

# General Specifications

## AI-517-02

ProSafe-SLS™

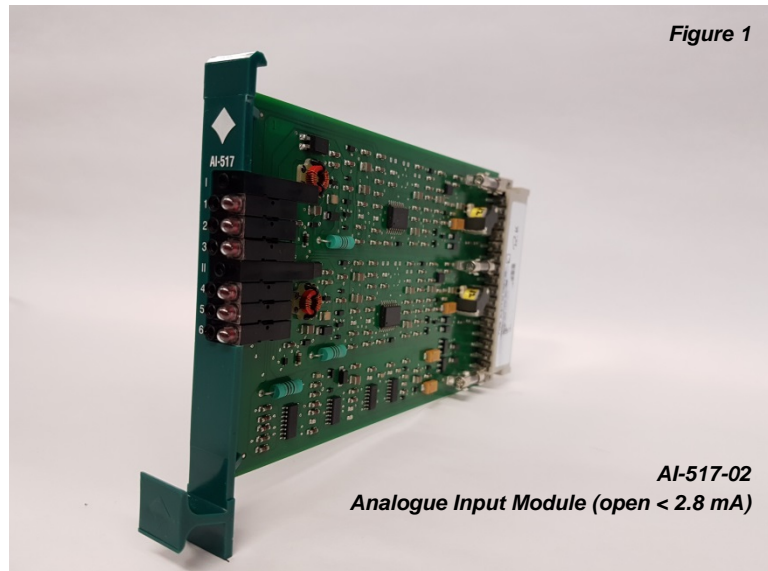
GS48C17Z02-00E-N

Analogue Input Module (open < 2.8 mA)

### ■ GENERAL

This Analogue Input module, or trip amplifier, contains two circuits and can be utilized for various applications.

The open line detection level is configured for 2.8 mA.



This module has a number of typical characteristics:

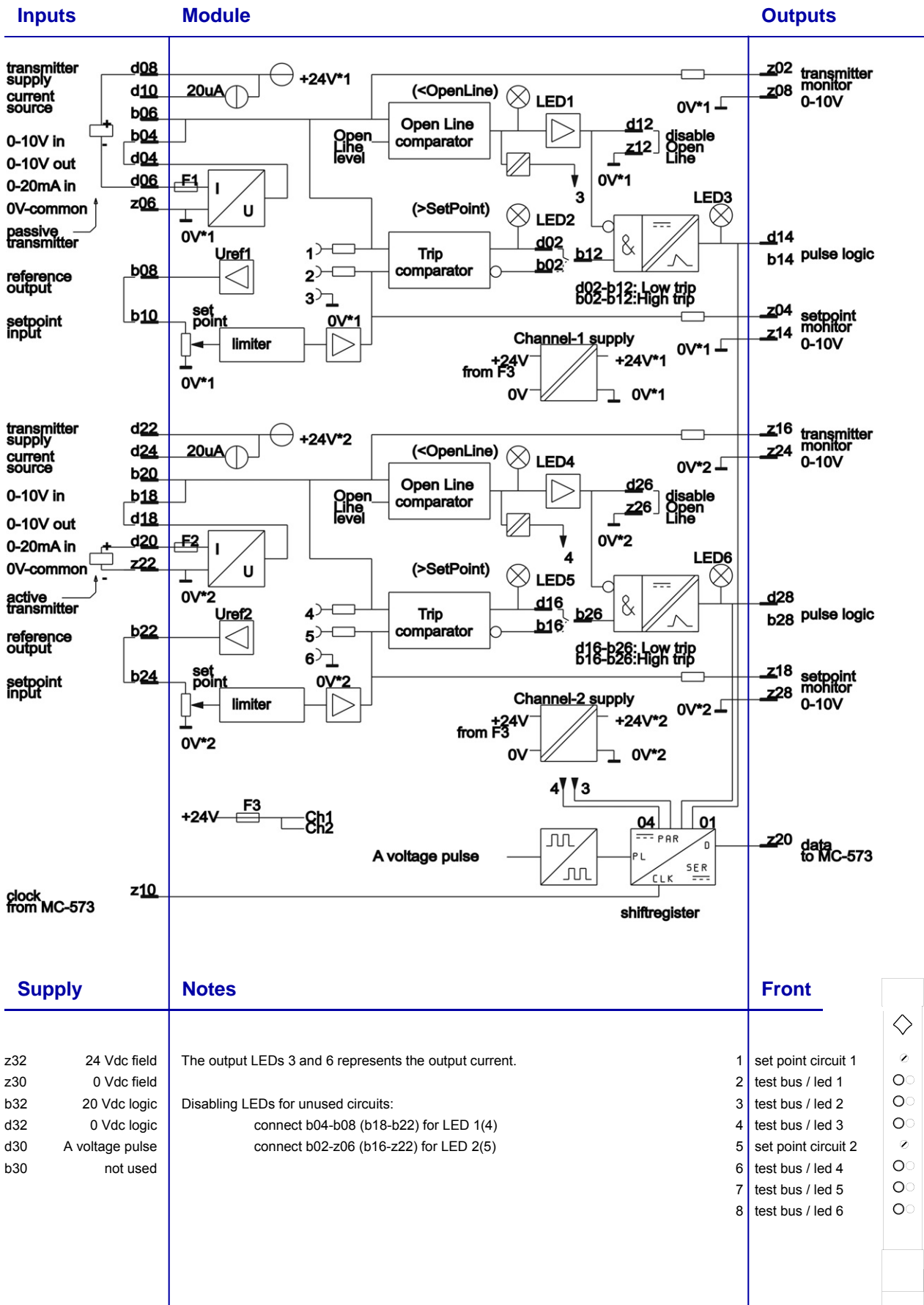
- Galvanic isolation between inputs and between inputs and logic
- Supply for passive transmitters
- Current or voltage input
- Internal or external set point setting with set point limiter
- LED indication
- Transmitter and set point outputs
- Open line input detection
- Normal or inverting operation
- Shift register circuit for connection to the Sequence of Event Recording system (SER)

