

## Polytron 2

The smart gas detector





2-951-05

Polytron 2 is a universal transmitter for monitoring toxic gases and oxygen. More than 20 different electrochemical sensors, capable of detecting over 200 different gases, can be connected to the same transmitter. This makes Polytron 2 suitable for almost any gas detection application – from semiconductor production to offshore oil & gas exploration.

### Polytron 2 Highlights

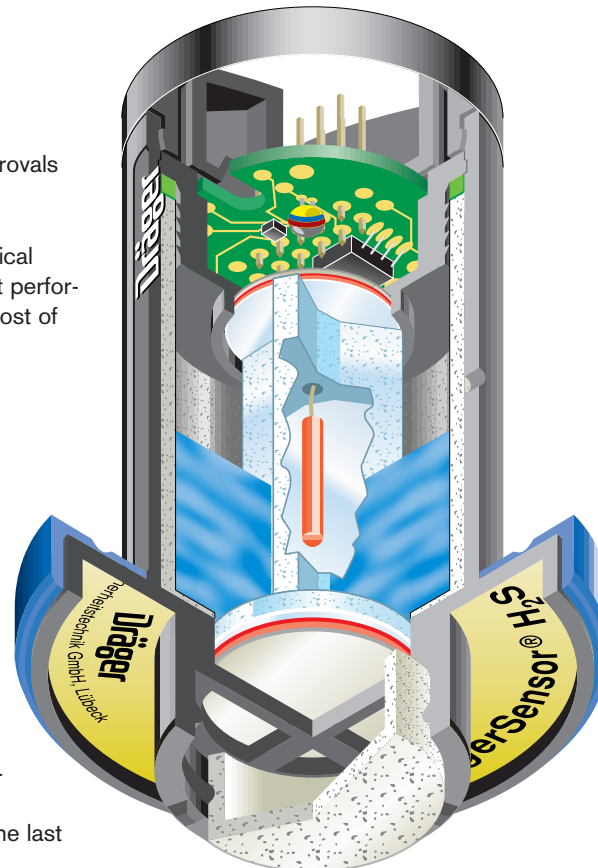
- One universal transmitter for all electrochemical sensors
- Patented Plug & Play Sensor Technology
- Self-diagnostics of sensor and transmitter
- 4-20 mA outputs and digital HART® communication
- CENELEC, UL and CSA approvals

Polytron 2, in combination with Dräger's high-tech electrochemical sensors, is designed for highest performance at the lowest possible Cost of Ownership.

### Highest Performance

For an optimum performance, even in the roughest environmental conditions, we have made use of state of the art microprocessor technology. A temperature sensor and a memory chip are integrated into every electrochemical sensor. The memory chip contains sensor specific information such as gas type(s), a look-up table for temperature compensation and the date of the last calibration.

Polytron 2's patented self-test routines continuously monitor the function of the transmitter and the sensor. Any incident, like a malfunction or just an expired calibration interval, will be immediately identified and displayed and/or transmitted to the central controller.






