

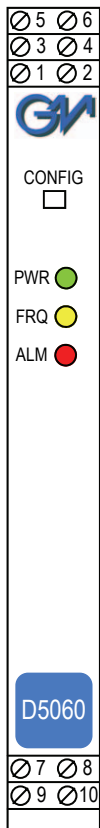
Characteristics:
General Description:

The single channel DIN-Rail Frequency-Pulse Converter, Repeater and Trip Amplifiers D5060S converts and repeats a low level frequency signal from magnetic pick-up, contact, proximity (EN60947-5-6 NAMUR), open-collector transistor sensor, located in Hazardous Area, into a 0/4-20 mA or 0/1-5 V or 0/2-10 V signal to drive a Safe Area load.

Repeater output can be direct, divided by 10, 100, 1000, 10000, 100000, 1000000 or programmed with alarm function.

Alarm energizes, or de-energizes, an SPST optocoupled open-collector transistor for high, low or low-startup alarm functions. The alarm trip point is settable over the entire input signal range.

Mounting on standard DIN Rail, with or without Power Bus, or on customized Termination Boards, in Zone 2, Div. 2.

Front Panel and Features:


- Input from Zone 0 (Zone 20), Division 1, installation in Zone 2, Division 2.
- Magnetic pick-up, proximity input sensor.
- Frequency range DC to 50 KHz input.
- Repeater output direct or divided by 10, 100, 1000, 10000, 10000 or 1000000.
- 0/4-20 mA, 0/1-5 V, 0/2-10 V Output Signal linear or reverse.
- High Accuracy, μ P controlled converter.
- Three port isolation, Input/Output/Supply.
- EMC Compatibility to EN61000-6-2, EN61000-6-4, EN61326-1, EN61326-3-1 for safety system.
- Fully programmable operating parameters.
- ATEX, IECEx, UL & C-UL, FM & FM-C, Russian and Ukrainian Certifications.
- Type Approval Certificate DNV, KR for marine applications.
- High Density, 1 channel converter, repeater and trip amplifier per unit.
- Simplified installation using standard DIN Rail and plug-in terminal blocks, with or without power Bus, or customized Termination Boards.
- 250 Vrms (Um) max. voltage allowed to the instruments associated with the barrier.

Technical Data:

Supply: 24 Vdc nom (20 to 30 Vdc).

Reverse polarity protected, ripple within voltage limits ≤ 5 Vpp.

Isolation (Test Voltage): I.S. In/Out 1.5 KV; I.S. In/Supply 1.5 KV; Analog Out/Supply 500 V; Analog Out/Digital Out 500 V; Digital Out/Supply 500 V;

Input: magnetic pick-up, contact, proximity to EN60947-5-6, open-collector transistor for frequency signal up to 50 KHz.

Magnetic pick-up sensitivity: ≥ 20 mVpp up to 100 Hz input, ≥ 50 mVpp up to 1 KHz, ≥ 100 mVpp up to 5 KHz, ≥ 500 mVpp up to 20 KHz, ≥ 1 Vpp up to 50 KHz.

Input switching current levels:

ON ≥ 2.1 mA, OFF ≤ 1.2 mA, switch current ≈ 1.65 mA ± 0.2 mA hysteresis.

Fault current levels: open fault ≤ 0.2 mA, short fault ≥ 6.8 mA

Equivalent source: 8 V 1 K Ω typical (8 V no load, 8 mA short circuit).

Integration Time: 100 ms.

Resolution/Visualization: 1 mHz for 50 Hz range, 10 mHz for 500 Hz range, 100 mHz for 5 KHz range, 1 Hz for 50 KHz range.

Input range: 0 to 50.5 KHz maximum.

Burnout: downscale analog output signal for loss of input signal.

Output: 4 to 20 mA, on max. 550 Ω load in source or sink mode;

Resolution: 1 μ A current output or 1 mV voltage output.

Transfer characteristic: linear direct or reverse.

Response time: ≤ 50 ms (10 to 90 % step change).

Output ripple: ≤ 20 mVrms on 250 Ω load.

Repeater Output: voltage free SPST optocoupled open-collector transistor.

Output factor: direct 1:1 or divided by 10, 100, 1000, 10000, 100000 or 1000000.

Open-collector rating: 100 mA at 35 V (≤ 1.5 V voltage drop).

Leakage current: ≤ 50 μ A at 35 V.

Frequency response: 50 KHz maximum.

Alarm: Trip point range: within rated limits of input range (see input for step resolution).

