



Modbus Protocol eyc-tech FDM06S

Differential pressure type air flow transmitter



Introduction

This document describes the protocol detail of Modbus for FDM06 series.

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)

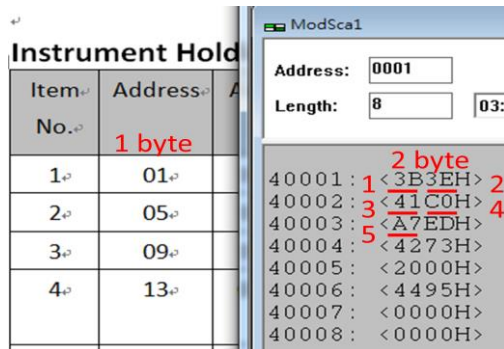
- Support RTU mode
- Broadcast support (Address 0)
- Bit addressable items (i.e. Coils and Discrete inputs) will not be implemented
- Measurement Values are represented in IEEE 754 single-precision 32-bit floating point type http://en.wikipedia.org/wiki/IEEE_754
- Modbus protocol structure:
 - 1st byte: 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
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	Interpolation Flow Velocity	Holding Register	Floating Pt.	m/s

^{[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



The screenshot shows the ModScan software interface. On the left, there is a table titled "Instrument Hold" with columns for Item No., Address, and Address HEX. The table contains the following data:

Item No.	Address	Address HEX
1	01	0001H
2	05	0005H
3	09	0009H
4	13	000DH

Red annotations indicate that the "Address" column is labeled "1 byte" and the "Address HEX" column is labeled "2 byte".

On the right, the ModScan1 window shows the "Address" field set to 0001 and the "Length" field set to 8. Below this, a list of addresses and their corresponding values is displayed:

```

40001 : 1 <3B3EH> 2
40002 : 3 <41C0H> 4
40003 : 5 <A7EDH>
40004 : <4273H>
40005 : <2000H>
40006 : <4495H>
40007 : <0000H>
40008 : <0000H>
  
```

Instrument Holding Registers for output configuration registers

OUT1 Register Group

Item No.	Addresses	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: Differential Pressure 1: Flow Velocity 2: Air Temperature 3: Flow Volume 4: Barometric Pressure
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 Time (T90 Rise Time)	0~100 (0:Fast, 100:Slow)
8	97	0061H	Alarm Mode & Decimal Position	OUT1 Acts Alarm Mode	bit0: Disable, 1: Enable bit2..1:Decimal Position
9	99	0063H	Alarm Upper	Alarm On Trigger	-32768~32767
10	101	0065H	Alarm Lower	Alarm Off Trigger	-32768~32767
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)
13	425	1A9H	Unit of DP	Unit of Differential Pressure	0: mBar 1: Pa 2: hPa 3: kPa 4: mmWS 5: inH2O 6: mmHg
14	427	1ABH	Unit of Velocity	Unit of Flow Velocity	0: m/s 1: ft/s
15	429	1ADH	Unit of Temp	Unit of Air Temperature	0: °C 1: °F
16	431	1AFH	Unit of Volume	Unit of Flow Volume	0: Kg/h 1: Nm ³ /h 2: L/min 3: m ³ /min
17	433	1B1H	Unit of ATM	Unit of Barometric Pressure	0: ATM 1: Bar 2: hPa 3: kPa 4: mmHg

