Modbus Protocol

of FTSxx

Date:2017.11.06
Rev.3

Introduction

This document describes the protocol detail of Modbus for FTSXX

Hardware interface

- The interface on the sensor is RS-485.
- Hardware named D+, D-
- Meet the standards TIA/EIA-232-F and TIA/EIA-485-A

RS-485 Slave Address, Baud rate, Data format

- Slave Address: 1~247
- Baud rate: 9600, 19200, 38400, 57600, 115200
- Parity: None, Even, Odd
- Data length: 8 bit
- Stop bit: 1 or 2 bit
- Default Address = 1, Data format= 9600, N81

About Modbus (ref PI–MBUS–300)

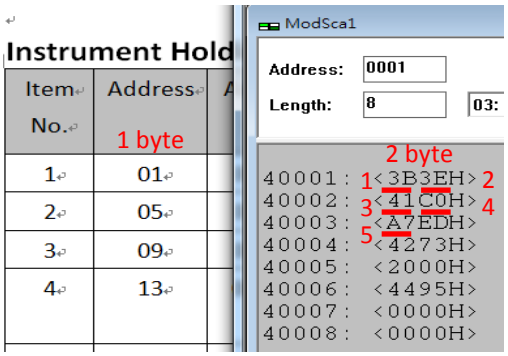
- Support RTU mode
- Broadcast support (Address 0)
- Bit addressable items (i.e. Coils and Discrete inputs) will not be implemented
- Measurement Values are represented in IEEE 754 single-precision 32-bit floating point type http://en.wikipedia.org/wiki/IEEE_754
- Modbus protocol structure:
  - 1st byte: Address (1~247)
  - 2nd byte: Function code (1 byte)
  - 3~Nth bytes: Data bytes
  - N+1th~N+2th byte: CRC (16 bits), LSB first

Instrument Holding Registers for measurement engineering (ex: ModScan)

Item No.	Address	Address HEX	Parameter	Point Type	Data Type	Unit	Value
1	1	0001H	OUT1 (Configurable)[1]	Holding Register	Floating Pt.	--	
2	5	0005H	OUT2 (Configurable)[2]	Holding Register	Floating Pt.	--	
3	9	0009H	Raw Flow Velocity	Holding Register	Floating Pt.	m/s	
4	13	000DH	CTA Voltage	Holding Register	Floating Pt.	Volt	

[1][2] Parameter could be configured by output configuration registers

- The base address is 1 rather than 0 in ModScan application.
- The register shown on the table is 1 byte whereas the ModScan 2 bytes.
- So the corresponding value against address 5 of the "table" would be address 40003 of the ModScan



Instrument Holding Registers for output configuration registers

OUT1 Register Group

Item No.	Address	Address HEX	Register	Description	Possible Value
1	83	0053H	OUT1 Type	Type Selection	0: Voltage 1: Current
2	85	0055H	Analog Upper	Analog OUT1 Upper	0~10 (Volt) or 0~20 (mA)
3	87	0057H	Analog Lower	Analog OUT1 Lower	0~10 (Volt) or 0~20 (mA)
4	89	0059H	Output Quantity	OUT1 Quantity Selection	0: Flow Velocity 1:Sensor Temp 2:None 3:Board Temp 4:CTA Volt
5	91	005BH	Digital Upper	Digital OUT1 Upper	-32768~32767
6	93	005DH	Digital Lower	Digital OUT1 Lower	-32768~32767
7	95	005FH	Response Rate	Response Rate, Additional 6 Seconds of T90 / Step	0~100 (0:Low, 100:Fast)
8	97	0061H	Alarm Mode	OUT1 Acts Alarm Mode	0: Disable, 1: Enable
9	99	0063H	Alarm Upper	Alarm On Trigger x10	< 32767 or Digital Upper (Scale 1/10)
10	101	0065H	Alarm Lower	Alarm Off Trigger x10	> -32768 or Digital Lower (Scale 1/10)
11	103	0067H	Level Upper	Alarm On Output x10	0~100 (Volt) or 0~200 (mA) (Scale 1/10)
12	105	0069H	Level Lower	Alarm Off Output x10	0~100 (Volt) or 0~200 (mA) (Scale 1/10)