## Gases detectable with Polytron 2 (selection)

Gas	Formula	Gas	Formula	Gas	Formula
Acetaldehyde	CH <sub>3</sub> CHO	Ethylene	C <sub>2</sub> H <sub>4</sub>	Oxygen	O <sub>2</sub>
Acetylene	C <sub>2</sub> H <sub>2</sub>	Ethylene oxide	C <sub>2</sub> H <sub>4</sub> O	Phosgene	COCl <sub>2</sub>
Acrylic acid	C <sub>2</sub> H <sub>3</sub> COOH	Ethylmercaptan	C <sub>2</sub> H <sub>5</sub> SH	Phosphorus trichloride	PCl <sub>3</sub>
Ammonia	NH <sub>3</sub>	Fluorine	F <sub>2</sub>	Phosphine	PH <sub>3</sub>
Antimony-V-chloride	SbCl <sub>5</sub>	Formaldehyde	HCHO	Phosphoryl chloride	POCl <sub>3</sub>
Arsine	AsH <sub>3</sub>	Germanium hydride	GeH <sub>4</sub>	Propylene	C <sub>3</sub> H <sub>6</sub>
Boron trichloride	BCl <sub>3</sub>	Germanium tetrafluoride	GeF <sub>4</sub>	Propylene oxide	C <sub>3</sub> H <sub>6</sub> O
Boron trifluoride	BF <sub>3</sub>	Hydrogen	H <sub>2</sub>	n-Propylmercaptan	C <sub>3</sub> H <sub>7</sub> SH
Bromine	Br <sub>2</sub>	Hydrogen bromide	HBr	Selenium hydride	H <sub>2</sub> Se
Butadiene-1.3	(C <sub>2</sub> H <sub>3</sub> ) <sub>2</sub>	Hydrogen chloride	HCl	Silane	SiH <sub>4</sub>
Butyl acrylate	C <sub>2</sub> H <sub>3</sub> COOC <sub>4</sub> H <sub>9</sub>	Hydrogen cyanide	HCN	Silicon tetrachloride	SiCl <sub>4</sub>
Butylamine, sec.	C <sub>4</sub> H <sub>9</sub> NH <sub>2</sub>	Hydrogen fluoride	HF	Silicon tetrafluoride	SiF <sub>4</sub>
Butylmercaptan, tert.	C <sub>4</sub> H <sub>9</sub> SH	Hydrogen peroxide	H <sub>2</sub> O <sub>2</sub>	Sulphur dioxide	SO <sub>2</sub>
Carbon monoxide	CO	Hydrogen sulphide	H <sub>2</sub> S	Stannic tetrachloride	SnCl <sub>4</sub>
Chlorine	Cl <sub>2</sub>	i-Propanol	(CH <sub>3</sub> ) <sub>2</sub> CHOH	TEOS	(C <sub>2</sub> H <sub>5</sub> O) <sub>4</sub> Si
Chlorine dioxide	ClO <sub>2</sub>	Isopropylamine	(CH <sub>3</sub> ) <sub>2</sub> CHNH <sub>2</sub>	Tetrahydrothiophene	C <sub>4</sub> H <sub>8</sub> S
Chlorine trifluoride	ClF <sub>3</sub>	Isopropylmercaptan	(CH <sub>3</sub> ) <sub>2</sub> CHSH	Thionylchloride	SOCl <sub>2</sub>
Diborane	B <sub>2</sub> H <sub>6</sub>	Methanol	CH <sub>3</sub> OH	Titanium tetrachloride	TiCl <sub>4</sub>
Dichlorosilane	SiH <sub>2</sub> Cl <sub>2</sub>	Methylmercaptan	CH <sub>3</sub> SH	Trichlorosilane	SiHCl <sub>3</sub>
Diethylamine	(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> NH	Methyl methacrylate	C <sub>2</sub> H <sub>2</sub> (CH <sub>3</sub> )COOCH <sub>3</sub>	Triethylamine	(C <sub>2</sub> H <sub>5</sub> ) <sub>3</sub> N
Diethylethanolamine	(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> NC <sub>2</sub> H <sub>4</sub> OH	Monomethylamine	CH <sub>3</sub> NH <sub>2</sub>	Trimethylamine	(CH <sub>3</sub> ) <sub>3</sub> N
Dimethylamine	(CH <sub>3</sub> ) <sub>2</sub> NH	Morpholine	C <sub>4</sub> H <sub>8</sub> ONH	Trimethylborane	B(CH <sub>3</sub> ) <sub>3</sub>
Dimethylethylamine	(CH <sub>3</sub> ) <sub>2</sub> C <sub>2</sub> H <sub>5</sub> N	Nitrogen dioxide	NO <sub>2</sub>	Tungsten hexafluoride	WF <sub>6</sub>
Dimethyl sulfide	(CH <sub>3</sub> ) <sub>2</sub> S	Nitrogen monoxide	NO	Vinyl acetate	CH <sub>3</sub> COOC <sub>2</sub> H <sub>3</sub>
Epichlorohydrin	C <sub>2</sub> H <sub>3</sub> OCH <sub>2</sub> Cl	Nitrogen trifluoride	NF <sub>3</sub>	Vinyl chloride	C <sub>2</sub> H <sub>3</sub> Cl
Ethanol	C <sub>2</sub> H <sub>5</sub> OH				
Ethylacrylate	C <sub>2</sub> H <sub>3</sub> COOC <sub>2</sub> H <sub>5</sub>				

For gases not listed above, please contact us or our nearest agent.






## Technical Data

<b>Signal transmission to controller</b> Analog Digital	4 mA to 20 mA plus status information HART®
<b>Power supply</b>	16.5 V DC to 30 V DC
<b>Electrical connection</b>	2-wire (plus screen)
<b>Dimensions</b>	130 x 210 x 92 mm / 5.12 x 8.27 x 3.62 inch
<b>Weight</b>	approx. 1.8 kg / 4.0 lb.
<b>Ambient conditions (without sensor)</b>	-40 to 65 °C / -40 to 150 °F 700 to 1,300 hPa / 20.7 to 38.4" Hg at 32 °F 0 to 100 % R.H., non condensating
<b>RFI/EMC</b>	 CE marked, electromagnetic compatibility (Directive 89/336/EEC)

## Order Information

Description	Part No.
Polytron 2	83 14 400
Polytron 2 Non Display	83 14 500
Polytron 2 Hand-held Terminal	83 13 602