Delay time: 0 to 1000 s, 100 ms step.

Output: voltage free SPST optocoupled open-collector transistor.

Open-collector rating: 100 mA at 35 V (≤ 1.5 V voltage drop).

Leakage current: ≤ 50 μ A at 35 V.

Performance: Ref. Conditions 24 V supply, 250 Ω load, 23 ± 1 $^{\circ}$ C ambient temperature.

Input:

Calibration and linearity accuracy: $\leq \pm 0.05$ % of full scale of selected input range.

Temperature influence: $\leq \pm 0.005$ % of full scale input range for a 1 $^{\circ}$ C change.

Analog Output:

Calibration accuracy: $\leq \pm 0.1$ % of full scale.

Linearity error: $\leq \pm 0.05$ % of full scale.

Supply voltage influence: $\leq \pm 0.05$ % of full scale for a min to max supply change.

Load influence: $\leq \pm 0.05$ % of full scale for a 0 to 100 % load resistance change.

Temperature influence: $\leq \pm 0.005$ % on zero and span for a 1 $^{\circ}$ C change.

Compatibility:

CE CE mark compliant, conforms to 94/9/EC Atex Directive and to 2004/108/CE EMC Directive.

Environmental conditions:

Operating: temperature limits - 40 to + 60 $^{\circ}$ C,

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

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

Safety Description:

II (1) G [Ex ia] IIC, II (1) D [Ex iaD], I (M2) [Ex ia] I, II 3G Ex nA II T4, [Zone 0] [Ex ia] IIC, [Ex ia] I, [Ex iaD] associated electrical apparatus.

Mounting:

T35 DIN Rail according to EN50022.

Dimensions: Width 12 mm, Depth 120 mm, Height 120 mm.

Ordering Information:

Model: D5060S

Operating parameters are programmable by the GM Pocket Portable Configurator PPC5092 via RS-232 serial line and SWC5090 Configurator software.

Parameters Table:

Safety Description	Maximum External Parameters			
	Group Cenelec	Co/Ca (μF)	Lo/La (mH)	Lo/Ro (μH/Ω)
Terminals 9-10				
Uo/Voc = 10.9 V	IIC	2.05	29000	12000
Io/Isc = 1.1 mA	IIB	14.40	117000	48100
Po/Po = 3 mW	IIA	63.00	235000	96200
Terminals 7-8				
Uo/Voc = 15.5 V	IIC	0.508	235	585
Io/Isc = 13 mA	IIB	3.110	941	2342
Po/Po = 48 mW	IIA	12.500	1883	4685

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

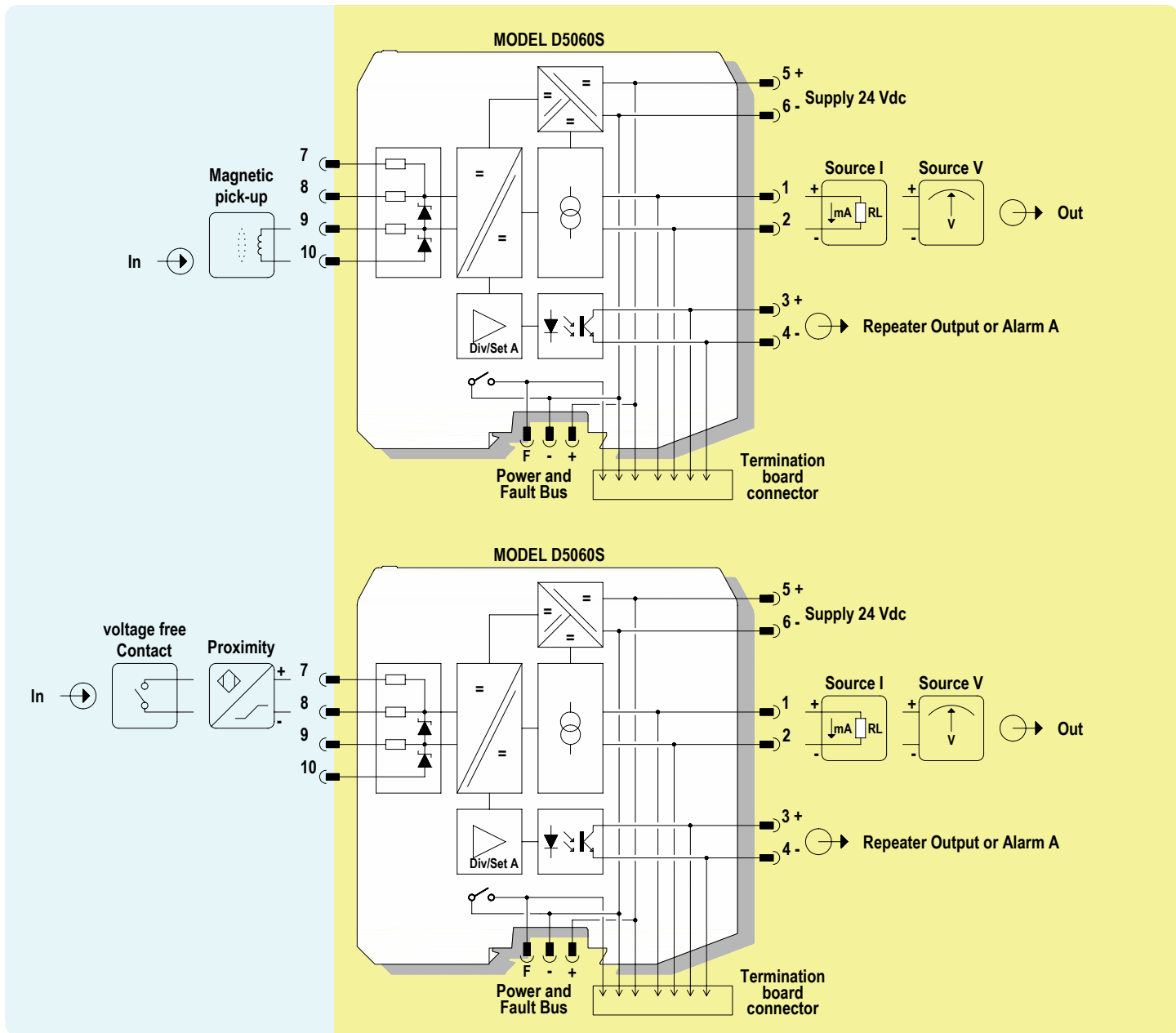
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Function Diagram:

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

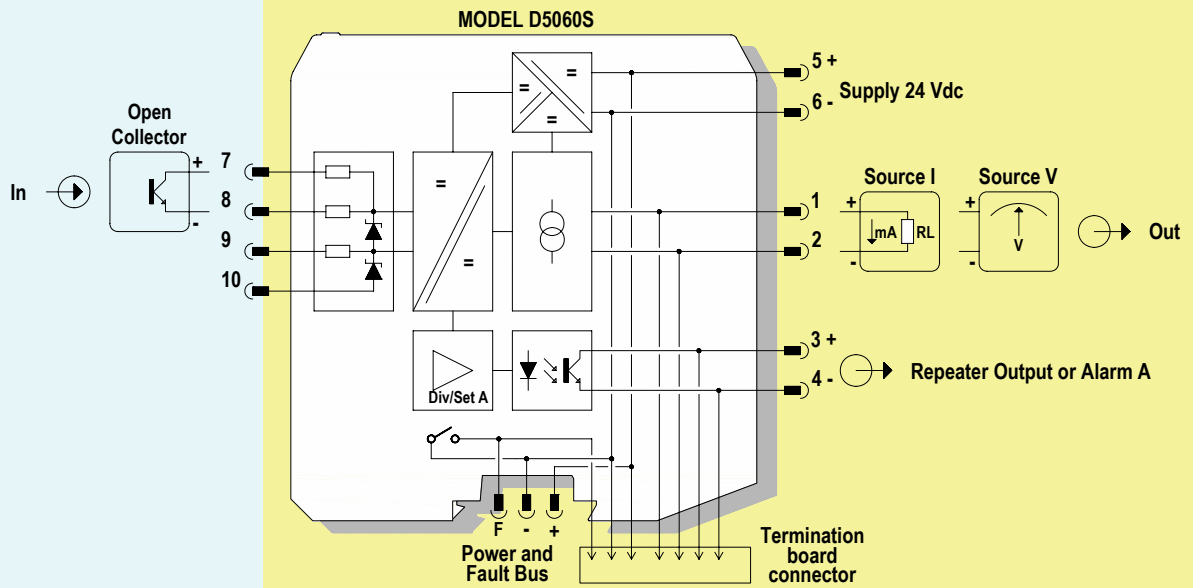
SAFE AREA, ZONE 2 GROUP IIC T4,
NON HAZARDOUS LOCATIONS, CLASS I, DIVISION 2,
GROUPS A, B, C, D T-Code T4, CLASS I, ZONE 2, GROUP IIC T4



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



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

