GasDens

APPLICATION MODULE
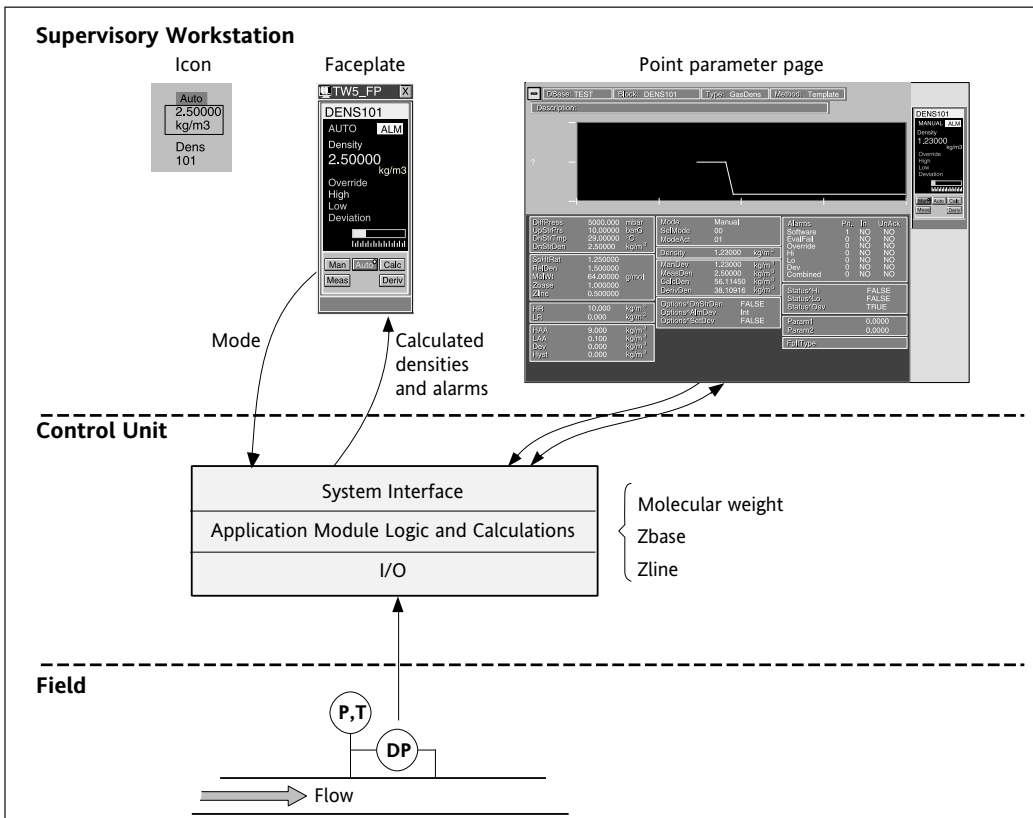
Gas Density
Application Module Library

The GasDens application module is designed to generate an up-stream density for use by the ISO5167O or ISO5167V flow application modules and provides the following functionality:

- **Calculation and display of density figures**
- **Allows a live density to be wired in**
- **Overall switch provided to select desired density calculation**
- **Standard supervisory workstation interface**
- **Standard software block**
- **Status and alarm display**
- **Operator faceplate**
- **Engineer point display**

The GasDens application module forms part of a library of software function blocks designed to aid the implementation of flow calculation. The block assumes that pressure and temperature inputs are in barG and °C, respectively. These are then internally converted to barA and K.

Applications
The application module works as an extension to the AGA8DATA block and offers the functionality required to calculate a gas density according to any of three standard methods.

Supervisory Workstation

Icon   Faceplate   Point parameter page

Mode

Calculated densities and alarms

Control Unit

System Interface

Application Module Logic and Calculations

I/O

Molecular weight
Zbase
Zline

Field

P,T

DP

Flow

OUTLINE SPECIFICATION

I/O

Differential Pressure input

Upstream Static Line Pressure input

Upstream Line Temperature input

Live Density input

Operating/Laboratory Parameters

Specific Heat Ratio

Relative Density

Molecular Weight

Zbase

Zline

Calculations

Measuresd density

Calculated density
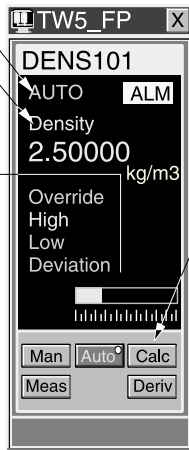
Derived density

Alarms

Override
Raised when mode is Manual

High Density

Low Density

Deviation

Operating Modes

Manual
Density can be an operator entry used for calibration purposes

Meas or Auto
Density is calculated using Live Density, etc.

Calc
Density is calculated using Molecular Weight, etc.

Deriv
Density is calculated using Relative Density, etc.

Mimic Icon

Notations

Man	Manual density selected
Meas	Measured density selected
Auto	Automatic density selected
Calc	Calculated density selected
Deriv	Derived density selected

Auto
2.50000
kg/m3

Dens
101

Line 1/Line 2 Textual control module tag or description

Colours

Red	Acknowledged alarm
Flashing	Unacknowledged alarm

Faceplate

Mode
Displays Man/Meas/Auto/Calc/Deriv

Density
Displays the upstream density derived from any of the modes

Override
Displayed when mode is Manual

High
Displayed when Density is greater than HAA

Low
Displayed when Density is lower than LAA

Deviation
Displayed when Deviation alarm is raised

TW5_FP X

DENS101

AUTO   ALM
Density
2.50000
kg/m3

Override
High
Low
Deviation

Man Auto Calc
Meas   Deriv

Operator Interaction

Man Button
Selects manual density

Auto Button
Selects automatic density

Calc Button
Selects calculated density

Meas Button
Selects measured density

Deriv Button
Selects derived

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