EM20-FPSI 1010 Round Hole Mounting LED Status Indicator

The EM20-FPSI 1010 is a 2 colour voltage level indicator which is designed to be easily panel mounted in most applications. The module compares an input voltage to a defined voltage window. The colour of the display shows whether the input voltage is below, within or above this window. The indicator provides a red-green-red bright LED indication over 0 to 30V measurement range. The module operates from a 7 to 24Vd.c. supply. The user can easily set the colour switching thresholds. Hysteresis is built-in to avoid chattering at the colour switching thresholds. The module incorporates 1 alarm output, allowing the user to drive an external alarm or control a process being monitored. A low power mode is also available, whereby the module indicates the voltage level by flashing the relevant colour, instead of indicating solid colours. Connection is via screw terminals. The module features a round metal bezel, requiring a 20.5mm (0.81") diameter cut-out. It is secured with the nut provided. Protection from the front to IP 67 / NEMA 4X standards is achieved by placing the compressible silicone seal between the module and panel during assembly. The rear of the module is potted to prevent ingress of water.

FEATURES

- Bright Red and Green Indication
- 0 to 30V Measurement Range
- 7 to 24Vd.c. Supply Voltage
- 2 User Programmable Thresholds
- 1 Control Output (Negative Logic)
- Low Power Mode
- Metal Bezel with IP 67 / NEMA 4X Protection
- Screw Terminal Connections
- Easy to Set up and Use

TYPICAL APPLICATIONS

- Go - No Go Indication
- Level Monitoring
- Alarm Indication
- Control

ORDERING INFORMATION

	Stock Number
Standard Indicator	EM20-FPSI 1010

ELECTRICAL SPECIFICATIONS

Specification		Min.	Typ.	Max.	Unit
Supply voltage (V+ to 0V)		7.0		24.0*	Vd.c.
Supply current	Display not flashing		15		mA
	Display flashing (average current)		2.5		mA
Input Voltage (Vin to 0V)		0		30	Vd.c.
Internal resolution			30		mVd.c.
Accuracy (overall error)			2		%
Temperature stability			100		ppm/°C
Hysteresis			2		%
Sample rate			4		Samples/sec
Operating temperature range		-30		50	°C
Input impedance (unscaled input)			1		kOhm
Output High Voltage (Alm)		4.175		5.125	Vd.c.
Output High Current (Alm)				1	mA
Output Low Voltage (Alm)		0		0.6	Vd.c.
Output Low Current (Alm)				1	mA

* Operation of the indicator beyond the maximum supply voltage rating may cause permanent damage to the indicator.

SAFETY

To comply with the Low Voltage Directive (LVD 93/68/EEC), input voltages to the module's terminals must not exceed 60Vdc. The user must ensure that the incorporation of the EM20-FPSI 1010 into the user's equipment conforms to the relevant sections of BS EN 61010 (Safety Requirements for Electrical Equipment for Measuring, Control and Laboratory Use).

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Specifications liable to change without prior warning **EM20-FPSI 1010 Issue 4 October/2004 R.C. Applies to EM20-FPSI 1010/2**

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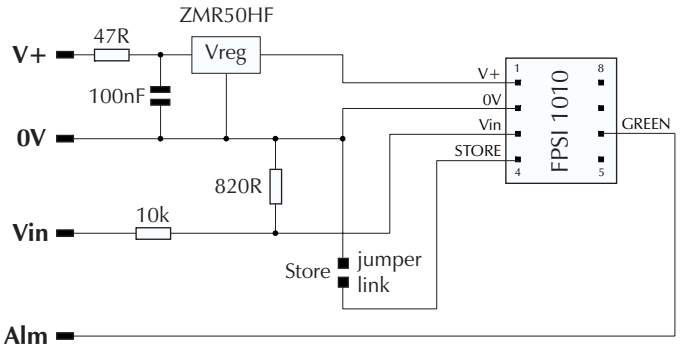
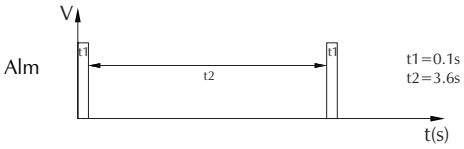
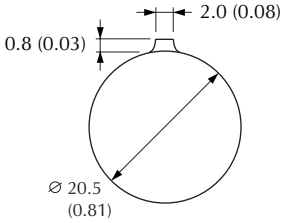
CIRCUIT DIAGRAM



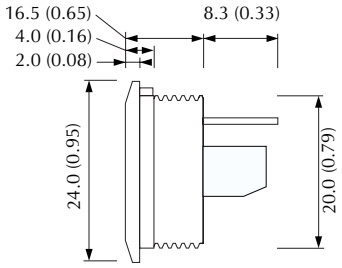
FLASHING MODE TIMING



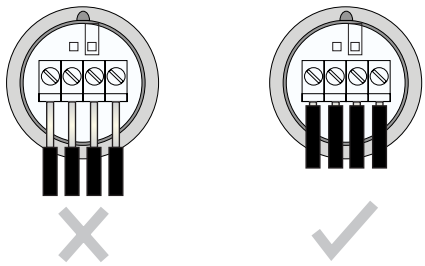
DIMENSIONS All dimensions in mm (inches)



Panel cut-out



SAFETY



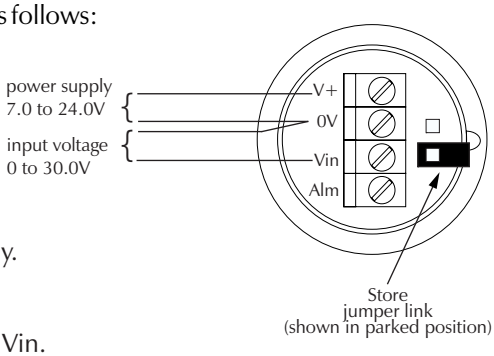
Do not allow bare wires to touch the metal bezel, as this may cause a human safety hazard or damage equipment. The bare conductor should be fully inserted into the screw terminal.

