

Characteristics:

General Description:

The single channel DIN Rail Load Cell/Strain Gauge Bridge Isolating Repeater D1063S acts as a transparent galvanic isolated interface installed between a weighing indicator in Safe Area and a load cell (or group of load cells) in Hazardous Area; it appears at the terminals of the indicator as a single load cell equivalent to the one in the field. Provides a fully floating power supply voltage with remote sensing capability to load cell located in Hazardous Area and repeats, while isolating, the mV signal output to drive a load in Safe Area depending on the host system reference voltage. Up to four 350 Ω load cells, or six 450 Ω load cells, or twelve 1000 Ω load cells can be connected in parallel. Voltage reference (Safe Area side) is DIP switch configurable to select internal or external (host system) supply. In addition a field wiring fault red LED indicates any wire break in the Hazardous Area side.

Function:

1 channel I.S. input from strain gauge signals, provides 3 port isolation (input/output/supply) and repeats, as a transparent unit, bridge signal output.

Signalling LEDs:

Power supply indication (green), field wiring fault (red).

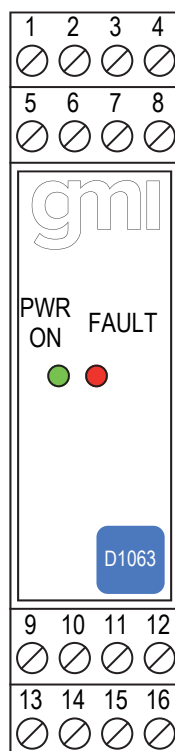
Field Configurability:

Voltage reference internal or external via DIP switch.

EMC:

Fully compliant with CE marking applicable requirements.

Front Panel and Features:



- Input from Zone 0 (Zone 20), Division 1, installation in Zone 2, Division 2.
- Strain Gauge Bridge Transparent Repeater.
- Up to four 350 Ω load cells in parallel or up to six 450 Ω load cells in parallel or up to twelve 1000 Ω load cells in parallel.
- Broken field wire fault detection.
- High Accuracy.
- Three port isolation, Input/Output/Supply.
- EMC Compatibility to EN61000-6-2, EN61000-6-4.
- In-field programmability by DIP switch.
- ATEX, IECEx, FM & FM-C Certifications.
- Type Approval Certificate DNV and KR for maritime applications.
- High Reliability, SMD components.
- Simplified installation using standard DIN Rail and plug-in terminal blocks.
- 250 Vrms (Um) max. voltage allowed to the instruments associated with the barrier.

Ordering Information:

Model:	D1063S	
Power Bus enclosure	/B	

Technical Data:

Supply:

24 Vdc nom (20 to 30 Vdc) reverse polarity protected, ripple within voltage limits ≤ 5 Vpp.

Current consumption @ 24 V: 80 mA with four 350 Ω load cells connected, typical.

Power dissipation: 1.7 W with 24 V supply and four 350 Ω load cells connected typical.

Max. power consumption: at 30 V supply voltage and short circuit input, 2.8 W.

Isolation (Test Voltage):

I.S. In/Out 1.5 KV; I.S. In/Supply 1.5 KV; Out/Supply 500 V.

Input:

up to four 350 Ω load cells in parallel or up to six 450 Ω load cells in parallel or up to twelve 1000 Ω load cells in parallel.

Bridge supply voltage: 4.5 V nominal.

Bridge output signal: ≤ 4 mV/V.

Input range: ± 18 mV nominal span, ± 22 mV overrange.

Line resistance compensation: ≤ 10 Ω .

Burnout:

LED indication for field wire breakage.

Output:

± 20 mV nominal span, ± 24 mV overrange (5 V reference voltage),

± 40 mV nominal span, ± 48 mV overrange (10 V reference voltage).

Output impedance: 350 Ω typical.

Host reference voltage: ≤ 10 V typical, ≤ 11 V maximum.

Internal reference voltage: 10 V typical, DIP switch settable.

