

# Rapid Generator Auto-Purge System

E/One's focus on hydrogen-cooled generator gas systems begins at the point where cooling and purge gases enter the generator.

## SPECIFICATIONS

### MEASUREMENT CHARACTERISTICS

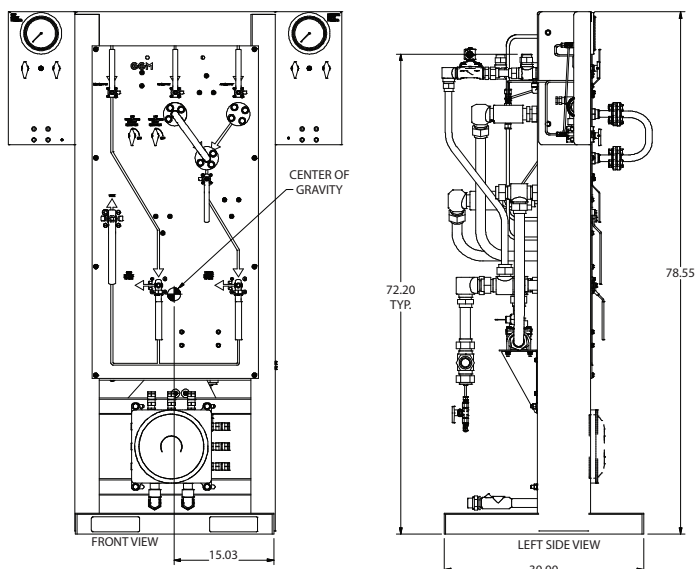
<b>Operating Fluid</b>	Gaseous H <sub>2</sub> , CO <sub>2</sub> , Air, Argon
<b>Generator casing pressure relief valve</b>	Set at 10-15 psig above casing pressure

### ELECTRICAL CHARACTERISTICS

<b>Ambient Location</b>	Class I, Zone 2, IIB + H <sub>2</sub>
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### MECHANICAL CHARACTERISTICS

<b>Overall Dimensions</b>	30" w x 79" h x 30" d (764 mm x 1995 mm x 762 mm)
<b>Weight</b>	Approximately 700 lbs. (317.5 Kg)
<b>Manifold Assembly</b>	SS tube
<b>Isolation valves</b>	Fire-safe, 3-piece ball valves with stainless steel trim
<b>Ambient temperature range</b>	-20°F to 125°F (-29°C to 52°C)
<b>Maximum Pressure</b>	Varies with application
<b>Maximum Process Gas Temperature</b>	150°F (65°C)
<b>H<sub>2</sub>, CO<sub>2</sub>, Air supply connections</b>	Standard: 1" tube socket weld Flanges available upon request
<b>Gas delivery connections</b>	Standard: 1.5" tube socket weld Flanges available upon request



### THE MANIFOLD

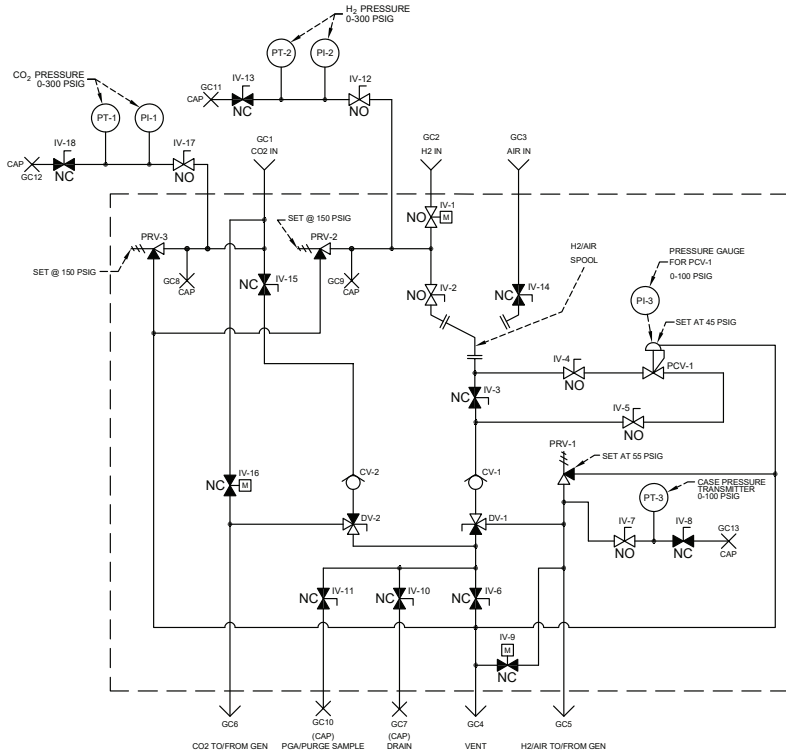
From the point where gas is received from the plant bulk supply systems or bottle manifolds, E/One's GGM monitors critical H<sub>2</sub> and CO<sub>2</sub> supply pressures and regulates the H<sub>2</sub> supply to maintain the appropriate machine gas pressure. Manual isolation valves, arranged for easy end-use access, allow operators to control all facets of the purge and fill process from a single location. A safety spool is an integral feature of the GGM to ensure that dangerous mixtures of H<sub>2</sub> and Air are avoided. E/One's GGM is an available module in our GAS STATION™ platform, or also available as a stand-alone product as illustrated here.

