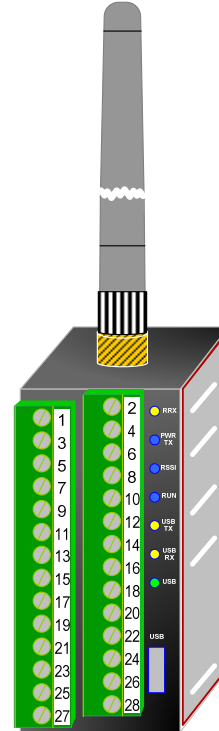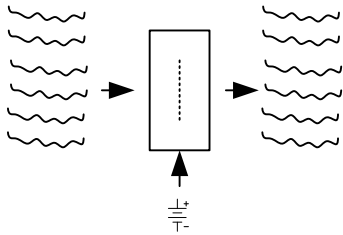# Site to Site (Data) Transceiver – SST
DOC # WSD20425-5, Rev 4
DIN5023-1 or AUX5023-1
DIN5023-2 or AUX5023-2

- Small Package
- Hermetically Sealed
- Easy Installation
- 7 Year Warranty

1) Description

The **Site to Site (Data) Transceiver** is a great inexpensive alternative to metallic wires for transferring data between two locations. Especially as metallic wires become less reliable and more expensive to possess and maintain.

Data is securely communicated wirelessly rather than over wires.

There are many benefits for converting to wireless communications - such as low cost of ownership, ease of installation, low maintenance costs, high reliability are just a few of those benefits.

Simple to use - They work right of the box – simply connect up the Power, Inputs and Outputs. Also, Industrial packaging insures years of continuous maintenance free operation.

Whether your requirement is to transfer data between two locations or access data from many locations then the **Site to Site (Data) Transceiver** is definitely for you.

2) Overview

The **Site to Site (Data) Transceiver** is comprised of four main blocks – power supply, computer, input / output and radio modem that are interconnected and conformal coated.

Field wiring are terminated with "plug and play" terminals. Seven status indicators provide instant operational status.

3) Technical Data
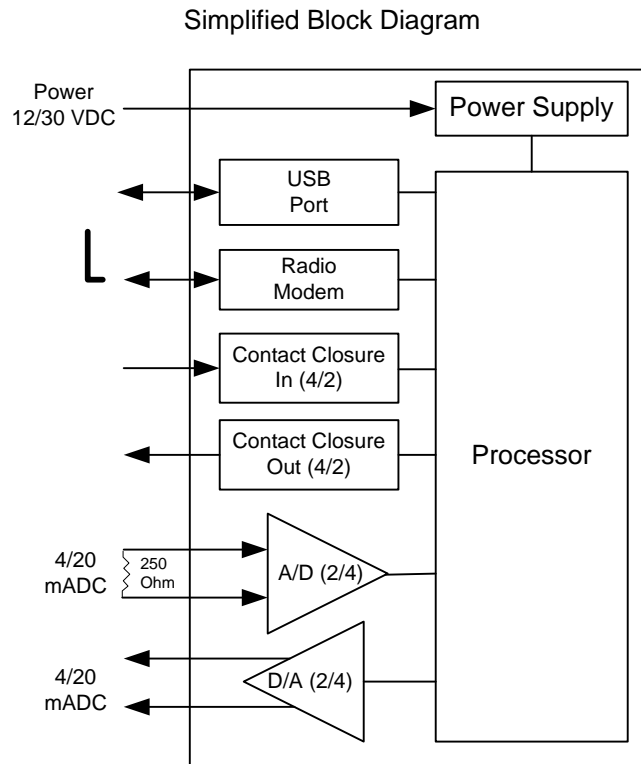
Simplified Block Diagram

