Technical Note

Title: Interfacing WebPort with Fireye Flame Monitor

Date: 7/28/08
Product(s): WebPort 500, 2001, 2005, 2101, 4001, 4005, 4101
Product Revision: 5.4s3 or later
Information: Communication is Modbus RTU
Document # TN072801-01

Section 1 Introduction

The Fireye flame monitor controller communicates Modbus RTU which makes it compatible with all WebPort devices. The Fireye uses RS485 communication and acts as a Modbus RTU slave. The WebPort must be configured for RS485 and Modbus Half-duplex to communicate with the Fireye controller.

Required Hardware:

- WebPort (i.e. 500, 2001, 2005, 2101, 4001, 4005, 4101)
- EB-700 Controller
- EP160 Programmer
- ED510 Display Module
- ED580 Cable
- ED512-4 Communication Cable

Optional Hardware:

- ED610 Multi-port connector
  Note: The Multi-Port connector is used to simplify wiring.

Reference Documentation:

- WebPort User Manual
- Fireye Bulletin E-8002
- Fireye Bulletin EPMBUS
- Fireye Bulletin EP-1601

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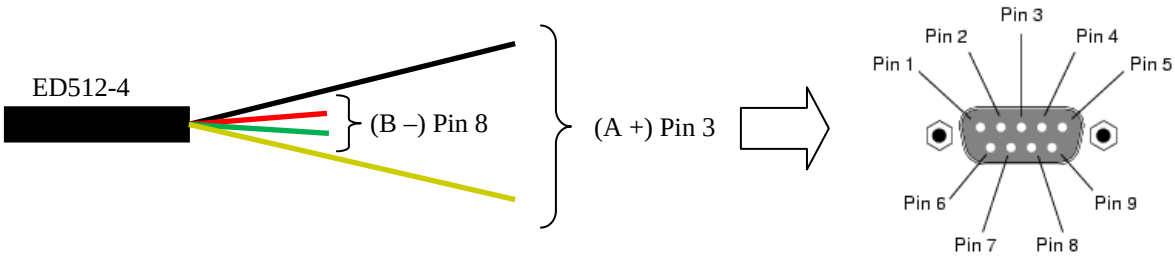
Section 2 Wiring

Take the ED512-4 and cutoff one of the RJ12 connectors. Make the following connects to a 9 pin female D-shell connector:

Figure 1



WebPort Serial Port Pin

Pin	RS232	RS485	RS422
1	-	-	-
2	RXD	-	RX+
3	TXD	A+	TX+
4	-	-	-
5	GND	GND	GND
6	-	-	-
7	RTS	-	RX-
8	CTS	B-	TX-
9	-	-	-

Connect the remaining RJ12 connector to one of the RJ12 ports located on the EP160 programmer module.

