Technical Data Sheet

KROHNE

 7.02464.21.00

CH/GR/PRINTO

OPTIFLEX 1300 C

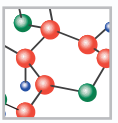
Guided Radar (TDR) Level Meter

for distance, level and volume of liquids, liquid interface, pastes and solids

Designed to satisfy better than any other TDR

For all applications

No interface too thin



Measures any product in any application

Most stable measurement

Setup-Wizard easier than ever before

- Electromagnetic flowmeters
- Variable area flowmeters
- Mass flowmeters
- Ultrasonic flowmeters
- Vortex flowmeters
- Flow controllers
- **Level measuring instruments**
- Pressure and temperature
- Heat metering
- Communications technology
- Switches, counters, displays and recorders
- Engineering systems & solutions

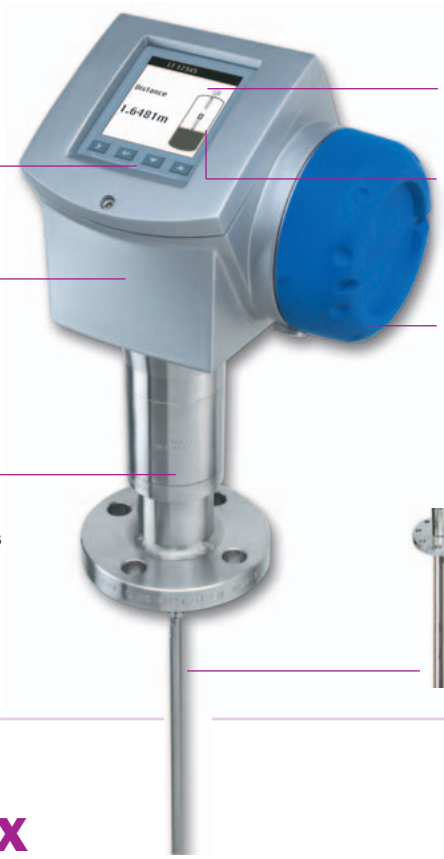
PACTware™ DTM FDT CONNECTED

Subject to change without notice.

OPTIFLEX

works better than any guided radar ever before

In contrast to earlier guided radar devices, the new OPTIFLEX with its more advanced design solutions has higher signal dynamics. Sharper pulses measure thinner interfaces. The very good time base stability allows better reproducibility, which translates to better trustability.



Easy navigation
Touch screen with 4-button operation

Same housing for all versions
(Ex and non-Ex)

Special process separator for extreme conditions

Easy viewing
Choice of different screens (tank illustration, bargraph, oscilloscope,...)

Display in 9 languages
Even in Chinese, Japanese and Russian

2-wire

Various probe types and materials to cover all applications

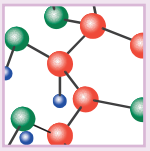
Designed to satisfy better than any other TDR

No interface is too thin

OPTIFLEX can detect and measure very thin interfaces, not much thicker than a 50 mm film of oil on water in a large tank.

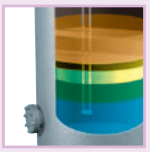
Most stable measurement

Despite disturbances such as strongly agitated surfaces, foam and coating of the probe or fine dust in the tank, OPTIFLEX will continue to measure where competitors' devices capitulate.



OPTIFLEX measures any product ...

Most 2-wire TDR devices measure down to a dielectric of 1.5. As a result, many organic compounds are not measured properly. OPTIFLEX measures down to 1.4 (and even 1.1 using superior tank-bottom following mode).



... in any application

5 different probes means there's not an application

OPTIFLEX

makes level gauging easier than ever before

Wizard works wonders

Setting up a 2-wire level gauge couldn't be easier:
Simply fit the gauge to the tank, wire it up and switch it on:

Step 1 – OPTIFLEX tests itself to make sure its electronics are working perfectly.

Step 2 – OPTIFLEX Wizard walks you through a simple series of questions to define your tank and the product you want to measure.

(Step 3) – That's all you need. Your OPTIFLEX is already measuring.

