

► F12D & F12IS

Toxic gases transmitter



Technical specifications

- Gases measured:** More than 60 sensors available (see table)
Sensor type: Electrochemical
Accuracy: ± 5 to 10% of the value, limited by the accuracy of the calibration gas
Repeatability: $\pm 1\%$ (electronic)
Linearity: $\pm 0,5\%$ (electronic)
Zero drift: $< 2\%$ of full scale per month, not cumulative
Scale drift: Depends on the environment, typically less than 3% per month
Display: 96x32 backlit LCD graphic display
Controls: Four dome-type pushbuttons
Auto Test option: Depending on sensor gas type and full-scale range
Housing: Polycarbonate with stainless steel hardware. Weather-proof and corrosion resistant
Ingress rating: IP65
Operating conditions:
- Temperature: -30°C to $+60^{\circ}\text{C}$ (-10°C for the O₂ sensor)
 - Humidity: 10 to 95 % HR (without condensation)
- Weight:** 680 grammes

► F12D Transmitter

Model selection:

- 12 to 30 VDC, 4-20 mA outputs, RS-232/485 & relays
- 115 VAC, 50/60 Hz, 4-20 mA outputs, RS-232/485 & relays
- 230 VAC, 50/60 Hz, 4-20 mA outputs, RS-232/485 & relays

► F12IS Transmitter

- 12 to 30 VDC, 4-20 mA outputs (optional HART protocol)

Product description

With over 60 interchangeable, pre-calibrated cells containing all the operating parameters of the target gas, the **F12D Toxic Gas Transmitter** is a gas detector with a digital display and linear 4-20 mA output offering many powerful features. It has, among others, the Auto Test function for certain gases guaranteeing the reliability and integrity of the measurement.

The **F12D toxic gas detector** - which is also available in an intrinsically safe version for use in classified areas (F12IS) - is particularly popular for the detection of exotic gases such as formaldehyde, nitric oxide, phosgene, oxidizing gases such as bromine, fluorine, iodine, ozone, hydrogen peroxide, acidic gases or gaseous hydrides such as arsine, diborane or germane.

► 2 versions available: Standard or ATEX (SI)

- The **F12D** is equipped with a large backlit LCD that shows the gas, the measured value with the unit, and the error or alarm states. It has a 4-20 mA analog output and 3-relay outputs for control purposes. The internal data logger stores gas values at user-defined intervals from 1 to 60 minutes. It can be powered by 24Vdc or 230Vac for local stand-alone fixed gas detection applications.
- The **F12IS** - the **intrinsically safe** version of the F12D - is certified ATEX, IEC, and UL/CSA for use in hazardous areas. It is mainly used as a gas transmitter, does not have an alarm relay, and has an optional HART communication card.

► ATi's Auto Test function

The "Smart H10" sensors used in the F12 range contain calibration data and can be returned separately from the transmitter avoiding thus an on-site service. They are identical to those of the **PortaSens**, often used in conjunction with the fixed detectors for any doubt removal.



ATi's Auto Test function automatically checks that the cell is working correctly, ensuring the integrity of the gas detection system. The sensor response is checked with a gas sample or an interferent. This function can be programmed and scheduled, or performed on demand from the transmitter control panel.

The life of the Auto Test is approximately 3 years and does not require calibration on-site or in the workshop. After 3 successive failures, the **F12 transmitter** triggers an alarm to alert the user of a cell problem requiring its replacement.

