



F12iS

INTRINSICALLY SAFE TOXIC GAS DETECTION

ATI's Series F12iS Toxic Gas Transmitter is the perfect choice for detection of gas leaks in explosion-hazard environments. While operating at intrinsically-safe power levels, the F12iS is still available with our Auto-Test system that verifies sensor function daily, virtually eliminating the need for manual "bump tests".



MODEL F12iS TOXIC GAS DETECTOR

- **Power:** Loop-powered 12-28 VDC
- **Interchangeable Sensors:**
The F12iS accommodates 60 different sensor modules
- **Sensor Verification:** Auto-Test generator option provides a true gas response test. Test history is stored in sensor memory for user review at any time
- **LCD Graphic Display:** Allows clear gas concentration display plus complete menu-driven operator interface
- **Heated Sensor Option:** A heated sensor holder allows operation in high humidity to avoid condensation problems
- **Remote Sensor:** A junction box with digital output allows sensor location up to 500 ft. from the F12iS display unit
- **Internal Data Logger:** Gas values are stored at user defined intervals from 1 to 60 minutes. Stored data may be reviewed or graphed on the LCD display
- **Calibration History:** Sensor calibration adjustments of zero and span are stored in sensor memory and may be viewed on the F12iS display
- **Communication:** F12iS is available with optional Hart® output
- **Approvals:** CE and RoHS Compliant



INSTALLATION OPTIONS

The sensor holder in the F12iS is normally mounted to the transmitter enclosure. For applications where this configuration is not ideal, there are a number of different configurations for meeting specific requirements. These include a 6 ft. (1.9 m) cable extension, a remote junction box for longer sensor separation distances, and a duct mount sensor.

F12iS with integral sensor holder



F12iS with integral sensor holder & Auto-Test generator



6 ft. extended sensor holder



Insertion sensor assembly



Remote sensor holder & digital interface



FLOWCELL AND CALIBRATION ADAPTERS



Calibration adapters slide into the sensor holder for easy connection of calibration gas. A flowcell assembly is also available where pumped sampling systems are used.



An accessory device called a "sensor keeper" is available for storing standby spares. The keeper provides sensor bias circuitry that maintains spare sensors in a ready-to-use state without the need for stabilization time.

SMART SENSORS

The F12iS uses ATI **smart sensors** that allow easy interchangeability. Each sensor contains signal conditioning electronics and data memory. Sensors can be calibrated using a spare unit in the shop to avoid using calibration gases in the plant. Sensors may also be returned to ATI for factory calibration, which is useful for gases that are costly or difficult to obtain. Each sensor adjustment (zero or span) is stored in sensor memory and can be reviewed on the F12iS display. This data is very useful in assessing the sensor's condition and estimating remaining sensor life.



