

PipeMonit®



PDL – Portable Data Logger



SENSORLINK AS, Nedre Ila 39, 7018 Trondheim, Norway
mail@sensorlink.no, www.sensorlink.no



PipeMonit® PDL – Portable Data Logger

PDL – Portable Data Logger

PRODUCT SPECIFICATIONS

TECHNICAL DATA

Output data	Wall thickness data, corrosion/erosion rates, raw signals, temperature
Operating temperature	-21°C to 50°C / -5.8°F to 122°F
Storage temperature	-40°C to 71°C / -40°F to 160°F
Humidity	95% RH, non-condensing
Screen	8.1" TFT LCD HD (1280 x 800)
Dimensions	227 x 151 x 24 mm
Weight	0.88 kg
RAM	4 Gigabyte
Storage	128 Gigabyte

ELECTRICAL DATA

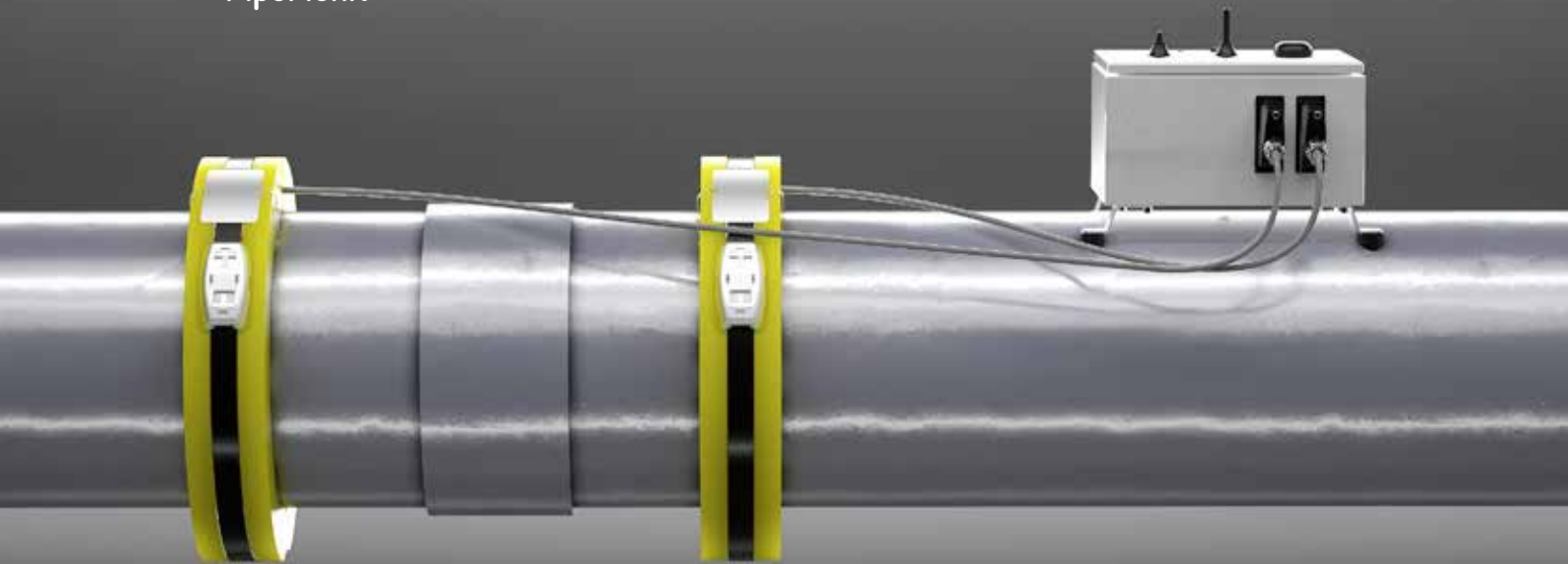
Power supply	100-240 VAC. Li-Ion battery (upto 8 hours life time)
Communication options	Bluetooth, Ethernet, USB 3.0, 802.11ac WLAN (IEEE 802.11a/b/g/n)
PipeMonit® unit compatibility	Controller Field Data Logger Extender kit

SUMMARY DATA

The PDL is a Windows based rugged PDA with PipeView® application software. It holds everything needed to activate and operate a PipeMonit® station. For Manual PipeMonit® Stations, simply hook up the PDL to the PipeMonit® Controller using a USB cable. The PDL collects data from the FDL – Field Data Logger – via USB or BlueTooth.

One PDL operates and manages data for multiple PipeMonit® Stations. The PDL will collect, store, track and present wall thickness data, ID, temperature, corrosion/erosion rates and trends for each station and each sensor. During installation the PDL is used to commission the PipeMonit® Stations.