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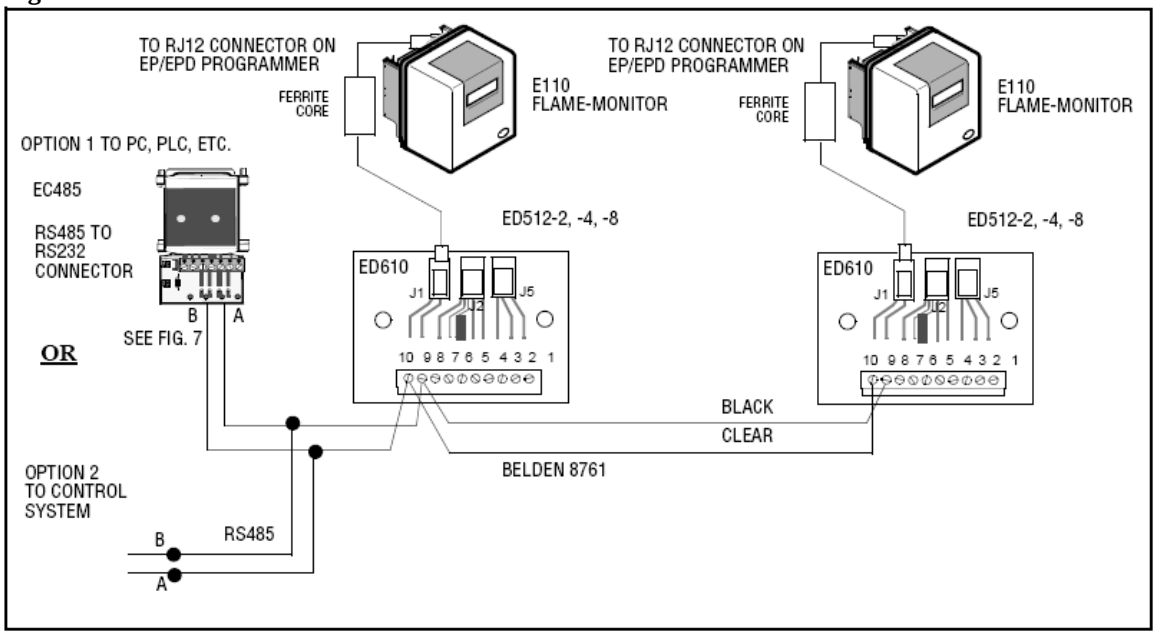
If ED610 is used, follow the wiring shown in Figure 2.

Figure 2

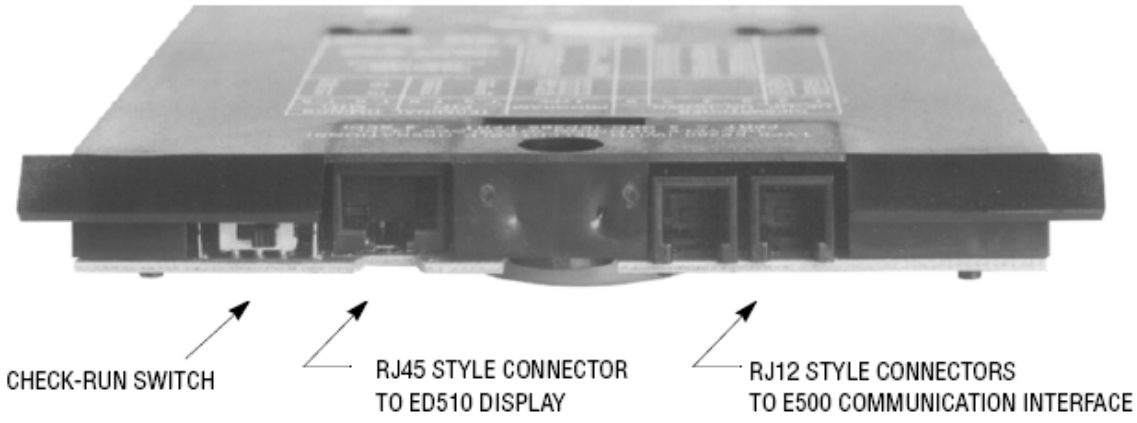


Section 3 Configure the Fireye

The Fireye Modbus RTU unit address must be set. Follow the procedures below. Refer to Fireye bulletins E-8002, EPMBUS and EP-1601 for more information.

1.) Power down the Fireye controller
2.) Flip the "check/run" switch to the check position. See image below.

Figure 3



3.) Power up Fireye controller.
4.) Use the SCRL button to scroll through the menu options until you see the "program setup" option. Press the MODE button. The current unit address should be displayed. Use the RESET button to select the desired unit address.
5.) Power down the Fireye controller.
6.) Flip the "check/run" switch to the run position.
7.) Power up the Fireye controller.

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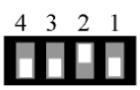
8.) Verify that the unit address is set to the desired value.

Section 4 Configure the WebPort

The WebPort must be configured for Modbus RTU Half-Duplex to communicate with the Fireye Controller. Follow the steps below to configure the WebPort.

1.) Configure the dip switches on the WebPort for RS485.

