INTERNATIONAL
TECHNOLOGY FOR SAFETY

# Analog Signal Converter and Trip Amplifiers Eurocard Models E1058 S - E1058 D

**E1058**

## Characteristics:

**General Description:**
The single and dual channel Eurocard Converter and Trip Amplifier E1058 S and E1058 D, accept a voltage or current input from externally powered transmitters, located in Hazardous Area, and repeats, with isolation, the signal, to drive a Safe Area load. Output signal can be linear or reverse. For each channel 2 independent Alarm Trip Amplifiers, each with independent Trip Point settable over the entire input signal range, are also provided. Each Alarm energize, or de-energize, an SPST Relay for High, Low or Low-startup Alarm functions.

**Function:** 1 or 2 channels I.S. input from separately powered transmitters, provides 3 port isolation (input/output/supply) and current or voltage output signal. In addition it provides for each channel two SPST Relay Alarm contacts with adjastable Alarm Trip Point.

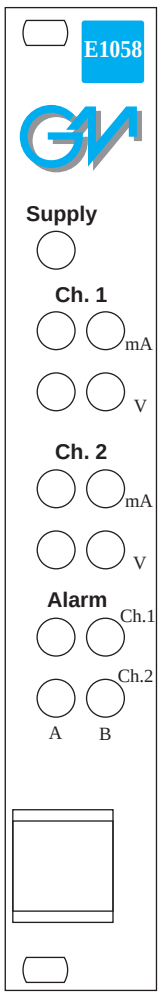
**Signalling LED:** Power supply indication UB (green), Alarm A, Alarm B (red), Burnout indication A-B (red).

**Configurability:** Totally Software configurable, no jumpers or switches, mA or V input/output signal, linear or reverse, Alarm Trip Point, High/Low/Low-startup Alarm mode, NE/ND relay operation, Hysteresis, Delay time, by a GM Pocket Portable Configurator PPC 1090, powered by the card. To operate PPC1090 refer to instruction manual.

**Test Points:** Analog output signal.

**EMC:** Fully compliant with CE marking applicable requirements (tolerant to a 20 ms line interruption).

## Front Panel:




- 0/4 - 20 mA, 0/1 - 5 V, 0/2 - 10 V Input- Output Signal linear or reverse.
- Output for burnout detection.
- Software programmability.
- High Accuracy, µP controlled A/D converter.
- Three port isolation, Input/Output/Supply.
- EMC Compatibility to EN61000-6-2, EN61000-6-4.
- Tolerant to a 20 ms line interruption and Inrush current limited.
- ATEX Certification.
- High Reliability, SMD components.
- High Density, two channels per card + two Alarm Trip per channel.
- Simplified installation using standard Eurocard plug-in connector.
- GM International Standard Bus Pin Layout.
- 250 Vrms max. voltage applied to the instruments associated with barrier.

## Technical Data:

**Supply (UB):** 24 V nom (20 to 30 V) reverse polarity protected ripple within voltage limits ≤ 5 Vpp.
***Current consumption @ 24 V:*** 130 mA for 2 channels E1058D, 80 mA for 1 channel E1058S with 20 mA output, relay energized typical.
***Max. power consumption:*** 4.1 W for 2 channels, 2.7 W for 1 channel with 30 V supply voltage, overload condition and PPC1090 connected.

**Isolation (Test Voltage):**
I.S. In/Out 1.5 KV; I.S. In/Supply 1.5 KV; I.S. In/I.S. In 500 V; Analog Out/Alarm Out 1500 V; Analog Out/Supply 500 V Alarm Out/Alarm Out 1500 V; Alarm Out/Supply 1500 V.

**Input:** 0/4 to 20 mA (-4 to +24 mA reading) separately powered input, voltage drop ≤ 0.5 V or 0/1 to 5 V or 0/2 to 10 V (-2 to +12 V reading).
***Integration Time:*** 100 ms.
***Resolution:*** 1 µA on current input, 1 µV on voltage input.
***Visualization:*** 1 µA on current input, 1 µV on voltage input.
***Input range:*** -4 to +24 mA on current input, -2 to +12 V on voltage input.

**Burnout:** enabled or disabled. Analog output can be programmed to detect burnout condition with downscale or highscale forcing. Alarm can be programmed to detect burnout condition.
***Burnout range:*** low and high separated trip point value programmable between -5 to +25 mA on current input and -3 to +13 V on voltage input.

