

## Watermanager solution

# DL.WMS/GPRS/R/SDI-12

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### Customer benefits

- Integrated water management solution
- Multi-parameter probe: pressure and temperature
- Various integrated communication technologies
- Inundation-resistant communication unit
- The humidity, temperature and battery lifespan of the device are constantly monitored
- Can be installed into 2" tubes
- Web-based software solution

Version: 04.05.2016

# Technical specifications datalogger

## Data transmission

<b>Version with GSM/GPRS Engine</b>	Quadband
<b>GPRS frequency bands</b>	GPRS 850 MHz, GPRS 900 MHz, GPRS 1800 MHz, GPRS 1900 MHz
<b>Transmission power</b>	Class 4 (2 W) at GPRS, class 1 (1W) at GPRS 1800 and GPRS 1900
<b>SIM card</b>	supports 3 V SIM cards
<b>Antenna</b>	1/4λ stub antenna: 900 / 1800 MHz or 1900 MHz (Gain 0 / 0 dB), planar antenna: 900 / 1800 MHz (0 / 0 dB)
<b>Transmission</b>	m2m (machine to machine) protocol

## Datalogger

<b>Housing</b>	Stainless steel (316L / 1.4404) / Murytal C
<b>Antenna connector</b>	FME (male)
<b>Interface</b>	Radio 433 MHz
<b>Power supply</b>	2 x 1.5 V alkali or 1 x 3.6 V lithium / size D, (battery can be changed on-site)
<b>Operating temperature</b>	
Datalogger	-40 ... 85°C
Modem	-30 ... 85°C
<b>Humidity</b>	0...100% relative H, protection class IP68 (1 m/24 h) with closed protection cap and connected sensor
<b>Measurands</b>	Pressure and temperature
<b>Resolution</b>	
Pressure	0.01% FS
Temperature	0.05 °C
<b>Data memory</b>	Up to 500'000 measurement values, non-volatile, data remain in memory even without battery, each measurement value is correlated with time and date
<b>Identification</b>	Each datalogger has a unique serial number, as well as a user-definable description
<b>Server automation</b>	Database administration, online data overview
<b>Database</b>	PostgreSQL, MySQL
<b>Status monitor</b>	Humidity and temperature in the housing, battery voltage, signal strength, memory allocation, latest data transfer, GPS position
<b>Application interface</b>	WISKI, HydroPro, CSV, Excel

<b>Data query</b>	Automatic data query and administration of datalogger
<b>Access security</b>	1 level with password protection
<b>Alarm function</b>	Transmission of several alarms via SMS and E-Mail
<b>Data transmission</b>	GPRS / m2m (machine to machine) protocol
<b>Configuration</b>	Sample- and storage rate, Identification (f.e. measuring site), Tare; the datalogger stores the height of the air column, and not the pressure at the sensor, Taring of measurement value; define threshold values, Alarm threshold value; Storage of the measurement data within the defined range, Density of the measuring medium; Set the density of the measuring medium, which is automatically calculated in as well
<b>Data format</b>	Data are stored in ASCII or CSV format and can be read with all common programs such as Excel, Lotus, etc.

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### System Requirements

<b>PC</b>	Processor: Min. 200 MHz Memory: Min. 50 MB RAM: Min. 64 MB
<b>Operating system</b>	Windows 2000 (Service Pack 4) / XP (Service Pack 3/32-Bit) / Vista (32-Bit) / 7 (32-Bit)

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### Qualifications

	Description	Level	Typical interferences
<b>EN 61000-4-2</b>	Electrostatic discharge	4 kV contact 8 kV air	
<b>EN 61000-4-4</b>	Transients (burst)	2 kV	Motors, valves
<b>EN 61000-4-5</b>	Surge	Line-Line: 0.5 kV/42 Ω Line-Earth: 1 kV/42 Ω	Lightning

# Technical specifications PTM.WMS

## Pressure measuring range (mH<sub>2</sub>O)

	> 5 ... 20	> 20 ... 250
<b>Overpressure</b>	3 x FS (≥ 3 bar)	3 x FS
<b>Burst pressure</b>	> 200 bar	> 200 bar
<b>Accuracy, (1), (± %FS)</b>	≤ 0.1	≤ 0.1
<b>Thermal error (± % FS/°C)</b>		
-5 ... 50°C compensated	0.045	0.03
<b>Thermal shift, (± % FS/°C)</b>		
Zero point -5...50°C	≤ 0.03	≤ 0.015
Span -5...50°C	≤ 0.015	≤ 0.015
<b>Long term stability, (2)</b>	< 0.2% FS / < 4 mbar	< 0.1% FS / < 0.2% FS

(1) Zero based accuracy according to DIN-16086, incl. hysteresis and repeatability at ambient temperature

(2) 1 year (typ. / max.), the long term stability can be improved by ageing (burn-in) the sensor