AGM Site to Site Transfer (SST) Product Numbers -
2 AIO / 4 DIO = DIN5023-1 (or) AUX5023-1; 4 AIO / 2 DIO = DIN5023-2 (or) AUX5023-2
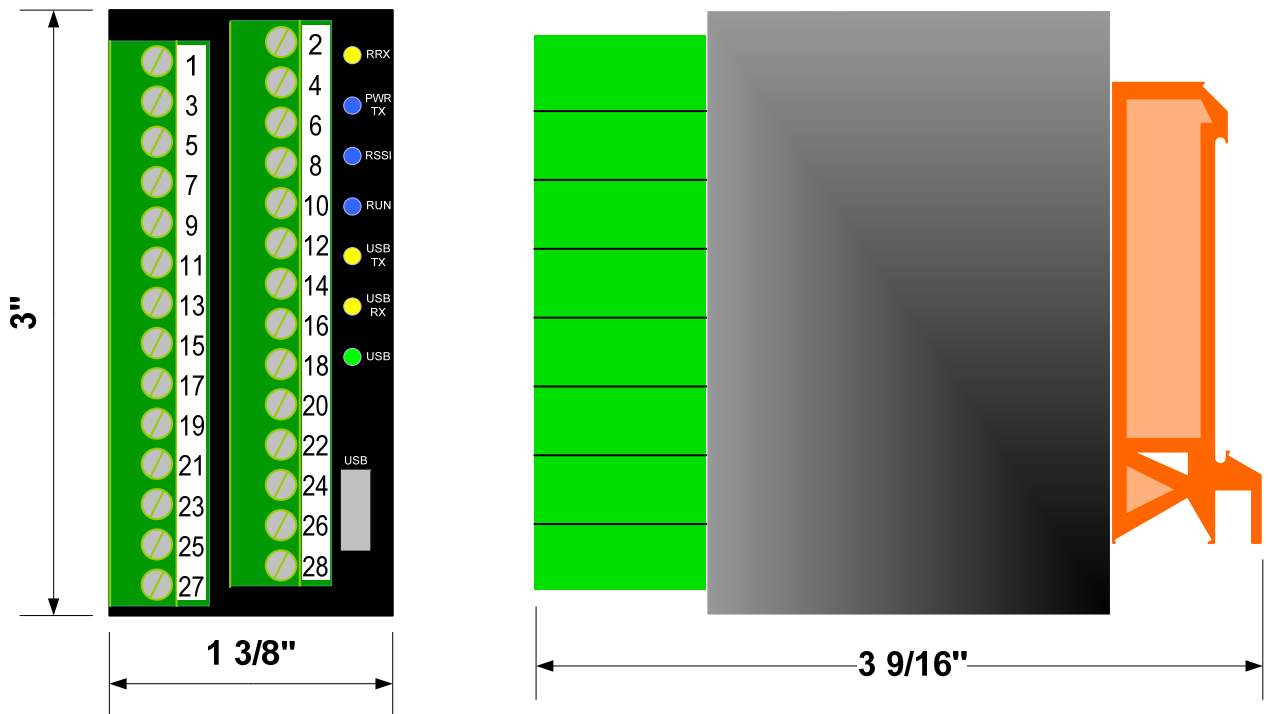
Status Indicators

RRX – Radio Receiving

PWR
TX – Radio Power / Radio Transmitting

RSSI – Radio Signal Strength

RUN – SSR Functional

USB
TX – USB Port Transmitting

USB
RX – USB Port Receiving

USB – USB Port Active

Signal Strength Indication

% Strength	RSSI Light Status	Frequency	
100-95	Always On		
95-85	Pulses Every 0.2 Seconds	5.00	Hz
85-75	Pulses Every 0.4 Seconds	2.50	Hz
75-65	Pulses Every 0.6 Seconds	1.67	Hz
65-55	Pulses Every 0.8 Seconds	1.25	Hz
55-45	Pulses Every 1 Seconds	1.00	Hz
45-35	Pulses Every 1.2 Seconds	0.83	Hz
35-25	Pulses Every 1.4 Seconds	0.71	Hz
25-15	Pulses Every 1.6 Seconds	0.63	Hz
15-5	Pulses Every 1.8 Seconds	0.56	Hz
Under 5	Always Off		

