

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



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	В-	TX-	
9	-	-	-	

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



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



- 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.



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.

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Positions	Mode
4 3 2 1 OFF	R\$232
ON	
4 3 2 1 OFF	RS422, RS485 WITHOUT polarisation and termination resistors
4 3 2 1 OFF	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						
WebPort	Tag Setup	System Setup	IO Server	Config	Main Menu	6
MebPort ₩	Script Setup	Users Setup	Pages I	List		
IO Server: MODBUS 💌 Edit Clear 1	(nit	Global Config			28/07/2008 13:12:46	
		Select an IO Server				

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



Figure 6

MODBUS TCP Server (The WebPort publish data through Modbus TCP)								
WebPort Server:	✓ Enabled	(Otherwise only the gateway is enabled)						
Modbus TCP Unit Address:	100							
MODBUS 10 Server & Gateway set	MODBUS 10 Server & Gateway settings (The WebPort is Master of RS485 Modbus and ModbusTCP Gateway)							
Com Setup								
Baud Rate:	Disabled 💌							
Parity:	None 🗸							
Stop Bit(s):	1 🗸							
HW Mode:	Full Duplex NO Handshaking 🛛 👻							
Reply Timeout:	1000 MS	1000 MS						
Others:	8 data bits, RTU mode							
Topic A :	Enabled							
Topic Name:	A							
Global Slave Address:	Slave Address (Unit Id):	IP Address (Blank for RTU):						
Poll Rate	2000 MS							
Торіс В :	Enabled							
Topic Name:	В							
Global Slave Address:	Slave Address (Unit Id):	IP Address (Blank for RTU):						
Poll Rate	2000 MS							
Topic C :	Enabled							
Topic Name:	С							
Global Slave Address:	Slave Address (Unit Id):	IP Address (Blank for RTU):						
Poll Rate	2000 MS							

5.) Enter the following settings.



Figure 7

MODBUS TCP Server (The WebPort publish data through Modbus TCP)								
WebPort Server:	✓ Enabled	(Otherwise only the gateway is enabled)						
Modbus TCP Unit Address:	100							
MODBLIS TO Server & Cateway cettings (The WebPort is Master of DS485 Modbus and ModbusTCD Cateway)								
Baud Rate:	4800 🗸							
Parity:	None 💙							
Stop Bit(s):	1 🗸							
HW Mode:	Half Duplex 🗸							
Reply Timeout:	1000 MS							
Others:	8 data bits, RTU mode	8 data bits, RTU mode						
Topic A :	Topic A: V Enabled							
Topic Name:	A							
Global Slave Address:	Slave Address (Unit Id): 1	IP Address (Blank for RTU):						
Poll Rate	2000 MS							
Topic B :	Enabled							
Topic Name:	В							
Global Slave Address:	Slave Address (Unit Id):	IP Address (Blank for RTU):						
Poll Rate	2000 MS							
Topic C :	Enabled							
Topic Name:	С							
Global Slave Address:	Slave Address (Unit Id):	IP Address (Blank for RTU):						
Poll Rate	2000 MS							

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

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) =
40002	01	1	MSGN	Current message being
10002	01	1		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
10000	00	1.5	Loosinn	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
40012	12	2	CVCLES	Completed Burner
40013	12	2	CICLES	Cycles
40015	14	1	LOCKOUT	Stored Lockout Count
40016	15	1-6	LOCKOUT	Last 6 Lockouts, first
			HISTORY	word is most current
				lockout
40022	21	1-2	DEVTYP	Programmer device
				type, $5=EP$, $6=EPD$,
40022	22	1		/=MicroM
40023	22	1	AMPTYP	Amplifier Type;
				EUVS4=0C0H; EID1=0A0H·EDT1
				$\frac{1}{1} = 0 + 0 + 0 + 0 + 0 + 0 + 0 + 0 + 0 + 0$
40024	23	N/A		Not Used
40025	23	2	FLAME	PTFI and Auto Flame
10020	2.	_	SIGNAL	Signal Averages
			AVERAGES	
40027-40035	26-34	N/A		Not Used
40036	35	6	Most Recent	
			Lockout Data	
40042	41	6	2nd Most	
40042	41	0	Recent	
				Returns complete
				lockout description of
			T 1 D	stored lockout history.
			Lockout Data	Includes lockout
				message, lockout
				hours and @ burner
		1		nouis, and w 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	
40072	71	1-3	Lockout Data 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.

Fi	gure 8								
	WebPort	Та	g Setup	System S	etup		IO Server Config	Main Menu	6
6	WebPort	Scrip	t Setup	Users Si	etup		Pages List		
	Delete Selected Ta	٥	Create New Ta	ag (like first selected)	Page:	Default 🔽	<u>Update</u>		28/07/2008 13:37:47
	🛆 L 🛛 Tag Name	2	Description	Туре	IO Server	Topic		IO Address	

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



Figure 9

Identification							
Tag Name:		Page:	Default 🗸				
Tag Description:							
I/0 Server Setup							
Server Name:	MEM		Topic Name:				
Address:			Туре:	Analog 💌	Force Read Only:		
WebPort value = IO Server Value * 1	+ 0						
Tag Visibility							
Global settings							
Published value:	WebPort value * 1	+ 0 REMARK: Value published is unsigned 168its for ModbusTCP and signed 32 bits for SNMP					
Hodbus TCP Enabled							
Register	1 Consider as float register						
SN4P Enabled							
		Value published: .1.3.6.1.4.1.8284.2.1.3.1.11.4.OID (Integer32)					
OID	1 V	alue published: .1	1.3.6.1.4.1.8284.2.1.3.1.11.1.4.OID (Integer32)				
OID Instant Value	1	alue published: .1	.3.6.1.4.1.8284.2.1.3.1.11.1.4.OID (Integer 32)				

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

Identification								
	Tag Name:	Status1	Page:	Default 💌				
	Tag Description:							
I	1/0 Server Setup							
	Server Name:	MODBUS 💌		Name:	a			
	Address:	40001	Туре		Analog 💟	Force Read Only:		
	WebPort value = IO Server Value * 1	+ 0						

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					
WebPort	View I/O	Alarm Sum	nmary	Diagnostic	
WebPort		Alarm His	tory	Files Transfer	
Show Graph For	<u>Selection</u>	Historical Logging Table	Page: D	Default 🔽 Update	
۵	Tag Name	Value	New Value		
Status1		83	83	Update	
Status2		14	14	Update	
Status3		0	0	Update	
Status4		38	38	Update	
Status5		0	0	Update	
Status6		78	78	Update	