**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 or reverse.
***Response time:*** 100 ms (10 to 90 % step change).
***Output ripple:*** ≤ 20 mV rms on 250 Ω load.
***mA Test points:*** Ammeters with Ri ≤ 10 Ω.
***V Test points:*** Voltmeter with Ri ≥ 1 MΩ.

**Alarm:** ***Trip Point range:*** within rated limits of sensor (see input visualization parameters for step resolution).
***Delay time:*** 0 to 1000 s, 100 ms step.
***Hysteresis:*** 0 to 100 % within rated limits of sensor (see input visualization parameters for step resolution).
***Output:*** Voltage free 1 + 1 SPST relay contact for each channel.
***Contact rating:*** 2 A, 250 V, 100 VA or 2 A, 250 V, 80 W (resistive load).

**Performance:**
Ref. Conditions 24 V supply, 250 Ω load, 23 ± 1 °C ambient temp.
***Input: Calibration and linearity accuracy:*** ≤ ± 20 µA on current input or ≤ ± 10 mV on voltage input.
***Temperature influence:*** ≤ ± 2 µA, 1 mV of input 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 associated electrical apparatus.
Uo = 10.75 V, Io = 8.63 mA, Po = 23.2 mW
at terminals z4-z6-z8 and d4-d6-d8.
Um = 250 Vrms, -20 °C ≤ Ta ≤ 60°C.
***Approvals:*** DMT 01 ATEX E 042 X conforms to EN50014, EN50020.

**Mechanical:** Eurocard 100 x 160 mm with 4TE, 3 HE front panel mountable in 19" rack, any installation position.
***Weight:*** about 200 g.
***Connection:*** DIN 41612 Form F 32 pole male connector rows d, z. Requires a female mating connector.
***Location:*** Safe Area installation.
***Protection class:*** IP 20 when installed in 19" rack.

## Parameters Table:

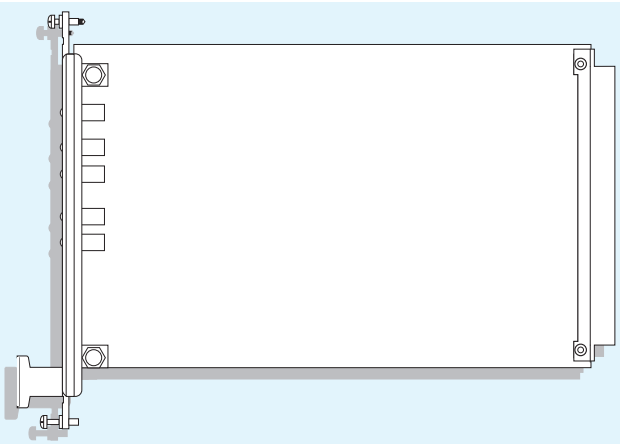
| Safety Description | Maximum External Parameters | | | |
|---|---|---|---|---|
| | Group Cenelec | Co (µF) | Lo (mH) | L/R (µH/Ω) |
| **Terminals z4-z6-z8, d4-d6-d8** | | | | |
| Uo = 10.75 V | II C | 2.14 | 477 | 1530 |
| Io = 8.63 mA | II B | 15.00 | 1909 | 6130 |
| Po = 23.2 mW | II A | 66.00 | 3819 | 12260 |

## Ordering Information:

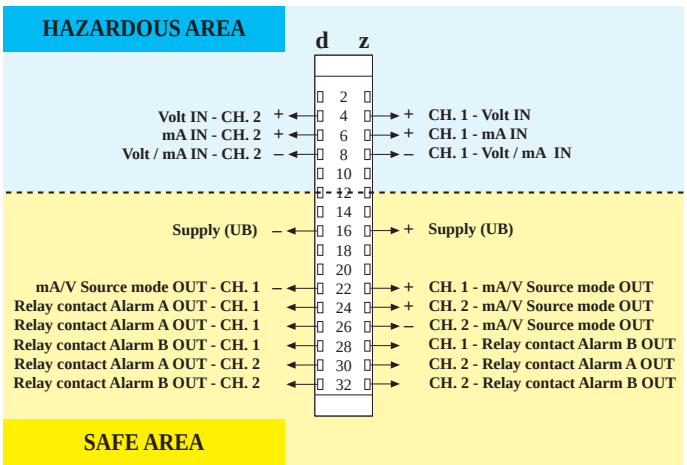
| ***Model:*** | **E1058** |
|---|---|
| 1 channel | S |
| 2 channels | D |

Input types, output types, output range, alarm set point, conditions High/Low/ Low-startup, hysteresis, delay, relay NE/ND are programmable by the GM Pocket Portable Configurator type PPC 1090. 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: 4-20 mA - Output Type: 4-20 mA - Set:50% - Alarm mode:High - Relay:ND Hysteresis:0.1 mA - Alarm Delay: 0 s. The plate will record the unit type, serial number, function diagram and terminal block layout for connections.

