D1060

Frequency-Pulse Converter, Repeater, Trip Amplifiers DIN-Rail Model D1060S

Characteristics:

General Description:
The single channel DIN-Rail Frequency-Pulse Converter, Repeater and Trip Amplifiers D1060S converts and repeats a low level frequency signal from magnetic pick-up, contact, proximity, open-collector transistor or logic level sensor, located in Hazardous Area, into 4-20, 0-20 mA current or voltage output 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. One independent Alarm Trip Amplifier is also provided. 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. When repeater output is used as alarm output the unit provides two independent alarms.

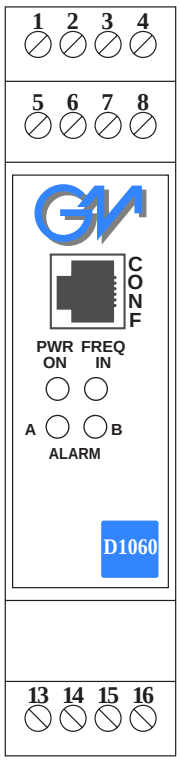
Function:
1 channel I.S. input from frequency-pulse signals, provides 3 port isolation (input/output/supply) and current or voltage output signal. In addition it repeats the frequency input and provides one SPST transistor with adjustable Alarm Trip Point.

Signalling LEDs:
Power supply indication (green), Frequency input (yellow), Alarms (red).

Configurability:
Software configurable for Frequency range, mA or V output signal, Alarm Trip Point, High/Low/Low-startup Alarm mode, NC/NO transistor operation, Hysteresis, Delay time, by a GM Pocket Portable Configurator PPC 1090, powered by the unit or via RS-232 Serial line with PPC1092 Adapter and SWC1090 Configurator. DIP-Switch configurable for hardware setting of input sensor. To operate PPC1090 refer to instruction manual.

EMC:
Fully compliant with CE marking applicable requirements.

Front Panel and Features:



- Magnetic Pick-up, contact, proximity or logic level 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.
- Software programmability.
- High Accuracy, µP controlled converter.
- Three port isolation, Input/Output/Supply.
- EMC Compatibility to EN61000-6-2, EN61000-6-4.
- ATEX, UL & C-UL, Russia and Ukraine Certifications.
- High Reliability, SMD components.
- High Density, 1 channel Converter, Repeater and Trip Amplifier per unit.
- 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: 12-24 V nom (10 to 30 V) reverse polarity protected ripple within voltage limits ≤ 5 Vpp.
Current consumption @ 24 V: 65 mA with 20 mA output and transistors output energized.
Current consumption @ 12 V: 120 mA with 20 mA output and transistors output energized.
Max. power consumption: 2.10 W with 30 V supply voltage, overload condition, transistors energized and PPC1090 connected.

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

Input: magnetic pick-up, contact, proximity to EN60947-5-6, logic level signal, open-collector transistor for frequency signal up to 50 KHz.
Integration Time: 100 ms.
Resolution: 1 mHz for 50 Hz range, 10 mHz for 500 Hz range, 100 mHz for 5 KHz range, 1 Hz for 50 KHz range.
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 KHz maximum.

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

Output: 0/4 to 20 mA, on max. 600 Ω load source mode, current limited at 22 mA or 0/1 to 5 V or 0/2 to 10 V signal, limited at 11 V.
Resolution: 2 µA current output or 1 mV voltage output.
Transfer characteristic: linear direct or reverse.
Response time: 100 ms (10 to 90 % step change).
Output ripple: ≤ 20 mV rms 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: 50 mA at 35 V or 100 mA at 12 V (≤ 1.5 V voltage drop).
Leakage current: ≤ 50 µA at 35 V.
Frequency response: 50 KHz maximum.

Alarm: ***Trip Point range:*** within rated limits of input range (see input visualization parameters for step resolution).
Delay time: 0 to 1000 s, 100 ms step.
Hysteresis: 0 to 5 Hz for 50 Hz range. 0 to 50 Hz for 500 Hz range. 0 to 500 Hz for 5 KHz range. 0 to 5 KHz for 50 KHz range. (see input visualization parameters for step resolution).
Output: Voltage free SPST optocoupled open-collector transistor.
Open-collector rating: 50 mA at 35 V or 100 mA at 12 V (≤ 1.5 V voltage drop).
Leakage current: ≤ 50 µA at 35 V.

Performance: Ref. Conditions 24 V supply, 250 Ω load, 23 ± 1 °C ambient temperature.
Input: Calibration and linearity accuracy: ≤ ± 0.05 % of full scale of input range selected.
Temperature influence: ≤ ± 0.005 % of full scale of input range selected for a 1 °C change.
Analog Output: Calibration accuracy: ≤ ± 0.1 % of full scale.
Linearity error: ≤ ± 0.05 % of full scale.
Supply voltage influence: ≤ ± 0.05 % of full scale for a min to max supply voltage change.
Load influence: ≤ ± 0.05 % of full scale for a 0 to 100 % load resistance change.
Temperature influence: ≤ ± 0.01 % on zero and span for a 1 °C 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 or I M2 [EEx ia] I associated electrical apparatus.
Uo/Voc = 10.6 V, Io/Isc = 1.1 mA, Po/Po = 3 mW at terminal 13-16.
Uo/Voc = 10.6 V, Io/Isc = 22 mA, Po/Po = 58 mW at 14-15-16.
Uo/Voc = 11.6 V, Io/Isc = 12 mA, Po/Po = 34 mW at 14-15.
Um = 250 Vrms, -20 °C ≤ Ta ≤ 60°C.