AVAILABLE SENSORS

| | | | |
|----------|---|----------|--|
| 00-1000* | Br ₂ , 0-1/5 ppm (00-1538) | 00-1024 | AsH ₃ , 0-500/2000 ppb |
| 00-1001* | Br ₂ , 0-5/200 ppm (00-1538, 20 max.) | 00-1025 | AsH ₃ , 0-10/200 ppm |
| 00-1002* | Cl ₂ , 0-1/5 ppm (00-1538) | 00-1026 | B ₂ H ₆ , 0-500/2000 ppb |
| 00-1003* | Cl ₂ , 0-5/200 ppm (00-1538, 20 max.) | 00-1027 | B ₂ H ₆ , 0-10/200 ppm |
| 00-1004* | ClO ₂ , 0-1/5 ppm (00-1538) | 00-1028 | GeH ₄ , 0-500/2000 ppb |
| 00-1005* | ClO ₂ , 0-5/200 ppm (00-1538, 20 max.) | 00-1029 | GeH ₄ , 0-10/200 ppm |
| 00-1359 | ClO ₂ , 200/1000 ppm | 00-1030 | H ₂ Se, 0-500/2000 ppb |
| 00-1425* | ClO ₂ , 0-1/5 ppm (low Cl ₂) (00-1538) | 00-1031 | H ₂ Se, 0-10/200 ppm |
| 00-1006* | F ₂ , 0-1/5 ppm (00-1538) | 00-1032 | PH ₃ , 0-500/2000 ppb |
| 00-1007* | F ₂ , 0-5/200 (00-1538, 20 max.) | 00-1033 | PH ₃ , 0-10/200 ppm |
| 00-1008* | O ₃ , 0-1/5 ppm (00-1538) | 00-1034 | PH ₃ , 0-200/2000 ppm |
| 00-1009* | O ₃ , 0-5/200 ppm (00-1538, 20 max.) | 00-1035 | SiH ₄ , 0-10/200 ppm |
| 00-1358 | O ₃ , 200/1000 ppm | 00-1036* | I ₂ , 0-1/5 ppm (00-1538) |
| 00-1163 | O ₃ , 500/2000 ppb (00-1538) | 00-1037* | I ₂ , 0-5/200 ppm (00-1538, 20 max.) |
| 00-1010* | NH ₃ , 0-50/500 ppm (00-1539, 100 max.) | 00-1038* | Acid Gas, 0-10/200 ppm (00-1538, 20 max) |
| 00-1011 | NH ₃ , 0-500/2000 ppm | 00-1039* | ETO, 0-20/200 ppm (00-1540, 20 max.) |
| 00-1012* | CO, 0-50/1000 ppm (00-1540, 100 max.) | 00-1040 | HCOH, 0-20/200 ppm (00-1540, 20 max.) |
| 00-1013 | H ₂ , 0-1/10% | 00-1349 | HCOH, 500/2000 ppm |
| 00-1041 | H ₂ , 0-500/2000 ppm | 00-1042 | H ₂ O ₂ , 0-10/100 ppm (00-1542) |
| 00-1014 | O ₂ , 0-5/25% | 00-1169 | H ₂ O ₂ , 200/2000 ppm |
| 00-1015 | COCl ₂ , 0-1/5 ppm | 00-1043 | Alcohol, 0-50/500 ppm |
| 00-1016 | COCl ₂ , 0-5/100 ppm | 00-1044 | Alcohol, 0-500/2000 ppm |
| 00-1017* | HCl, 0-10/200 ppm (00-1541, 20 max.) | 00-1057 | C ₂ H ₂ , 0-200/2000 ppm |
| 00-1018* | HCN, 0-10/200 ppm (00-1611, 20 max.) | 00-1181 | NO _x , 0-50/500 ppm |
| 00-1019* | HF, 0-10/200 ppm (00-1538, 20 max.) | 00-1450* | DMA, 100/200 ppm (00-1539, 100 max.) |
| 00-1020* | H ₂ S, 0-10/200 ppm (00-1541, 100 max.) | 00-1455* | HBr, 10/200 ppm (00-1538, 20 max.) |
| 00-1469 | H ₂ S, 200/1000 ppm | 00-1516 | HC Sensor - Consult Factory) |
| 00-1021 | NO, 0-50/500 ppm | 00-1045 | CH ₃ COOH, 100/500 ppm |
| 00-1022* | NO ₂ , 0-10/200 ppm (00-1538, 20 max.) | 00-1704 | PAA Vapor, 1/5 ppm |
| 00-1023* | SO ₂ , 0-10/500 ppm (00-1542, 20 max.) | 00-1705 | PAA Vapor, 10/100 ppm |

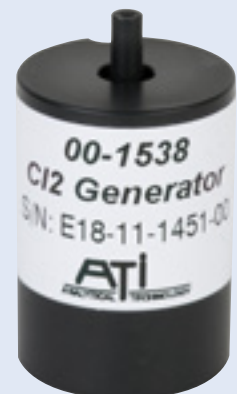
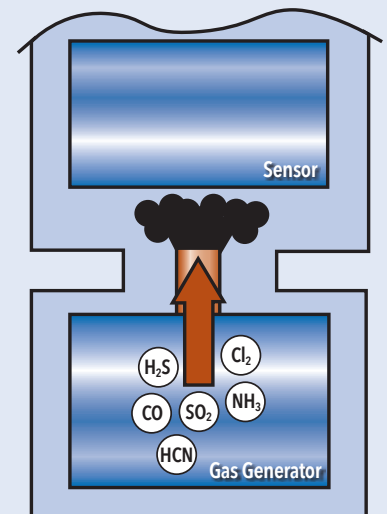
Notes: XXX for each sensor indicates minimum and maximum ranges for that sensor.

* indicates availability of Auto-Test. Generator part number shown in ().

Auto-Test not available for ranges above indicated maximum.

