



Multichannel Gas Flow & Pressure Controller Type 647C

Features and 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

Description

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.

Modes of Operation

Figure 1: Mass Flow Control

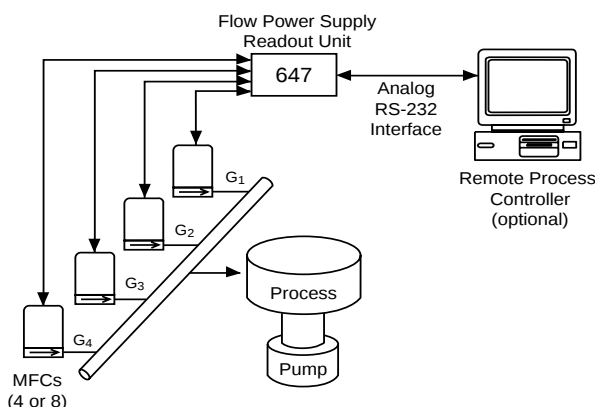
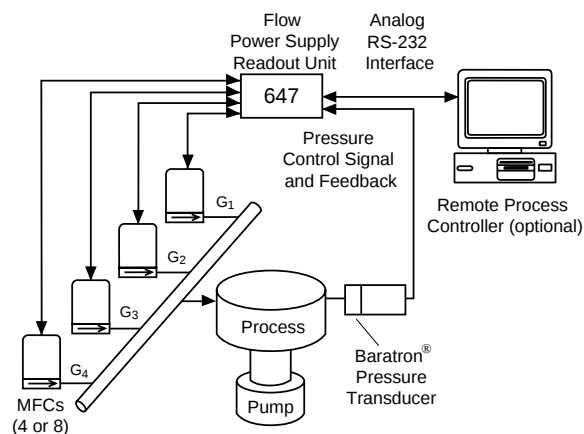


Figure 2: Upstream Pressure Control



Specifications

Description/Channel Capacity	
Standard	4 flow channels, 1 pressure channel, microprocessor-based, continuous display
Optional	8 flow channels
Display	LCD provides simultaneous readout of up to four flow channels and one pressure channel
Signal Inputs	
From MFC	4 or 8 × 0 to 5 VDC
Scaling	User-selectable range, units (sccm, slm, scmm, scfh, scfm) and gas correction factor
External set point	1 × 0-10 VDC (Pressure Signal); 4 or 8 × 0-5 VDC (flow signal)
Scaling	User-selectable pressure range, units (mTorr, Torr, kTorr, μ Bar, mBar, Bar, Pa, kPa)
External on/off	TTL-compatible
RS-232	Standard
Signal Outputs	
MFC output(s)	Minimum load impedance: 10K Ω per channel
Unscaled	4 or 8 × 0-5 VDC
Trip points	2 SPDT relays per flow channel (optional); max. load 250 mA @ 28 VDC; adjustable trip points
Control outputs	1 per channel; maximum load 250 mA @ 28 VDC
Power Supply Outputs	± 15 VDC $\pm 5\%$ @ 3.3 Amps max., 0.5 Amps per channel
Power Input	100-240 VAC, 50-60 Hz, 200W
Operating Temperature	15° to 40°C
CE Mark Compliance	
Electromagnetic compatibility	Fully CE Compliant to EMC Directive 89/336/EEC when used with an overall metal braided shielded cable, properly grounded at both ends
Product safety	Fully compliant to Low Voltage Directive 72/23/EEC
Size	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

Specifications are subject to change without notice.

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Ordering Information

Type 647C Multichannel Flow/Pressure Controller

model number example:		647C	4	R	1	T
Type Number	647C					
Channels						
Four	4					
Eight	8					
Interface						
RS-232	R					
Control						
None	0					
PID Pressure Control	1					
Relay Option						
None	N					
Relays	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.

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Six Shattuck Road
Andover, MA 01810-2449
(800) 227-8766 or (978) 975-2350
Fax: (978) 975-0093
E-mail: mks@mksinst.com
Web site: <http://www.mksinst.com>