SPF1-AP6X / SPF1-AN6X

Programmable over or under speed monitor

- **Direct adaptation between sensor and connecting cable**
- **Teachable speed limit**
- **Simple setting by external teach-input**
- **No additional wiring required**
- **Frequency range 0.015 Hz - 1 kHz**
- **Output load up to 400 mA**

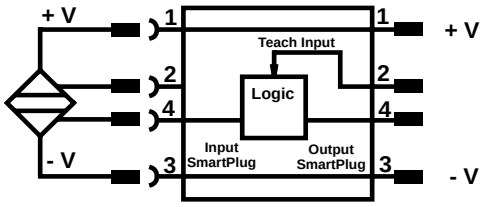
The SPF1 SmartPlug is a frequency threshold module for the direct adaptation to sensors with a standard M12x1 connection.

The SPF1 SmartPlug is available in 2 versions:

PNP input - PNP output SPF1-AP6X (for use with PNP sensors)
NPN input - NPN output SPF1-AN6X (for use with NPN sensors)

Connection:

The SmartPlug is very easy to connect; it is plugged onto the M12x1 connector of a sensor and the connecting cable is connected to the other side of the SmartPlug. The sensor configuration has to meet the standards (1 +V (BN) 3 -V (BU) 4 output (BK)).



Function:

The SmartPlug SPF1 observes the frequency of the signal at the pin "input SmartPlug". The output is activated if the setup frequency falls below approximately 5%.

Setting for under speed monitoring:

1. Set sensor up to sense object with SmartPlug SPF1 connected. Make sure sensor is sensing properly and output is switching.
2. Move object or set rotation to nominal speed.
3. Connect +voltage +V to "Teach Input" and then disconnect (turn off) voltage +V. (Pulse +V to Teach Input, >1 full cycle of senses object - e.g. >1 full revolution)
4. Done, if speed or frequency drops by 5% or 95% of nominal speed, then SmartPlug is activated.

Setting for over speed monitoring:

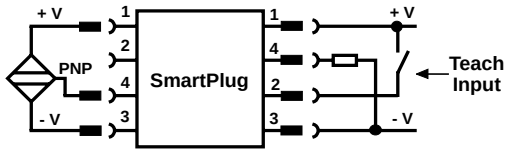
(Note: over speed output will be inverted. i.e. output activated for normal speed & output off for over speed.)

1. Set sensor up to sense object with SmartPlug SPF1 connected. Make sure sensor is sensing properly and output is switching.
2. Move object to set rotation to 106% plus X% over speed allowance of nominal speed.
3. Connect+voltage +V to "Teach Input" and then disconnect (turn off) voltage +V. (Pulse+V to Teach Input, >1 full cycle of senses object - e.g. >1 full revolution).
4. Done. If speed or frequency goes above setpoint, then SmartPlug output goes off.

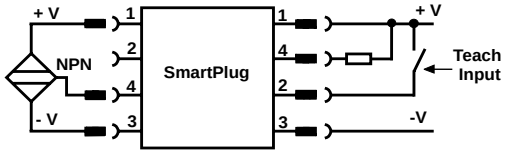
Technical Data

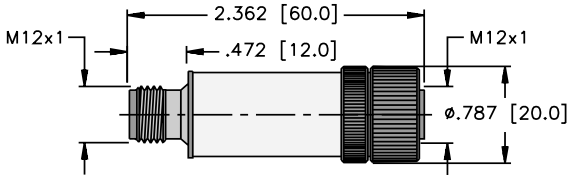
Operating Voltage:	10-30 VDC, residual ripple of max. 10%	**Display:**	Red LED
Own Current Consumption:	<10 mA	**Housing Material:**	Plastic PBTP/PA
Input Resistance:	>10 kΩ	**Protection Standard:**	IP 67
Max. Input Frequency:	10 kHz	**Dimensions Inches[mm]:**	See diagram
Min. Response Time:	0.1 ms	**Connection Input:**	4-pin socket M12x1
Max. Output Current:	400 mA short-circuit proof	**Connection Output:**	4-pin connector M12x1
Ambient Temperature Range:	0° to +60°C (+32° to +140°F)	**Weight:**	15 g
Storage Temperature Range:	-20° to +60°C (-4° to +140°F)		

SPF1-AP6X



SPF1-AN6X





Applications Examples:

1. Jam detection
2. RPM Observation
3. Conveyor built back detection
4. Cooling fan motion control