Dimensions
(DIN Rail Mounting)
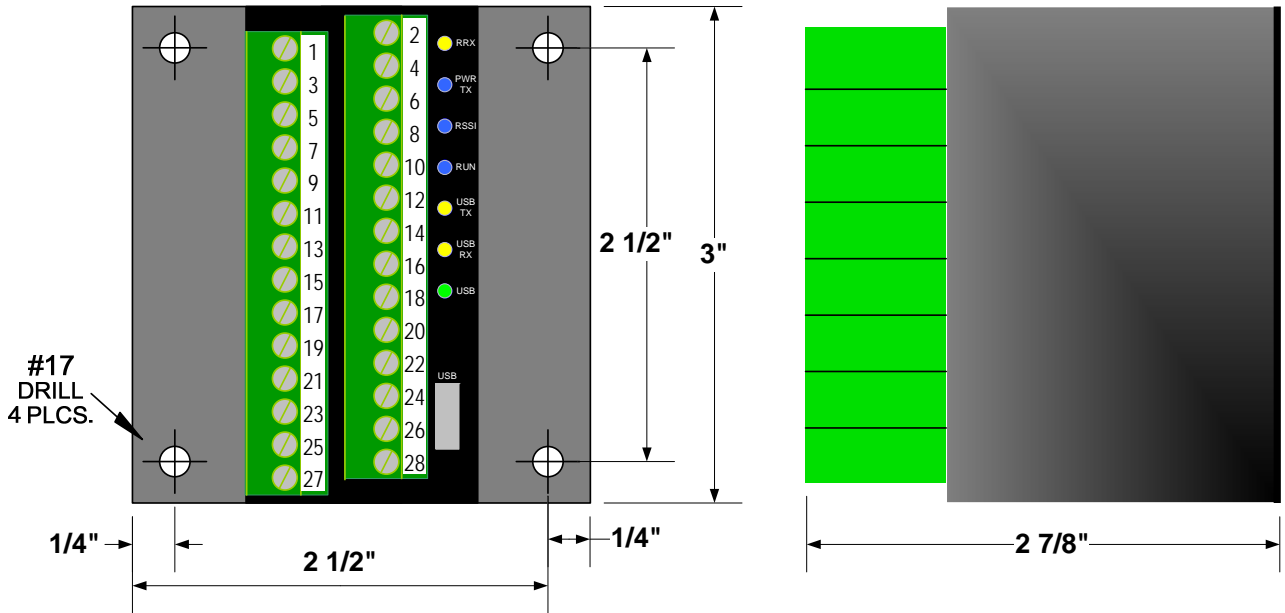
Wiring Table

() 5023-1

Nbr	Description	Nbr	Description
2	Select Jumper (+)	1	Power (+)
4	Select Jumper (-)	3	Power (-)
6	Analog In 1 (+)	5	Analog In 1 (-)
8	Analog In 2 (+)	7	Analog In 2 (-)
10	Analog Out 1 (+)	9	Analog Out 1 (-)
12	Analog Out 2 (+)	11	Analog Out 2 (-)
14	Contact In 1 (+)	13	Contact In 1 (-)
16	Contact In 2 (+)	15	Contact In 2 (-)
18	Contact In 3 (+)	17	Contact In 3 (-)
20	Contact In 4 (+)	19	Contact In 4 (-)
22	Contact Out 1 (+)	21	Contact Out 1 (-)
24	Contact Out 2 (+)	23	Contact Out 2 (-)
26	Contact Out 3 (+)	25	Contact Out 3 (-)
28	Contact Out 4 (+)	27	Contact Out 4 (-)

() 5023-2

Nbr	Description	Nbr	Description
2	Select Jumper (+)	1	Power (+)
4	Select Jumper (-)	3	Power (-)
6	Analog In 1 (+)	5	Analog In 1 (-)
8	Analog In 2 (+)	7	Analog In 2 (-)
10	Analog In 3 (+)	9	Analog In 3 (-)
12	Analog In 4 (+)	11	Analog In 4 (-)
14	Analog Out 1 (+)	13	Analog Out 1 (-)
16	Analog Out 2 (+)	15	Analog Out 2 (-)
18	Analog Out 3 (+)	17	Analog Out 3 (-)
20	Analog Out 4 (+)	19	Analog Out 4 (-)
22	Contact In 1 (+)	21	Contact In 1 (-)
24	Contact In 2 (+)	23	Contact In 2 (-)
26	Contact Out 1 (+)	25	Contact Out 1 (-)
28	Contact Out 2 (+)	27	Contact Out 2 (-)

4) Configuration

The **Site to Site (Data) Transceiver** is shipped ready to use and in many cases can be used right out of the box.   When transferring signals between two sites you only need to add a jumper wire across terminals 2 and 4 on one of the SST modules.

In some cases the configuration may need to be changed. For common settings the AGM Communicator version 2.07 and later has the ability to configure the SST by simply filling is some forms. To configure the SST using the Communicator you will need the AGM Communicator program installed on your computer and a USB micro cable to connect between your computer and the SST. See the Communicator Manual for more details.

