TECHNICAL NOTE TNPC16

Title: Enhanced Modular Controller communication with AC Tech SCF Variable Freq. Drives over RS485

Product(s): Enhanced Modular controller (CSMSTRSX) AC Tech SCF Variable Freq. Drive

This technical note presents how to connect a Modular Controller Enhanced Master with an AC Tech SCF Variable Freq. Drive using RS485 communications. The same setup can be used to program a Red Lion G3 HMI.

Programming of the Enhanced master is done using Crimson 2.0 software, build 230 or higher, while the drive is setup via its front panel.

SYSTEM SETUP:

The communication setup is as follows:

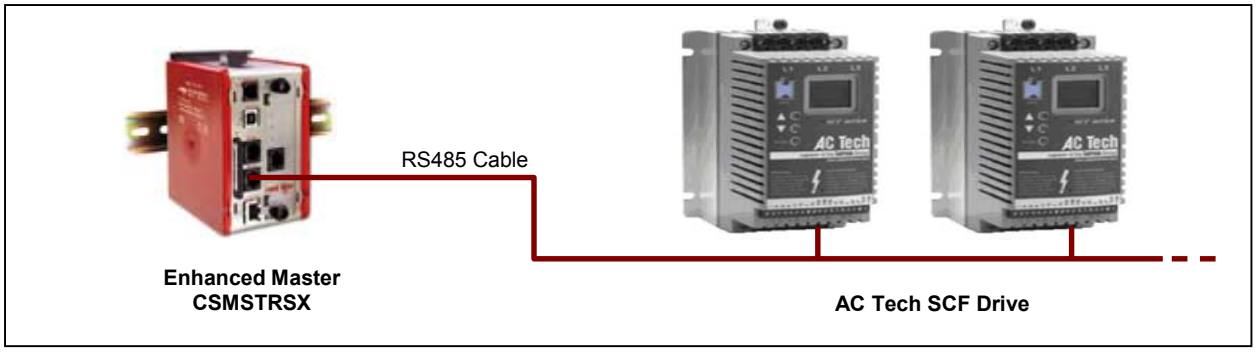
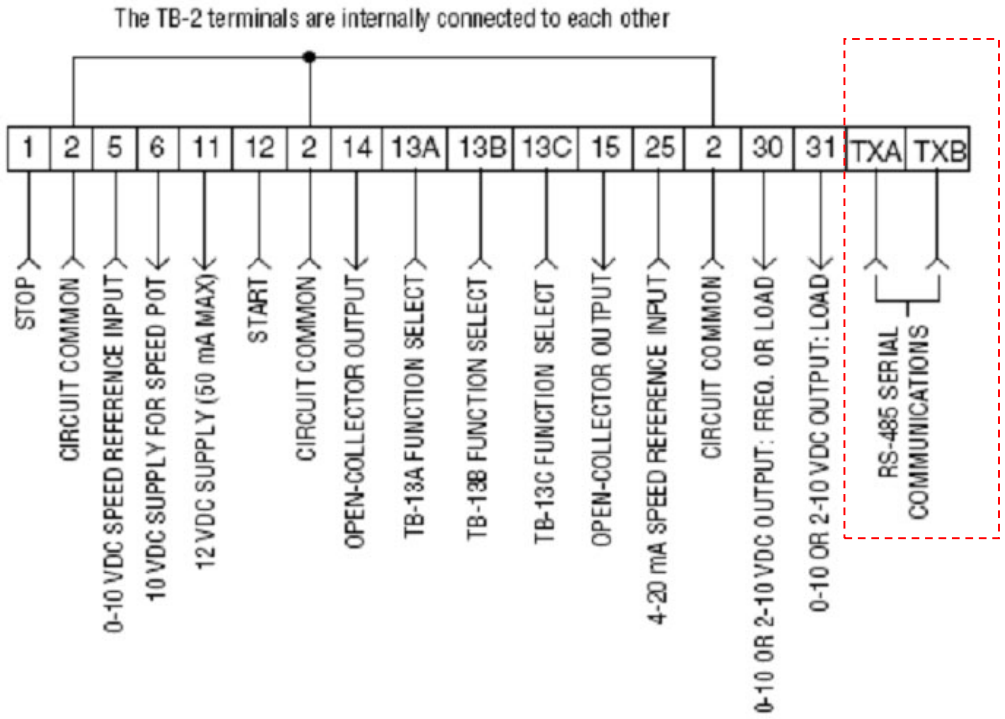


Fig. 1: Communication Setup

CABLE INFORMATION:

RS485 Communication port information for the AC Tech SCF Drive:



The table below presents the communication cable pin out between the Enhanced master and the AC Tech SCF Variable Freq. Drive:

CONNECTIONS			
FROM RLC UNIT	NAME	CONNECTOR PIN OUT	
		RJ45	DRIVE
1	TxB	1	TxB
2	TxA	2	TxA
3	RxA	-	-
4	RxB	-	-
5	TxEN	-	-
6	Comm	6	Comm
7	TxB	-	-
8	TxA	-	-

Enhanced Master RS485 port

ENHANCED MASTER COMMUNICATION SETUP:

COMMUNICATION SETUP IN THE ENHANCED MASTER MUST BE AS FOLLOWS:

ON THE RS485 COMMUNICATION PORT

- Driver on RS485 port: Modbus Universal Master
- Protocol Type: Modbus RTU
- Slave Response Timeout : 500ms
- Baud Rate: 9600
- Data Bits: 8 bits
- Stop Bits: Two
- Parity: None

ON THE DEVICE BELOW THE RS485 COMMUNICATION PORT

- Drop Number: 1
- Ping Holding Register: 25

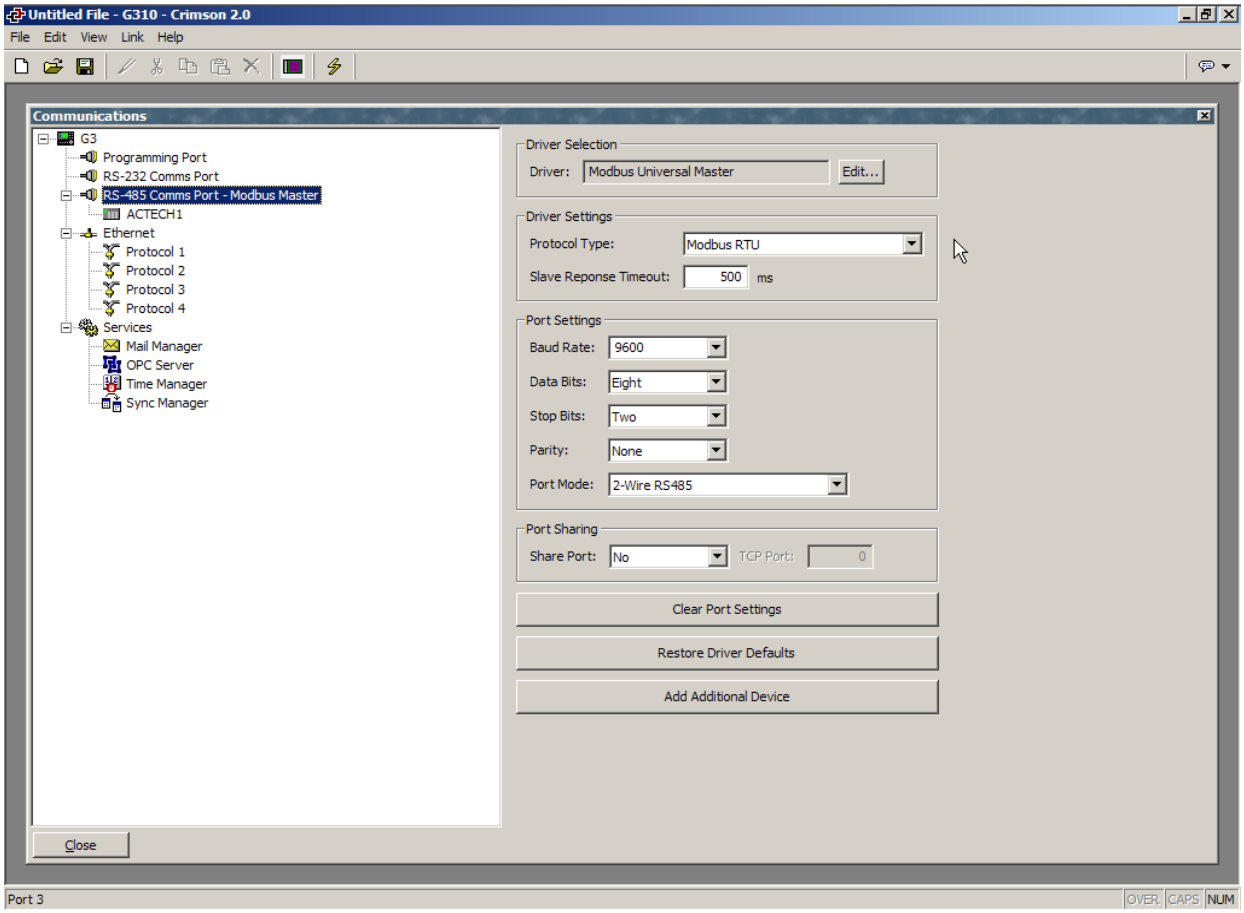


Fig. 2 – RS485 communication port setup in Crimson 2.0 software.