## Temperature measuring range

<b>Accuracy,</b>	
-5 ... 50°C, (typ. / max.)	≤ ± 0.3 / 0.5 °C
-5 ... 80°C, (typ. / max.)	≤ ± 0.5 / 1 °C

## Temperature range

<b>Operating temperature</b>	-5 ... 80°C
<b>Process temperature</b>	-5 ... 80°C
<b>Storage temperature</b>	-10 ... 80°C

## Qualifications

	Description	Level	Typical interferences
<b>EN 60068-2-6</b>	Vibration	4g (4 ... 100Hz / ± 3.2 mmp)	
<b>EN 60068-2-27</b>	Shock	100g (impulse duration 6 ms)	

## Physical specifications

<b>Materials</b>	
Transducer	Stainless steel (316L / 1.4435), titanium (Gr. 2), (1)
Housing	Stainless steel (316L / 1.4404), titanium (Gr. 2)
Seals	Viton (Standard), EPDM, Kalrez
Cable	PUR, FEP, PE
<b>Weight (2)</b>	150 g

(1) Hastelloy (C-276) on request

(2) Specification for a PTM.WMS, closed, cable

## Equipment

### Overview

<b>10.00.0091</b>	Accessories overview
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## Additional documents

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### Manual

	Article number
10.00.0205	DEB016

### Operating and safety instructions

	Article number
10.88.0092	DMM029

## Ordering information

		X. XXXX.	XXXX.	XX.	XXX
<b>Type</b>	DL.WMS/GPRS/R	XX			
<b>Pressure type</b>	Gauge	1			
	Absolute (vacuum)	2			
<b>Pressure measuring range</b>	500 mbar ... 25 bar	XX			
	Offset, special adjustment	99			
<b>Process connection</b>	Closed (Fig. 1)	55			
	Open (Fig. 2)	56			
<b>Electrical connection</b>	PE cable, black, IP 68 (2), (3)		13		
	PUR cable, black, IP 68 (2), (4)		15		
	FEP cable, black, IP 68 (2)		21		
<b>Output signal</b>	Stub antenna 900/1800 MHz		00		
	Connector for external antenna		01		
	Planar antenna 900/1800 MHz, attached loose		02		
	Planar antenna 900/1800 MHz, installed in 2" cap		03		
	Planar antenna 900/1800 MHz, installed in 4" cap		04		
<b>Accuracy</b>	$\leq \pm 0.1$ % FS			2	
<b>Temperature range</b>	-5 ... 50°C compensated (allowed process temperature: -5 ... 50°C)			4	
	-5 ... 80°C compensated (allowed process temperature: -5 ... 80°C)			5	
<b>Option 1</b>	Special oil filling: Anderol Food (for food applications)				G
<b>Option 2</b>					
<b>Option 3</b>	Ballast weight 1.4435				B
	Version titanium (without ballast weight) (5)				K
	Seals: Viton (standard)				U
	Seals: EPDM				S
	Seals: Kalrez (Level)				T
	Lithium battery				L

(2) Please specify the required cable length and medium

(3) Suitable for drinking water (food approved)

(4) For operating temperature > 50°C, PE or FEP cable must be used

(5) Only level transmitter

# Technical drawings

Level transmitter
Datalogger

Fig. 1: Closed version

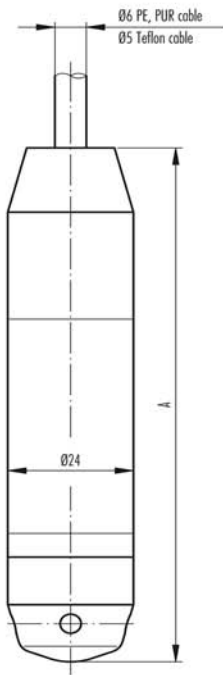
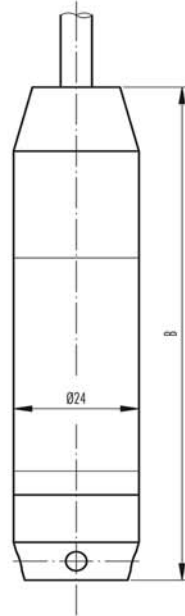
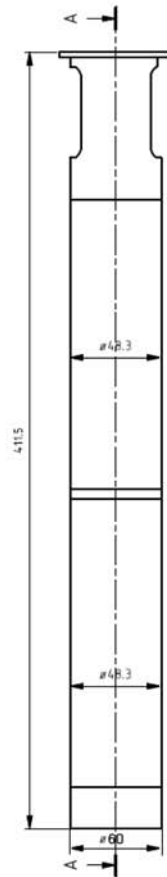


Fig. 2: Open version



Standard	A [mm]	B [mm]	Weight [g]
	157	153	approx. 200



Specifications may change without notice.

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