Online help

Not certain what to do? You don't need a handbook. Simply wait 10 seconds, the help screen will appear and tell you what to do.

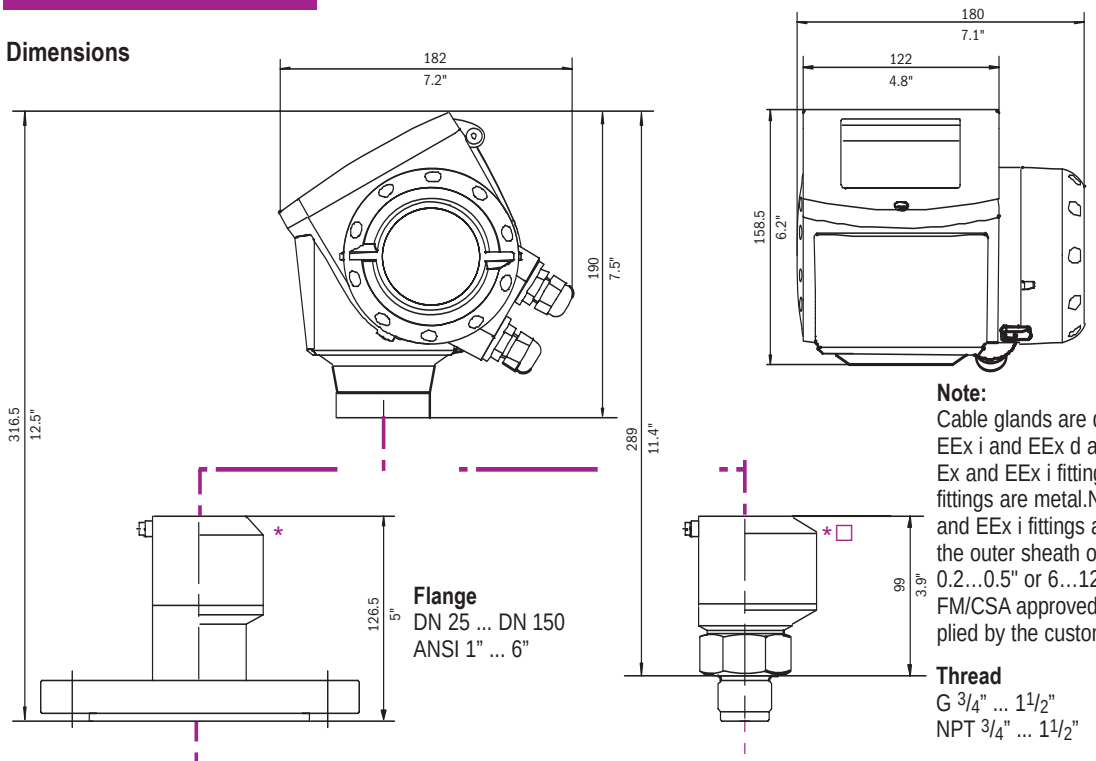
Process control

The easy-to-understand DTM screens make process setup, process analysis and also process control easier than with any other device.

