GM INTERNATIONAL
TECHNOLOGY FOR SAFETY

D1063

Strain Gauge Bridge Isolating Repeater DIN-Rail Model D1063S

Characteristics:

General Description:

The single channel DIN-Rail 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 n load cells) in Hazardous Area; it appears at the terminals of the indicator as a single load cell equivalent to the one in field. Provides a fully floating power supply voltage with remote sensing capability to strain gauge bridge 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).

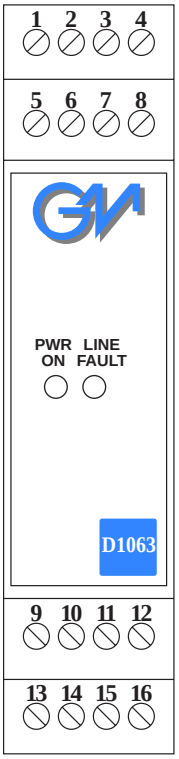
Field Configurability:

Voltage reference internal or external via dip switch.

EMC:

Fully compliant with CE marking applicable requirements.

Front Panel and Features:



- Strain Gauge Bridge Transparent Repeater.
- Up to four 350 Ω load cells parallel connection.
- Up to six 450 Ω load cells parallel connection.
- Up to twelve 1000 Ω load cells parallel connection.
- Field wire break fault detection.
- DIP Switch programmability for voltage reference (internal or host system).
- Three port isolation, Input/Output/Supply.
- EMC Compatibility to EN61000-6-2, EN61000-6-4.
- ATEX Certification.
- High Reliability, SMD components.
- Simplified installation using standard DIN Rail with plug-in terminal blocks.
- 250 Vrms (Um) max. voltage applied to the instruments associated with barrier.

Technical Data:

Supply:

24 V nom (20 to 30 V) reverse polarity protected
ripple within voltage limits ≤ 5 Vpp.
Current consumption @ 24 V: 100 mA with four 350 Ω load cells connected.
Max. power consumption: 3.30 W with 30 V supply voltage, four 350 Ω load cells connected and overload condition.

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 (parallel connected).
up to six 450 Ω load cells (parallel connected).
up to twelve 1000 Ω load cells (parallel connected).
Bridge supply voltage: 4.5 V nominal.
Bridge output signal: ≤ 2 mV/V.
Input range: ± 9 mV nominal span, ± 11 mV overrange.
Line resistance compensation: ≤ 10 Ω.

Burnout:

LED indication for field wire break.

Output:

± 20 mV nominal span, ± 24 mV overrange
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 °C ambient temp.
Calibration accuracy after system calibration:
≤ ± 0.003 % of full scale of input range.
Linearity accuracy: ≤ ± 0.002 % of full scale of input range.
Temperature influence: ≤ ± 0.002 % of full scale of input range for a 1 °C change.
Supply voltage influence: ≤ ± 0.002 % of full scale of input range for a min to max supply voltage change.

Compatibility:

CE mark compliant, conforms to 94/9/EC Atex Directive and to 89/336/CEE EMC Directive.

Environmental conditions:

Operating: Temperature limits -20 to + 60 °C, relative humidity max 90 % non condensing, up to 35 °C.
Storage: Temperature limits – 40 to + 80 °C.

Safety Description:

II (1) G D [EEx ia] IIC associated electrical apparatus.
Uo/Voc = 17.3 V, Io/Isc = 199.6 mA, Po/Po = 864 mW
at terminals 9-10-11-12.
Uo/Voc = 17.3 V, Io/Isc = 8 mA, Po/Po = 35 mW
at terminals 13-14.
Um = 250 Vrms, -20 °C ≤ Ta ≤ 60°C.
Approvals: DNV-2004-OSL-ATEX-0199 conforms to EN50014, EN50020.

Mounting:

T35 DIN Rail according to EN50022.
Weight: about 170 g.
Connection: By polarized plug-in disconnect screw terminal blocks to accomodate terminations up to 2.5 mm^2.
Location: Safe Area.
Protection class: IP 20.
Dimensions: Width 22.5 mm, Depth 99 mm, Height 114.5 mm.

