



TELEDYNE
ANALYTICAL INSTRUMENTS
Everywhere you look™

GFC Series

Infrared Analyzers with
Gas Filter Correlation Technology

FEATURES

- Models available for CO, CO₂, and N₂O gas detection
- Gas filter correlation method provides part-per-billion (ppb) detection
- Large color touch-screen provides large, luminescent interface
- Adaptive signal filtering optimizes response time
- Temperature and pressure compensation
- USB ports on front panel for peripheral devices and firmware upgrades
- Commonality of parts across all models



GFC Series Configurations

Model	Gas Analyzed
GFC-7000T	CO ₂
GFC-7001T	CO
GFC-7002T	N ₂ O

The GFC Series gas filter correlation analyzers measure low ranges of gases (CO₂, CO, and N₂O detecting models available) by comparing infrared energy absorbed by a sample to that absorbed by a reference according to the Beer-Lambert law.

Using a Gas Filter Correlation Wheel, a high energy IR light source is alternately passed through a target gas-filled chamber and a chamber with no target gas present. The light path then travels through

the sample cell, with a variable length folded path depending on the gas being detected. The energy lost through the sample cell is compared with the reference signal provided by the filter wheel to produce a signal proportional to concentration, with little effect from interfering gases within the sample. This design produces excellent zero and span stability and high signal to noise ratio, allowing excellent performance over a wide concentration range.

All GFC Series instruments offer an advanced color display, capacitive touch screen, intuitive user interface, flexible I/O, and built-in data acquisition capability. All instrument set up, control, and access to stored data and diagnostic information is available through the front panel or via RS232, Ethernet, or USB com ports either locally or by remote connection using the included APIcom™ software.

CALIBRATION OPTIONS:

- Ambient zero/ambient span
- Ambient zero/pressurized span
- Zero scrubber/pressurized span
- Zero scrubber/ambient span

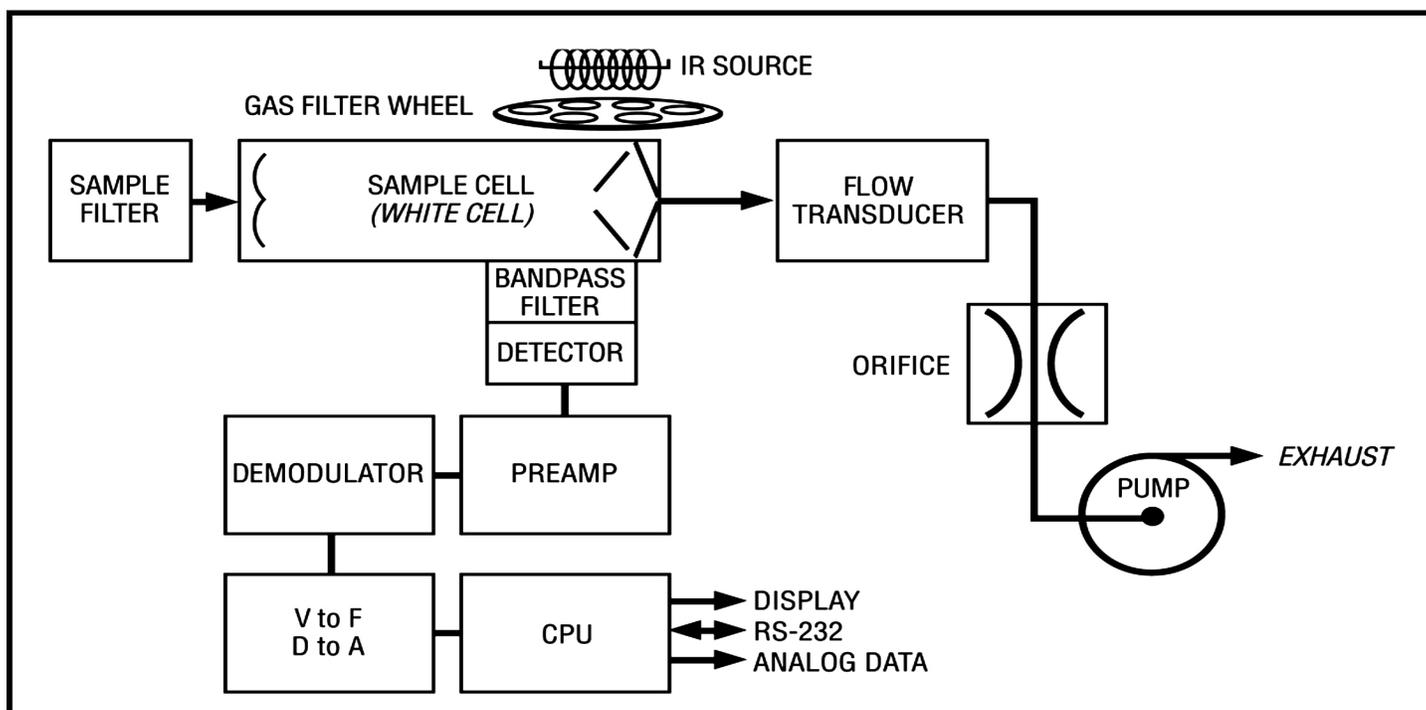
MOUNTING OPTIONS:

- Rack mount brackets with chassis slides
- Rack mount brackets only
- Handles

OTHER OPTIONS:

- Paramagnetic O₂ Sensor
- CO₂ Sensor
- Concentration alarm relays
- Expendables kit

GFC Series Schematic



GFC Series - Infrared Analyzers

SPECIFICATIONS	GFC-7000T	GFC-7001T	GFC-7002T
Gas Analyzed	CO ₂	CO	N ₂ O
Range	0-2 ppm to 0-2,000 ppm full scale (0-100 ppb to 0-100 ppm full scale for -U version) (dual ranges and auto-ranging supported)	0-1 ppm to 0-1,000 ppm full scale (0-100 ppb to 0-100 ppm full scale for -U version) (dual ranges and auto-ranging supported)	0-1 ppm to 0-1,000 ppm full scale (0-200 ppb to 0-200 ppm full scale for -U version) (dual ranges and auto-ranging supported)
Measurement Units	ppb, ppm, µg/m ³ , mg/m ³ (selectable)	ppb, ppm, µg/m ³ , mg/m ³ (selectable)	ppb, ppm, µg/m ³ , mg/m ³ (selectable)
Zero Noise	< 0.1 ppm (RMS) (< 2.5 ppb (RMS) with -U option)	< 0.02 ppm (RMS) (< 10 ppb (RMS) with -U option)	< 0.02 ppm (RMS) (< 10 ppb (RMS) with -U option)
Span Noise	< 1% of reading (RMS) (< 5% of reading (RMS) with -U option)	< 0.5% of reading (RMS) above 5 ppm (< 0.5% of reading above 2.5 ppm with -U option)	< 0.5% of reading (RMS) above 5 ppm (< 0.5% of reading (RMS) for -U option)
Lower Detectable Limit	< 0.2 ppm (< 5 ppb with -U option)	0.04 ppm (< 20 ppb with -U option)	0.04 ppm (< 10 ppb with -U option)
Zero Drift	< 0.25 ppm/24 hours	< 0.1 ppm/24 hours (< 20 ppb/24 hours with -U option)	< 0.1 ppm/24 hours (< 25 ppb/24 hours with -U option)
Span Drift	< 0.5% of reading /24 hours	< 0.5% of reading /24 hours (< 0.5% of reading/24 hours above 5 ppm with -U option)	< 0.5% of reading /24 hours
Lag Time	10 seconds	10 seconds	10 seconds
Rise and Fall Time	< 60 seconds to 95%	< 60 seconds to 95%	< 60 seconds to 95%
Linearity	1% of full scale	1% of full scale	1% of full scale
Precision	0.5% of reading	0.5% of reading	0.5% of reading
Sample Flow Rate	800 cm ³ /min ± 10%	800 cm ³ /min ± 10% (1800 cm ³ /min +/- 20% with -U option)	800 cm ³ /min ± 10%
ELECTRICAL SPECIFICATIONS			
Power Requirements	100V-120V or 220V-240V, 50/60 Hz	100V-120V or 220V-240V, 50/60 Hz	100V-120V or 220V-240V, 50/60 Hz
Analog Output Ranges	10V, 5V, 1V, 0.1V (selectable)	10V, 5V, 1V, 0.1V (selectable)	10V, 5V, 1V, 0.1V (selectable)
Recorder Offset	± 10%	± 10%	± 10%
PHYSICAL SPECIFICATIONS			
Operating Temp Range	5 - 40°C (41 - 104°F)	5 - 40°C (41 - 104°F)	5 - 40°C (41 - 104°F)
Dimensions (HxWxD)	7 x 17 x 23.5 inches (178 x 432 x 597 mm)	7 x 17 x 23.5 inches (178 x 432 x 597 mm)	7 x 17 x 23.5 inches (178 x 432 x 597 mm)
Weight	40 lbs (18 kg)	40 lbs (18 kg)	50 lbs (22.7 kg)
COMMUNICATIONS			
Included I/O	1 x Ethernet: 10/100Base-T 2 x RS232 (300-115,200 baud) 2 x USB ports for firmware upgrades 8 x opto-isolated digital outputs 6 x opto-isolated digital inputs 4 x analog outputs (3 x 4-20mA current outputs)	1 x Ethernet: 10/100Base-T 2 x RS232 (300-115,200 baud) 2 x USB ports for firmware upgrades 8 x opto-isolated digital outputs 6 x opto-isolated digital inputs 4 x analog outputs (3 x 4-20mA current outputs)	1 x Ethernet: 10/100Base-T 2 x RS232 (300-115,200 baud) 2 x USB ports for firmware upgrades 8 x opto-isolated digital outputs 6 x opto-isolated digital inputs 4 x analog outputs (3 x 4-20mA current outputs)
Optional I/O	1 x USB communications port 1 x RS485 8 x analog inputs (0-10V, 12-bit) 4 x digital alarm outputs Multidrop RS232	1 x USB communications port 1 x RS485 8 x analog inputs (0-10V, 12-bit) 4 x digital alarm outputs Multidrop RS232	1 x USB communications port 1 x RS485 8 x analog inputs (0-10V, 12-bit) 4 x digital alarm outputs Multidrop RS232



