austdac®

SILBUS Universal Bridge
Type SILBUS-SUB1

☑ Intrinsically safe SILBUS Universal Bridge

☑ Zone 0, Zone 1 and Safe Area installations

☑ Intrinsically safe SILBUS field bus networks can extend into hazardous areas

☑ Self-contained DIN rail mounted unit

☑ Communicates with SILBUS, Modbus and TCP/IP networks over Ethernet and Wi-Fi

The SILBUS-SUB1 is a communication bridge between the SILBUS, Modbus and TCP/IP networks. It provides various interfaces such as SILBUS, Console interface over TTL UART and TCP/IP, Modbus interface over RS485 and TCP/IP and web interface over TCP/IP. The SILBUS-SUB1 supports TCP/IP interface over Ethernet and Wi-Fi both.

The SILBUS Universal Bridge type SILBUS-SUB1 is part of explosion-protected DIN rail mounting modules family that transmit to and receive from an Austdac SILBUS field bus network.

The SILBUS Universal Bridge type SILBUS-SUB1 is a self-contained DIN rail mounted unit that measures 100 mm (W) x 75mm (H) x 110mm (D).

Typical Applications

• SILBUS control and monitoring applications such as gas monitoring and on conveyor and longwall installations.

• Interface between PLC and SILBUS via Modbus (RS-485)

• TCP/IP TO RS485 Modbus bridge

• SILBUS TO TCP/IP Web bridge

Certification

The SILBUS-SUB1 SILBUS Universal Bridge is IECEx certified under IECEx TSA 07.0002X.

Intrinsically Safe Information

SILBUS	Um = 0V	Ui = 16.5V
	Uo = 0V	Ii = 3.3A
	Co = 0uF	Ci = 0uF
	Lo = 0uH	Li = 0uH
POWER	Um = 0V	Ui = 16.5V
	Uo = 0V	Ii = 3.3A
	Ci = 0uF	Li = 0uH
MODBUS	Um = 250V	Ui = 16.5V
	Uo = 5.88V	Ii = 3.3A
	Io = 103mA	Ci = 0uF
	Lo/Ro = 3mH/Ω	Li = 0uH
ETHERNET	Um = 250V	Pi = 1W
	Uo = 6.88V	Ui = 16.5V
	Io = 445mA	Ii = 3.3A
	Co = 60uF	Ci = 2.42nF
	Lo = 30uH	Li = 0uH

Specifications

General

Terminations	Cage Clamp 4 mm^2 (12 AWG)
Size	100(W)x75(H)x110(D)mm 4.0(W)x3.0(H)x4.3(D)inch
Mass	0.31kg (0.7lb)
Fixing	TS35 DIN rail
Ingress protection	IP20
Enclosure Material	Polycarbonate
Enclosure Colour	RAL 7032 Grey
Terminal Block Colour	Blue
Operating Temperature	0ºC - 40ºC (32ºF - 104ºF)
Storage Temperature	-20ºC - 80ºC (68ºF - 176ºF)

Power Supply

Pin assignment	Pin 3: 12V DC power Pin 4: 0V DC power
Voltage	12V DC
Current	220mA

Modbus

Modbus-RTU	2 wire RS485 port
Pin Assignment	Pin 16: RS485 A+ Pin 17: RS485 B- Pin 18: Ground Pin 19: Earth Pin 20: Earth Pin 21: Earth

SILBUS

Pin Assignment	Pin 1: Signal Port 1 Pin 2: COM

Ethernet

Connector	RJ-45

Wi-Fi

Connector	Reverse Polarity SMA Jack

Memory Mapping

The SUB1 Silbus Universal Bridge has a single MODBUS port that allows at PLC access to the channel generator database. This access can either be read or write, depending on the application. The PLC can read the status of digital signals (standard digital and safety digital) and the value of analogue signals (Analink, Fastlink and Datalink). When enabled, the PLC can also write to any digital signal within the database. This allows for control of field devices.

