



# FLAREMASTER™

FLARE METERING WITH REDUCED UNCERTAINTY



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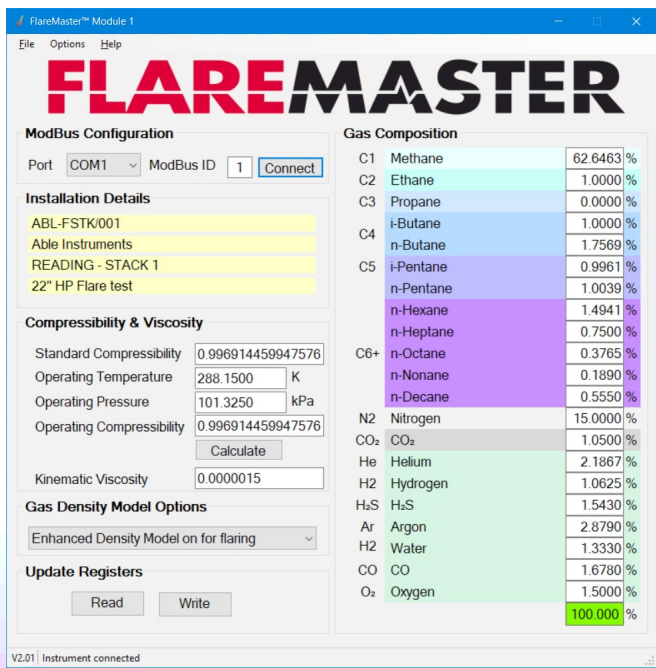
*Flare Metering With Reduced Uncertainty*

## FlareMaster Flare Metering Enhancement Tool

The ABLE FlareMaster, in its fully realised form, is a dual redundancy, supervisory system designed to optimise the performance of the current generation of ultrasonic flare gas meters (FGM) by significantly reducing measurement uncertainty and ensuring sustainability of measurement during the most challenging process upsets and anomalies. This is achieved by applying a high level of processing capacity and an enhanced layer of analytics to the data being generated by the base FGM. FlareMaster is able to data mine and harvest the myriad signals routinely produced by an FGM that aren't normally visible or accessible to a standard, associated flow computer.

Flaremaster is a modular system comprising the following elements: **FlareMaster Enhanced Density Module (EDM)** is able to provide the FGM with full flare gas density inputs in order to negate the effects of density distorting gas compositions. Typically, this will improve accuracy by a factor of 5%, consequently preventing over-reporting of Green House Gas (GHG) emissions and assisting with Tier 3 compliance.

An aegex10™ intrinsically safe tablet constitutes a hazardous area approved interface with the meter allowing personnel to monitor data and analytics in real time.



FlareMaster DataFlow is a data gathering and analysis tool which can be used in conjunction with the EDM hardware. DataFlow facilitates remote interrogation and parallel monitoring of multiple FGMs from a safe area as depicted by the topology diagram on the following page. The operator is provided with a real time display of process data, including mass and standard volume flow, velocity, process temperature and pressure. Historical records of measured and calculated data are easily accessible.