TAI Representative:

 **TELEDYNE ANALYTICAL INSTRUMENTS**
Everywhere you look™

Teledyne Analytical Instruments (TAI) - Factory
16830 Chestnut Street
City of Industry, CA 91748, USA
TOLL FREE (888) 789-8168
TEL: 626.934.1500
FAX: 626.934.1651
www.teledyne-ai.com

TAI - South America
Angel Luhia (consultant)
Av. Dellepiane 4208
(C1407H2W) Buenos Aires
ARGENTINA
TEL & FAX: 54.11.4601-0050
MOB: 54.911.5388-3664
E-mail: aluhia@taisudamerica.com.ar
E-mail: info@taisudamerica.com.ar

TAI - Houston & Gulf Coast Region USA
Shana Kiser
Sales Engineer
TEL: 281.557.8740
MOB: 281.685.3758
FAX: 281.557.8741
E-mail: skiser@teledyne.com

TAI - So. East Asia
Soo Keong Lim
No. J-03-2, Dataran Glomac
Jalan SS6/18, Pusat Bandar Kelana Jaya
47301 Kelana Jaya
Selangor
MALAYSIA
TEL: 603.7805.7712
FAX: 603.7805.7710
MOB: 6012.2010.610
E-mail: slim@teledyne.com

TAI - Southeast USA
Dave Solomon
Sales Manager
TEL: 281.471.2935
MOB: 281.414.8236
FAX: 281.471.3091
E-mail: dsolomon@teledyne.com

TAI - Middle East and India
Manoj Kumar
PO Box 8976
Y2-113 SAIF Zone
Sharjah
UNITED ARAB EMIRATES (UAE)
TEL: 971.6.5575.704
MOB: 971.5.0634.5537
E-mail: mkumar@teledyne.com

Warranty

Instrument is warranted for one year against defects in material or workmanship

NOTE: Specifications and features will vary with application. The above are established and validated during design, but are not to be construed as test criteria for every product. All specifications and features are subject to change without notice.