OUT2 Register Group

Item No.	Address	Address HEX	Register	Description	Possible Value
1	107	006BH	OUT2 Type	Type Selection	0: Voltage 1: Current
2	109	006DH	Analog Upper	Analog OUT2 Upper	0~10 (Volt) or 0~20 (mA)
3	111	006FH	Analog Lower	Analog OUT2 Lower	0~10 (Volt) or 0~20 (mA)
4	113	0071H	Output Quantity	OUT2 Quantity Selection	0: Flow Velocity 1:Sensor Temp 2:None 3:Board Temp 4:CTA Volt
5	115	0073H	Digital Upper	Digital OUT2 Upper	-32768~32767
6	117	0075H	Digital Lower	Digital OUT2 Lower	-32768~32767
7	119	0077H	Response Rate	Response Rate, Additional 6 Seconds of T90 / Step	0~100 (0:Low, 100:Fast)
8	121	0079H	Alarm Mode	OUT2 Acts Alarm Mode	0: Disable, 1: Enable
9	123	007BH	Alarm Upper	Alarm On Trigger x10	< 32767 or Digital Upper (Scale 1/10)
10	125	007DH	Alarm Lower	Alarm Off Trigger x10	> -32768 or Digital Lower (Scale 1/10)
11	127	007FH	Level Upper	Alarm On Output x10	0~100 (Volt) or 0~200 (mA) (Scale 1/10)
12	129	0081H	Level Lower	Alarm Off Output x10	0~100 (Volt) or 0~200 (mA) (Scale 1/10)

Instrument Holding Registers for application engineering

Item No.	Address	Address HEX	Parameter	Point Type	Data Type	Unit	Value
1	1025	0401H	Flow Velocity	Holding Register	Floating Pt.	m/s	
2	1029	0405H	Flow Velocity	Holding Register	Floating Pt.	ft/s	
3	1033	0409H	Flow Velocity	Holding Register	Floating Pt.	km/h	
4	1037	040DH	Flow Velocity	Holding Register	Floating Pt.	mph	
5	1041	0411H	Flow Velocity	Holding Register	Floating Pt.	knot	
6	1045	0415H	Temperature	Holding Register	Floating Pt.	℃	
7	1049	0419H	Temperature	Holding Register	Floating Pt.	℉	
8	1057	0421H	Flow Velocity	Holding Register	32-bit Integer	m/s	x10000
9	1061	0425H	Flow Velocity	Holding Register	32-bit Integer	ft/s	x10000
10	1065	0429H	Flow Velocity	Holding Register	32-bit Integer	km/h	x10000
11	1069	042DH	Flow Velocity	Holding Register	32-bit Integer	mph	x10000
12	1073	0431H	Flow Velocity	Holding Register	32-bit Integer	knot	x10000
13	1077	0435H	Temperature	Holding Register	32-bit Integer	℃	x10000
14	1081	0439H	Temperature	Holding Register	32-bit Integer	℉	x10000

Remark: The base address is 1 rather than 0 in ModScan application. One register occupies 2 bytes memory address and one floating number splits into 2 registers. Thus, one measure occupies 4 bytes memory address or 2 registers length of count.

