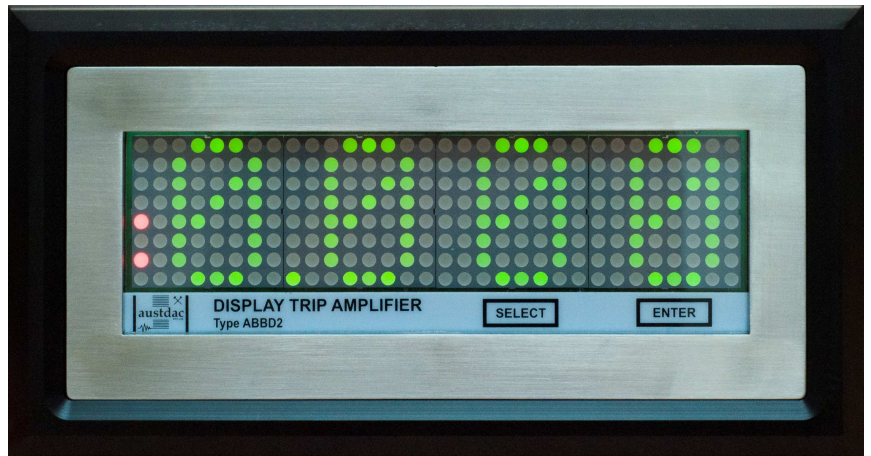


- ✂ **Intrinsically Safe**
- ✂ **Large three colour LED display**
- ✂ **Display can accept 2 inputs**
- ✂ **Low and high power contact relay**
- ✂ **Ingress protection to IP66**
- ✂ **Easily viewed within 20 metres**



DESCRIPTION

The intrinsically safe, SIL2 Display Trip Amplifier type ABBD2 is a panel mounting large colour display that may also be used as a trip amplifier for local 4-20mA or an outbye remote trip amplifier using Austdac SILBUS field bus network. The local or remote 4-20mA input is converted, to display gas levels (or any other levels i.e. air flow), as a percentage or parts per million (ppm). The unit features a large three colour LED dot matrix display that can be easily viewed from 20 metres.

The trip amplifier has three independent adjustable set point levels that alter the colour of the display and control the output relays. As the input signal increases the display colour changes as the set point levels are exceeded. The changing of display colour allows the user to quickly determine process status i.e. green for normal, yellow for warning 1, flashing between yellow and red for warning 2 and red for alarm. The display can also cater for falling alarms with display colour changing on decreasing input levels.

The display can accept up to two inputs - 4-20mA (or 0-20mA) current type or 0.4-2V (or 0-2V) voltage type. The display converts the input signal to one of many user configurable scales or ranges. All industry standard ranges or scales are configurable with any unique scales added at the factory by special request.

The display can be user configured to accept the input signal from a SILBUS network (outbye system), thus allowing the ABBD2 to be used as a remote display with full trip amplifier set point operation. The SILBUS interface is fully compatible with the Analink[®] and Fastlink protocol and can auto detect 8, 16, 32, 64 or 128 channel networks. All of the set point alarms can be configured to transmit back onto the SILBUS network and provide remote tripping or control.

The display can be user configured to accept the local analogue inputs, display it and transmit the signal to the SILBUS network and MODBUS network along with the set point alarms as digital signals.

CERTIFICATION

The display trip amplifier type ABBD2 has IECEx certification under IECEx MSC 14.0020X, Ex ia Ma I.

The certification requires that the ABBD2 be mounted within a host enclosure that provides a minimum ingress protection of IP66.

The certificate should be consulted for any special conditions of use when designing the ABBD2 into an installation.



SPECIFICATION

GENERAL

Name	Display Trip Amplifier
Type	ABBD2
IS Protection	Ex ia I Ma
Size H x W x D	113 x 214 x 120 mm 4.44 x 8.42 x 4.72 inches
Mass	1.4kg 3.08 pounds
Safety Integrity Level	SIL2
Application location	Safe or Hazardous Area
30mm 8x8 dot matrix display	4
SILBUS 2 wire interface	1
SILBUS Channel	8, 16, 32, 64, or 128
MODBUS 3 wire RS485 port	1
MODBUS database type	Trips, Warnings & 4-20mA level
Analogue channels	2
Analogue input current signal range	4-20mA
Analogue input voltage signal range	0.4 - 2.0V
Analogue input current to voltage conversion resistance	100Ω 0.1%
Analogue transmission protocol	FASTLINK or ANALINK
Operating Temperature Range	0°C to 50°C 32°F to 122°F
Operating Voltage Range	8 to 16.5VDC
Maximum current consumption	110mA

MODELS

The ABBD2 has two models:

- ABBD2-L (low power contact relay)
- ABBD2-H (high power contact relay).

There are three set point trip relays in ABBD2 (one point for warning 1, one point for warning 2 and one point for trip1), one set spare point trip relay, each have voltage free contact available for connection to control circuits or pilot control circuits. In case of the trip, point two relays are allocated for SIL design requirements. These voltage free trip contacts may be used to switch safe area circuits provided that the unit is located in a safe area.

The trip relay can be configured to latch until an optional “Deputy Key” is operated to unlatch the trip. The latch function is implemented using “permanent memory” which ensures that trips survive power outages and power cycling, an important feature when used with methane monitoring on continuous miners.

