7 W / AC 4.2 V

Sensor supply
Integrated, galvanically isolated power supply for transducer: DC 20 V/20 mA

Analogue input
All analogue standard signals, e.g. 4–20 mA, 0–20 mA, 0–10 V

Binary input
Transistor PNP (e.g. for VibraFox GVG)

Visual alarm
1 red LED

Audible alarm
Integrated piezo buzzer, can be acknowledged

Analogue output 1
0/4–20 mA, galvanically isolated

Analogue output 2
0–10 V, galvanically isolated

Switching outputs
Relay contacts: 2 voltage-free changeover contacts (adjustable switching hysteresis)
Contact rating: AC 250 V, 2 A 100 VA

Housing
Robust wall mounting housing made of impact-resistant plastic (ABS)
W x H x D: 100 x 188 x 65 mm
Degree of protection: IP 54 (EN 60529)

Linearisation
Customer-specific linearisation with a max. of 24 points for the indication of volume (e.g. litres) in non-linear tanks. Bearing charts for cylindrical horizontal tanks and spherical tanks are pre-programmed.

Min./max. value memory
The highest and lowest values reached during operation can be displayed

Data storage and clock
Long-term monitoring data is stored on a memory card (SD/MMC). Memory card not included. PC evaluation software VarioView for storing the data in daily files (option)

Additional functions VarioFox®14

Relay contacts: 4 voltage-free changeover contacts (adjustable switching hysteresis)

DG: H, PG: 4	Part no.	Price €
VarioFox® 12 (2 relay contacts)	31235	
VarioFox® 14 (4 relay contacts)	31236	
VarioView evaluation software	31238	
SD memory card	31237	**On request**

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See the catalogue INDUSTRIAL TECHNOLOGY for the complete range of "Digital Display Units".