### Registered Address

ABLE Instruments & Controls Ltd  
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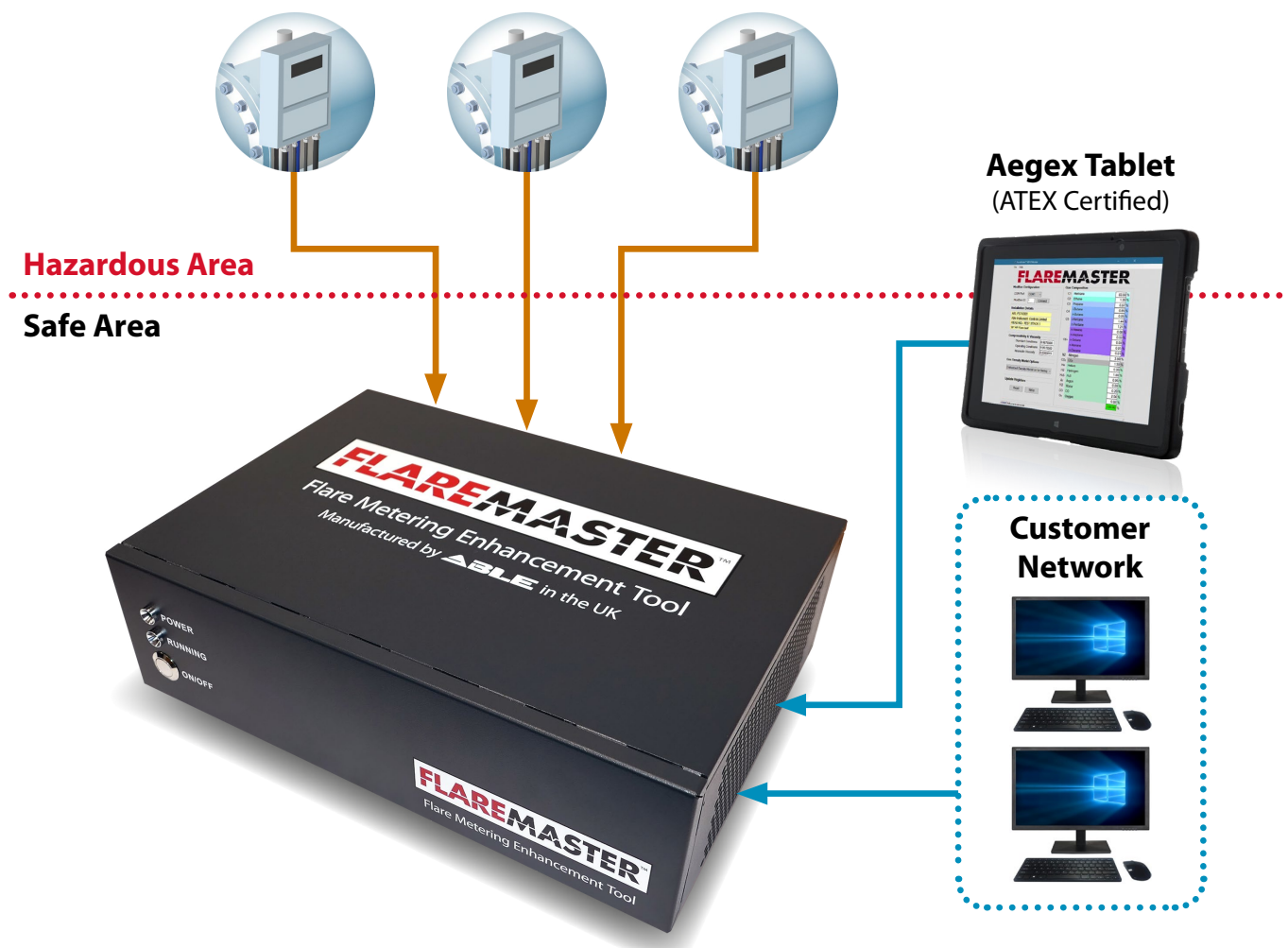
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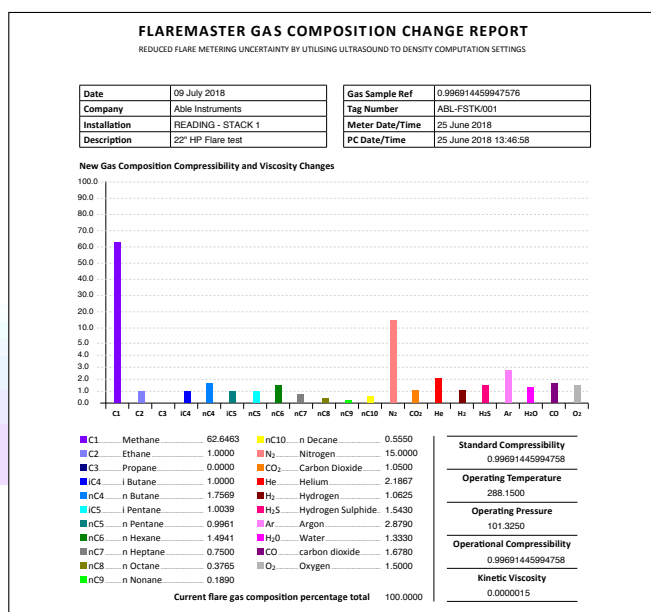
## Topology Diagram

### Flare Gas Meters



FlareMaster System Option I incorporates a Rockwell Automation Allen Bradley Controller which facilitates dynamic gas compressibility adjustment, an extended velocity range and comprehensive communication protocol selection.

System Option II equips the FlareMaster with a supplementary, non-invasive sensor array which confers additional redundancy and an advanced software feature set. This imbues the FGM with sustainability of measurement and optimum accuracy under all process conditions, including extreme flare stack blowdown, which can involve flow velocities of up to 1000m/sec. In this configuration, the FlareMaster provides the full dual redundancy, supervisory system referenced above.



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## Specifications

### Applicability

**Meter Compatibility** Any ultrasonic flare gas meter

**Operating Temperature** -100°C to 350°C

**Pipe Sizes** 2" to 82"

### Measurements & Ranges

**Velocity** 0.03 to 1000m/sec

**Mass Flow** } According to pipe dimensions  
**Volumetric Flow** } for the above velocity range

**Application Types** Suitable for stratified gas and multiphase flow conditions

### Measurement Parameters:

- Standard & actual volume flow
- Mass flow
- Totalised standard volume flow
- Totalised mass flow
- Molecular weight
- Standardised density
- Actual density
- Pressure
- Temperature
- Gas velocity

### HMI Software Suite / Wireless Hazardous Area Interface

Windows 10 / Aegex10™ Zone 1 ATEX Tablet

Wireless communication\*/\*\*

IOT Ready

DATAFLOW\*  
SYSTEM OPTION I\*\*  
SYSTEM OPTION II\*\*\*

### Processor

Rockwell Automation Allen-Bradley CompactLogix Controller\*\*

### Power

24VDC

Consumption: 2.5 amps on start-up, 1.5 amps on operation

### Certification

ATEX Zone 1

### Weights & Dimensions

See drawing CS100227 (attached)

### Operation Summary & Features

- Reliable and repeatable flare gas flow measurement during process upsets and extremes\*\*
- Effective operation during gas stratification and gas density variation
- Enhanced accuracy flow velocity measurement up to 1000m/sec\*\*\*
- Significant reduction in flare gas measurement uncertainty
- Potential decrease in reported flare gas totals and consequent financial penalties
- Remote interrogation and parallel monitoring of multiple FGM systems in safe area
- Real-time display of flare gas process data including mass and standard volume flow, totalized flow, velocity, process temperature and pressure
- Stores historical records of measured and calculated data
- Customizable graphs for process parameters with graph template save option
- Remote alarm setting for all instruments or a specific FGM
- Can be installed on 'live' process without shutdown
- Primary flare gas meter can be interrupted for service without loss of measurement\*\*\*
- On site visualisation & control via ATEX Zone 1 Tablet
- Dual redundancy of measurement\*\*
- Flow calibration curve and linearization functions



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FLAREMASTER™ EXTENDED VELOCITY, DUAL REDUNDANCY SUPERVISORY SYSTEM