Technical data

Input		
Function		Time Domain Reflectometry (TDR)
Parameter		Level, distance, volume and/or interface
Max. measuring range	Double rod 0.3" / Ø8 mm	13 ft / 4 m
	Single rod 0.3" / Ø8 mm	13 ft / 4 m
	Coaxial 0.9" / Ø22 mm	20 ft / 6 m
	Double cable 0.15" / Ø4 mm	115 ft / 35 m
	Single cable 0.15" / Ø4 mm	115 ft / 35 m
	Single cable 0.3" / Ø8 mm	115 ft / 35 m
Output		
Output signal	Output 1	4 ... 20 mA HART® or 3.8 ... 20.5 mA acc. to NAMUR NE 43
	Output 2 (option)	4 ... 20 mA (no HART® signal) or 3.8 ... 20.5 mA acc. to NAMUR NE 43
Accuracy		0.05% (rel. 20 mA; 20°C / 70°F)
Resolution		±2 µA
Temperature drift		Typically 50 ppm/K
Error signal		High: 22 mA; Low: 3.6 mA acc. to NAMUR NE 43
Max. Load		350 ohm
Measuring accuracy		
Reference conditions	Temperature	+20°C ±5°C / +68°F ± 9°F
acc. to IEC770	Pressure	1013 mbar abs. ±20 mbar / 14.69 psig ±0.29 psig
	Relative air humidity	60% ±15%
Resolution		±1 mm / ±0.04"
Accuracy (in direct mode)	Liquids	±3 mm / 0.12", when L < 10 m / 33 ft; ±0.03% of measured distance, if L > 10 m / 33 ft
	Powders	±20 mm / ±0.8"
	Interface	±10 mm (εr constant)
Application conditions		
Temperature	Ambient temperature	-40...+80°C / -40...+175°F; EExi: -40...+60°C / -40...+140°F
	Storage temperature	-40...+85°C / -40...+185°F
	Flange temperature	-40...+150°C / -40...+300°F (Ex: refer to relevant device's approval and temperature class)
Thermal shock resistance		100°C / min
Process conditions	Operating pressure	-1...40 bar / -14.5...580 psig; subject to process connection used and flange temperature
	Dielectric constant	In direct mode: ≥1.4 for coaxial probe; ≥1.6 for single and double probes
Vibration resistance		IEC 68-2-6 and prEN 50178 (10...57Hz: 0.075 mm / 57...150 Hz: 1 g)
Protection category		IP 66/67 equiv. to NEMA 6-6X
Mechanical data		
Material	Housing	Aluminium
	Single rod	Stainless steel (1.4404 / 316 L)*; Hastelloy C-22 (2.4602)
	Double rod	Stainless steel (1.4404 / 316 L)*; Hastelloy C-22 (2.4602)
	Coaxial	Stainless steel (1.4404 / 316 L)*; Hastelloy C-22 (2.4602)
	Single cable	Stainless steel (1.4401 / 316)*; Hastelloy C-22 (2.4602) (only cable Ø4 mm / 0.15")
	Double cable	Stainless steel (1.4401 / 316)*
		*For corrosive and aggressive products coated probes in PFA, silver, gold and platinum available
	Process fitting	Stainless steel (1.4404 / 316 L); Hastelloy C-22 (2.4602)
	Gaskets	Viton (-40...+150°C / -40...+300°F); Kalrez 6375 (-20...+150°C / -5 ...+300°F)
Process connection	Thread	G 3/4...1 1/2; 3/4...1 1/2 NPT
	Flange	DN 25...DN 150 (PN 40 / PN 16); 1"...8" (150 lb / 300 lb); 10 K (40...100A)
Electrical connection		
2-wire power supply	Terminals output 1	
	Non-Ex / EEx i	24 V DC (14...30 V DC)
	EEx d	24 V DC (20...36 V DC)
	Terminals output 2	
	Non-Ex / EEx i / EEx d	24 V DC (10...30 V DC)
Cable entry		M20x1.5; 1/2 NPT ; G 1/2
Terminals		0.5...1.5 mm²
Human machine interface		
Display		9 lines, 160x160 pixels in 8-step greyscale with 4-button keypad
Operating languages		English (UK), German, French, Italian, Spanish, Portuguese, Japanese, Chinese (Mandarin), Russian
Approvals	Overfill protection	WHG
	ATEX	ATEX II G/D 1, 1/2, 2 EEx ia IIC T6...T1; ATEX II G/D 1/2, 2 EEx d ia IIC T6...T1
	FM / CSA	XP / IS Class I, II, III Div. 1, NI Div. 2 Group A...G except CSA Group B...G
	FM	Class I Zone 0 AEx d [ia] IIC
	FM	Class I Zone 2 GR IIC
	CSA	Class I Zone 0 Ex d [ia] IIC