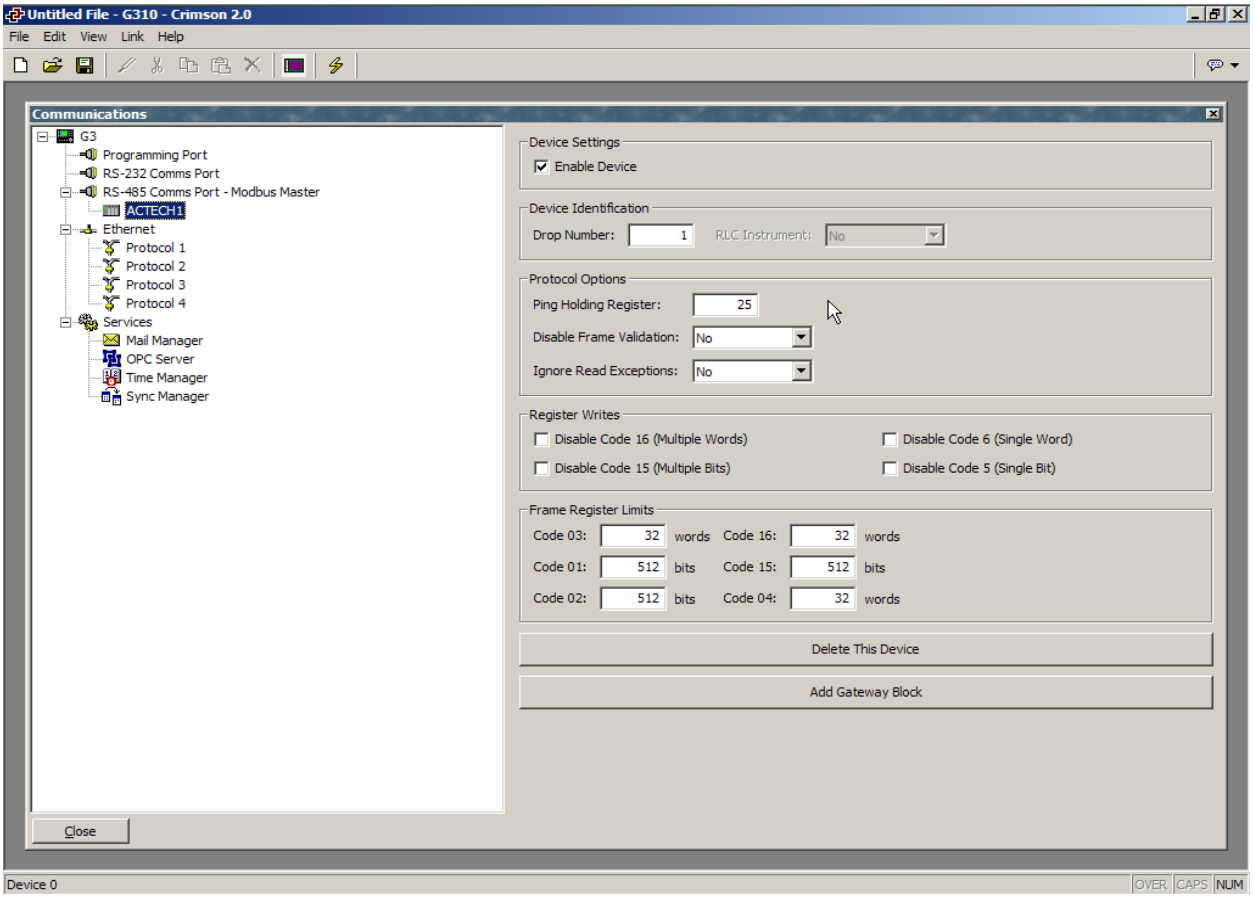


Fig. 3 – AC Tech SCF communication setup in Crimson 2.0 software.

AC TECH. SCF DRIVE SETTINGS

The following settings are mandatory for the communication to work:

- Parameter # 15 = 02 serial enable with timer
- Parameter # 43 = Drop address #

Note: Ping Holding register should be set to 25.

Note: Modbus register 40002 using Red Lion equipment is the equivalent of Register 1 in the AC Tech drive.

See SCF Series Drives Modbus Control Operation by AC Tech for register numbers explanations.
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