

# RS485 ModBus RTU Mode

## 1. Function 03H (Read Holding Registers)

Request Data Frame; EX: Read the data of display value(0000H starts from 1 Word)

SLAVE Address	FUNCTION	Starting Address Hi	Starting Address Lo	No. of Word Hi	No. of Word Lo	CRC Lo	CRC Hi
01H	03H	00H	00H	00H	01H	84H	0AH

Response Data Frame; EX: The response value is "0"

SLAVE Address	FUNCTION	Byte count	Data Hi	Data Lo	CRC Lo	CRC Hi
01H	03H	02H	00H	00H	B8H	44H

Request Data Frame (EX: Continue to request the data of 10 points)

SLAVE Address	FUNCTION	Starting Address Hi	Starting Address Lo	No. of Word Hi	No. of Word Lo	CRC Lo	CRC Hi
01H	03H	00H	00H	00H	0AH	C5H	CDH

Response Data Frame

SLAVE Address	FUNCTION	Byte count	Data(1) Hi	Data(1) Lo	...	...	Data(10) Hi	Data(10) Lo	CRC Lo	CRC Hi
01H	03H	14H	00H	00H	...	...	01H	00H	--	--

## 2. Writing Command by Function 06H (Preset Single Register)

Request Data Frame

SLAVE Address	FUNCTION Code	Starting Address Hi	Starting Address Lo	Preset DATA Hi	Preset DATA Lo	CRC Lo	CRC Hi
01H	06H	00H	00H	00H	02H	08H	0BH

Response Data Frame

SLAVE Address	FUNCTION Code	Starting Address Hi	Starting Address Lo	Preset DATA Hi	Preset DATA Lo	CRC Lo	CRC Hi
01H	06H	00H	00H	00H	02H	08H	0BH

## ■ ADDRESS TABLE **\*\*Address number are Hexadecimal**

### ➤ User Level

Name	Address	Range	Explanation	Initial	Write/Read	Note
<b>Two Word Area</b>						
PV.M1*	0000h	-19999~99999	Present Value 1 of Mathematic <b>*(High Word)</b>		R	
PV.M1*	0001h	-19999~99999	Present Value 1 of Mathematic <b>*(Low Word)</b>		R	
PV.M2*	0002h	-19999~99999	Present Value 2 of Mathematic <b>*(High Word)</b>		R	
PV.M2*	0003h	-19999~99999	Present Value 2 of Mathematic <b>*(Low Word)</b>		R	
r4.1SP*	0004h	-19999~39999	Relay1 Set Point <b>*(High Word)</b>	10000	R/W	
r4.1SP*	0005h	-19999~39999	Relay1 Set Point <b>*(Low Word)</b>	10000	R/W	
r4.2SP*	0006h	-19999~39999	Relay2 Set Point <b>*(High Word)</b>	10000	R/W	
r4.2SP*	0007h	-19999~39999	Relay2 Set Point <b>*(Low Word)</b>	10000	R/W	
r4.3SP*	0008h	-19999~39999	Relay3 Set Point <b>*(High Word)</b>	10000	R/W	
r4.3SP*	0009h	-19999~39999	Relay3 Set Point <b>*(Low Word)</b>	10000	R/W	
r4.4SP*	000Ah	-19999~39999	Relay4 Set Point <b>*(High Word)</b>	10000	R/W	
r4.4SP*	000Bh	-19999~39999	Relay4 Set Point <b>*(Low Word)</b>	10000	R/W	
n.in.n.1*	000Ch	-19999~99999	The Minimum of PV.M1* <b>*(High Word)</b>	0	R	
n.in.n.1*	000Dh	-19999~99999	The Minimum of PV.M1* <b>*(Low Word)</b>	0	R	
n.A.n.1*	000Eh	-19999~99999	The Maximum of PV.M1* <b>*(High Word)</b>	0	R	
n.A.n.1*	000Fh	-19999~99999	The Maximum of PV.M1* <b>*(Low Word)</b>	0	R	
n.in.n.2*	0010h	-19999~99999	The Minimum of PV.M2* <b>*(High Word)</b>	0	R	