► **Cells selection**

Code	Gas and measuring range	Auto Test
00-1045	Acetic acid (AcOH) 100/500 ppm (100 ppm std)	
00-1057	Acetylene (C2H2), 0-200 / 2000 ppm (500 ppm std)	
00-1038	Acid gases, 0-10 / 200 ppm (20 ppm std)	E18-11
00-1043	Alcohol, 0-50 / 500 ppm (200 ppm std)	
00-1044	Alcohol, 0-500 / 2000 ppm (2000 ppm std)	
00-1010	Ammonia (NH3), 0-50 / 500 ppm (200 ppm std)	E18-15
00-1011	Ammonia (NH3), 0-500 / 2000 ppm (1000 ppm std)	
00-1025	Arsine (AsH3), 0-10 / 200 ppm (10 ppm std)	
00-1024	Arsine (AsH3), 0-500 / 2000 ppb (1000 ppb std)	
00-1000	Bromine (Br2), 0-1 / 5 ppm (2 ppm std)	E18-11
00-1001	Bromine (Br2), 0-5 / 200 (20 ppm std)	E18-11
00-1886	Carbon dioxide IR (CO2), 0-1 / 5% vol. (1% std)	
00-1012	Carbon monoxide (CO), 0-50 / 1000 ppm (200 ppm std)	E18-16
00-1002	Chlorine (Cl2), 0-1 / 5 ppm (2 ppm std)	E18-11
00-1003	Chlorine (Cl2), 0-5 / 200 (20 ppm std)	E18-11
00-1004	Chlorine dioxide (ClO2), 0-1 / 5 ppm (2 ppm std)	E18-11
00-1359	Chlorine dioxide (ClO2), 0-200 / 1000 ppm (1000 ppm std)	
00-1005	Chlorine dioxide (ClO2), 0-5 / 200 (20 ppm std)	E18-11
00-1425	Chlorine dioxide (ClO2), 1/5 ppm (low concentration Cl2)	E18-11
00-1018	Cyanidric acid (HCN), 0-10 / 200 ppm (20 ppm std)	E18-27
00-1027	Diborane (B2H6), 0-10 / 200 ppm (10 ppm std)	
00-1026	Diborane (B2H6), 0-500 / 2000 ppb (1000 ppb std)	
00-1450	Dimethylamine (DMA), 100/200 ppm (100 ppm std)	
00-1039	Ethylene oxide (C2H4O), 0-20 / 200 ppm (20 ppm std)	E18-16
00-1006	Fluorine (F2), 0-1 / 5 ppm (2 ppm std)	E18-11
00-1007	Fluorine (F2), 0-5 / 200 (20 ppm std)	E18-11
00-1040	Formaldehyde (CH2O), 0-20 / 200 ppm (20 ppm std)	E18-16
00-1349	Formaldehyde (CH2O), 0-500 / 2000 ppm (1000 ppm std)	
00-1029	Germanium tetrahydride (GeH4), 0-10 / 200 ppm (10 ppm std)	
00-1028	Germanium tetrahydride (GeH4), 0-500 / 2000 ppb (1000 ppb std)	
00-1516	Hydrocarbons (set according to the gas chosen)	

Code	Gas and measure range	Auto Test
00-1013	Hydrogen (H2), 0-1 / 10% (4% std)	
00-1041	Hydrogen (H2), 0-500 / 2000 ppm (2000 ppm std)	
00-1455	Hydrogen bromide (HBr), 10/200 ppm (20 ppm std)	
00-1017	Hydrogen chloride (HCl), 0-10 / 200 ppm (20 ppm std)	E18-24
00-1019	Hydrogen fluoride (HF), 0-10 / 200 ppm (20 ppm std)	E18-11
00-1042	Hydrogen peroxide (H2O2), 0-10 / 100 ppm (20 ppm std)	E18-27
00-1169	Hydrogen peroxide (H2O2), 0-200 / 2000 (1000 ppm std)	
00-1020	Hydrogen sulfide (H2S), 0-10 / 200 ppm (20 ppm std)	E18-24
00-1469	Hydrogen sulfide (H2S), 200/1000 ppm (500 ppm std)	
00-1036	Iodine (I2), 0-1 / 5 ppm (2 ppm std)	E18-11
00-1037	Iodine (I2), 0-5 / 200 (20 ppm std)	E18-11
00-1883	Methane IR (CH4), 0-20 / 100% LEL	
00-1021	Nitric oxide (NO), 0-50 / 500 ppm (200 ppm std)	
00-1022	Nitrogen dioxide (NO2), 0-10 / 200 (20 ppm std)	E18-11
00-1181	NOx, 0-50 / 500 ppm (50 ppm std)	
00-1014	Oxygen (O2), 0-5 / 25% (25% std)	
00-1008	Ozone (O3), 0-1 / 5 ppm (2 ppm std)	E18-11
00-1358	Ozone (O3), 0-200 / 1000 ppm (1000 ppm std)	
00-1009	Ozone (O3), 0-5 / 200 (20 ppm std)	E18-11
00-1163	Ozone (O3), 0-500 / 2000 ppb (1000 ppb std)	
00-1704	Peracetic acid, vapor (PAA), 1/5 ppm (2 ppm std)	
00-1705	Peracetic acid, vapor (PAA), 10/100 ppm (20 ppm std)	
00-1015	Phosgene (COCl2), 0-1 / 5 ppm (2 ppm std)	
00-1016	Phosgene (COCl2), 0-5 / 100 (100 ppm std)	
00-1033	Phosphine (PH3), 0-10 / 200 ppm (10 ppm std)	
00-1034	Phosphine (PH3), 0-200 / 2000 ppm (1000 ppm std)	
00-1032	Phosphine (PH3), 0-500 / 2000 ppb (1000 ppb std)	
00-1030	Selenated hydrogen (H2Ge), 0-500 / 2000 ppb (1000 ppb std)	
00-1031	Selenium hydrogen (H2Ge), 0-10 / 200 ppm (10 ppm std)	
00-1035	Silane (SiH4), 0-10 / 200 ppm (10 ppm std)	
00-1023	Sulfur dioxide (SO2), 0-10 / 500 ppm (20 ppm std)	E18-27

► **Auto Test gas generators**

Code	Ref Auto Test	Gaz
00-1538	E18-11	Chlorine gas generator
00-1539	E18-15	Ammonia gas generator
00-1540	E18-16	Carbon monoxide gas generator
00-1541	E18-24	Hydrogen sulfide gas generator
00-1542	E18-27	Sulfur dioxide gas generator