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PDC – Portable Data Collector

PDC ZONE 2



PDC ZONE 1

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PipeMonit® PDC – Portable Data Collector

PDC – Portable Data Collector

PRODUCT SPECIFICATIONS

TECHNICAL DATA	ATEX ZONE 2	ATEX ZONE 1
Operating system	Android 4.1	Android 4.2.2 Jelly Bean
Output data	Raw data to be processed by PipeView® SW	RAW data to be processed by PipeView® SW
Operating temperature	-20°C to 50°C / -4°F to 122°F	-20°C to 45°C / -4°F to 113°F
Storage temperature	-40°C to 71°C / -40°F to 160°F	-40°C to 60°C / -40°F to 140°F
Humidity	95% RH, non-condensing	IP 68 Waterproof
Screen	8.1" TFT LCD HD (1280 x 800)	4.3" (400 x 800) Touch Screen
Dimensions	218 x 142 x 27 mm	150 x 65 x 12 mm
Weight	0.8 kg	290 grams (10 oz)
RAM	1 Gigabyte	
Storage	16 Gigabyte	16 Gigabyte

ELECTRICAL DATA

Power supply	100-240 VAC, Li-Polymer battery (upto 10 hours life time)	USB Charger, 3000 mAh Battery (400 h standby, upto 8 hours life time)
Communication options	Bluetooth, Ethernet	GSM 3G/HPSA+, Wifi 802.11 abgn, BlueTooth 4.0, USB
PipeMonit unit compatibility	FDL Ex (Field Data Logger Ex)	FDL Ex (Field Data Logger Ex)

SUMMARY DATA

The PDC is an Android based rugged PDA which downloads data from Field Data Logger Ex using Bluetooth. One PDC can operate and manage multiple Field Data Loggers.

The PDC collects wall thickness data and ID for each sensor, and the temperature for each PipeMonit® Station. Data is transferred from the PDC to a computer or server where the PipeView® software gives the end user full access to wall thickness data, corrosion rates, temperature and raw signals.

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FDL Ex – Field Data Logger Ex



SENSORLINK AS, Nedre Ila 39, 7018 Trondheim, Norway
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PipeMonit® FDL Ex – Field Data Logger Ex

FDL Ex – Field Data Logger Ex

PRODUCT SPECIFICATIONS

TECHNICAL DATA

UT channels	1 to 60
Operating temperature	-20 to +50 °C (-4 to +122 °F)
Repeatability (standard deviation)	2.5 µm (0.1 mils)
Absolute accuracy	0.1 mm (4 mils)
Non-intrusive	Yes
Dimensions	Small: 389x195 mm, Large: 380x570x270 mm
Weight	Small: 29 kg, Large: 65 kg
Cable length (RS485)	< 1000 m
Material	316SS
Protection	IP66
ATEX	Ex II 2 G, Ex d e [ib] IIC T6

ELECTRICAL DATA

Power supply	24 VDC or 110/240 VAC or internally battery pack
Typical power consumption	<9 W
Communication options	RS485, Bluetooth, GSM
PipeMonit unit compatibility	Controller Ex, Portable Data Collector

SUMMARY DATA

The PipeMonit Field Data Logger Ex supplies the Sensor Belt and Controller Ex. Electronics and battery is fitted into the Exd-housing, and the Exd-housing and the Controller Ex can be assembled onto the same mounting frame. The FDL Ex stores the data in its internal memory until the Bluetooth device is activated and the Portable Data Collector downloads the logged data. The small FDL Ex manages one Controller Ex and up to 12 sensors, the large FDL Ex manages 5 Controller Ex and up to 60 sensors.

The FDL Ex can be hardwired for power and communication.

PipeMonit®



PipeMonit® Sensor Belt



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Sensorlink

PipeMonit® Sensor Belt

Sensor Belt

PRODUCT SPECIFICATIONS

TECHNICAL DATA

UT channels	1 to 32
Operating temperature (Non-ATEX)	-40 to +90 °C (-40 to +194 °F)
Operating temperature (ATEX)	-20 to +90 °C (-4 to +194 °F)
Pipe size	> 4 inch OD (0.1 meter)
Wall thickness	> 3 mm
Wall material	Steel or solid homogenous plastics
Coating materials	Works through external homogeneous PE/PP/FBE coatings
Inclinometer	+/- 2° (angular)
Temperature sensor	+/-0.1 °C
Repeatability	2.5 µm (0.1 mils)
Absolute accuracy	0.1 mm (4 mils)
Retrofittable	Yes
Non-intrusive	Yes

DIMENSIONS

OD	Pipe size + 100mm,
Width	65 to 80 mm (allow 200 mm for mounting)
Cable length	Max 5 m
Material	PU
Protection	IP66
ATEX (optional)	⊕ II 2 G Ex ib IIB T4 Gb

PipeMonit unit compatibility	FDL (Field Data logger), FDL Ex, Controller, Controller Ex
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SUMMARY DATA

The Sensor Belt houses a number of UT transducers as well as an inclinometer, a temperature sensor and an ID chip. The assembly is molded into a flexible "clamp on" polyurethane belt. The Sensor Belt is installed on bare pipe, or on external solid homogenous coating. Bare pipe should be cleaned by a rotating steel brush. The transducers are dry coupled using a silicone gel providing a maintenance free installation. Combined with the "clamp on" feature the Sensor Belts can easily be relocated at any time.

