

1. Description

The M1293XN H₂ purity and M1293XM gas densitometer panel can be mounted on any flat surface.

2. General Specifications

Max Input Pressure:	100 psig
Gas Flow Rate:	0.1 – 1.0LPM
Dimensions:	20.88" x 8.55" x 11" (L, W, H)
Connections:	¼" FNPT (qty 7)
Wetted Materials:	316/316L Stainless Steel, Kalrez 6375, Nitrile Elastomer, Nylon Fabric, Sintered Polyethylene, Silver valve seat

3. Location

1. The installation location should be easily accessible for maintenance and inspection.
2. No corrosive gases should be present at the installation location.
3. Tubing and proximity for calibration and sample gases.

4. Mounting and Installation

1. The sample panel should be mounted vertically up on any flat surface. This will allow the flow meter's floats to move freely when either sample gas or calibration gas is flowing.
2. Wrap the threads of all fittings with Teflon tape before threading into the sample panel.

5. Standards and Process Streams

1. **Zero Gas***: Typically, when used as a H₂ purity sample panel a certified 100% H₂ standard is used for zero gas. When the panel is being used as a gas densitometer typically a light balanced stream or standard is used as zero gas that will have a lighter density than the sample gas.
2. **Span Gas***: Typically, when used as a H₂ purity sample panel a certified 100% CO₂ standard is used for span gas. When the panel is being used as a gas densitometer typically a heavy balanced stream or standard is used as span gas that will have a heavier density than the sample gas.

*Please consult Yokogawa directly regarding questions surrounding zero and span gas standards when the sample panel is being used for a gas densitometer measurement.

6. Tubing Connections

The sample panel tubing consists of the following inlet/outlet connections.

1. Sample Inlet
2. Calibration Gas 1 Inlet
3. Calibration Gas 2 Inlet
4. Sample Outlet to Analyzer
5. Sample Outlet to Vent
6. Sample Inlet from Analyzer
7. Sample Outlet to Process Return

7. Standards and Sample Gas Flowrate and Pressure

1. Measurement gas must be free of dust, mist or moisture, and other such impurities. A coalescing filter is installed upstream of the membrane filter.
2. The inlet pressure must be greater than the outlet pressure by at minimum 0.71 psig.
3. The pressure regulator is adjusted to 60 psig at the factory; no additional adjustments are required.
4. Maximum regulator inlet pressure is 100 psig.
5. The pressure transmitter for compensating pressure is designed to detect the pressure inside the detector; no adjustments are required.
6. The sample flow should be controlled to ~0.20LPM.
7. The sample gas temperature needs to be no higher than 50°C (122°F)
8. The sample gas pressure needs to be regulated to no higher than 100 psig prior to introduction into the panel.

8. Flowrate Correlation

1. The sample panel utilizes one size of flowmeter with a single float and tube combination. The following table can be used to correlate the printed scaling on the rotameter for alternate standards and/or process streams based on stream density. In general, adjusting the float to 0.20LPM achieves the desired flowrate range for most gas stream densities.

Table 1. Flowrate Correlation Table

Component	Air	H ₂			CO ₂		CH ₄ H ₁₀
Density (kg/m ³)	1.204	0.0838	0.50	1.50	1.83	2.00	2.56
Flowrate (l/min)	0.05	0.19	0.08	0.04	0.04	0.04	0.03
	0.10	0.38	0.16	0.09	0.08	0.56	0.07
	0.15	0.57	0.23	0.13	0.12	0.22	0.10
	0.20	0.76	0.31	0.18	0.16	0.47	0.14
	0.25	0.95	0.39	0.22	0.20	0.40	0.17
	0.30	1.14	0.47	0.27	0.24	0.52	0.21
	0.35	1.33	0.54	0.31	0.28	0.53	0.24

9. Operation

1. To introduce sample gas to the GD40 detector set the source selector to “Sample” and set the flow rate accordingly.
2. To introduce calibration gas to the GD40 detector set the source selector to “Calibration” and set flow rate accordingly.
 - a. When performing a calibration set source selector to “Calibration” and set calibration selector to “Light” or “Heavy”.
3. Set Outlet selector to “Process Gas” or “Vent” depending on desired sample outlet exhaust.

10. Spare Parts

Description	Yokogawa PN
Pressure Regulator	BOP203200000000320
Pressure Gauge	BOP203200000000321
Flowmeter	RAGK41-T0SS-SSSV1-M617G-SSAGN/KAL Stock ID: RAGK41_0000000000204
Coalescing Filter Assembly	BOP203200000000316
Coalescing Filter Element	BOP203200000000317
Complete Filter Housing and Element Assembly	BOP203200000000318