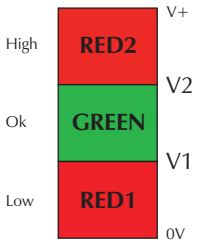
CONFIGURING THE LEVEL INDICATOR

The indicator is factory configured with colour switching thresholds, as follows:

V1 = 11.0V (typ.)
V2 = 22.0V (typ.)

To change this setting, proceed as follows.



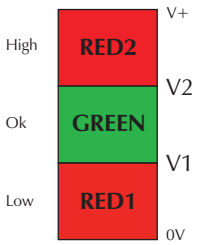


Step 1

- Remove the Store jumper link.
- Connect the V+ and 0V pins of the FPSI 1010 to a 7.0 to 24.0Vd.c. supply.

Step 2

- Apply the first desired voltage (V1) to Vin.
- Place the Store jumper link over the 2 pins.
- Remove the Store jumper link.
- The module flashes Green to indicate that the V1 level has been stored.



Step 3

- Apply the second desired voltage (V2) to Vin.
- Place the Store jumper link over the 2 pins.
- Remove and park the Store jumper link.
- The module flashes Red to indicate that the V2 level has been stored.

Step 4

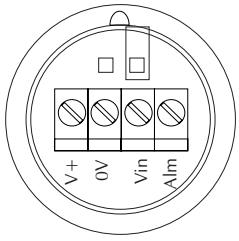
- To enter solid LED mode, make sure Vin does not change.
- To enter flashing LED mode, change Vin by 1.4V or more.
- Place the Store jumper link over the 2 pins.
- Remove and park the Store jumper link.
- Module flashes Red or Green to indicate that the LED mode has been stored.

Step 5

- Disconnect the module. The module is now ready for use.

SCREW TERMINAL FUNCTIONS

V+ Positive power supply to the status indicator.
0V Negative power supply to the status indicator.
Vin Measuring input with reference to 0V.
Alm This digital output terminal goes Low (0V) when the voltage on Vin is
- lower than the switching threshold V1 or
- higher than the switching threshold V2.

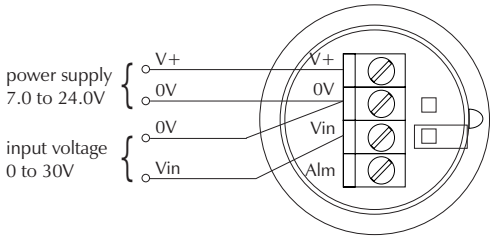


Rear View

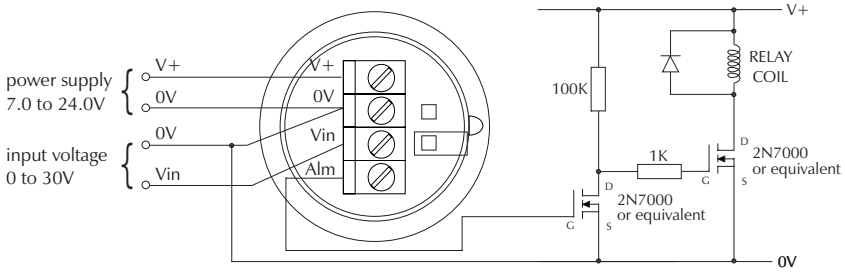
APPLICATIONS (module viewed from the rear.)

Do not connect more than one EM20-FPSI 1010 to the same power supply if the units cannot use the same signal ground. Taking any input beyond the power supply rails will damage the EM20-FPSI 1010.

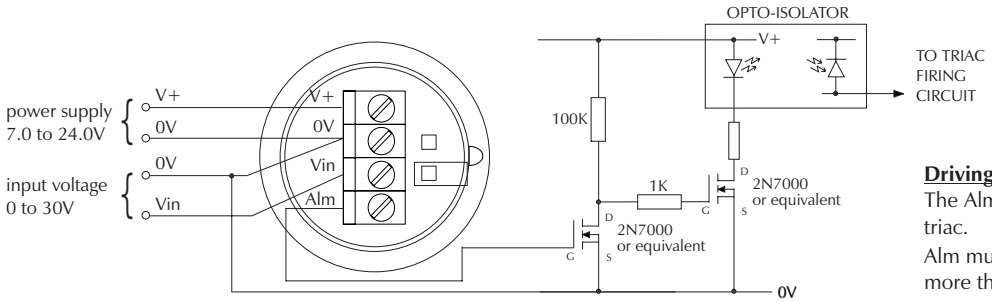
Note: If the FPSI 1010 module is configured for flashing mode, then the Alm output will also pulse High and Low (see Flashing Mode Timing section of this datasheet).



Basic operation
The indicator is :
- red when the Vin voltage is between 0V and V1 (Low)
- green when the Vin voltage is between V1 and V2 (Ok)
- red when the Vin voltage is between V2 and V+ (High)



Driving a Relay
The Alm output is shown driving a relay.
Alm must not be allowed to source more than 1mA.



Driving a Triac
The Alm output is shown driving a triac.
Alm must not be allowed to source more than 1mA.

Bottom View of 2N7000

Consult the MOSFET datasheet for maximum drain current.