$\bar{n} \bar{A} \bar{4} \bar{n} \bar{2}$ *	0011h	-19999~99999	The Minimum of PV.M2*( <b>Low Word</b> )	0	R	
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Name	Address	Range	Explanation	Initial	Write/Read	Note
$\bar{n} \bar{A} \bar{4} \bar{n} \bar{2}$ *	0012h	-19999~99999	The Maximum of PV.M2*( <b>High Word</b> )	0	R	
$\bar{n} \bar{A} \bar{4} \bar{n} \bar{2}$ *	0013h	-19999~99999	The Maximum of PV.M2*( <b>Low Word</b> )	0	R	
<b>PV.M1 (Written)*</b>	0014h	-19999~99999	PV.M1 <b>[DS1]</b> be written in by RS485*( <b>High Word</b> )	00h	W	
<b>PV.M1 (Written)*</b>	0015h	-19999~99999	PV.M1 <b>[DS1]</b> be written in by RS485*( <b>Low Word</b> )	00h	W	
<b>PV.M2 (Written)*</b>	0016h	-19999~99999	PV.M2 <b>[DS2]</b> be written in by RS485*( <b>High Word</b> )	00h	W	
<b>PV.M2 (Written)*</b>	0017h	-19999~99999	PV.M2 <b>[DS2]</b> be written in by RS485*( <b>Low Word</b> )	00h	W	
$\bar{A} \bar{o} \bar{L} \bar{S}$ *	0018h	-19999~39999	Analogue Output Low Scale*( <b>High Word</b> )	0	R/W	
$\bar{A} \bar{o} \bar{L} \bar{S}$ *	0019h	-19999~99999	Analogue Output Low Scale*( <b>Low Word</b> )	0	R/W	
$\bar{A} \bar{o} \bar{H} \bar{I}$ *	001Ah	-19999~99999	Analogue Output High Scale*( <b>High Word</b> )	19999	R/W	
$\bar{A} \bar{o} \bar{H} \bar{I}$ *	001Bh	-19999~99999	Analogue Output High Scale*( <b>Low Word</b> )	19999	R/W	
<b>One Word Area</b>						
<b>PV1</b>	001Ch		Present Value of input 1		R	
<b>PV2</b>	001Dh		Present Value of input 2		R	
$\bar{P} \bar{u} \bar{1} \bar{d} \bar{P}$	001Eh		Decimal Point of input 1		R/W	
$\bar{P} \bar{u} \bar{2} \bar{d} \bar{P}$	001Fh		Decimal Point of input 2		R/W	
<b>PV.M1.DP</b>	0020h		Decimal Point of PV.M1		R/W	
<b>PV.M2.DP</b>	0021h		Decimal Point of PV.M2		R/W	
<b>RELAY STATUS</b>	0022h	0~1	RELAY STATUS <b>bit0~bit3</b> :relay1~relay4; <b>0</b> =Relay off <b>1</b> =Relay on		R/W	
<b>SYSTEM STATUS</b>	0023h		SYSTEM STATUS <b>bit0</b> =1, Input EEP fail; <b>bit1</b> =1, Input calibration fail; <b>bit2</b> =1, Input calibration NG; <b>bit3</b> =1, Analogue Output calibration fail; <b>bit4</b> =1, Analogue Output calibration NG		R	
$\bar{n} \bar{r} \bar{S} \bar{E}$	0024h	0~1	Reset Maximum & Minimum Value <b>0</b> :No <b>1</b> :Yes	1	R/W	

## ➤ Engineer Level

<b>[Input Group]</b>						
Name	Address	Range	Explanation	Initial	Write/Read	Note
$\bar{A} \bar{1} \bar{L} \bar{o}$	0025h	0.00~100.00%	Input 1 Low	0.00%	R/W	
$\bar{A} \bar{1} \bar{H} \bar{I}$	0026h	0.00~100.00%	Input 1 High	100.0%	R/W	
$\bar{A} \bar{2} \bar{L} \bar{o}$	0027h	0.00~100.00%	Input 2 Low	0.00%	R/W	
$\bar{A} \bar{2} \bar{H} \bar{I}$	0028h	0.00~100.00%	Input 2 High	100.0%	R/W	
$\bar{L} \bar{o} \bar{S} \bar{C} \bar{1}$	0029h	-19999~29999	Low Scale of input 1	0	R/W	
$\bar{H} \bar{I} \bar{S} \bar{C} \bar{1}$	002Ah	-19999~29999	High Scale of input 1	19999	R/W	
$\bar{L} \bar{o} \bar{S} \bar{C} \bar{2}$	002Bh	-19999~29999	Low Scale of input 2	0	R/W	
$\bar{H} \bar{I} \bar{S} \bar{C} \bar{2}$	002Ch	-19999~29999	High Scale of input 2	19999	R/W	
$\bar{P} \bar{u} \bar{1} \bar{Z} \bar{o}$	002Dh	-19999~29999	PV1 ZERO	0	R/W	
$\bar{P} \bar{u} \bar{1} \bar{S} \bar{n}$	002Eh	-19999~29999	PV1 SPAN	0	R/W	
$\bar{P} \bar{S} \bar{C} \bar{L} \bar{1}$	002Fh	0~3	The clear of PV_ZERO and PV_SPAN <b>0</b> :None <b>1</b> :PV_ZERO <b>2</b> :PV_SPAN <b>3</b> :Both	3	R/W	
$\bar{P} \bar{u} \bar{2} \bar{Z} \bar{o}$	0030h	-19999~29999	PV2 ZERO	0	R/W	
$\bar{P} \bar{u} \bar{2} \bar{S} \bar{n}$	0031h	-19999~29999	PV2 SPAN	0	R/W	
$\bar{P} \bar{S} \bar{C} \bar{L} \bar{2}$	0032h	0~3	The clear of PV_ZERO and PV_SPAN	3	R/W	