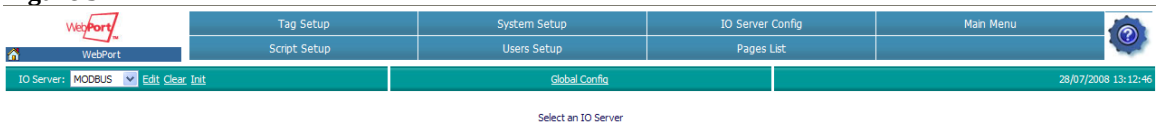
Figure 4

Positions	Mode
	RS232
	RS422, RS485 WITHOUT polarisation and termination resistors
	RS422, RS485 WITH polarisation and termination resistors

2.) Logon to the WebPort and go to the configuration menu. Refer to the WebPort user manual for more information.

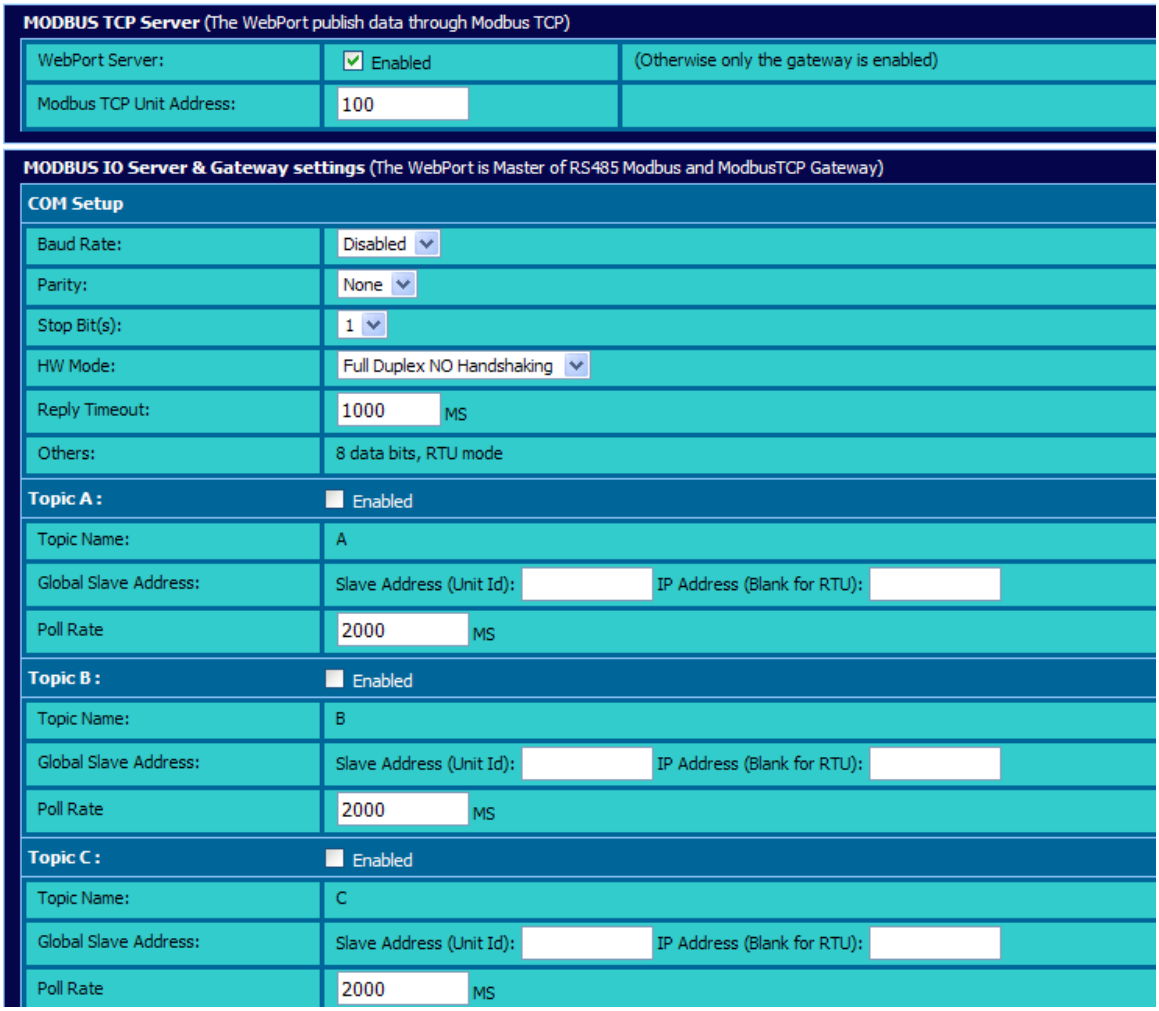
3.) Select the "IO Server Config" option. The following screen should appear.

