



InSpec

Blender Controller

The InSpec blender controller is a true 3-term PID controller, suitable for controlled rate batch blending, wildstream responsive blending and analyzer trim applications.

It is a powerful, simple to use and flexible solution for 2 stream blending applications.

The InSpec has dedicated multi-colour LEDs, user-configurable 'bar-graph' indicators and a simple user-friendly interface with operator prompting and configurable 'hot-keys' to display key parameters or alarms.

Operators can enter batch information using the keypad or the InSpec can be fully controlled via a modbus link.





The InSpec features access security with password protection and visual announcement of alarms with a hardware output.

The InSpec controller can be supplied with the following options.

Blend trim control

This feature is used to optimise final product quality using an online analyser for parameters such as sulphur, density or viscosity.

Pump and valve control

The InSpec blender is able to communicate with a PLC and provide enhanced control of pumps and block valves.

Batch quality calculations

Calculated and flow weighted averaging values for mass, sulphur, viscosity and density.

Print option

This enables the print-out of a report at the end of the batch. The report is stored in the controller and is accessible until the next batch is finished. A data log can also be generated throughout the batch duration, logging up to 8 parameters.

Auxiliary control option

Provides automated control of a mixing or fast loop pump or auxiliary equipment.

Modbus networking option

Enables full remote access operation as a Modbus slave device supporting commands 03, 06 and 16.

Remote panel option

The controller front panel can be remotely mounted up to 1km from the main instrument and additional remote displays can be connected.

Compatible Systems

- Ratio control blenders
- Density trim blenders
- Viscosity trim blenders

Typical applications

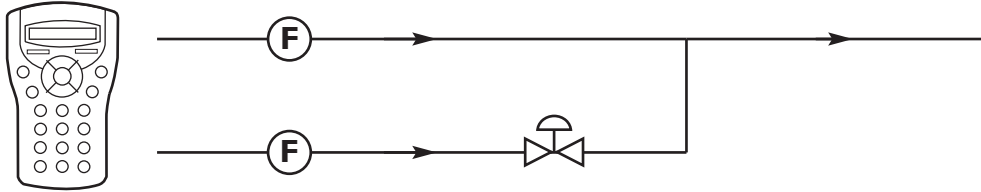
- Crude oil blending
- Bunker fuel oil blending
- LNG and LPG blending
- Ethanol blending
- Chemical blending
- Liquid blending

Features

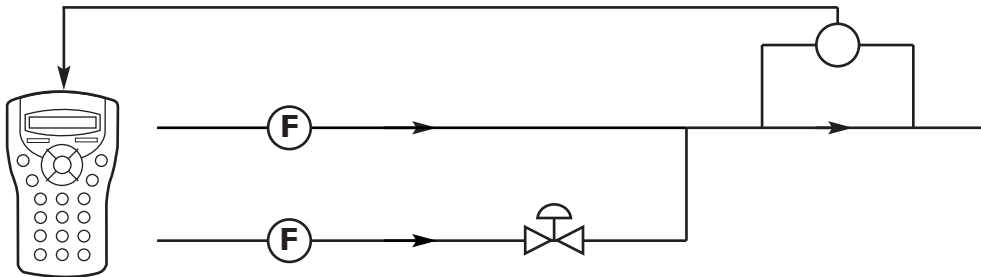
- Operator entered flow or automatic calculation of optimum set-point
- Tuneable ramp up and down generator
- Batch end optimisation of delivered product
- Integration into a clients DCS
- Provides two tier alarms to warn or shutdown due to ratio deviations
- Blend enable input e.g. dead man's handle
- Emergency Stop input
- Configuration and storage of 20 recipes for operator recall
- Calculation of product and actual stream of ratios, density, sulphur and viscosity contents
- Easy to read scrolling display with configurable bar-graphs
- Simple to use ergonomic controller
- Front panel can be remotely mounted
- Simple menu-driven wizard for ease of use and configuration
- PC based configuration backup and restore feature
- Operator and engineer security passwords
- Integrated remote auxiliary control

Typical blending methods

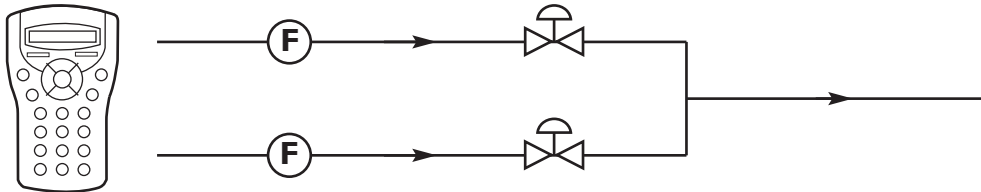
Wildstream - Controls the required addition of a component to a flowing stream, i.e. flow responsive.