Instrument Holding Registers for additional engineering

Item No.	Address	Address HEX	Parameter	Data Bytes	Data Type	Unit	Value
Information							
1	75	004BH	FW Check Sum	2 bytes	unsigned Integer		
2	139	008BH	Temperature Max. (℃)	2 bytes	signed Integer	℃	X100
3	141	008DH	Temperature Min. (℃)	2 bytes	signed Integer	℃	X100
4	177	00B1H	OUT1 Calib Voltage	2 bytes	unsigned Integer	mV	
5	179	00B3H	OUT1 Calib Current	2 bytes	unsigned Integer	uA	
6	181	00B5H	OUT2 Calib Voltage	2 bytes	unsigned Integer	mV	
7	183	00B7H	OUT2 Calib Current	2 bytes	unsigned Integer	uA	
8	445	01BDH	Flow Velocity Max.	2 bytes	signed Integer	m/s	
9	447	01BFH	Flow Offset	4 bytes	IEEE 754	m/s	
10	451	01C3H	Temperature Offset	4 bytes	IEEE 754	℃	
11	637	027DH	Calibration Year	2 bytes	unsigned Integer		Year
12	639	027FH	Calibration Date	2 bytes	unsigned Integer		High Byte: Month Low Byte: Day
13	769	0301H	Factory Command	2 bytes	unsigned Integer		Refer to Command Table
	771	0303H	Argument	2 bytes	unsigned Integer		

Command Table of Factory Command

Item No.	Address	Address HEX	Argument	Description	Unit	Value
Information						
1	769	0301H	0E5FH	Disable Registers[1] Read Only		
2	2305	0901H	FFFFH	Reset Interpolation Table		
			0~9	Delete Specify Index of Point		
3	2306	0902H	Standard Velocity	Add data point at current flow velocity[2]	m/s	X100

[1] Registers are read only until unit accepts this command except protocol registers and output configuration registers.

[2] It recommends add, delete or cleanup interpolation point through factory command rather than access interpolation registers directly.

Instrument Holding Registers for interpolation engineering

Item No.	Address	Address HEX	Parameter	Data Type	Unit	Value
1	557	0022DH	Unit Flow Velocity of Point1	Floating Pt.	m/s	
2	561	00231H	Unit Flow Velocity of Point2	Floating Pt.	m/s	
3	565	00235H	Unit Flow Velocity of Point3	Floating Pt.	m/s	
4	569	00239H	Unit Flow Velocity of Point4	Floating Pt.	m/s	
5	573	0023DH	Unit Flow Velocity of Point5	Floating Pt.	m/s	
6	577	00241H	Unit Flow Velocity of Point6	Floating Pt.	m/s	
7	581	00245H	Unit Flow Velocity of Point7	Floating Pt.	m/s	
8	585	00249H	Unit Flow Velocity of Point8	Floating Pt.	m/s	
9	589	0024DH	Unit Flow Velocity of Point9	Floating Pt.	m/s	
10	593	00251H	Unit Flow Velocity of Point10	Floating Pt.	m/s	
11	597	00255H	Standard Flow Velocity of Point1	Floating Pt.	m/s	
12	601	00259H	Standard Flow Velocity of Point2	Floating Pt.	m/s	
13	605	0025DH	Standard Flow Velocity of Point3	Floating Pt.	m/s	
14	609	00261H	Standard Flow Velocity of Point4	Floating Pt.	m/s	
15	613	00265H	Standard Flow Velocity of Point5	Floating Pt.	m/s	
16	617	00269H	Standard Flow Velocity of Point6	Floating Pt.	m/s	
17	621	0026DH	Standard Flow Velocity of Point7	Floating Pt.	m/s	
18	625	00271H	Standard Flow Velocity of Point8	Floating Pt.	m/s	
19	629	00275H	Standard Flow Velocity of Point9	Floating Pt.	m/s	
20	633	00279H	Standard Flow Velocity of Point10	Floating Pt.	m/s	

Instrument Holding Registers for software engineering

Item No.	Address	Address HEX	Parameter	Data Bytes	Data Type	Unit	Value
Information							
1	49-64	0031H-0040H	Serial Number	16 bytes	ASCII		
2	65-74	0041H-004AH	Firmware version	10 bytes	ASCII		
RS-485 Slave Address, Baud rate, Data format							
3	77	004DH	Slave Address	1 bytes	unsigned Integer		1-247
4	79	004FH	Baud rate	1 bytes	unsigned Integer		0: 9600 1: 19200 2: 38400 3: 57600 4: 115200
5	81	0051H	Data type	1 bytes	unsigned Integer		0: N81 1: N82 2: E81 3: E82 4: O81 5: O82