Figure 5



4.) Select "Modbus" on the pull-down menu and press the "edit" hyperlink. The following screen should appear.

Figure 6



5.) Enter the following settings.

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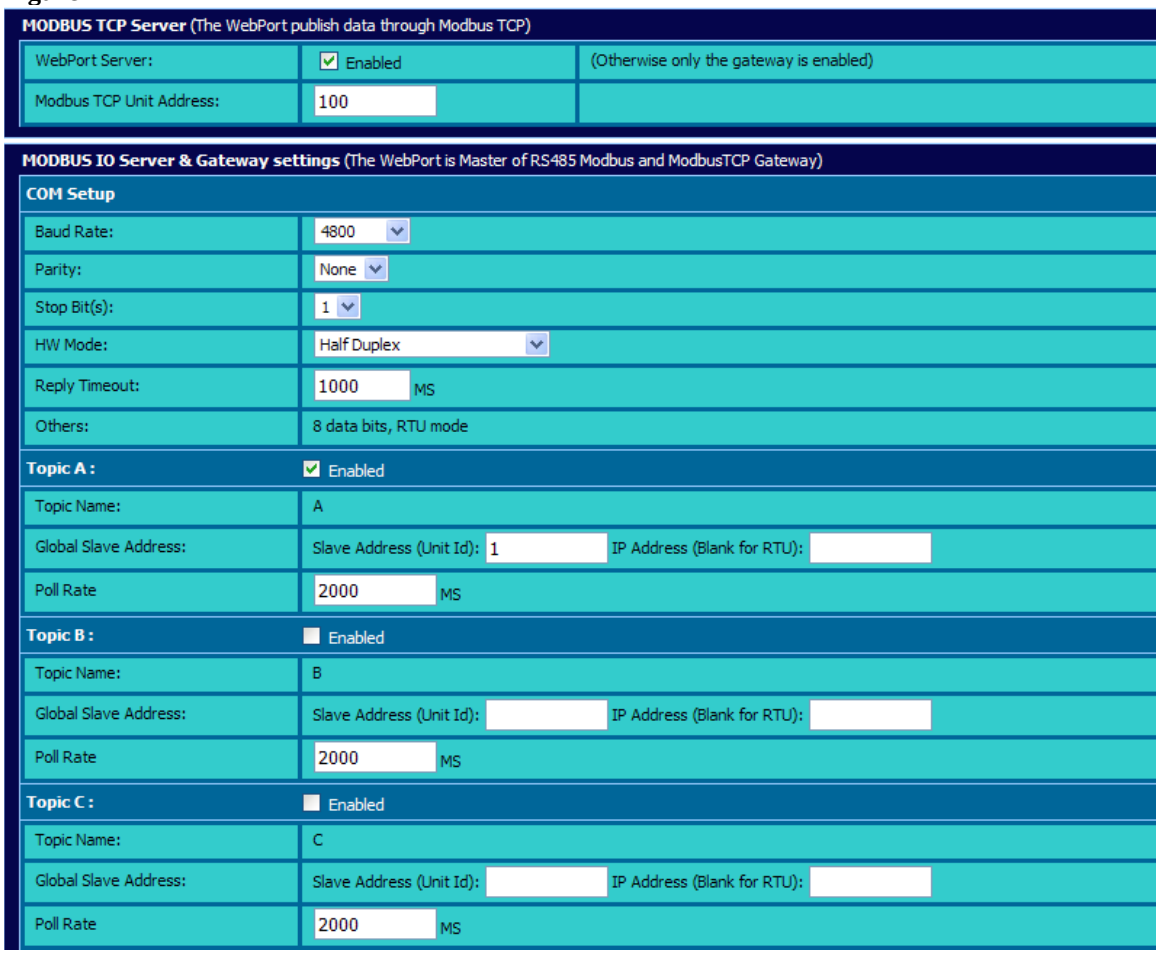
Figure 7