AUTOMATIC SENSOR VERIFICATION

With the F12iS, users can take advantage of ATI's unique Auto-Test sensor verification system. While other gas transmitters rely on less reliable electronic sensor tests, the Auto-Test system consists of an actual gas test. A test gas is generated right at the sensor and the response of the sensor is verified. Manual bump testing to verify response is eliminated, greatly reducing maintenance requirements.



AUTO-TEST GENERATORS

| | |
|---------|---------------------------------------|
| 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 |
| 00-1543 | E18-22 HCN gas generator |

ORDERING INFORMATION MODEL F12IS - A-B-C-D

F12iS transmitters are designed to use electrochemical sensors only. Specify transmitter and then select sensors from page 3. Add the Auto-Test generator if that feature is desired.

SUFFIX A - POWER

1 - 24 VDC, loop-powered

SUFFIX B - SENSOR HOLDER STYLE

- 1 - Integral sensor holder
- 2 - Remote sensor holder with junction box (order 31-0185 interconnect cable below)
- 3 - Integral heated sensor holder
- 4 - Remote heated sensor holder with junction box (order 31-0068 interconnect cable below)
- 5 - Duct mount sensor holder with 25 ft. extension cable (requires 00-1388 Adapter)
- 6 - Sensor holder with 6 ft. cable
- 7 - Remote junction box plus 6 ft. cable with holder
- 8 - Remote junction box with close-coupled duct mount sensor (requires 00-1388 Adapter)

SUFFIX C - SENSOR AUTO-TEST

- 1 - No Auto-Test Generator Holder
- 2 - With Auto-Test Generator Holder

SUFFIX D - DIGITAL OUTPUT

- 1 - None
- 2 - HART® interface

ACCESSORIES

- 00-1056** Calibration adapter
00-1251 Flowcell assembly
03-0118 Flowcell with 03-0460 sensor cap
00-0981 Sensing module keeper for 4 sensors
00-1388 Duct sensor adapter, 1½" MNPT
31-0185 4-Conductor Interconnect Cable, specify length, max. 500 ft.
31-0068 6-Conductor Interconnect Cable, specify length, max. 500 ft.

Note: When ordering an F12iS unit with a flowcell, the 03-0460 sensor cap will be supplied in place of the standard sensor cap and does not need to be ordered separately. If a flowcell is being added to an existing F12iS, order the 03-0118 assembly which includes both the flowcell and sensor cap.

SPECIFICATIONS

| | |
|---------------------------|---|
| Sensor Type | Electrochemical cell |
| Gas Type | Select sensor from listing on page 3 |
| Range | User adjustable within limits of selected sensor |
| Response Time | Sensor dependent |
| Accuracy | Generally ±5-10% of value, limited by available calibration gas accuracy. |
| Repeatability | ±1% (Electronic) |
| Linearity | ±0.5% (Electronic) |
| Zero Drift | Less than 2% full scale per month, non-cumulative |
| Span Drift | Dependent on sensor environment but generally less than 3% per month |
| Analog Output | 4-20 mA, 600 ohms max. at 24 VDC |
| Serial Interface | (Optional) HART® digital signaling over the 4-20mA current loop |
| Power Requirements | 12-28 VDC, 25 mA Maximum 75 mA Maximum with heated sensor |
| Enclosure | IP 65, polycarbonate with stainless steel hardware. Weatherproof and corrosion resistant. Refer to F12iS Support Drawings for Dimensions |
| CE Mark | 2014/35/EU - Low voltage directive 2014/30/EU - Electromagnetic compatibility |
| Certifications: | UL/CSA: I.S. for Class I, II, and III, Division 1 Locations ATEX: EX II 1 G Ex ia IIC T4 Ga, -30°C ≤ Ta ≤ 60°C; IP65 IEC: Ex ia IIC T4 Ga, -30°C ≤ Ta ≤ 60°C |
| Mounting | (Standard) Wall or pipe mount bracket. U-Bolts suitable for 1.5" or 2" I.D. (Optional) Panel mount kit available. |
| Auto-Test Option | Dependent on sensor gas type and full scale range |
| Display | 96x32 Dot-matrix Graphic LCD, Backlit, Transflective |
| Controls | Four, dome-type push buttons; Remote alarm reset input (w/optional alarm relays only) |
| Temperature | -30°C to +60°C (Min. temp. for O ₂ Sensor is -20°C) |
| Environment | 10 to 95% RH (non-condensing) |
| Weight | 1.5 lb (0.68 kg) |

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