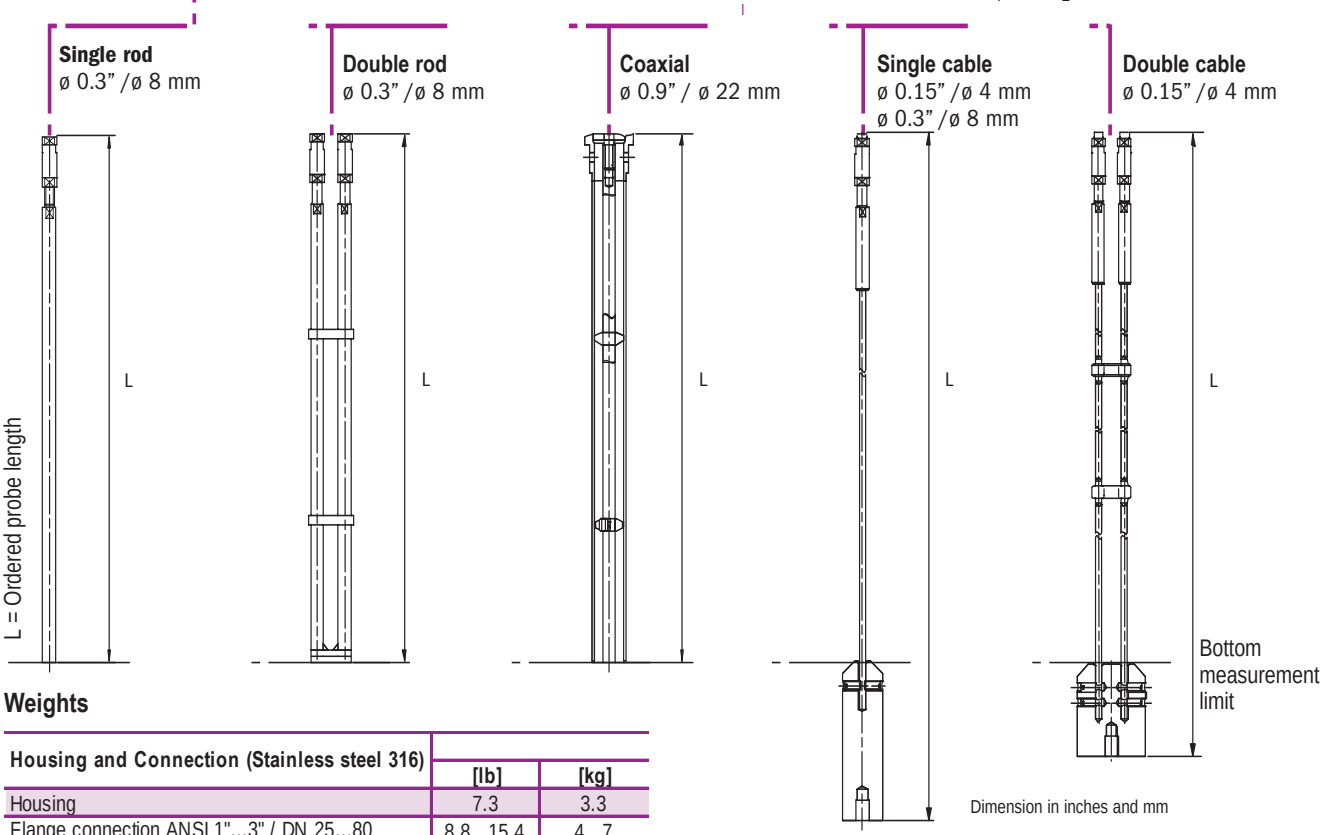
Dimensions



Flange
DN 25 ... DN 150
ANSI 1" ... 6"

Note:
Cable glands are delivered with non-Ex, EEx i and EEx d approved devices. Non-Ex and EEx i fittings are plastic and EEx d fittings are metal.Non-Ex fittings are black and EEx i fittings are blueThe diameter of the outer sheath of the cable must be 0.2...0.5" or 6...12 mm. Cable glands for FM/CSA approved devices must be supplied by the customer.