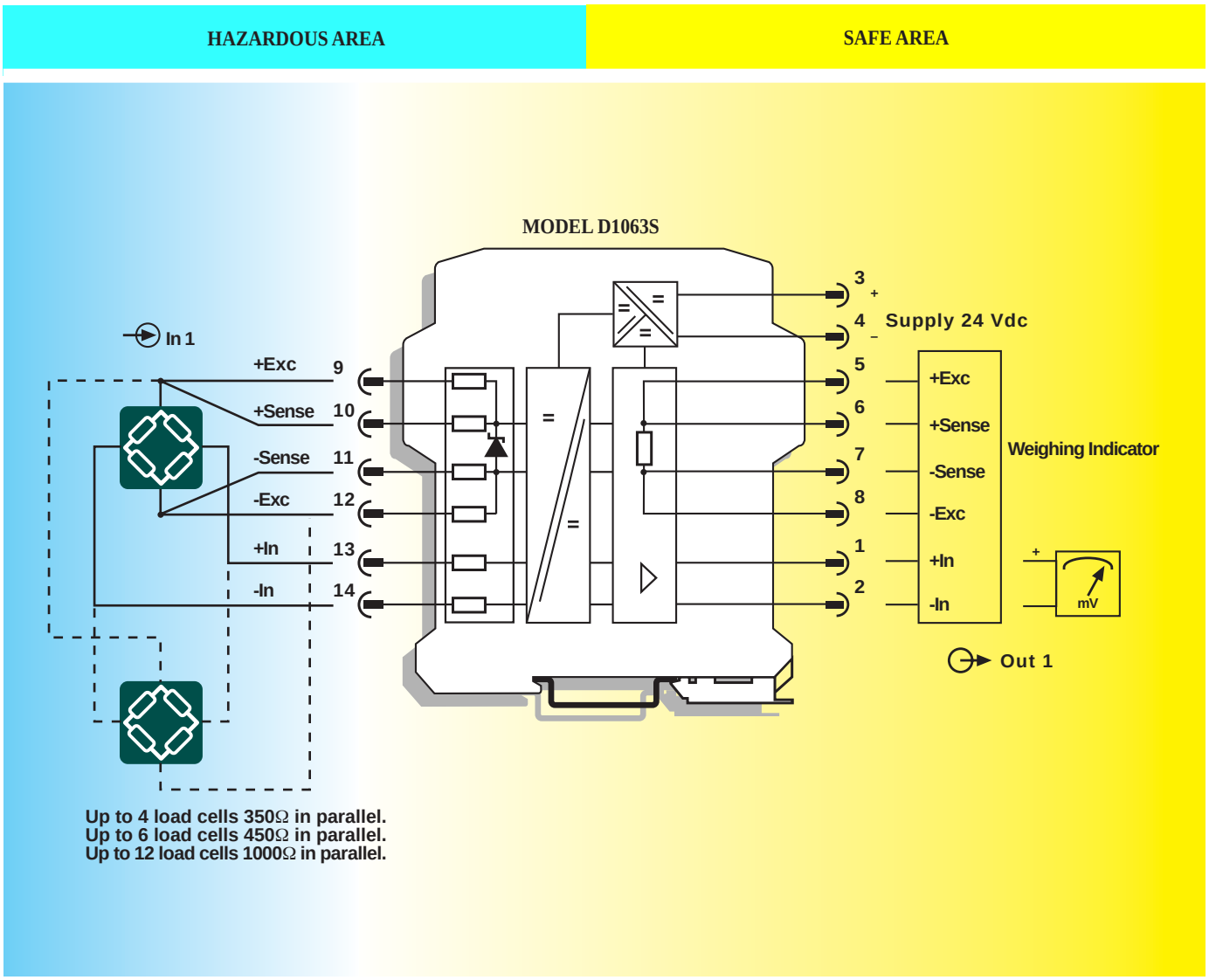
Ordering Information:

Model:	**D1063S**	
Power Bus enclosure		/B

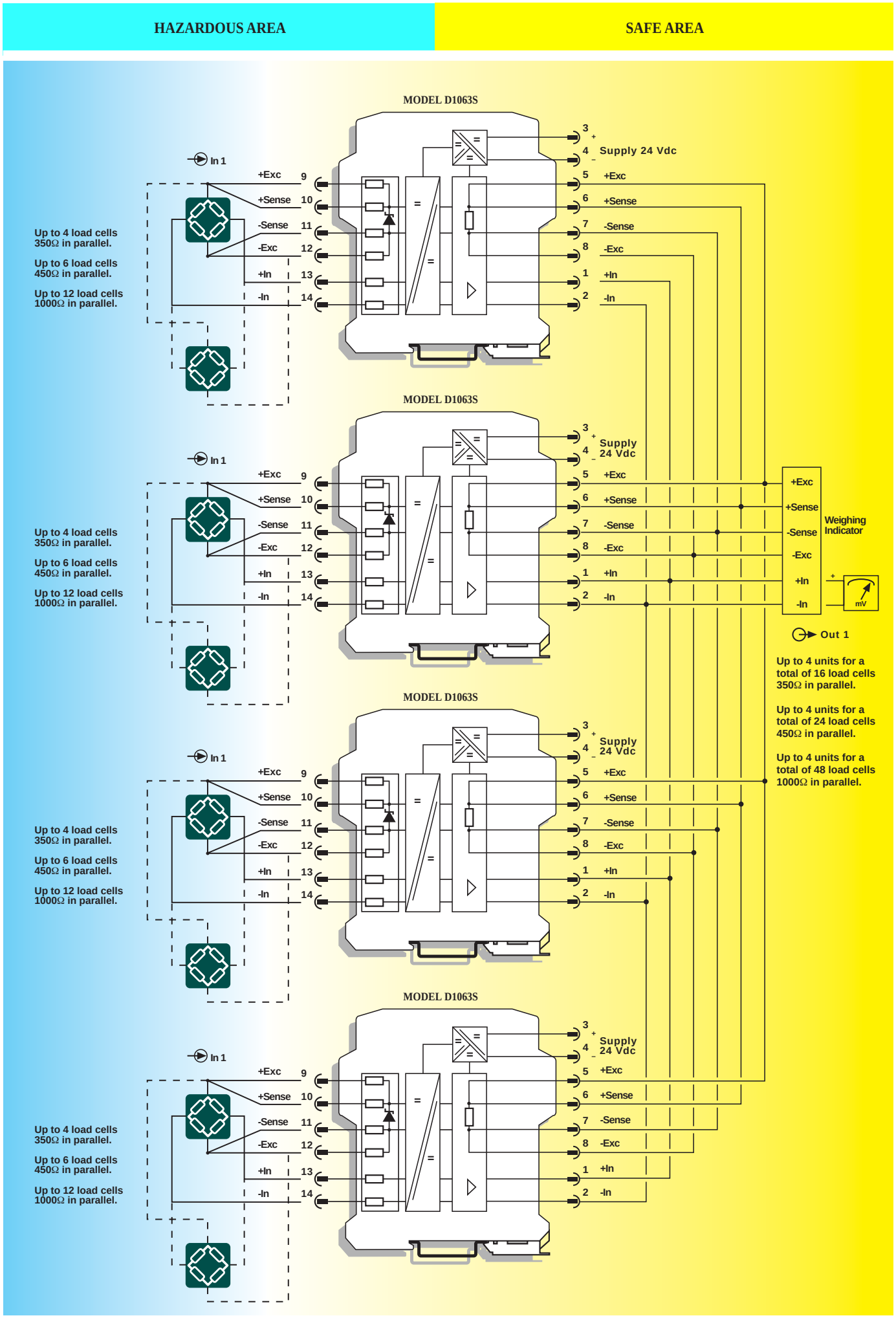
Parameters Table:

Safety Description	Maximum External Parameters			
	Group Cenelec	Co/Ca (µF)	Lo/La (mH)	L/R / La/Ra (µH/Ω)
Terminals 9-10-11-12				
Uo/Voc = 17.3 V	II C	0.353	0.85	41.2
Io/Isc = 199.6 mA	II B	2.06	3.4	164.8
Po/Po = 864 mW	II A	8.5	6.8	329.6
Terminals 13-14				
Uo/Voc = 17.3 V	II C	0.353	300	1020
Io/Isc = 8 mA	II B	2.06	1200	4110
Po/Po = 35 mW	II A	8.5	2400	8220

Function Diagram:

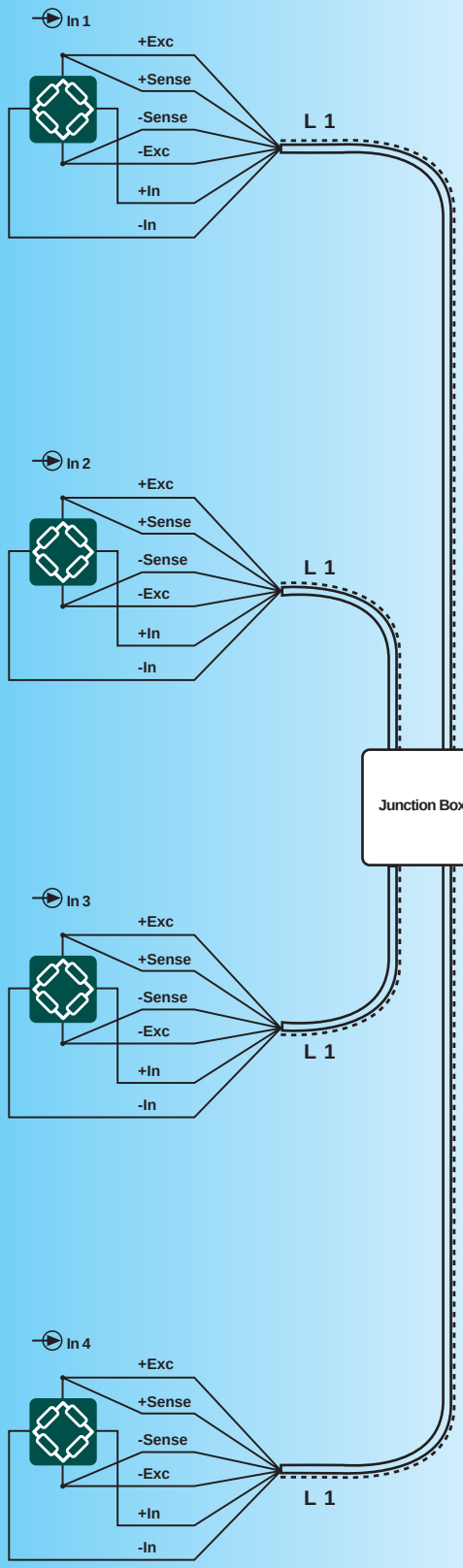


Function Diagram:



Typical Wiring Diagram for Four Load Cells 350 Ω Using Standard G.M. International Cables Type: CABF012

HAZARDOUS AREA | SAFE AREA



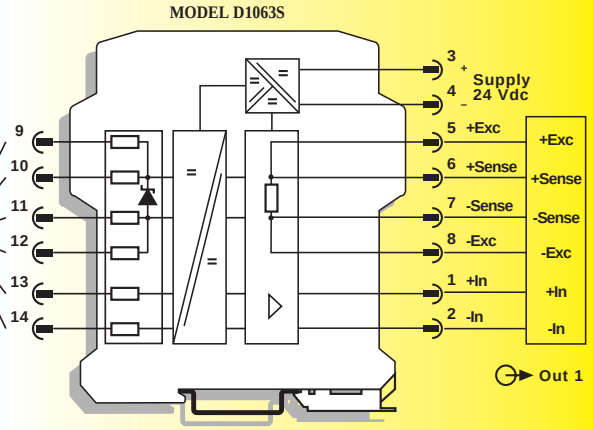
Gas Group	1 single Load Cell		3 paralleled Load Cells		4 paralleled Load Cells	
	L1 (m)	L2 (m)	L1 (m)	L2 (m)	L1 (m)	L2 (m)
IIC IIB IIA	100	1.000	70	700	50	500

L1 = distance between Load Cell and Junction Box.

L2 = distance between Junction Box and D1063S Isolator.

Note: with these distances the values for max. capacitance and inductance remain within the specified parameters, for all Gas Groups, of the D1063S.

Cable shields must be grounded in Safe Area only.



Cable Specifications:

Size:	3 x 2 x 1 mm^2.
Screen:	3 pairs with overall screen.
Voltage Test:	1.500V r.m.s. per 1min (core/core). 1.500 V r.m.s. per 1min (core/screen).
Insulation resistance:	≥ 5.000 MΩ/Km. (at 20 °C).
Outer diameter:	11 mm.
Flame retardant:	according to IEC 60332-1.
Outer sheath:	PVC flame retardant Blue colour.