For buried pipeline installation a protective steel cover is used to protect the Sensor Belt during back filling. A conduit is added to protect the cable between the Controller and the Sensor Belt. The Sensor Belt is certified for ATEX Zone 1 installations.

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PipeMonit® Controller



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Controller

PRODUCT SPECIFICATIONS

TECHNICAL DATA	PipeMonit® Controller	PipeMonit® Controller Ex	PipeMonit® Extender kit
UT channels	1 to 32	1 to 12	NA
Operating temperature	-40 to +70 °C (-40 to +158 °F)	-40 to +70 °C (-40 to +158 °F)	-40 to +70 °C (-40 to +158 °F)
Repeatability (standard deviation)	2.5 µm (0.1 mils)	2.5 µm (0.1 mils)	NA
Absolute accuracy	0.1 mm (4 mils)	0.1 mm (4 mils)	NA
Non-intrusive	Yes	Yes	NA
Dimensions (WxHxD)	200x300x150 mm	200x300x150 mm	200x300x150 mm
Weight	3 kg	5 kg	2.5 kg
Cable length (Sensorbelt)	< 5 m	< 5 m	NA
Cable length (RS485)	< 1000 m	< 1000 m	< 1000 m
Cable length (USB)	< 1.5 m	NA	< 1.5 m
Material	316SS	316SS	316SS
Protection	IP67	IP67	IP67
ATEX	No	Ex II 2 G Ex ib IIB T4 Gb	NA

ELECTRICAL DATA

Power supply	9-36 VDC	15 VDC	NA
Typical power consumption	< 2.5 W	< 2.5 W	NA
Communication options	USB 3.0, RS 485	RS 485	USB 3.0, RS 485

PipeMonit unit compatibility	PDL (Portable Data Logger), FDL (Field Data logger), Extender Kit, Sensor Belt	FDL Ex (Field Data Logger Ex), Sensor Belt (ATEX)	PDL (Portable Data Logger), FDL (Field Data logger), Controller
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SUMMARY DATA

The PipeMonit® Controller processes the analog UT signals and is the interface between the Data Logger and the Sensor Belt. The Controller is hardwired to the Sensor Belt and to the Data Logger. Maximum cable length between the Controller and the Sensor Belt is 5 meters and between the Controller and the Data Logger (FDL or PDL) the cable length is limited to 1000 meters. The Controller comes in a SS IP 66 housing, or it may be integrated in the FDL housing if the FDL is installed less than 5 meters from the Sensor Belt.

If the Sensor Belt is operated by a PDL (Portable Data Logger), the PDL plugs into the Controller using an USB cable. If the PDL or FDL connection point needs to be more than 5 meters away from the Sensor Belt, a PipeMonit Extender Kit is hardwired to the Controller with a 2 pair instrument cable (< 1000 meters). For PDL operation, the Extender Kit is terminated in an IP66 SS containing an USB interface for the PDL. For FDL operation the instrument cable is terminated in the FDL housing.

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PipeMonit® FDL – Field Data Logger



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PipeMonit® FDL – Field Data Logger

FDL Ex – Field Data Logger

PRODUCT SPECIFICATIONS

TECHNICAL DATA

Output data	Digital wall thickness raw data
Operating temperature	-40 to +50 °C (-40 to +122 °F)
Repeatability (standard deviation)	2.5 µm (0.1 mils)
Absolute accuracy	0.1 mm (4 mils)
Dimensions	(WxHxD) 300 mm x 370 mm x 280 mm
Weight	17 kg
Cable length (Sensorbelt)	< 5 m
Cable length (RS485)	< 1000 m
Cable length (USB)	< 1.5 m
Material	316SS
Protection	IP66
ATEX	No
GPS	Yes (optional)

ELECTRICAL DATA

Power supply	12-24 VDC, Battery, 110-240 VAC, Solar
Battery options	Alkaline battery package, High performance Lithium battery package
Typical power consumption	< 6 W
Communication options	GSM (GPRS/3G), Bluetooth, USB, RS 485, RS 232, Ethernet*
PipeMonit unit compatibility	PDL (Portable Data Logger), Sensor Belt (NON-ATEX), Controller, Extender Kit

* Requires an external RS 485 to ethernet converter

SUMMARY DATA

The PipeMonit® Field Data Logger – FDL - operates the Sensor Belt(s) and stores the results locally. It has several options for communicating the wall thickness measurements. The standard communication protocol is proprietary Sensorlink, and the PipeView® software is needed to access the data.

The FDL also handles communication with external units like Bluetooth, GSM, PipeView® server (over TCP/IP). Optional communication protocols to external systems are available. If the cable length between the FDL and the Sensor Belt is less than 5 meters, the Controller will be integrated in the FDL housing. For lengths exceeding 5 meters a PipeMonit® Extender kit is required.