Note: The com port of the WebPort must be configured for 4800 baud, data bits 8, stop bits 1 and Half-duplex.

Note: The Slave address field show in Figure 7 for Topic A must equal the unit address entered into the Fireye Controller. See step 4 in section 3.

6.) Connect the DB9 end of the ED512-4 cable, created in section 2 above, to the serial port on the front of the WebPort.

Note: You should see the serial light blinking on the front of the WebPort.

4.1 WebPort Tag Setup

Modbus tags in the WebPort must be created to read data from the Fireye controller. The following table shows the Modbus memory mapping of the Fireye controller. Refer to the Fireye Bulletin EPMBUS for more detail.

Table 1

HOLDING REGISTER	MESSAGE ADDRESS	WORD REQUESTED	RESPONSE	VALUE
40001	00	1-6	STATUS	83 (053H) = RUN;

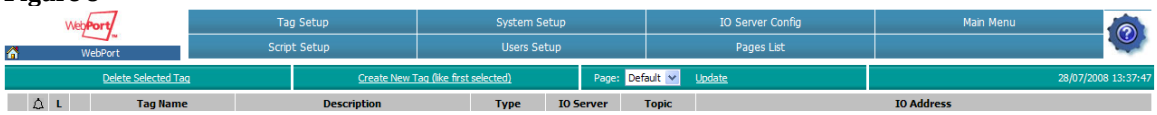
				202 (0CAH) = LOCKOUT
40002	01	1	MSGN	Current message being displayed (see Table 1)
40003	02	1	GSTAT	Defines Timer Type
40004	03	1	TIMER	Time, Flame, Address
40005	04	1	FLAME	Flame Signal
40006	05	1-3	LOGSTAT	Current logic module, PURGE, PTFI, AUTO (See Table 2)
40007	06	1	INPUTS	Input limits state
40008	07	1	OUTPUTS	Output relays state
40009	08	2	SYSMINS	System on minutes
40011	10	2	BNRMINS	Burner on minutes
40013	12	2	CYCLES	Completed Burner Cycles
40015	14	1	LOCKOUT	Stored Lockout Count
40016	15	1-6	LOCKOUT HISTORY	Last 6 Lockouts, first word is most current lockout
40022	21	1-2	DEVTYP	Programmer device type, 5=EP, 6=EPD, 7=MicroM
40023	22	1	AMPTYP	Amplifier Type; EUVS4=0C0H; EIR1=0A0H; ERT1, EUV1=090H;
40024	23	**N/A**		**Not Used**
40025	24	2	FLAME SIGNAL AVERAGES	PTFI and Auto Flame Signal Averages
40027-40035	26-34	**N/A**		**Not Used**
40036	35	6	Most Recent	
			Lockout Data	
40042	41	6	2nd Most Recent	
			Lockout Data	Returns complete lockout description of stored lockout history. Includes lockout message, lockout module, @ burner hours, and @ burner

				cycles
40048	47	6	3rd Most Recent Lockout Data	
40054	53	6	4th Most Recent Lockout Data	
40060	59	6	5th Most Recent Lockout Data	
40066	65	6	6th Most Recent	
			Lockout Data	
40072	71	1-3	Input limits and Expansion Module registers	Returns input limits state and lower and upper expansion module (E300) registers. See Table 3
40073	72	1-2	Expansion Module (E300) registers	Returns lower and upper Expansion module registers
40074	73	1		Return only upper Expansion module register

The following procedure describes how to create tags in the WebPort. For more detail refer to the WebPort User Manual.