The incoming field current signal is converted to a voltage signal. This signal (or a voltage input signal) is internally compared with the set point and open line levels. The result of comparison with the set point is used for the circuit output. Depending on the wiring, the output is a high or a low trip signal.

The result of the open line comparison can be used to disable the output in case of a line fault. Open line levels are set by resistors on the module.

Both set point and field input signals are available for monitoring as a 0 - 10 V signal.

FUNCTIONAL DIAGRAM



Supply	Notes
z32 24 Vdc field	The output LEDs 3 and 6 represents the output current.  Disabling LEDs for unused circuits: connect b04-b08 (b18-b22) for LED 1(4) connect b02-z06 (b16-z22) for LED 2(5)
z30 0 Vdc field	
b32 20 Vdc logic	
d32 0 Vdc logic	
d30 A voltage pulse	
b30 not used	

Front
1 set point circuit 1
2 test bus / led 1
3 test bus / led 2
4 test bus / led 3
5 set point circuit 2
6 test bus / led 4
7 test bus / led 5
8 test bus / led 6

Legend for output LEDs and test buses:

- ◇ (diamond symbol)
- (circle symbol)
- (circle symbol)
- (circle symbol)
- (circle symbol)
- (circle symbol)
- (circle symbol)
- (circle symbol)

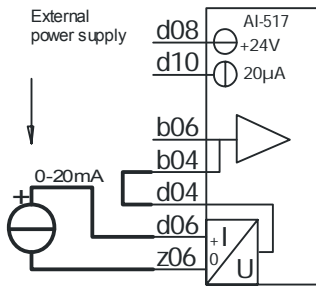
## ■ SPECIFICATIONS

Description		Data
General	Number of channels	2
	Width	3HP
	Identification	AI-517 on front and more detailed on connector label
	Weight	130 gram
Input	Current input	0 - 20 mA, 55 $\Omega$ $\pm$ 10% (60 mA max., fuse protected)
	Voltage input	0 - 10 V, 1 M $\Omega$ (max. 30 V)
	Voltage output	0 - 10 V $\pm$ 0.5%, max. 5 mA
	Open line level	2.8 mA $\pm$ 0.4 mA
	Open line indication	Below open line level: red LED
