Introduction

The Momentum® Serial Tophat (MST) provides a serial communications adapter for Modicon Momentum I/O bases. The MSTD-008 allows a KYZ output to be easily added to an existing Modbus network with other Modbus network devices, using the Modicon Momentum 170 ADI 340 00 base.

The MSTD-008 communicates Modbus RTU protocol at 9600 baud with 8 data bits and even or no parity.

The MSTD-008 is powered by the Momentum base. LED indicators show the state of POWER, Serial TX and RX. The green POWER LED should be on if the MSTD-008 is properly powered by the base. The POWER light will flash slowly if the unit is set to slave address 0. The yellow TX light is on while the MSTD-008 is transmitting data while the RX light indicates data arriving at the MSTD-008.
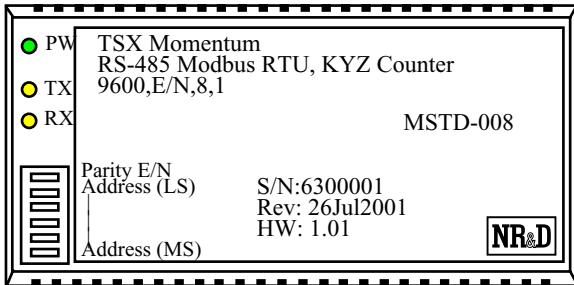

Figure 1   MSTD-008 Layout

MSTD-008 Configuration

The MSTD-008 is configured through a 6 position DIP switch on its front. Switches 1, 2, 3, 4, and 5 control Slave Address while switch 6 sets the parity. Refer to any other MST Instruction manual for further information on setting the DIP switches.
NOTE: The MSTD-008 only reads the DIP switches on power-up. Power must be cycled after changing the Parity or Slave Address.

$$1 = ON (up), 0 = OFF (down)$$

NOTE: Power must be cycled after changing the Parity or Slave Address for the change to take effect.

Network Connection

The MSTD-008 has a 5 position screw terminal 4-wire, connection. The pinout is shown in Figure 2.
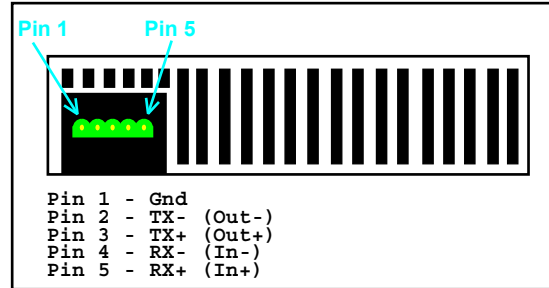


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Pin 1 - Gnd
Pin 2 - TX-  (Out-)
Pin 3 - TX+  (Out+)
Pin 4 - RX-  (In-)
Pin 5 - RX+  (In+)
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Figure 2   5 pin RS-485 Port

KYZ Connections

The MSTD-008 MUST be installed on the 170 ADI 340 00 base for proper functioning. This base is a 16 input 24 VDC base. For each KYZ device (up to eight), the K terminal may be connected to the base's power supply. The Y terminal should be connected to the odd number inputs of the base, and the Z terminal should be connected to the even number inputs. For two-wire operation, the same connections apply, but omit the even numbered inputs. An example of this connection is shown below.
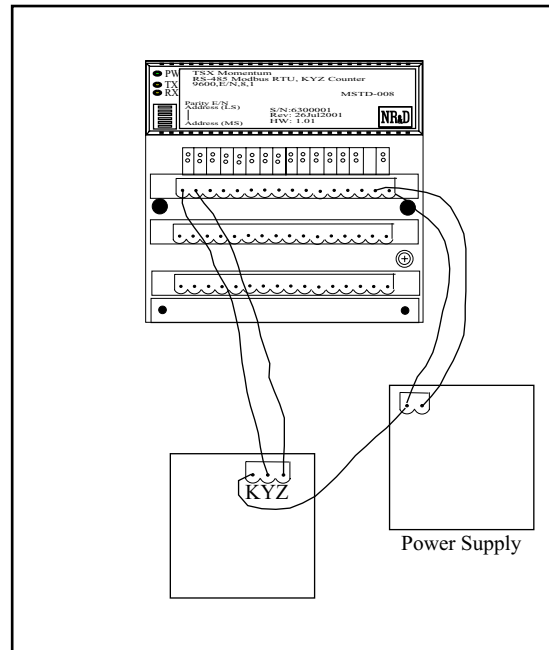

Figure 3   KYZ Wiring Example

NR&D

Register List

The MSTD-008 mimics the standard Modicon Ethernet Communication Adapter with some additional register support. The Output registers are zeroed on power-up and when the watchdog expires between write messages. The Watchdog register value is written to EEPROM for permanent setting. Setting the slave address to 0 returns the watchdog to factory default.

Table 1   MSTD-008 Register List

Register	Description
4x00001	Read - Status of all Base Inputs
4x00002	Read/Write - KYZ Counter 1
4x00003	Read/Write - KYZ Counter 2
4x00004	Read/Write - KYZ Counter 3
4x00005	Read/Write - KYZ Counter 4
4x00006	Read/Write - KYZ Counter 5
4x00007	Read/Write - KYZ Counter 6
4x00008	Read/Write - KYZ Counter 7
4x00009	Read/Write - KYZ Counter 8
4x000010	Read - Lower Byte = Overflow Flag Bits for each counter. Upper Byte, bit 8 = Powerup bit. Register will return to zero after being read.
4x00200 and 4x61441	Base Output Watchdog (0.01 second) Default = 3000 (30 seconds) The MSTD-008must receive a write within the timeout or the outputs will zero.
4x00201 and 4x63489	Size of Status Block (const = 12)
4x00202 and 4x63490	Number of Input Words
4x00203 and 4x63491	Number of Output Words
4x00204 and 4x63492	Module Base ID code
4x00205 and 4x63493	Module Revision Number
4x00206 - 4x00209 and 4x63494 - 4x63497	N/A
4x00210 and 4x63498	Module Health (8000 is good Health)
4x00211 and 4x63499	Last I/O module error #
4x00212 and 4x63500	Count of I/O module errors

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