Thread
G $^3/_4$" ... 1$^1/_2$"
NPT $^3/_4$" ... 1$^1/_2$"



Dimension in inches and mm

Weights

Housing and Connection (Stainless steel 316)	[lb]	[kg]
Housing	7.3	3.3
Flange connection ANSI 1"...3" / DN 25...80	8.8...15.4	4...7
Flange connection ANSI 4"...8" / DN 100...150	15.4...26.5	7...12
Thread connection	6.6	3
Probes	**[lb / ft]**	**[kg / m]**
Single cable 0.15" / Ø4 mm	0.08	0.12
Single cable 0.3" / Ø8 mm	0.28	0.41
Double cable 0.15" / Ø4 mm	0.16	0.24
Single rod 0.3" / Ø8 mm	0.28	0.41
Double rod 0.3" / Ø8 mm	0.56	0.82
Coaxial 0.9" / Ø22 mm	0.53	0.79

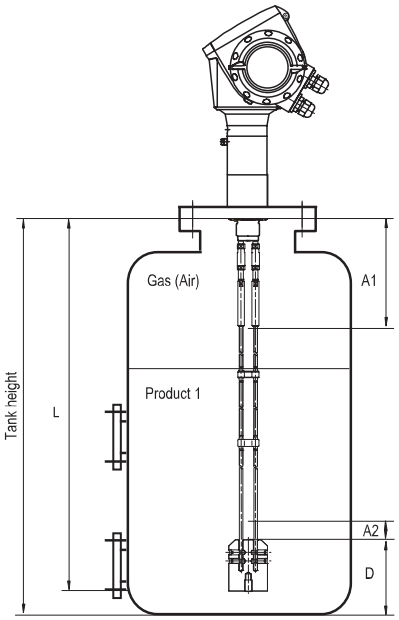
Note:
Wide range of counterweights and anchoring solutions available.
Contact KROHNE for further information.

* Only single cable Ø 0.3" / Ø 8 mm (solids application)

Measurement limits

Probes	Top dead zone εr=80* [inch / mm]	Bottom dead zone εr=80* [inch / mm]	Top dead zone εr=2.3* [inch / mm]	Bottom dead zone εr=2.3* [inch / mm]
Double rod	4.9 / 125	0.4 / 10	6.5 / 165	1.95 / 50
Single rod	7.9 / 200	0.4 / 10	9.9 / 250	1.95 / 50
Coaxial	0.4 / 10	0.4 / 10	0.4 / 10	1.95 / 50
Double cable	4.9 / 125	0.4 / 10	6.5 / 165	1.95 / 50
Single cable Ø0.3"/Ø8 mm	7.9 / 200	0.4 / 10	9.9 / 250	1.95 / 50
Single cable Ø0.15"/Ø4 mm	7.9 / 200	0.4 / 10	9.9 / 250	1.95 / 50

* 80 is εr of water; 2.3 is εr of oil



A1, Top dead zone
Min. distance from flange to top limit of measuring range.

A2, Bottom dead zone
Length at end of probe, where measurement is not possible.

D, non measurement zone
Zone where measurement cannot be taken.

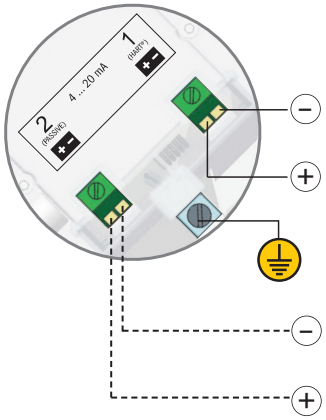
L, Probe length
Length specified by customer in the order.