	Reference output	11.25V $\pm$ 1%, 5 mA max.
	Set point input	10 k $\Omega$ (30 V max.)
	Set point level	Adjustable by potentiometer
	Trip indication	Above set point : red LED
	Hysteresis	1% (full scale, trip & open line)
	Stability error	< 0.2% (full temp. range)
	Clock	Clock pulses from MC-573, level 0 / 11 V
Output	Pulse logic	Current pulses 500 mA
	Capacity	10 unit loads
	Status indication	Red LED per output
	Monitor	0 - 10 V, 1 k $\Omega$
	Test bus	0 - 10 V, 10 k $\Omega$ (0 $\Omega$ for 0 V test bus)
	Transmitter supply	25.5 Vdc $\pm$ 0.5 V (at 2 x 20 mA) and field voltage tolerance, 80 mA max. / channel (fuse protected)
	Data	8 bits serial data, level 0 / 11 V
Propagation	RC-filtering	50 msec.
Supply	Field supply	24 Vdc $\pm$ 10% 35 - 50 mA passive 40 - 100 mA active
	Logic supply	20 Vdc 5 mA
	Clock	A pulse, level 0 / 20 V
Dissipation	Passive	1.0 - 1.3 W
	Active	1.1 - 1.6 W

Signal definition: 0 – 100% = 0 - 20 mA = 0 - 10 V (max. signal: 120%)

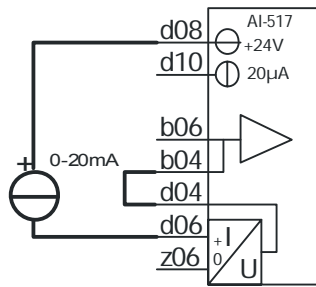
NOTES

Input & Setpoint configurations



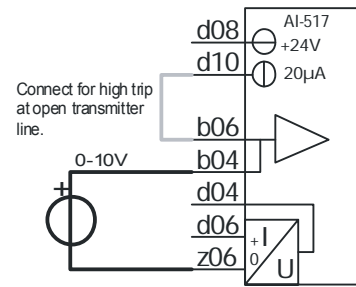
Current input  
Active transmitter

Active transmitter (with external power supply)  
Passive AI-517



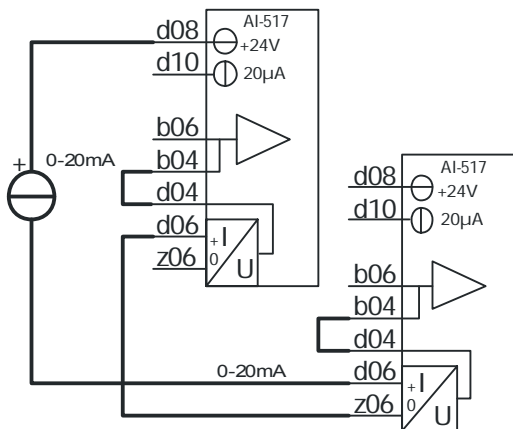
Current input  
Passive transmitter

Passive transmitter (powered by AI-517)  
Active AI-517



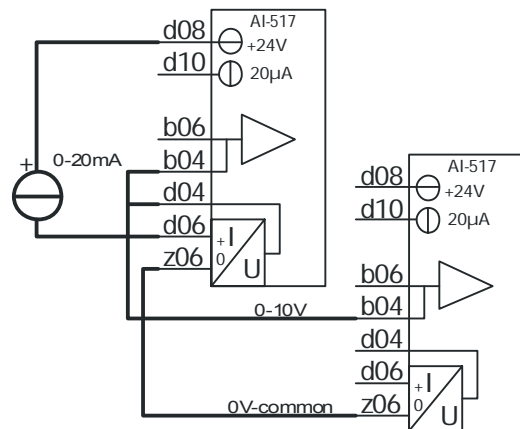
Voltage input  
Active transmitter

Active transmitter (with external power supply)  
Passive AI-517



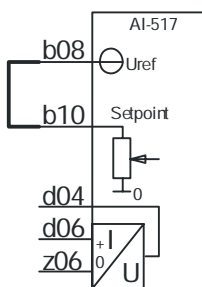
Current input, passive transmitter  
2 Channels serial connected

Passive transmitter (powered by AI-517)  
Active AI-517 (first AI-517 active, second AI-517 passive)  
No galvanic isolation between channels