ASCII format, Item No. 1-2

1st Word		2nd Word		3rd Word		4th Word		5th Word		6th Word		7th Word		8th Word	
Hi byte	Lo byte	Hi byte	Lo byte	Hi byte	Lo byte	Hi byte	Lo byte	Hi byte	Lo byte	Hi byte	Lo byte	Hi byte	Lo byte	Hi byte	Lo byte

"ABCDEF0123456789" is represented in byte of hexadecimal as

<41><42><43><44><45><46><30><31><32><33><34><35><36><37><38><39>

IEEE754 format

Data Hi Word, Hi Byte	Data Hi Word, Lo Byte	Data Lo Word, Hi Byte	Data Lo Word, Lo Byte
SEEE EEEE	EMMM MMMM	MMMM MMMM	MMMM MMMM

Where

S represents the sign bit where 1 is negative and 0 is positive

E is the two's complement exponent with an offset of 127 i.e. an exponent of zero is represented by

127, an exponent of 1 by 128 etc.

M is the 23-bit normal mantissa. The highest bit is always 1 and, therefore, is not stored.

Using the above format the floating point number 23.83 is represented in byte of hexadecimal as <41><BE><A3><D7>:

Data Hi Word, Hi Byte	Data Hi Word, Lo Byte	Data Lo Word, Hi Byte	Data Lo Word, Lo Byte
0x41	0xBE	0xA3	0xD7

Communication Examples

Read Flow Velocity [m/s] IEEE 754

Request the host (PC or PLC) to polling the data of FTSXX			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Read Holding registers	03	Byte	1
Starting Address Hi	04	Byte	1
Starting Address Lo	00	Byte	1
No. of registers Hi	00	Byte	1
No. of registers Lo	02	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

*Registers of Flow Velocity IEEE 754 are 0x0400 ~ 0x0403

Response FTSXX response data to the host (PC or PLC)			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Read Holding registers	03	Byte	1
Byte Count	04	Byte	1
IEEE 754 Data Lo Word, Hi Byte	0x77	Byte	1
IEEE 754 Data Lo Word, Lo Byte	0xCF	Byte	1
IEEE 754 Data Hi Word, Hi Byte	0x42	Byte	1
IEEE 754 Data Hi Word, Lo Byte	0x13	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

* the floating point number 36.87 is represented in byte of hexadecimal as <42><13><77><CF>:

Read Flow Velocity [m/s] 32-bit Integer

Request the host (PC or PLC) to polling the data of FTSXX			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Read Holding registers	03	Byte	1
Starting Address Hi	04	Byte	1
Starting Address Lo	20	Byte	1
No. of registers Hi	00	Byte	1
No. of registers Lo	02	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

*Registers of Flow Velocity 32-bit Integer are 0x0420 ~ 0x0423

Response FTSXX response data to the host (PC or PLC)			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Read Holding registers	03	Byte	1
Byte Count	04	Byte	1
Hi Word, Hi Byte	0x11	Byte	1
Hi Word, Lo Byte	0x22	Byte	1
Lo Word, Hi Byte	0x33	Byte	1
Lo Word, Lo Byte	0x44	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

* the 32-bit Integer number 287454020 is represented in byte of hexadecimal as <11><22><33><44>

Example Flow velocity is 28745.4020 [m/s]

Read Serial No.