Internal impedance: 350 Ω typical, DIP switch settable.

Transfer characteristic: linear based on mV input.

Response time: ≤ 100 ms (10 to 90 % step change).

Performance:

Ref. Conditions 24 V supply, 23 ± 1 $^{\circ}\text{C}$ ambient temperature.

Calibration accuracy after system calibration: $\leq \pm 0.003$ % of full scale of input range.

Linearity accuracy: $\leq \pm 0.002$ % of full scale of input range.

Supply voltage influence: $\leq \pm 0.002$ % of full scale for a min to max supply change.

Temperature influence: $\leq \pm 0.002$ % of full scale of input range for a 1 $^{\circ}\text{C}$ change.

Compatibility:

CE mark compliant, conforms to Directives:

2014/34/EU ATEX, 2014/30/EU EMC, 2014/35/EU LVD, 2011/65/EU RoHS

Environmental conditions:

Operating: temperature limits -20 to +60 $^{\circ}\text{C}$,

relative humidity max 90 % non condensing, up to 35 $^{\circ}\text{C}$.

Storage: temperature limits -45 to +80 $^{\circ}\text{C}$.

Safety Description:



ATEX: II (1)G [Ex ia Ga] IIC, II (1)D [Ex ia Da] IIC, I (M1) [Ex ia Ma] I, II 3G Ex ec IIC T4 Gc

IECEx: [Ex ia Ga] IIC, [Ex ia Da] IIC, [Ex ia Ma] I, Ex ec IIC T4 Gc

FM: NI / I / 2 / ABCD / T4, AIS / I, II, III / 1 / ABCDEFG

FM-C: NI / I / 2 / ABCD / T4, AIS / I, II, III / 1 / ABCDEFG

associated electrical apparatus.

Uo/Voc = 17.3 V, Io/Isc = 199.6 mA, Po/Po = 864 mW at terminals 9-10-11-12-13-14.

Uo/Voc = 17.3 V, Io/Isc = 8 mA, Po/Po = 35 mW at terminals 13-14.

Ui/Vmax = 30 V, Ci = 0 nF, Li = 0 nH at terminals 13-14.

Um = 250 Vrms, -20 $^{\circ}\text{C}$ $\leq$ Ta $\leq$ 60 $^{\circ}\text{C}$.

Approvals:

Presafe 16ATEX8917 conforms to EN60079-0, EN60079-11, EN50303.

IECEx PRE 16.0084 conforms to IEC60079-0, IEC60079-11.

IMQ 09 ATEX 013 X conforms to EN60079-0, EN60079-7.

IECEx IMQ 13.0011X conforms to IEC60079-0, IEC60079-7.

FM & FM-C No. 3024643, 3029921C, conforms to Class 3600, 3610, 3611, 3810,

ANSI/ISA 12.12.02, ANSI/ISA 60079-0, ANSI/ISA 60079-11, C22.2 No.142,

C22.2 No.157, C22.2 No.213, E60079-0, E60079-11, E60079-15,

DNV No. TAA00002BM and KR No.MIL20769-EL001 Cert. for maritime applications.

Mounting:

EN/IEC60715 TH 35 DIN-Rail.

Weight: about 165 g.

Connection: by polarized plug-in disconnect screw terminal blocks to accommodate terminations up to 2.5 mm².

Location: Safe Area/Non Hazardous Locations or Zone 2, Group IIC T4, Class I, Division 2, Groups A, B, C, D Temperature Code T4 and Class I, Zone 2, Group IIC, IIB, IIA T4 installation.

Protection class: IP 20.

Dimensions: Width 22.5 mm, Depth 99 mm, Height 114.5 mm.