OUT2 Register Group

Item No.	Address	Address HEX	Register	Description	Possible Value
1	121	0079H	Output Quantity	OUT2 Quantity Selection	0: Differential Pressure 1: Flow Velocity 2: Air Temperature 3: Flow Volume 4: Barometric Pressure
2	123	007BH	Digital Upper	Digital OUT2 Upper	-32768~32767
3	125	007DH	Digital Lower	Digital OUT2 Lower	-32768~32767
4	127	007FH	Response Rate	Response Time (T90 Rise Time)	0~100 (0:Fast, 100:Slow)
5	129	0081H	Decimal Position	OUT1 Acts Alarm Mode	bit2..1:Ddecimal Position
6	137	0087H	Pulse Value Lower	Pulse Output Value	0~65535
7	139	0089H	Pulse Value Upper	Pulse Output Value	0~65535
8	435	1B3H	Unit of DP	Unit of Differential Pressure	0: mBar 1: Pa 2: hPa 3: kPa 4: mmWS 5: inH2O 6: mmHg
9	437	1B5H	Unit of Velocity	Unit of Flow Velocity	0: m/s 1: ft/s
10	439	1B7H	Unit of Temp	Unit of Air Temperature	0: °C 1: °F
11	441	1B9H	Unit of Volume	Unit of Flow Volume	0: Kg/h 1: Nm ³ /h 2: L/min 3: m ³ /min
12	443	1BBH	Unit of ATM	Unit of Barometric Pressure	0: ATM 1: Bar 2: hPa 3: kPa 4: mmHg

Instrument Holding Registers for application engineering

Item No.	Address	Address HEX	Parameter	Point Type	Data Type	Unit
1	1025	0401H	Diff Pressure	Holding Register	Floating Pt.	mBar
2	1029	0405H	Diff Pressure	Holding Register	Floating Pt.	Pa
3	1033	0409H	Diff Pressure	Holding Register	Floating Pt.	hPa
4	1037	040DH	Diff Pressure	Holding Register	Floating Pt.	kPa
5	1041	0411H	Diff Pressure	Holding Register	Floating Pt.	mmWS
6	1045	0415H	Diff Pressure	Holding Register	Floating Pt.	inH2O
7	1049	0419H	Diff Pressure	Holding Register	Floating Pt.	mmHg
8	1053	041DH	Flow Velocity	Holding Register	Floating Pt.	ms/s
9	1057	0421H	Flow Velocity	Holding Register	Floating Pt.	fts/s
10	1061	0425H	Temperature	Holding Register	Floating Pt.	°C
11	1065	0429H	Temperature	Holding Register	Floating Pt.	°F
12	1069	042DH	Flow Volume	Holding Register	Floating Pt.	Kg/h
13	1073	0431H	Flow Volume	Holding Register	Floating Pt.	Nm ³ /h
14	1077	0435H	Flow Volume	Holding Register	Floating Pt.	L/min
15	1081	0439H	Flow Volume	Holding Register	Floating Pt.	m ³ /min
16	1085	043DH	Barometric	Holding Register	Floating Pt.	ATM
17	1089	0441H	Barometric	Holding Register	Floating Pt.	Bar
18	1093	0445H	Barometric	Holding Register	Floating Pt.	hPa
19	1097	0449H	Barometric	Holding Register	Floating Pt.	kPa
20	1101	044DH	Barometric	Holding Register	Floating Pt.	mmHg
21	1665	0681H	Totalizer 1	Holding Register	32-bit Integer	m ³
22	1669	0685H	Totalizer 2	Holding Register	32-bit Integer	Liter

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	485	01E5H	Temperature Max. (°C)	2 bytes	signed Integer	°C	X100
3	487	01E7H	Temperature Min. (°C)	2 bytes	signed Integer	°C	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	401	0191H	Diff. Pressure Offset	4 bytes	IEEE 754	Pa	
9	405	0195H	Barometric Offset	4 bytes	IEEE 754	hPa	
10	409	0199H	Molar Mass	4 bytes	IEEE 754	Kg/mol	
11	413	019DH	Diff. Low Cut	4 bytes	IEEE 754	Pa	
12	417	01A1H	Profile Factor	4 bytes	IEEE 754		
13	421	01A5H	Slope Factor (K)	4 bytes	IEEE 754		
14	463	01CFH	Flow Velocity Max.	2 bytes	signed Integer	m/s	
15	465	01D1H	Flow Offset	4 bytes	IEEE 754	m/s	
16	469	01D5H	Temperature Offset	4 bytes	IEEE 754	°C	
17	637	027DH	Calibration Year	2 bytes	unsigned Integer		Year
18	639	027FH	Calibration Date	2 bytes	unsigned Integer		High Byte: Month Low Byte: Day
19	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.	Command HEX	Argument	Description	Unit	Value
Information					
1	0301H	0E5FH	Disable Registers ^[1] Read Only		
2	0901H	FFFFH	Reset Interpolation Table		
		0~9	Delete Specify Index of Point		
3	0902H	Standard Velocity	Add data point at current	m/s	X100