Request the host (PC or PLC) to polling the data of FTSXX			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Read Holding registers	03	Byte	1
Starting Address Hi	00	Byte	1
Starting Address Lo	30	Byte	1
No. of registers Hi	00	Byte	1
No. of registers Lo	08	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

*Registers of Serial No. are 0x30 ~ 0x3F

Response FTSXX response data to the host (PC or PLC)			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Read Holding registers	03	Byte	1
Byte Count	10	Byte	1
1st Word, Lo byte	0x4E	Byte	1
1st Word, Hi byte	0x53	Byte	1
2nd Word, Lo byte	0x31	Byte	1
2nd Word, Hi byte	0x30	Byte	1
3rd Word, Lo byte	0x33	Byte	1
3rd Word, Hi byte	0x32	Byte	1
4th Word, Lo byte	0x35	Byte	1
4th Word, Hi byte	0x34	Byte	1
5th Word, Lo byte	0x37	Byte	1
5th Word, Hi byte	0x36	Byte	1
6th Word, Lo byte	0x39	Byte	1
6th Word, Hi byte	0x38	Byte	1
7th Word, Lo byte	0x42	Byte	1
7th Word, Hi byte	0x41	Byte	1
8th Word, Lo byte	0x44	Byte	1
8th Word, Hi byte	0x43	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

*example of Serial No. is “SN0123456789ABCD”

Read Firmware Version

Request the host (PC or PLC) to polling the data of FTSXX			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Read Holding registers	03	Byte	1
Starting Address Hi	00	Byte	1
Starting Address Lo	40	Byte	1
No. of registers Hi	00	Byte	1
No. of registers Lo	05	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

*Registers of Firmware Version are 0x40 ~ 0x49

Response FTSXX response data to the host (PC or PLC)			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Read Holding registers	03	Byte	1
Byte Count	0A	Byte	1
1st Word, Lo byte	0x31	Byte	1
1st Word, Hi byte	0x56	Byte	1
2nd Word, Lo byte	0x33	Byte	1
2nd Word, Hi byte	0x32	Byte	1
3rd Word, Lo byte	0x2E	Byte	1
3rd Word, Hi byte	0x34	Byte	1
4th Word, Lo byte	0x36	Byte	1
4th Word, Hi byte	0x35	Byte	1
5th Word, Lo byte	0x38	Byte	1
5th Word, Hi byte	0x37	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

*example of Firmware Version is “V1234.5678”

Disable Protection of Read Only Registers

Request the host (PC or PLC) send command to FTSXX			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Write Holding registers	10	Byte	1
Starting Address Hi	03	Byte	1
Starting Address Lo	00	Byte	1
No. of registers Hi	00	Byte	1
No. of registers Lo	02	Byte	1
No. of registers byte count	04	Byte	1
Registers Value – High Byte of Command	03	Byte	1
Registers Value – Low Byte of Command	01	Byte	1
Registers Value – High Byte of Argument	0E	Byte	1
Registers Value – Low Byte of Argument	5F	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

*Factory Command Register at Network Address 0x0300

*Calibration related registers resume writable after FTS accept this command

Response FTSXX response data to the host (PC or PLC)			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Write Holding registers	10	Byte	1
Starting Address Hi	03	Byte	1
Starting Address Lo	00	Byte	1
No. of registers Hi	00	Byte	1
No. of registers Lo	02	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

Clean Interpolation Points

Request the host (PC or PLC) send command to FTSXX			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Write Holding registers	10	Byte	1
Starting Address Hi	03	Byte	1
Starting Address Lo	00	Byte	1
No. of registers Hi	00	Byte	1
No. of registers Lo	02	Byte	1
No. of registers byte count	04	Byte	1
Registers Value – High Byte of Command	09	Byte	1
Registers Value – Low Byte of Command	01	Byte	1
Registers Value – High Byte of Argument	FF	Byte	1
Registers Value – Low Byte of Argument	FF	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

*example of Factory Command 0x0901 – Reset Interpolation Table

Response FTSXX response data to the host (PC or PLC)			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Write Holding registers	10	Byte	1
Starting Address Hi	03	Byte	1
Starting Address Lo	00	Byte	1
No. of registers Hi	00	Byte	1
No. of registers Lo	02	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