SILBUS I/O to Modbus-RTU Mapping

Address	R/W, FC	Function
3:0001(A1) - 0128(P8)	RO, FC04	I/O Map
1:0001(A1) - 0128(P8)	RO, FC02	I/0 Map
0:0001(A1) - 0128(P8)	RW, FC01	I/O Map
0:0001(A1) - 0128(P8)	RW, FC15	I/O Map
0:0001(A1) - 0128(P8)	RW, FC05	I/O Map

SILBUS Analogues to Modbus-RTU Mapping

Address	R/W, FC	Function
3:1001(A1) - 1004(P7)	RO, FC04	Safety Status
1:1001(A1) - 1064(P7)	RO, FC02	Safety Status
3:2001(A1) - 2004(P8)	RO, FC04	Safety Quality
1:2001(A1) - 2064(P7)	RO, FC02	Safety Quality
3:3001(A1) - 3128(P8)	RO, FC04	Analink Value
3:3129(A1) - 3256(P8)	RO, FC04	Fastlink Value
3:4001(A1) - 4008(P8)	RO, FC04	Analink State
3:4009(A1) - 4016(P8)	RO, FC04	Fastlink State
1:4129(A1) - 4256(P8)	RO, FC02	Fastlink State
3.5001	RO, FC04	SILBUS Sync Counter
3.6001	RO, FC04	Number of SILBUS Channels

Baudrate	9600, 19200, 38400
Parity	Non1, Non2, Even and Odd
Function Code	01, 02, 03, 04, 05, 06 &16

Wi-Fi

- IEEE 802.11 b/g/n radio
- 2.4GHZ Frequency band
- +16dBm Transmit power
- -97dBm receive sensitivity

Connection Diagram

SIGNAL
COMMON
+12V
0V

1   2   3   4

SIG   COM   +VE   -VE

SILBUS   POWER
INPUT   INPUT

SILBUS UNIVERSAL BRIDGE
TYPE SUB1

MODBUS
RS485

A+   B-   GND   EARTH

16   17   18   19   20   21

Screen
Data A+
Data B-
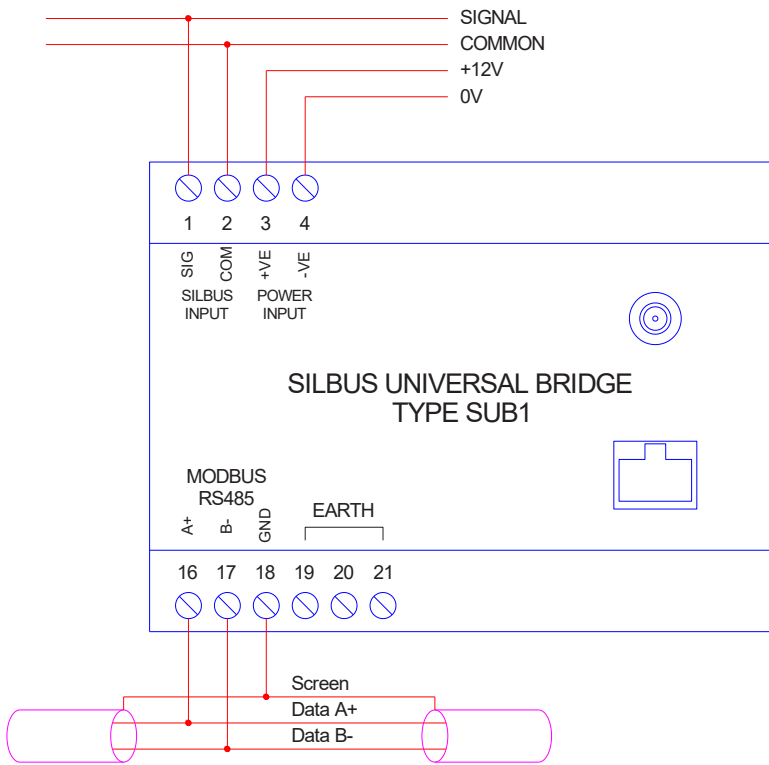
Nub Antenna (above)

Remote Antenna (below)

Front Panel Operations

The green POWER LED is illuminated whenever a power is connected to the SILBUS-SUB1.

The yellow SILBUS status LED toggles every second when the SILBUS status is healthy and every three seconds when SILBUS status is unhealthy.

The yellow MODBUS communication status LED flashes when MODBUS message transmission or reception happenas.

When SILBUS-SUB1 is configured as Wi-Fi client, the green Wi-Fi link LED flashes with different rates indicating Wi-Fi module states while connecting to an Access Point and stays permanently ON when connected successfully to an Access Point.

When the SILBUS-SUB1 is configured as Wi-Fi Access Point, the green Wi-Fi link LED flashes with different rates indicating Wi-Fi module states while starting the Access Point mode and stays permanently ON when the Access Point mode is started successfully.