			flow velocity ^[2]		
4	0302H	8485H	Enable Flash Write Protection		
		DBCAH	Disable Flash Write Protection		

^[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
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	2 bytes	unsigned Integer		1-247
4	79	004FH	Baud rate	2 bytes	unsigned Integer		0: 9600 1: 19200 2: 38400 3: 57600 4: 115200
5	81	0051H	Data type	2 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
A	B	C	D	E	F	0	1	2	3	4	5	6	7	8	9

“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 Differential Pressure [Pa] IEEE 754

Request the host (PC or PLC) to polling the data of FDM06			
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	04	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 0x0404 ~ 0x0405

Response FDM06 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	0xF9	Byte	1
IEEE 754 Data Lo Word, Lo Byte	0x59	Byte	1
IEEE 754 Data Hi Word, Hi Byte	0x42	Byte	1
IEEE 754 Data Hi Word, Lo Byte	0xC7	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

* the floating point number 99.98701 is represented in byte of hexadecimal as <42><C7><F9><59>

Read Flow Velocity [m/s] IEEE 754

Request the host (PC or PLC) to polling the data of FDM06			
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	1C	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 0x041C ~ 0x041F

Response FDM06 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 13.5940533 is represented in byte of hexadecimal as <41> <59>< 81>< 3E>

Read Temperature [°C] IEEE 754

Request the host (PC or PLC) to polling the data of FDM06			
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	24	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 Temperature IEEE 754 are 0x0424 ~ 0x0427

Response FDM06 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	0x4D	Byte	1
IEEE 754 Data Lo Word, Lo Byte	0x00	Byte	1
IEEE 754 Data Hi Word, Hi Byte	0x41	Byte	1
IEEE 754 Data Hi Word, Lo Byte	0xC7	Byte	1
CRC Lo	CRC Lo	Byte	1
CRC Hi	CRC Hi	Byte	1

* the floating point number 24.9125977 is represented in byte of hexadecimal as <41> <C7>< 4D>< 00>

Read Serial No.

Request the host (PC or PLC) to polling the data of FDM06			
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 FDM06 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 FDM06			
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 FDM06 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 FDM06			
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 FDM accept this command

Response FDM06 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 FDM06			
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 FDM06 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 FDM06			
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 FDM06 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 Differential Pressure Offset

Request the host (PC or PLC) send command to FDM06			
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	90	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. $DP_{DISP} = DP_{RAW} + DP_{offset}$

*Example of offset 1.23 Pa and floating number 1.23 would be 0x3f9d70a4 in Hexadecimal Representation

Response FDM06 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	90	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

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

Set Velocity Offset

Request the host (PC or PLC) send command to FDM06			
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	D0	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	5C	Byte	1
Registers Value – Low Byte of Command	29	Byte	1
Registers Value – High Byte of Argument	3F	Byte	1
Registers Value – Low Byte of Argument	0F	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 0.56 m/s and floating number 0.56 would be 0x3f0f5c29 in Hexadecimal Representation

Response FDM06 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	D0	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

*FDM 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 FDM06			
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	D4	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°C and floating number -1.23 would be 0xbf9d70a4 in Hexadecimal Representation

Response FDM06 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	D4	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

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

Revise history

- V1 2022_12_12 Initial
- V2 2023_05_15 Specify unit of totalizer

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



Tel. : 886-2-8221-2958

Web : www.eyc-tech.com

e-mail : info@eyc-tech.com