Add Interpolation Points

Request the host (PC or PLC) send command to FTSXX			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Write Holding registers	10	Byte	1
Starting Address Hi	03	Byte	1
Starting Address Lo	00	Byte	1
No. of registers Hi	00	Byte	1
No. of registers Lo	02	Byte	1
No. of registers byte count	04	Byte	1
Registers Value – High Byte of Command	09	Byte	1
Registers Value – Low Byte of Command	02	Byte	1
Registers Value – High Byte of Argument	00	Byte	1
Registers Value – Low Byte of Argument	7B	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

*Example of Factory Command 0x0902 – Add Interpolation Point when standard velocity 1.23m/s

*Example of velocity 1.23 m/s and consider a number of 123 because scale x100

*Integer number 123 would be 0x007B in Hexadecimal Representation

Response FTSXX response data to the host (PC or PLC)			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Write Holding registers	10	Byte	1
Starting Address Hi	03	Byte	1
Starting Address Lo	00	Byte	1
No. of registers Hi	00	Byte	1
No. of registers Lo	02	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

Set Velocity Offset

Request the host (PC or PLC) send command to FTSXX			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Write Holding registers	10	Byte	1
Starting Address Hi	01	Byte	1
Starting Address Lo	BE	Byte	1
No. of registers Hi	00	Byte	1
No. of registers Lo	02	Byte	1
No. of registers byte count	04	Byte	1
Registers Value – High Byte of Command	70	Byte	1
Registers Value – Low Byte of Command	A4	Byte	1
Registers Value – High Byte of Argument	3F	Byte	1
Registers Value – Low Byte of Argument	9D	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

*Unit in m/s, the velocity reading will plus offset amount. E.g. $V_{DISP} = V_{RAW} + V_{offset}$

*Example of offset 1.23 m/s and floating number 1.23 would be 0x3f9d70a4 in Hexadecimal Representation

Response FTSXX response data to the host (PC or PLC)			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Write Holding registers	10	Byte	1
Starting Address Hi	01	Byte	1
Starting Address Lo	BE	Byte	1
No. of registers Hi	00	Byte	1
No. of registers Lo	02	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

*FTS may reply error code 0x90 and exception code 0x02 if register under read only protection

Set Temperature Offset

Request the host (PC or PLC) send command to FTSXX			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Write Holding registers	10	Byte	1
Starting Address Hi	01	Byte	1
Starting Address Lo	C2	Byte	1
No. of registers Hi	00	Byte	1
No. of registers Lo	02	Byte	1
No. of registers byte count	04	Byte	1
Registers Value – High Byte of Command	70	Byte	1
Registers Value – Low Byte of Command	A4	Byte	1
Registers Value – High Byte of Argument	BF	Byte	1
Registers Value – Low Byte of Argument	9D	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

*Unit in ˚C, the temperature reading will plus offset amount. E.g. $T_{DISP} = T_{RAW} + T_{offset}$

*Example of offset -1.23 m/s and floating number -1.23 would be 0xbf9d70a4 in Hexadecimal Representation

Response FTSXX response data to the host (PC or PLC)			
Field Name	Value	Type	Byte
Slave Address	1~247	Byte	1
Write Holding registers	10	Byte	1
Starting Address Hi	01	Byte	1
Starting Address Lo	C2	Byte	1
No. of registers Hi	00	Byte	1
No. of registers Lo	02	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

*FTS may reply error code 0x90 and exception code 0x02 if register under read only protection

Revise history

- V1 2015_08_07 Initial
- V2 2016_12_22 Add Output Configuration, Calibration Registers and Factory Command Table
- V3 2017_11_06 Integrated communication address for ModScan.

eyc-tech Measuring Specialist

enhance your capability with sensor technology

Air flow | Humidity | Dew point | Differential pressure | Liquid flow

Temp. | Pressure | Level | Air quality | Signal meter

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