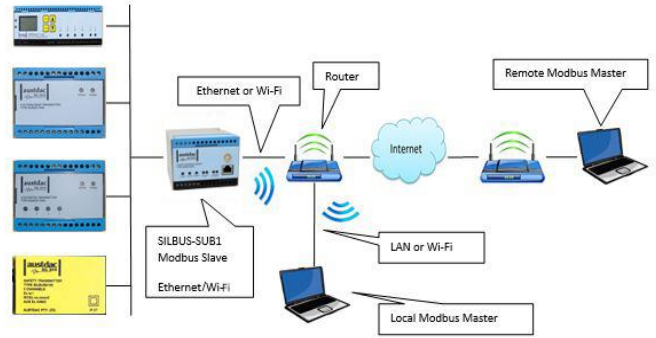The yellow Wi-Fi Data LED flashes when Wi-Fi data transmission or reception happens.

The green Ethernet Link LED is illuminated when the link is detected by the Ethernet interface and the yellow Ethernet Data LED flashes when Ethernet data transmission or reception happens.
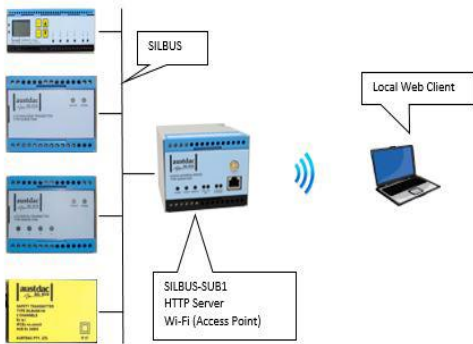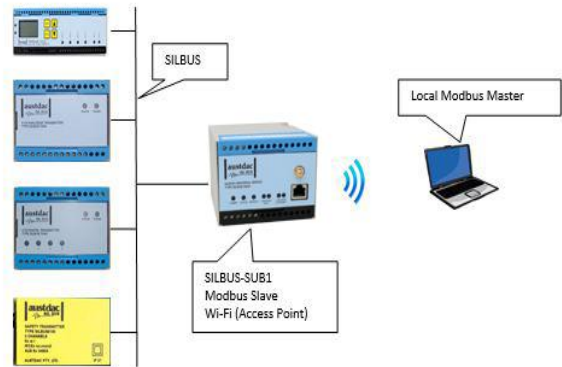
Typical Applications
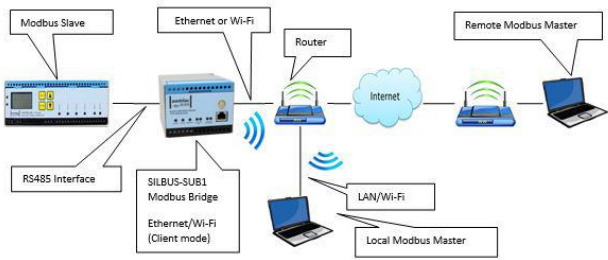
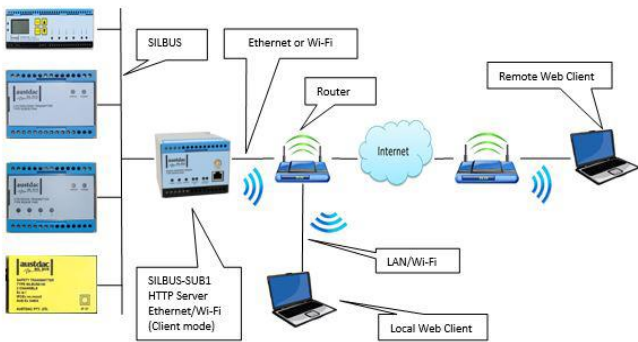TCP/IP to RS485 Modbus bridge
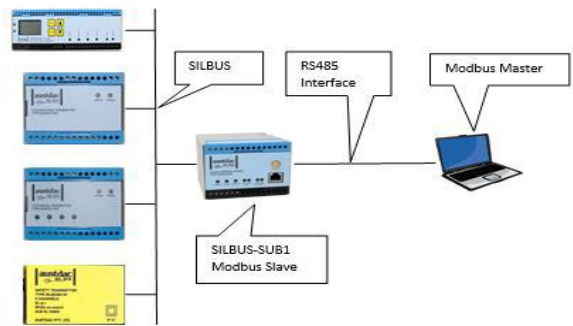

SILBUS to TCP/IP Modbus bridge

TCP/IP to RS485 Modbus bridge (Wi-Fi AP Mode)

SILBUS to TCP/IP Modbus bridge (Wi-Fi AP Mode)

SILBUS to TCP/IP Web bridge

SILBUS to RS485 Modbus bridge

Ordering Details

Description	Order Code
SILBUS Universal Bridge Type SILBUS-SUB1	SILBUS-SUB1

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