

# HiD3891 Switch/Proximity Input Pulse/Frequency Monitor



## Application

This module monitors the frequency of voltage-free contacts or IS proximity sensors located in a Hazardous Area. The number of input cycles during the integration time are counted and passed over the bus as a resultant frequency. The line fault detection feature, primarily used with proximity sensors, gives a LED indication for each channel on the module and is signalled over the communication bus. Resistors can be added in series and in parallel with a switch contact to enable line fault detection if required. One input channel is provided.

## Specification

### DC Supply

**CURRENT CONSUMPTION:** 30 mA at 24 V.  
**POWER DISSIPATION:** 0.7 W at 24 V.

### Hazardous Area Signal (Contact/Proximity Sensor)

**INPUT:** voltage-free contact or proximity sensor according to IEC 60947-5-6.

### THRESHOLD VALUES:

0.2 to 1.2 mA = contact open/proximity sensor with target.  
 2.1 to 6.5 mA = contact closed/proximity sensor without target.

### LINE FAULT DETECT:

0 to 0.2 mA = wire break (fault for proximitor mode operation).  
 6.5 to max mA = wire short (fault for proximitor mode operation).

**INPUT PULSE LENGTH:** > 225 µsec. (40-60% duty cycle at 2000 Hz.).

**INPUT PULSE FREQUENCY:** 5 Hz. to 2000 Hz.

### Hazardous Area Signal (Voltage/Vortex Interface)

**INPUT:** logic level low < 1.8 Volt. Logic level high > 3.2 Volt.

### Voltage/Vortex Mode

When used in the Vortex mode, terminals 1 and 2 must be linked (shorted) and the voltage signal connected to terminal 4 and 7. Note that the line fault detection is not possible in this mode of operation and that fault checking must be disabled for the module at configuration time.

### Safe Area Signal

**OUTPUT:** serial data to communication gateways.

**INTEGRATION TIME:** 1 sec.

**ACCURACY:** < 0.1%.

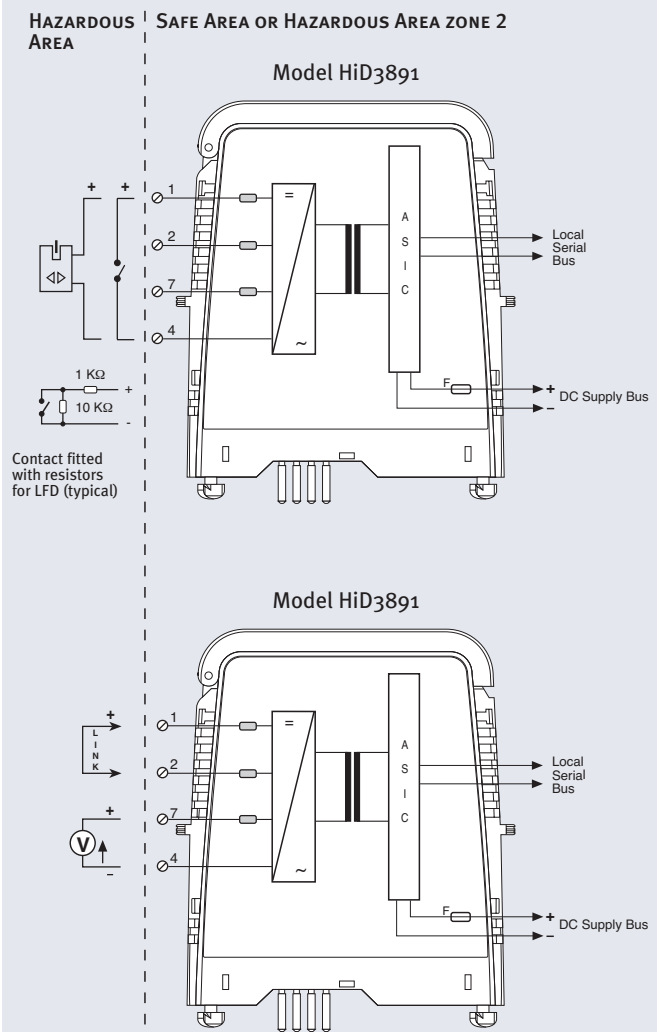
### Other Parameters

**SOFTWARE CONFIGURABLE:** Line fault detect enable/disable.

**LED INDICATORS:** Power ON (green). Module fault (red). Line fault (red). Input status (yellow).

- Single channel.
- Switch, proximity detector or Vortex input.
- Frequency monitor up to 2 KHz.
- Line fault detection.
- LED indication of input status.

**ORDER INFORMATION: PART NUMBER 186325.**



| Term. | Safety Description | Maximum External Parameters |       |         |         |            |
|-------|--------------------|-----------------------------|-------|---------|---------|------------|
|       |                    | GROUPS CENELEC              | USA   | Co (µF) | Lo (mH) | L/R (µH/Ω) |
| 1-4   | Uo = 13.1 V        | II C                        | A-B   | 0.97    | 70      | 470        |
|       | Io = 22 mA         | II B                        | C-E   | 6       | 250     | 1670       |
|       | Po = 72 mW         | II A                        | D-F-G | 21.7    | 580     | 3890       |
|       | Ui = 28 V          | CI AND LI ARE NEGLIGIBLE    |       |         |         |            |
| 7-4   | li = 93 mA         |                             |       |         |         |            |
|       | Pi = 83 mW         |                             |       |         |         |            |