The Communicator Program will allow the following to be changed:
- Hopping channel. Hopping channel determines the sequence and frequencies used. Hopping channel only needs to be changed to prevent interference with other 900 MHz radio systems.

- Communications Mode. The SST can be set to either transfer from one site to another or from one site to multiple sites. If one to multiple sites is selected then the ModBus address of the SST can be selected from 1 to 254.

- Time interval to detect loss of communications and state of outputs when loss of communications detected. Analog Outputs may be set to hold their last status or to output a specified value. Digital Outputs may be set to open, close or maintain their last status.

- Analog Input Calibration. Analog Inputs are calibrated at the factory however if required the

SST Analog Inputs may be recalibrated using the Communicator. You must have a 1 – 5 VDC source or 4 – 20 mADC source and 250 ohm resistor to calibrate.

- Analog Output Calibration. Analog Outputs are calibrated at the factory however if required the SST Analog Outputs may be recalibrated using the Communicator.

- Analog and Digital I/O Status. For diagnostics the current Analog and Digital input status can be read and the Analog and Digital Outputs can be controlled using the Communicator.

5) Advanced Configuration

Some settings are not directly supported by the Communicator but may be changed by using the AGM Communicator to communicate directly with the SST.

To make a change in the SST you must follow the following steps:
1 Type in +++
2 Wait for OK response
3 Type in one of the commands from the following page
4 Type in ATWR to save

The following are settings supported by the SST.

- Power Level. Under most cases the power level of the SST can remain at the factory default of 1 W. To change enter one of the following commands:

Command	Power Level
ATPL0	1 mW
ATPL1	10 mW
ATPL2	100 mW
ATPL3	500 mW
ATPL4	1000 mW (1 Watt)

- Data Encryption. The ModBus commands sent over the airwaves can be encrypted.

To enable data encryption enter the command ATKY followed by up to 64 Hexadecimal characters of your choosing. The 64 Hexadecimal characters must not be all 0 and must be the same for all SSTs.

Example: ATKY0123456789ABCDEF0123456789ABCDEF0123456789ABCDEF0123456789ABCDEF

To disable data encryption enter the command ATKY0.

Specifications

Physical	Wireless
Physical	**Wireless**

Physical

- 1.4 X 3 X 4.3 inches

- Reverse SMA Antenna Connector

- Hermetically Sealed

- Wire Size: 12 to 24 Gauge

- Wire Connector: Plug & Play

- DIN Rail Mounting Clip
- Temperature Range (-)20 to (+)70 Deg C

Power

- 12 to 30 VDC

- 8 Watts

Configuration Connector

- Micro USB

Inputs and Outputs

Analog Inputs: 2 or 4 each

- Type: 4/20 MADC

- Resolution: 12 Bit Resolution

- Sample Rate: 5 Per Second

Discrete Inputs: 4 or 2 each

- Type: Dry Contact

- Max Rate: 60 PPM

Analog Inputs: 2 or 4 each

- Type: 4/20 MADC

- Resolution: 12 Bit Resolution

- Sample Rate: 5 Per Second

Discrete Outputs: 4 or 2 each

- Type: Dry Contact, rating – 0.3A @ 115VAC or 0.5A @ 30 VDC

Wireless

Performance:

- Power output: 1 mW - 1 Watt (0 - 30 dBm), software selectable

- Indoor/Urban range: Up to 3000 ft (900 m)

- Outdoor/RF line-of-sight range: up to 40 miles (64 km)

- RF data rate: 9.6 Kbps

- Receiver sensitivity: -110 dBm (@ 9600 bps)

- Frequency range: ISM 902 – 928 MHz

- Spread Spectrum: FHSS (Frequency Hopping Spread Spectrum)

- Modulation: FSK (Frequency Shift Keying)

Networking:

- Supported network topologies: Point-to-Point, Point-to-Multipoint (Master Required)

- Channel capacity: 10 hop sequences share 50 frequencies

- Encryption: 256-bit / 128-bit AES

FCC Approval

- Contains FCC ID: MCQ-9XTENDB

- Complies with Part 15 of the FCC Rules.

- Operation is subject to the following two conditions: (*i.*) this device may not cause harmful interference and (*ii.*) this device must accept any interference received, including interference that may cause undesired operation.

Communications Protocol

- MODBUS ASCII

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