Approvals: DMT 01 ATEX E 042 X conforms to EN50014, EN50020, UL & C-UL E222308 conforms to UL913 (Div.1), UL 60079-0 (General, All Zones), UL60079-11 (Intrinsic Safety "i" Zones 0 & 1), UL60079-15 ("n" Zone 2), UL 1604 (Div.2) for UL and CSA-C22.2 No.157-92 (Div.1), CSA-E60079-0 (General, All Zones), CSA-E60079-11 (Intrinsic Safety "i" Zones 0 & 1), CSA-C22.2 No. 213-M1987 (Div. 2) and CSA-E60079-15 ("n" Zone 2) for C-UL, TCCExEE (Russia) Nr.665 according to GOST R 51330.0-99, 51330.10-99 [Exia]IIC X, TCCExEE (Ukraine) Nr.665 according to GOST 12.2.007.0, 22782.0, 22782.5 ExiaIIC X, Gosgortekhnadzor of Russia Permit Nr. PPC 04-11284.

Mounting: T35 DIN Rail according to EN50022.
Weight: about 160 g.
Connection: By polarized plug-in disconnect screw terminal blocks to accomodate terminations up to 2.5 mm^2.
Location: Safe Area / Non Hazardous Locations or Class I, Division 2, Groups A, B, C, D and Class I, Zone 2, Group IIC installation.
Protection class: IP 20.
Dimensions: Width 22.5 mm, Depth 99 mm, Height 114.5 mm.

Parameters Table:

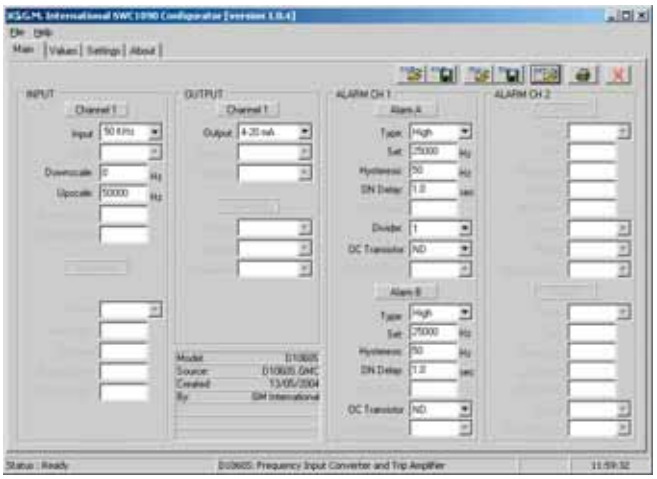
Safety Description	Maximum External Parameters			
	Group Cenelec	Co/Ca (µF)	Lo/La (mH)	L/R / La/Ra (µH/Ω)
Terminals 13-16				
Uo/Voc = 10.6 V	II C	2.32	31000	12600
Io/Isc = 1.1 mA	II B	16.20	124000	50400
Po/Po = 3 mW	II A	72.00	248000	100800
Terminals 14-15-16				
Uo/Voc = 10.6 V	II C	2.32	75	622
Io/Isc = 22 mA	II B	16.20	303	2480
Po/Po = 58 mW	II A	72.00	607	4970
Terminals 14-15				
Uo/Voc = 11.6 V	II C	1.59	255	512
Io/Isc = 12 mA	II B	10.80	1023	2040
Po/Po = 34 mW	II A	43.00	2046	4090

Ordering Information:

Model:	**D1060S**
Power Bus enclosure	/B

Input ranges, output types, output range, alarm set point, alarm conditions High/Low/Low-startup, hysteresis, delay, NC/NO transistor are programmable by the GM Pocket Portable Configurator type PPC1090 or via RS-232 Serial line with PPC1092 Configurator. If the above information are provided with the Purchasing Order, the unit will be configured accordingly, otherwise the unit will be supplied, by default, with the following parameters:
Input Type: Proximity.
Range: 0 to 50 KHz.
Output Type: 4-20 mA.
Repeater: 1:1.
Set: 50%.
Alarm mode: High.
Relay: ND.
Hysteresis: 1 %.
Alarm Delay: 0 s.