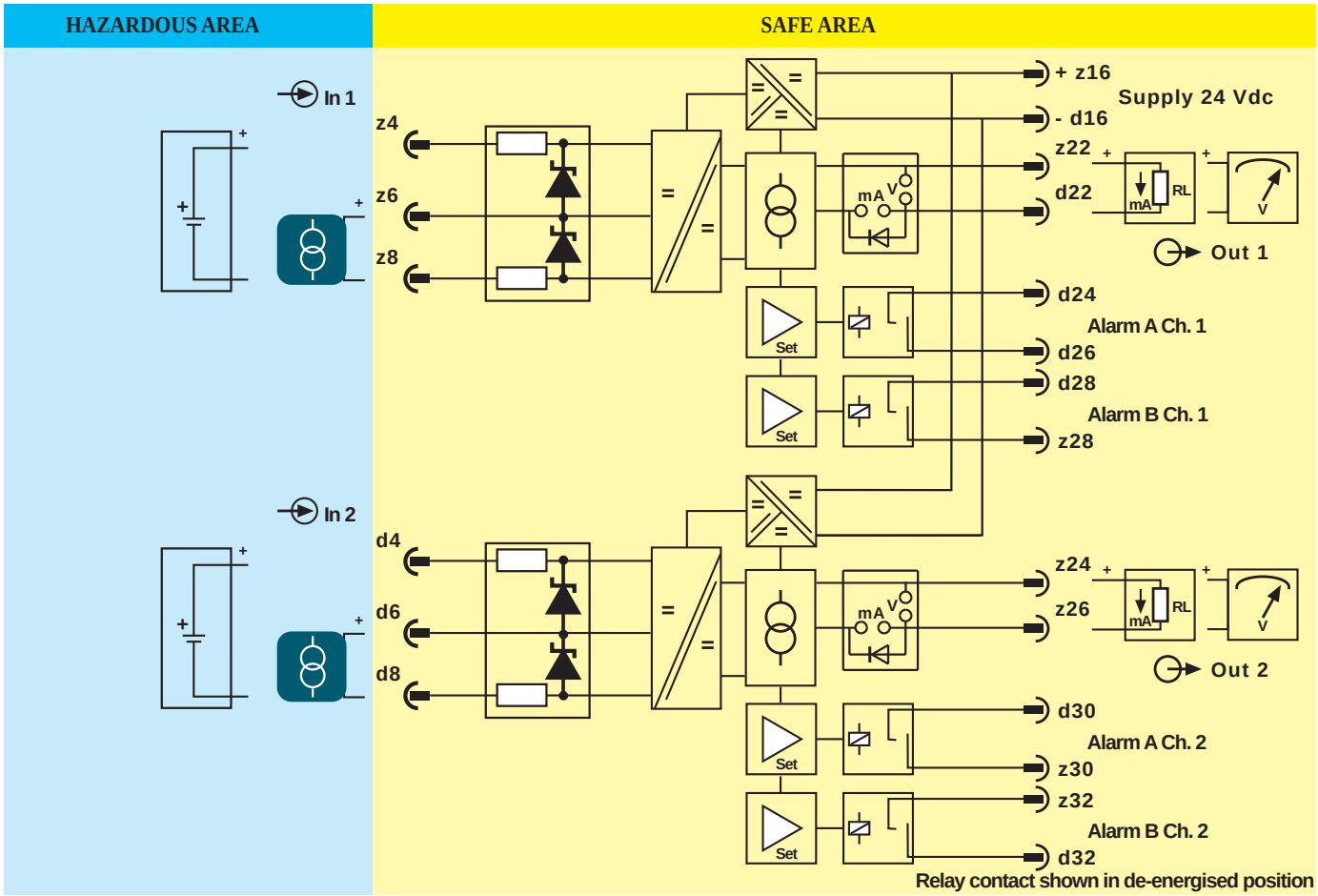
## Eurocard Layout:



## Connector Pin Layout:




## Function Diagram:




SERIES E 1000