Explosion Protection	
	 <b>Cenelec:</b>  for -40 to 40 °C: EEx ia IIC T6 for -40 to 65 °C: EEx ia IIC T4   <b>UL:</b> (Underwriters Laboratories)  Class I; Div. 1; Groups A, B, C, D Class II; Div. 2; Groups E, F, G for -40 to 40 °C: Temp. Code T6 for -40 to 65 °C: Temp. Code T4   <b>CSA</b> (Canadian Standards Association)  Class I; Div. 1; Groups A, B, C, D for -40 to 40 °C: Temp. Code T6 for -40 to 65 °C: Temp. Code T4
<b>Ingress Protection</b>	IP 67, according to EN 60 529
<b>MTBF</b>	> 20 years
	<p>Gas and measuring range see individual sensor data sheets</p> <p>HART® is a registered trademark of the HART Communication Foundation</p>



For easy operation, Polytron 2 provides display information in English, German, French, or Spanish language.

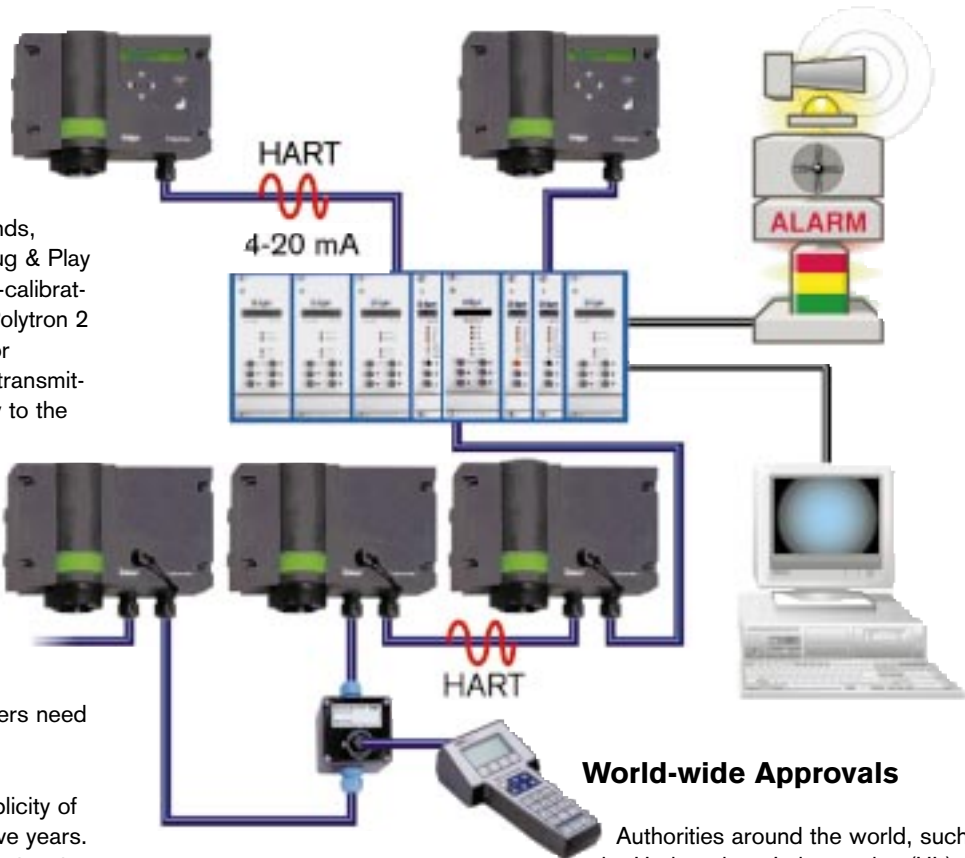
Sensor installation and replacement is a matter of seconds, thanks to Dräger's innovative Plug & Play Sensor Technology. When a pre-calibrated sensor gets connected to a Polytron 2 transmitter, the data in the sensor memory is downloaded and the transmitter configures itself automatically to the

specific sensor - no potentiometers need to be adjusted.

You will, however, enjoy the simplicity of this feature only every three to five years. That's how long Dräger's electrochemical sensors typically last.

### Networking Capabilities

For easy networking, Polytron 2 supports 4-20 mA and the HART® fieldbus. HART® allows 4-20 mA signal transmission and digital communication at the same time via the same single twisted



pair connection. This makes it possible to transmit the time-critical measuring signal via 4-20 mA and perform all maintenance work simultaneously via bi-directional digital communication. Alternatively, up to eight transmitters can be daisy-chained for operation on a single twisted pair connection in fully digital mode (up to seven transmitters on an intrinsically safe line).

### World-wide Approvals

Authorities around the world, such as the Underwriters Laboratories (UL), the Canadian Standards Association (CSA) or the BVS (CENELEC), have approved the installation of Polytron 2 in hazardous areas.