Probe selection

	Double rod	Single rod	Coaxial	Double cable	Single cable Ø 0.3" / 8 mm	Single cable Ø 0.15" / 4 mm
Maximum tank height						
13 ft / 4 m	◆	◆				
20 ft / 6 m			◆			
115 ft / 35 m				◆	◆	◆
Liquids						
Liquid application	◆	◆	◆	◆		◆
LPG, LNG	◆	◆	◆	◆		◆
Highly viscous liquids		◆				◆
Highly crystallizing liquids		◆				◆
Highly corrosive liquids	◆	◆	◆			◆
Foam		◆	◆			◆
Agitated liquids	◆		◆	◆*		◆*
Spray in tank		◆	◆			
Storage tanks	◆	◆	◆	◆		◆
Installation in bypass chamber	◆	◆	◆	◆		◆
Small diameter nozzles	◆		◆	◆		
Long nozzles	◆		◆	◆		
Stilling wells	◆	◆	◆	◆		◆
Interface measurement	◆		◆	◆		

* with anchor fitting

Electrical connection



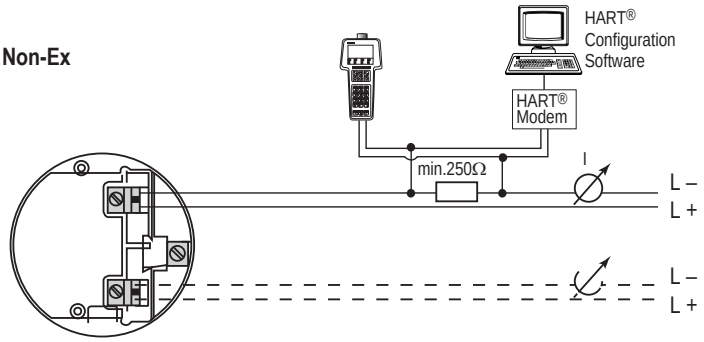
Output 1

4 ... 20 mA/HART
or
3.8 ... 20.5 mA/HART
acc. to NAMUR NE 43

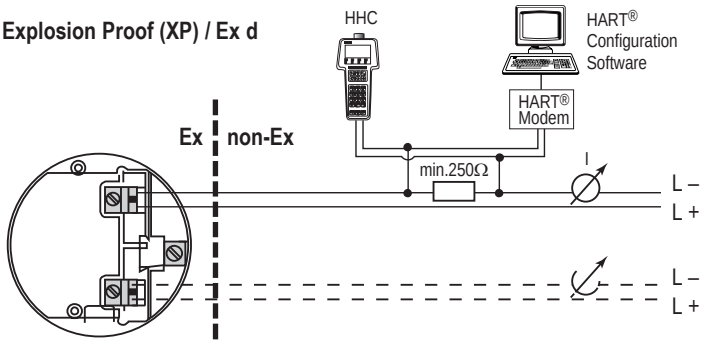
Output 2 (Option)

4 ... 20 mA
or
3.8 ... 20.5 mA
acc. to NAMUR NE 43

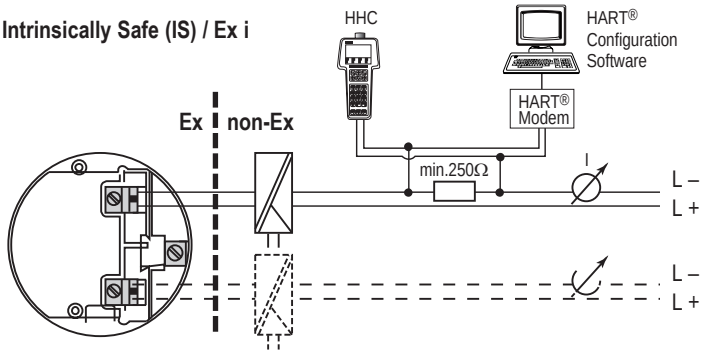
Non-Ex



Explosion Proof (XP) / Ex d



Intrinsically Safe (IS) / Ex i



Note: Other options how to connect the HHC (Hand Held Communicator) and modem to the HART® loop are available.