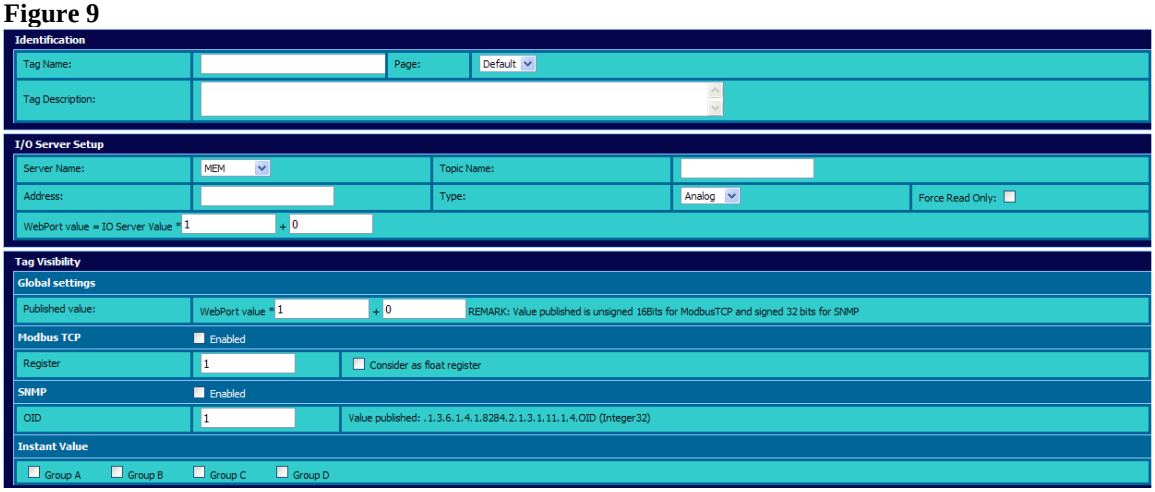
1.) From the configuration menu in the WebPort, select the "Tag Setup" option. The following screen should appear.

Figure 8



2.) Select the "Create New Tag" hyperlink. The following screen should appear.

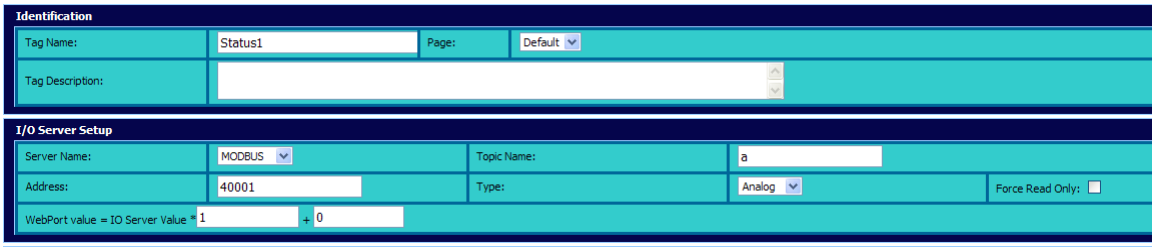
Figure 9



3.) Create a tag that points to one of the memory addresses listed in Table 1 above. The settings shown in Figure 10, creates a tag called "Status1" that displays the current status of the Fireye controller.

Note: The Modbus address 40001 in Figure 10. It correlates to the STATUS response of the Fireye controller, outlined by Table 1 above.

Figure 10



4.) Repeat steps 1 through 3 to create the remaining tags for the Fireye controller.

4.2 View WebPort Tag Data

To view the tag data returned by the Fireye controller, select the "View IO" option from the WebPort main menu. The following screen should appear.

Figure 11