DISPLAY TRIP AMPLIFIER SAFETY FUNCITONS

The ABBD2 is capable of providing several independent safety functions.

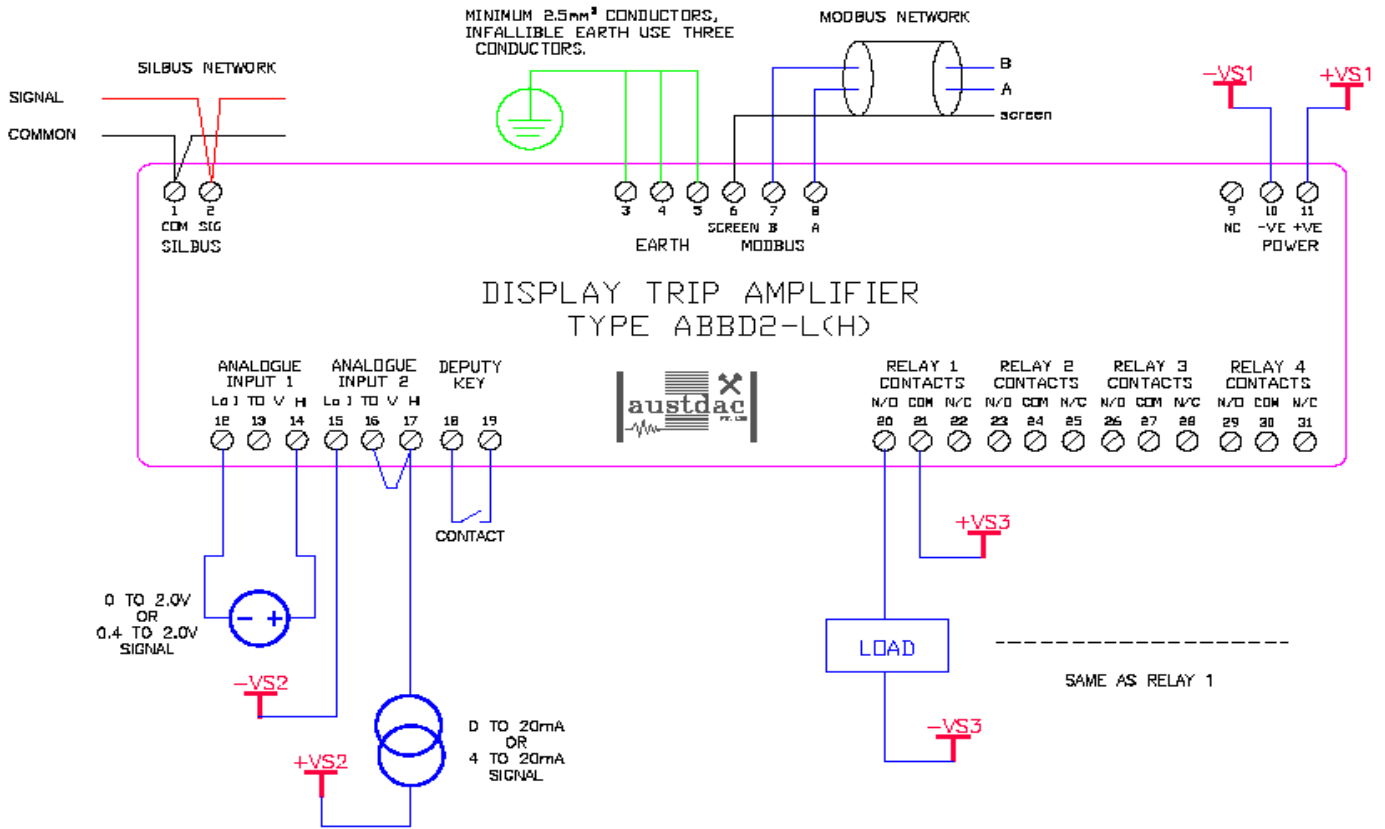
These functions are summarised in the following table:

SF ID	SF Description	SIL Allocation
SF#1	Local gas level detection with local relay trip.	SIL2 PFH = 1.70x10 ⁻⁸ 1/h PFDAVG = 7.46x10 ⁻⁵
SF#2	Local gas level detection with remote SILBUS trip.	SIL2 PFH = 1.37x10 ⁻⁸ 1/h PFDAVG = 6.02x10 ⁻⁵
SF#3	Remote gas level detection over SILBUS with local relay trip.	SIL2 PFH = 1.70x10 ⁻⁸ 1/h PFDAVG = 7.46x10 ⁻⁵



TERMINATIONS AND CONNECTION DIAGRAM

All the terminal blocks used on the display trip amplifier type ABBD2 are of the two part type that allow the wires to be terminated permanently and should the display need to be disconnected it is simply a matter of withdrawing the plug portion of the terminal block with the wires still terminated, these terminals can accommodate up to 4mm² conductors. There are seven possible connections to the ABBD2; these are shown in the following tables and diagrams:



ABBD2 ONLY ALLOWS TO CONNECT A SINGLE PHASE Um=250V

ORDERING DETAILS

DESCRIPTION	ORDER CODE
DISPLAY TRIP AMP TYPE ABBD2-L	DISP003
DISPLAY TRIP AMP TYPE ABBD2-H	DISP004



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