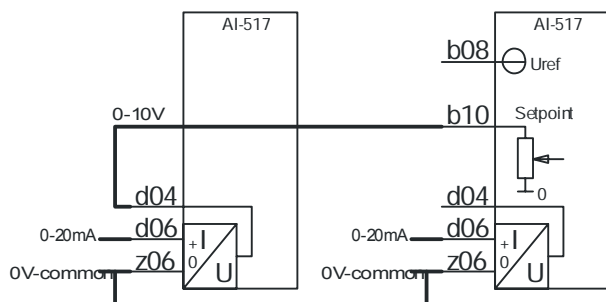
Current input, passive transmitter  
2 Channels parallel connected

Passive transmitter (powered by AI-517)  
Active AI-517 (first AI-517 active, second AI-517 passive voltage input)  
No galvanic isolation between channels



Internal Setpoint reference

Adjust Setpoint with multiturn potentiometer at module front panel  
Clockwise is up, counter clockwise is down



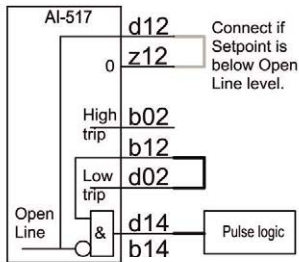
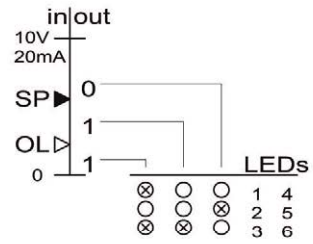
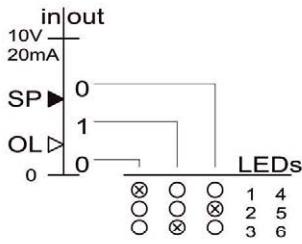
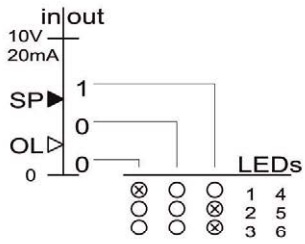
External Setpoint reference

Example for comparing 2 analog signals  
No galvanic isolation between channels

NOTES

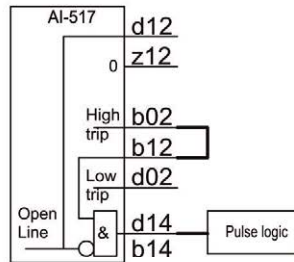
Output configurations

(SP = SetPoint OL = Open Line)



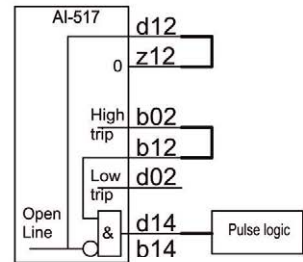
Low trip

Open Line disabled if Setpoint is below Open Line level.



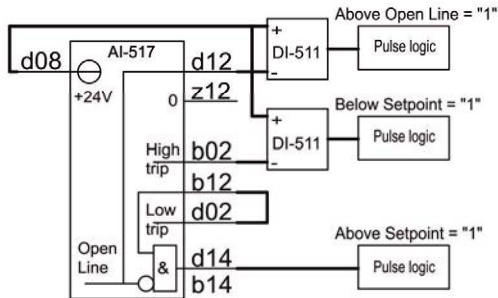
High trip

Open Line enabled



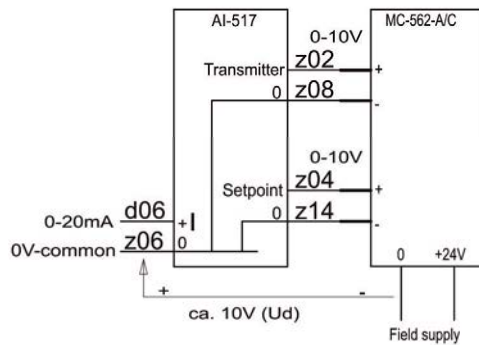
High trip

Open Line disabled



Low or High trip  
Open Line disabled

Open Line, Low trip and High trip signals used in Maglog logic



Transmitter and Setpoint monitoring

Voltage difference (Ud) ca. 10V when AI-517 input is floating  
Maximum -40V to +72V difference (Ud) allowed for MC-562  
Galvanic isolation is reduced by using the MC-562

■ NOTES

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