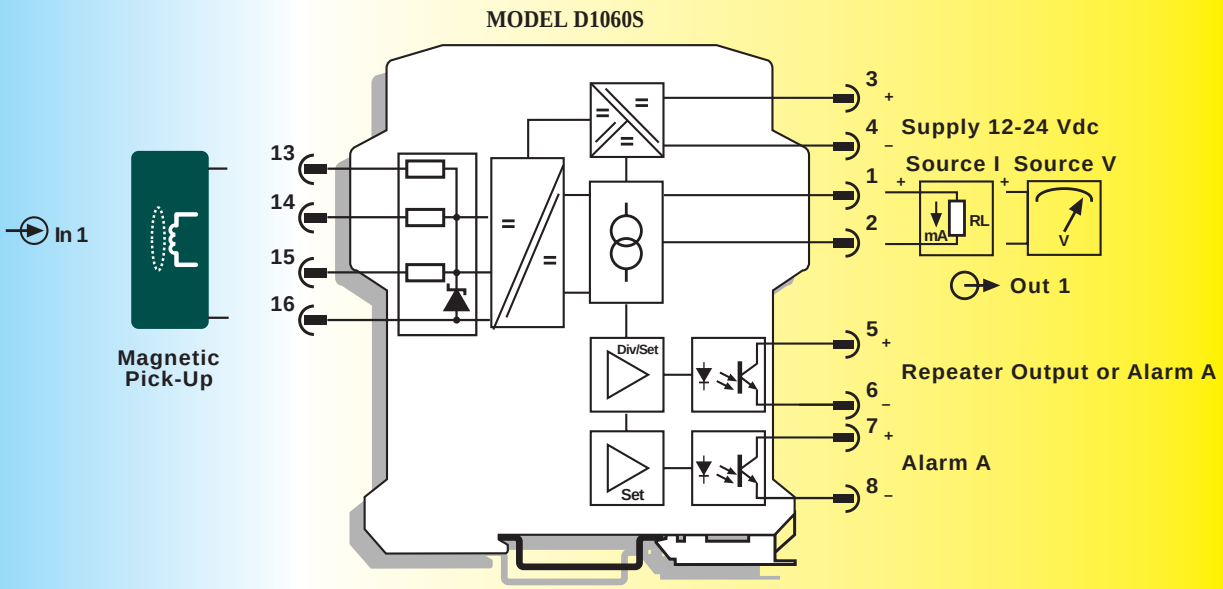
Friendly Configuration with PC and PPC1092 Adapter



SWC1090 Software Configurator is downloadable for free on our web site www.gminternationalsrl.com.

Function Diagram:

HAZARDOUS AREA / HAZARDOUS LOCATIONS CLASS I, DIVISION 1 and CLASS II, DIVISION 1 or CLASS I, Zone 0	SAFE AREA / NON HAZARDOUS LOCATIONS or CLASS I, ZONE 2, GROUP IIC



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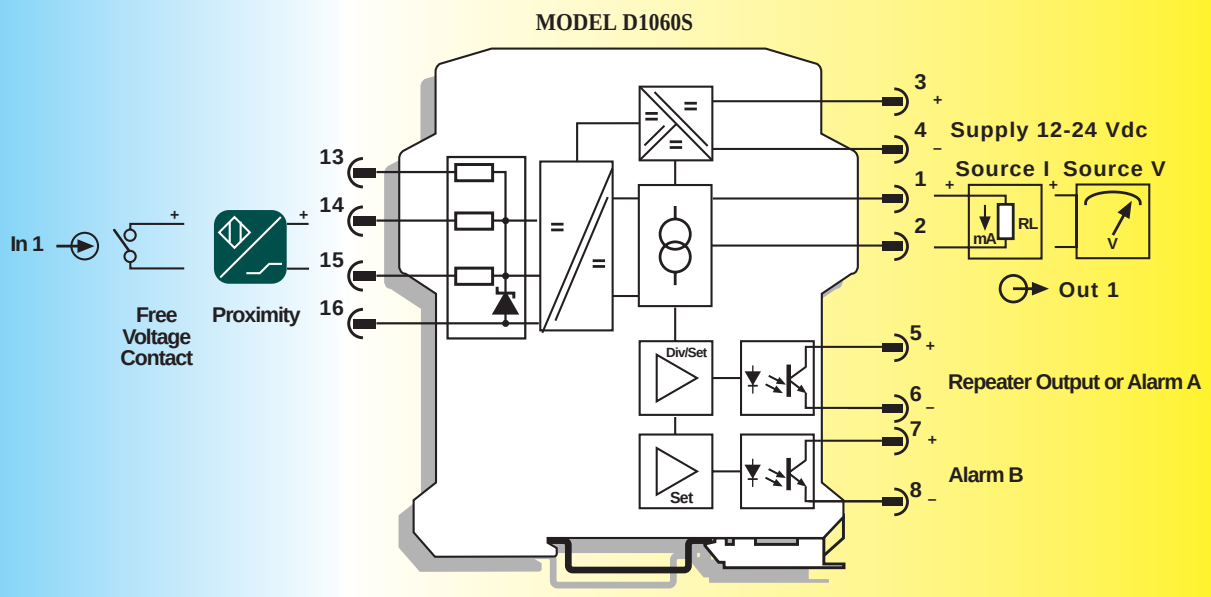
HAZARDOUS AREA / HAZARDOUS LOCATIONS CLASS I, DIVISION 1 and CLASS II, DIVISION 1 or CLASS I, Zone 0	SAFE AREA / NON HAZARDOUS LOCATIONS or CLASS I, ZONE 2, GROUP IIC