

# Emissions Master (EM)

For many analyzer installations, mitigating hydrocarbon fugitive emissions at the equipment location can be challenging due to the absence of a flare, low pressure, or thermal oxidizer return point. To eliminate all hydrocarbon emissions after passing through the sample system or after the measurement has been made, the US Patent 10,753,204 and US Patent pending 15/796,412 Smith Analytical Emissions Master (EM) is now available.

## The Emissions Master is Designed to Handle:

The Emissions Master has a High Heating Value (HHV) BTU throughput ranging from 6,000 up to 20,400 BTU/HR. The Emissions Master is offered with either an EPA approved catalytic converter or a combustion chamber for the conversion of hydrocarbons into CO<sub>2</sub> and water vapor. With either model, no back-pressure is generated on the vent gas header.



## SPECIFICATIONS

- All electrical hardware is rated for Class 1, Division 2, Group B/C/D T3 or ATEX
- All emissions destruction hardware is housed inside a 12"H x 12"W x 8"D Appleton Division 1 Explosion Proof Enclosure. Additional electrical hardware is in a NEMA 7 Division 1 enclosure. The control hardware for the EM is in a NEMA 7 or 4X stainless steel enclosure, depending on the control hardware selected.
- 110VAC-20 amp power required
- Regulated Instrument or plant air supply. Maximum air flow consumption is based on the sample being sent to the Emissions Master:
  - a. Methane stream – Air consumption 60-67 LPM (2.3 SCFM)
  - b. Mixed gas stream – Air consumption 70-79 LPM (2.8 SCFM)
  - c. Propane gas stream – Air consumption 24-26 LPM (0.93 SCFM)
  - d. Air consumption for the Emissions Master High Flow unit will range from 50-120 LPM (1.7-4.23 SCFM) depending on the gas stream composition.
- If instrument or plant air is not available, the EM can be supplied with an optional area-rated ADI air pump capable of delivering up to 80 LPM (2.82 SCFM) of air to ensure proper operation of the Emissions Master. This will require an additional 110VAC circuit.
- The EM is equipped with either the standard dual-channel controller or the optional area-rated PLC controller.
- Mounting arrangement can be horizontal or vertical.
- Standard Flow Emissions Master weight is 400lb (181 Kg). The High Flow Emissions Master weight is 600lb (272 Kg).
- Provided the vent gas and combustion air setting are properly set, the hydrocarbon destruction efficiency will be > 99.9%. Every Emissions Master is tested during Factory Acceptance Testing to ensure the total hydrocarbon emissions is less than 10 ppmv.

Table 1 below provides a comparison of the Emissions Master mitigation technology to competing products.

**TABLE 1 – EMISSIONS MITIGATION TECHNOLOGY MAXIMUM FLOW RATES BASED ON GROSS HEATING VALUES**

MODEL	HYDROGEN FLOW-LPM	METHANE FLOW-LPM	ETHANE FLOW-LPM
Emissions Master	31.38	4.76	2.69
Emissions Master High Flow	62.76	9.52	5.39
MTI Trace Erase	1	0.35	0.19
Falmouth	0	1.57	0.83

MODEL	ETHYLENE FLOW-LPM	PROPANE FLOW-LPM	PROPYLENE FLOW-LPM
Emissions Master	2.95	1.87	2.06
Emissions Master High Flow	5.90	3.74	4.12
MTI Trace Erase	0.21	0.13	0.15
Falmouth	0.89	0.57	0.59

**Units Required to Handle 1 LPM of Methane # of Units**

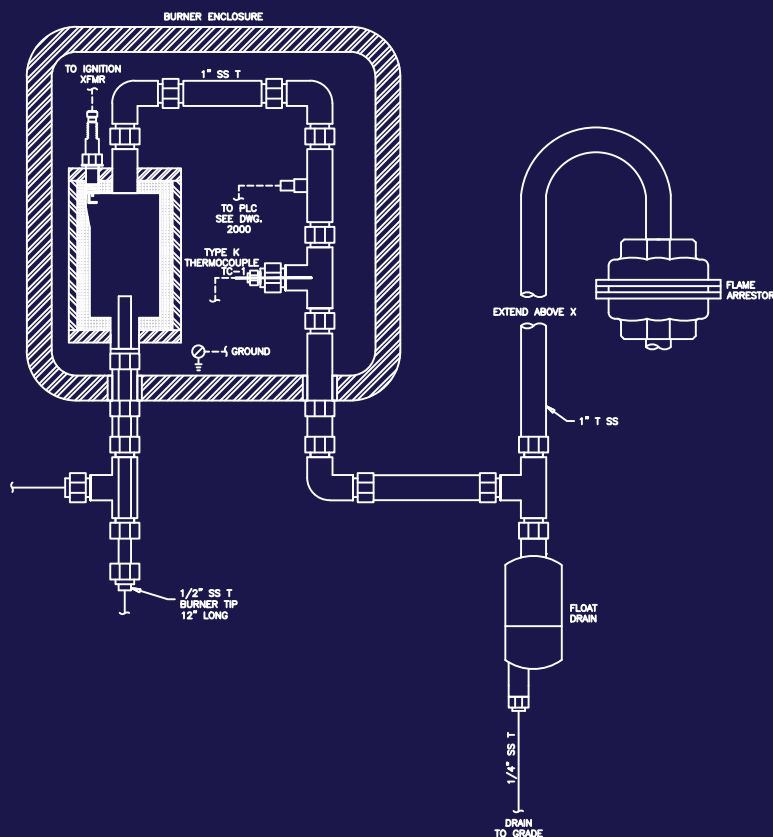
Emissions Master	1
Emissions Master High Flow	1
MTI Trace Erase	3
Falmouth	1

**Units Required to Handle 1 LPM of Ethane # of Units**

Emissions Master	1
Emissions Master High Flow	1
MTI Trace Erase	5
Falmouth	2

**Units Required to Handle 1 LPM of Propane # of Units**

Emissions Master	1
Emissions Master High Flow	1
MTI Trace Erase	7
Falmouth	2



For additional information on the Emissions Master product series, please contact your Account Manager or email [sales@smithanalytical.com](mailto:sales@smithanalytical.com).