### AUTO-PURGE (OPTIONAL)

Reduction in plant staffing levels is a growing concern in the industry and is placing a premium on efficient execution of all tasks and activities. Additionally, there are inherent safety risks associated with deploying personnel to perform a manual purge of the generator during emergency situations. E/One's GGM can be configured to include an Auto-Purge feature that automates the generator purge process. A series of actuated ball valves are integrated into the GGM piping that, when initiated by the DCS, will quickly and safely de-gas and purge the generator with either CO<sub>2</sub> or Argon gas (whichever gas is used by the plant). Optional CO<sub>2</sub> vaporizers (sold separately) can be provided to speed up the CO<sub>2</sub> purging process and prevent the formation of dry ice in the pipework.



# P&ID



**INSTRUMENT & RELIEF VALVE TABLE**

COMPONENT	DESCRIPTION	OPERATING RANGE & SET PRESSURE
PT1 (CO2)	PRESSURE TRANSMITTER - CO2	OPERATING PRESSURE 0-300 PSIG
PI1 (CO2)	PRESSURE INSTRUMENT - CO2	OPERATING PRESSURE 0-300 PSIG
PT2 (H2)	PRESSURE TRANSMITTER - H2	OPERATING PRESSURE 0-300 PSIG
PI2 (H2)	PRESSURE INSTRUMENT - H2	OPERATING PRESSURE 0-300 PSIG
PI3 (H2/CO2)	PRESSURE INSTRUMENT - H2/CO2	OPERATING PRESSURE 0-100 PSIG
PT3 (H2)	PRESSURE TRANSMITTER - CASE	SET AT 100 PSIG
PRV1	PRESSURE RELIEF VALVE #1	SET AT 55 PSIG
PRV2	PRESSURE RELIEF VALVE #2	SET AT 150 PSIG
PRV3	PRESSURE RELIEF VALVE #3	SET AT 150 PSIG
PCV1	PRESSURE CONTROL VALVE #1	SET AT 45 PSIG

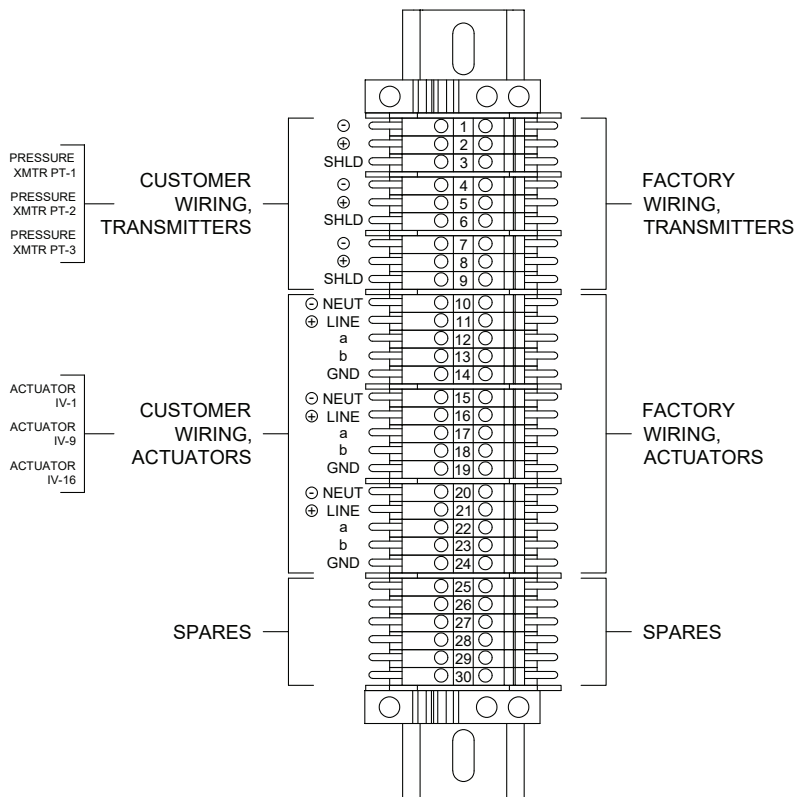
**PROCESS CONNECTION TABLE**

CONNECTION	SIZE	TYPE	DESCRIPTION
GC1	1"	TUBE SOCKET WELD	CO2 IN
GC2	1"	TUBE SOCKET WELD	H2 IN
GC3	1"	TUBE SOCKET WELD	AIR IN
GC4	1.5"	TUBE SOCKET WELD	VENT
GC5	1.5"	TUBE SOCKET WELD	H2/AIR FROM GENERATOR
GC6	1.5"	TUBE SOCKET WELD	CO2 TO/FROM GENERATOR
GC7	.25"	COMPRESSION	DRAIN
GC8	.5"	COMPRESSION	CO2 SUPPLY PRESSURE PORT
GC9	.5"	COMPRESSION	H2 SUPPLY PRESSURE PORT
GC10	.25"	COMPRESSION	PGA/PURGE SAMPLE PORT
GC11	.25"	COMPRESSION	CAL PORT H2
GC12	.25"	COMPRESSION	CAL PORT CO2
GC13	.25"	COMPRESSION	CAL PORT CASE

**NOTES:**

- SPOOL AND VALVES SHOWN IN H2 FILL AND CO2 PURGE POSITION.
- WARNING! THERE ARE TO BE NO OBSTRUCTIONS IN VENT LINE.

# CUSTOMER CONNECTION



**NOTES:**

- PT-1 & PT-2 LOOP POWERED EXTERNALLY EXCITED  
4-20mA = 0-300psig
- PT-3 LOOP POWERED EXTERNALLY EXCITED  
4-20mA = 0-100psig
- ACTUATOR POWER  
24-230 VAC/DC, 30W (50VA)



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