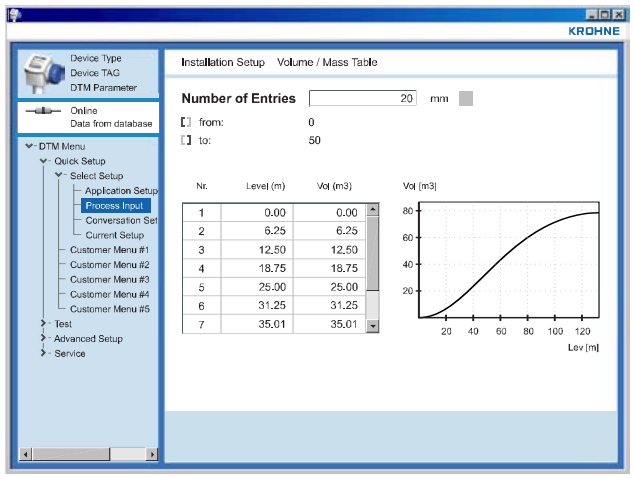
State-of-the-art with PACTware

OPTIFLEX is PACTware-ready. Each device is supplied ex-factory with the appropriate DTM.
A DTM (Device Type Manager) is a device driver making available the device functionality independent from the FIELDBUS protocol and providing a graphical user interface optimized for device operation and configuration.

Simple on-screen and intuitive setup procedure for devices without a display, or for set up from the Central Control Room. Summarized setup provides perfect control of initial input, and a guarantees perfect results.

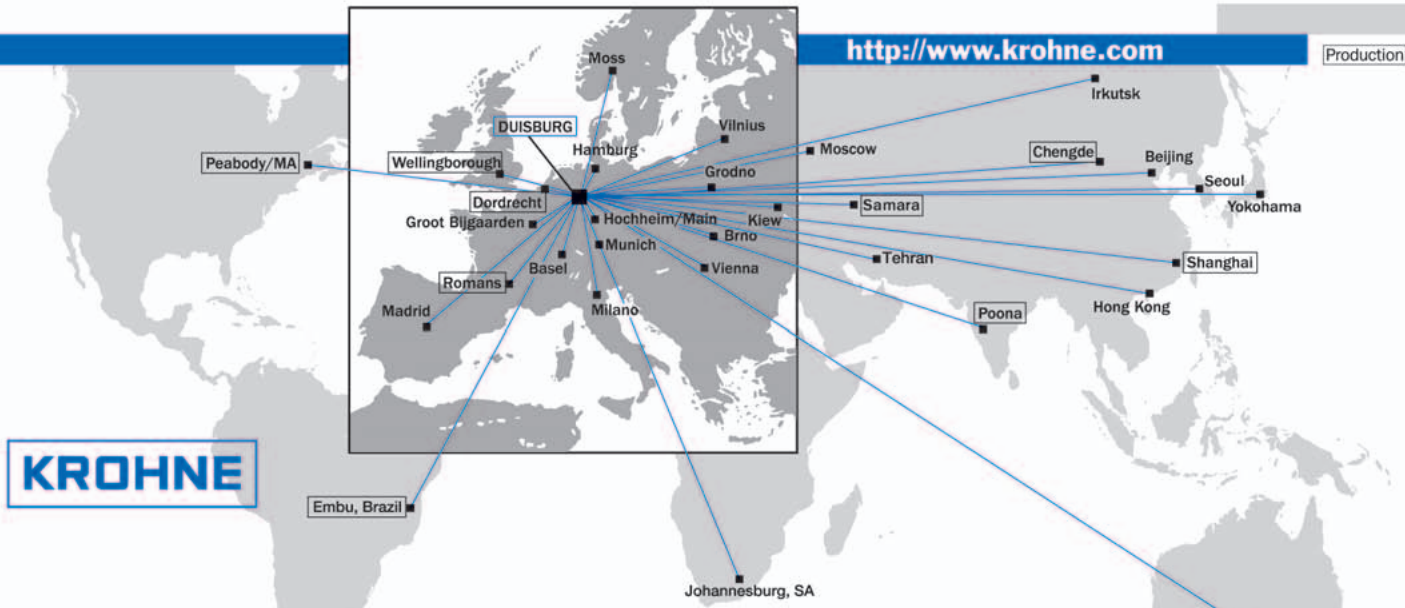
All features of PACTware are fully supported:

- Online device setup
- Displays measured values
- Records measured information during operation
- Shows status of device
- Interactive programming menu with data validity checking
- Displays summary of setup selection for final supervision



http://www.krohne.com

Production



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