Parameters Table:

Safety Description	Maximum External Parameters			
	Group Cenelec	Co/Ca (μ F)	Lo/La (mH)	Lo/Ro (μ H/ Ω)
Terminals				
9-10-11-12-13-14				
Uo/Voc = 17.3 V	IIC	0.351	0.85	41.2
Io/Isc = 199.6 mA	IIB	2.058	3.4	164.8
Po/Po = 864 mW	IIA	8.498	6.8	329.6
	I	11.79	11.75	543.25
	IIIC	2.058	3.4	164.8
Terminals 13-14				
Uo/Voc = 17.3 V	IIC	0.351	300	1020
Io/Isc = 8 mA	IIB	2.06	1200	4110
Po/Po = 35 mW	IIA	8.5	2400	8220
Ui/Vmax = 30 V	I	11.8	3800	15470
Ci = 2.1 nF, Li = 0 nH	IIIC	2.06	1200	4110

NOTE for USA and Canada:

IIC equal to Gas Groups A, B, C, D, E, F and G

IIB equal to Gas Groups C, D, E, F and G

IIA equal to Gas Groups D, E, F and G

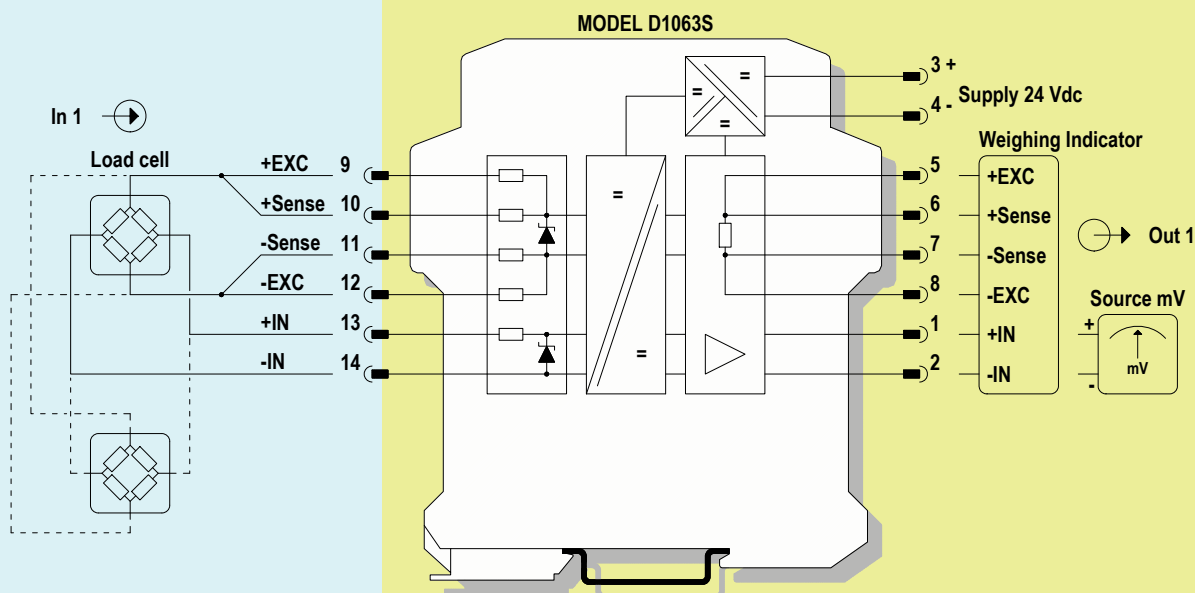
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Function Diagram:

HAZARDOUS AREA ZONE 0 (ZONE 20) GROUP IIC,
HAZARDOUS LOCATIONS CLASS I, DIVISION 1, GROUPS A, B, C, D,
CLASS II, DIVISION 1, GROUPS E, F, G, CLASS III, DIVISION 1,
CLASS I, ZONE 0, GROUP IIC

SAFE AREA, ZONE 2 GROUP IIC T4,
NON HAZARDOUS LOCATIONS, CLASS I, DIVISION 2,
GROUPS A, B, C, D T-Code T4, CLASS I, ZONE 2, GROUP IIC T4



Up to 4 load cells 350 Ω in parallel
Up to 6 load cells 450 Ω in parallel
Up to 12 load cells 1000 Ω in parallel