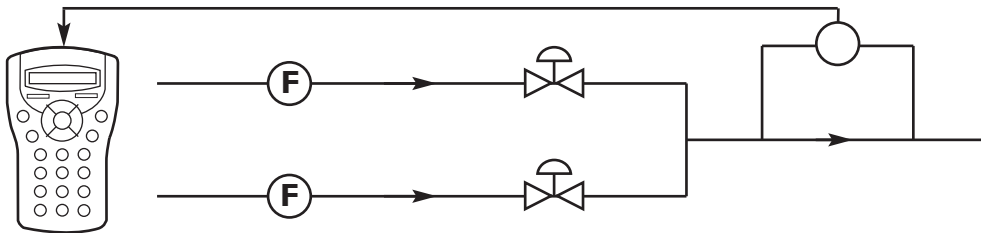
Wildstream with trim - Wildstream blender with analyser feedback to control quality.



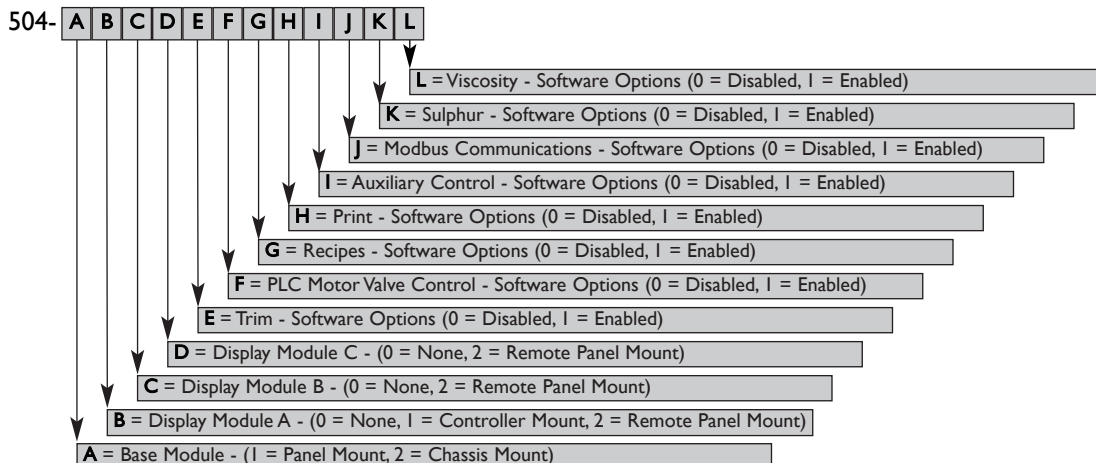
Controlled rate - Controls the blending of two components to preset parameters. e.g. ratio, rate and quantity.



Controlled rate with trim - Controlled rate blender with analyser feedback to control quality.



InSpec blender controller ordering information scheme





Specifications

Physical	Size:	130mm x 220mm x 170mm (W x H x D) Approx
	Weight:	1.8kg
	Wire Connections:	IEC Socket: 3 x 2.5mm ² (3 x 12 AWG) max. Other: 0.08mm ² to 2.5mm ² (20 - 12 AWG)
	Front IP rating:	IP42
Operating Environment	Installation Category:	II
	Pollution Degree:	2
	Operating Temperature:	5°C to 40 °C (41°F to 104°F)
	Relative Humidity:	80% up to 31°C decreasing linearly to 50% at 40°C
Power Supply	Voltage, Frequency:	AC: 100 to 240 VAC, 50/60 Hz OR DC: 24V DC ± 10%
	Power Consumption:	15 Watts Max
Relay Outputs	Quantity:	4
	Installation Category:	III
	Contact Form:	SPST - NO
	Max. Switching Voltage:	250VAC, 30VDC
	Max. Switching Current:	2 Amps
Over voltage Protection:	Yes	
Digital I/O Points	Quantity:	4
	I/O Protection:	Over voltage (Outputs also have over current protection)
	<i>When configured as an output</i>	
	Contact Form:	Solid State Relay
	Load Voltage:	24V DC
	Continuous Load:	Current 0.12A
<i>When configured as an input</i>		
Input Type:	Volt-free contact	
Analogue Outputs	Quantity:	2
	Output Type:	4-20mA Current Source - active output
	Accuracy:	±0.05% of FSD (12-bit resolution)
	Output Protection:	Over voltage
Analogue Inputs	Quantity:	3
	Input Type:	4-20mA
	Accuracy:	±0.05% of FSD (12-bit resolution)
	Input Protection;	Over voltage
Pulse Inputs	Quantity;	2
	Input Type:	0 - 24V DC Voltage Pulse or 4 - 20mA DC Current Pulse Max. Frequency 10kHz
	Accuracy:	± 1 count in any given sampling period
	Input Protection:	Over and reverse voltage protection
Communications	Quantity:	5
	Type:	1 off PS2 port for a compatible Keyboard 1 off RS422 port for User interface 2 off configurable RS232/422/485 ports 1 off dedicated Shell Port
	Input Protection:	ESD and over voltage

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