Fig. 1 RAGK Flowmeter

11. Drawings

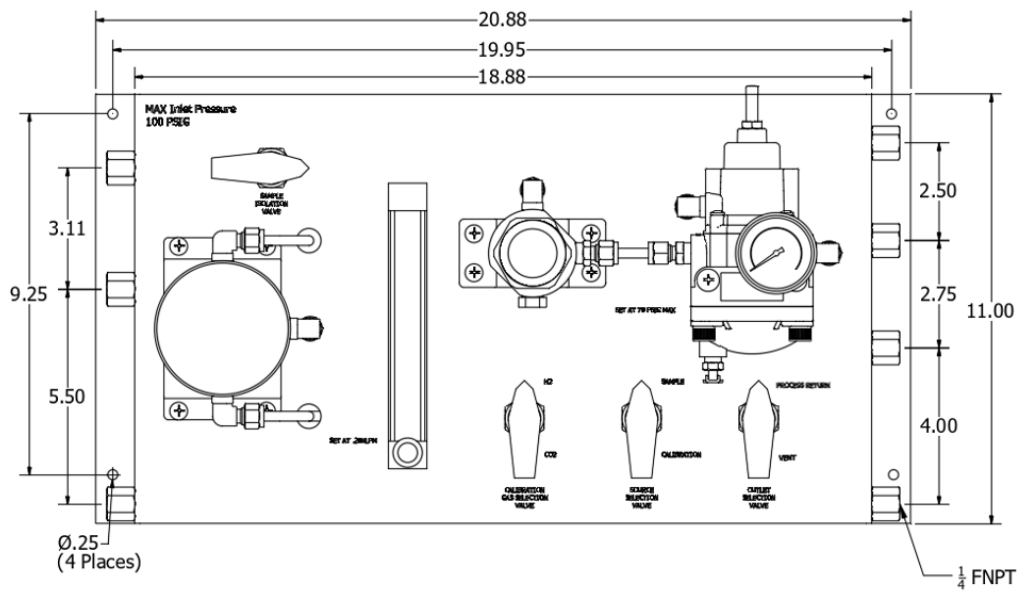


Fig. 2 Gas Density Sample Panel Front

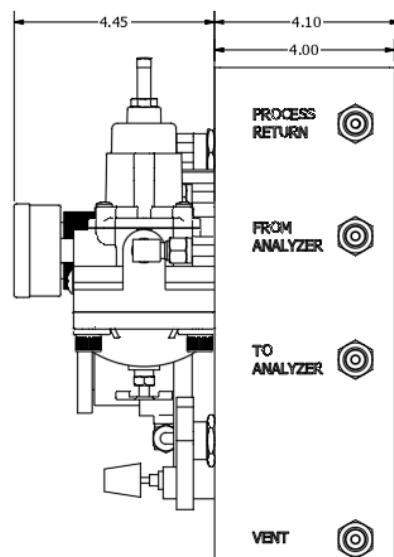


Fig. 3 Gas Density Sample Panel Side

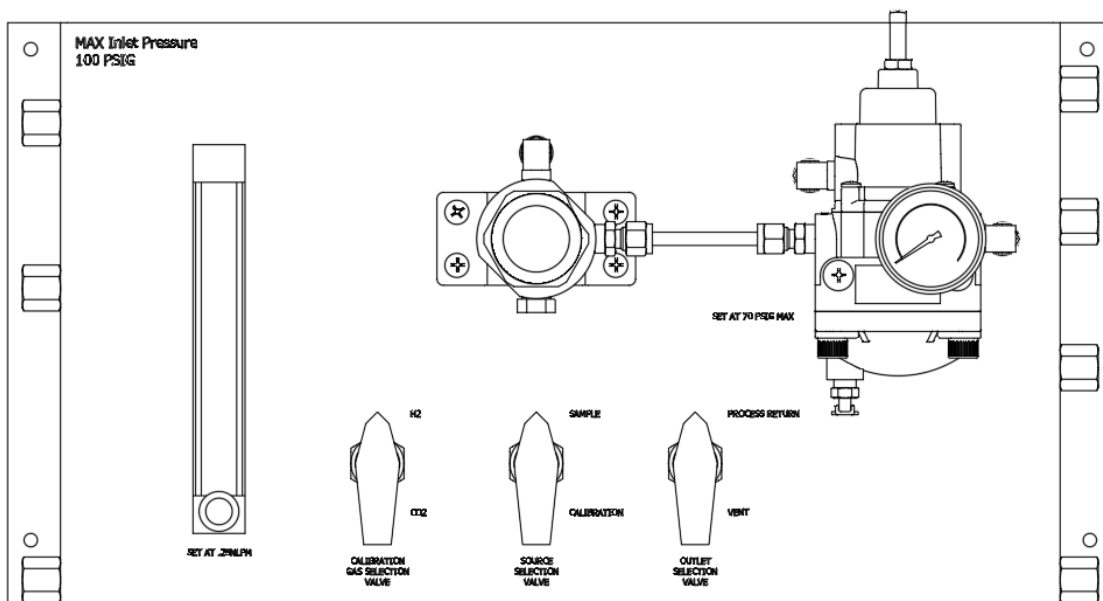


Fig. 4 H2 Purity Sample Panel Front

12. Revision Information

IM-P-20260825-01

Revision 1 - August 25, 2026

Newly released