



Type 647C

MULTICHANNEL GAS FLOW & PRESSURE CONTROLLER

The MKS Type 647 is a multichannel controller which provides both pressure and flow control. Up to eight gas mass flow channels and one pressure channel allow for independent or ratio-based gas flow control. The one pressure channel and up to four flow channels are displayed simultaneously on an LCD readout, and are controlled locally from the front panel or remotely using the analog RS-232 interface.

The Type 647 operates in mass flow control mode and upstream pressure control mode, with ratioed flow control (Fig. 1 & 2). In the mass flow control mode, independent monitoring and control is possible with up to eight flow transducers as independent channels, or in ratio with one or more channels as the master and the others as slaves. With the digital PID option operating in upstream control mode, the 647 accepts a pressure signal from the pressure transducer and controls the gas flows in ratio to maintain a desired pressure set point. The 647 then reads and displays the flow rates.

Features & Benefits

Single Unit Controls Pressure & Multiple MFCs

- Multi-purpose controller supplies power, provides gas flow readouts and simultaneously displays all channels with pressure
- Available in four or eight channel systems allowing for support of ratio-based gas flow control
- Optional digital PID supports upstream pressure and gas-flow ratio control
- Optional two relay contacts per channel to provide indication or alarm when gas flow deviates from set point

Easy-to-Use

- Three levels of menus enable ease-of-use and fast setup
- Five programmable and selectable gas recipes reduce time delays during process changes
- Gas correction factors are stored in memory for quick retrieval

Remote Process Control

- Analog RS-232 communication links enable remote control
- Remote zero capability for all channels ensures error-free offset operation via RS-232 interface



Specifications and Ordering Information

Description/Channel Capacity

Standard
Optional

Display

Signal Inputs

From MFC
Scaling
External Set Point
Scaling
External On/Off
RS-232

Signal Outputs

MFC Output(s)
Unscaled
Trip Points

Control Outputs

Power Supply Outputs

Power Input

Operating Temperature

CE Mark Compliance

Electromagnetic Compatibility

Product Safety

Size

4 flow channels, 1 pressure channel, microprocessor-based, continuous display
8 flow channels

LCD provides simultaneous readout of up to four flow channels and one pressure channel

4 or 8 × 0 to 5 VDC

User-selectable range, units (sccm, slm, scmm, scfh, scfm) and gas correction factor
1 × 0-10 VDC (Pressure Signal); 4 or 8 × 0-5 VDC (flow signal)

User-selectable pressure range, units (mTorr, Torr, kTorr, mBar, mBar, Bar, Pa, kPa)

TTL-compatible

Standard

Minimum load impedance: 10K W per channel

4 or 8 × 0-5 VDC

2 SPDT relays per flow channel (optional); max. load 250 mA @ 28 VDC; adjustable trip points

1 per channel; maximum load 250 mA @ 28 VDC

±15 VDC ±5% @ 3.3 Amps max., 0.5 Amps per channel

100-240 VAC, 50-60 Hz, 200W

15° to 40°C

Fully CE Compliant to EMC Directive 2004/108/EC when used with an overall metal braided shielded cable, properly grounded at both ends

Fully compliant to Low Voltage Directive 72/23/EEC

19.06" (484 mm) W × 5.26" (133.5 mm) H × 9.65" (245 mm) D without handles

19.06" (484 mm) W × 5.26" (133.5 mm) H × 11.22" (285 mm) D with handles

Ordering Code Example: 647C4R1T

Type 647C	Code	Configuration
647C	647C	647
Channels		
Four	4	
Eight	8	4
Interface		
RS-232	R	R
Control		
None	0	
PID Pressure Control	1	1
Relay Option		
None	N	
Relays	T	T

Cabling for 647C:

CB147-1-10 to connect 647 to 358, 558, 1150*, 1152*, 1359, 1559, 179 (15-pin)

CB260-3-10 is also needed to connect 647 to 1150, 1152

CB147-25-3 to connect 647 to 250 (PCS)

CB147-22-3 to connect 647 to 647 (daisy-chaining)

CB147-30-10 to connect 647 to 121, 221

CB147-12-10 to connect 647 to 179 (9-pin)

CB147-7-10 to connect 647 to 179 (20-pin card edge)

CB647-19-10 to connect 647 to 9-pin 700/800 Series

CB647-4-3 to connect 647 to 270

CB647-1-10 to connect 647 to 626, 627

Contact Applications Engineering at 800-227-8766 for shielded cables required for CE Compliance.

Figure 1: Mass Flow Control

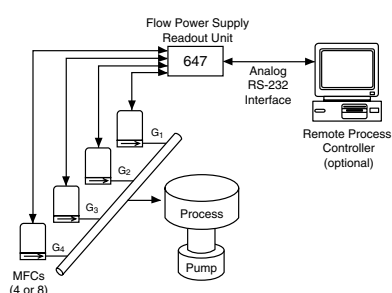
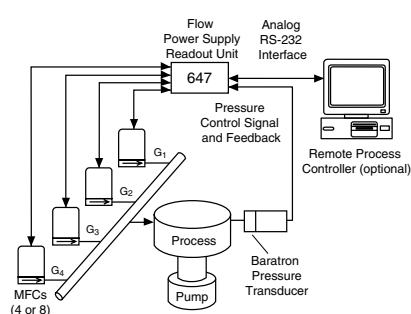


Figure 2: Upstream Pressure Control



Dimensional Drawing —

Note: Unless otherwise specified, dimensions are nominal values in inches (mm referenced).



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