			0:None 1:PV_ZERO 2:PV_SPAN 3:Both			
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Name	Address	Range	Explanation	Initial	Write/Read	Note
dPLY.1	0033h	0~3	Display Mode of PV.M1 0:PV 1: Minimum Hold 2: Maximum Hold 3: RS485	0	R/W	
dPLY.2	0034h	0~3	Display Mode of PV.M2 0:PV 1: Minimum Hold 2: Maximum Hold 3: RS485	0	R/W	
LoCt.1	0035h	-19999~19999	Low Cut of PV1	0	R/W	
LoCt.2	0036h	-19999~19999	Low Cut of PV2	0	R/W	
AvG	0037h	1~99	Average display for PV1 and PV2	1	R/W	
dFilt	0038h	0~99	Digital Filter for PV1 and PV2	0	R/W	
PCode	0039h	0000~9999	Pass Code	1000	R/W	
FLoCk	003Ah	0~3	Function Lock 0: none 1: User Level 2: Engineer Level 3: All	0	R/W	
MAth.1	003Bh	0~3	Mathematic mode for display 1 <b>【DS1】</b> 0: PV1 1: PV1 +PV2 2: PV1 - PV2 3: PV1xPV2 4: PV1+PV2 5: PV2+PV1	0	R/W	
MAth.2	003Ch	0~3	Mathematic mode for display 1 <b>【DS2】</b> 0: PV1 1: PV1 +PV2 2: PV1 - PV2 3: PV1xPV2 4: PV1+PV2 5: PV2+PV1	0	R/W	

### 【Relay Group】

Name	Address	Range	Explanation	Initial	Write/Read	Note
rY5b.1	003Dh	0000~9999	Start Band of input 1 for relay energized	0	R/W	
rY5d.1	003Eh	0000~5999 (0.1second)	Start Delay Time of input 1 for relay energized	0	R/W	
rY5b.2	003Fh	0000~9999	Start Band of input 2 for relay energized	0	R/W	
rY5d.2	0040h	0000~5999 (0.1second)	Start Delay Time of input 2 for relay energized	0	R/W	
r1SEL	0041h	0~1	Relay 1 energized relative display 1 <b>【DS1】</b> or display2 <b>【DS2】</b> 0: display 1 <b>【DS1】</b> 1: display 2 <b>【DS2】</b>	0	R/W	
rY1nd	0042h	0~5	Relay1 Energized Mode 0: oFF(no use); 1: Lo(Low Energized); 2: Hi(High Energized) 3: Lo Hold(Low Energized Hold) 4: High Hold(High Energized Hold) 5: Do(Digital Output);	1	R/W	
rY1HY	0043h	0000~5000	Hysteresis of Relay 1	0	R/W	
rY1rd	0044h	0000~5999 (0.1second)	Energized Delay Time of Relay 1	0	R/W	
rY1fd	0045h	0000~5999 (0.1second)	De-Energized Delay Time of Relay 1	0	R/W	
r2SEL	0046h	0~1	Relay 2 energized relative display 1 <b>【DS1】</b> or display 2 <b>【DS2】</b> 0: display 1 <b>【DS1】</b> 1: display 2 <b>【DS2】</b>	0	R/W	
rY2nd	0047h	0~5	Relay 2 Energized Mode 0: oFF(no use); 1: Lo(Low Energized); 2: Hi(High Energized) 3: Lo Hold(Low Energized Hold) 4: High Hold(High Energized Hold) 5: Do(Digital Output);	1	R/W	

r42H4	0048h	0000~5000	Hysteresis of Relay 2	0	R/W	
r42rD	0049h	0000~5999 (0.1second)	Energized Delay Time of Relay 2	0	R/W	

Name	Address	Range	Explanation	Initial	Write/Read	Note
r42Fd	004Ah	0000~5999 (0.1second)	De-Energized Delay Time of Relay 2	0	R/W	
r35EL	004Bh	0~1	Relay 3 energized relative display 1 <b>【DS1】</b> or display 2 <b>【DS2】</b> <b>0:</b> display 1 <b>【DS1】</b> <b>1:</b> display 2 <b>【DS2】</b>	0	R/W	
r43rd	004Ch	0~5	Relay 3 Energized Mode <b>0:</b> OFF(no use); <b>1:</b> Lo(Low Energized) <b>2:</b> Hi(High Energized) <b>3:</b> Lo Hold(Low Energized Hold) <b>4:</b> High Hold(High Energized Hold) <b>5:</b> Do(Digital Output);	2	R/W	
r43H4	004Dh	0000~5000	Hysteresis of Relay 3	0	R/W	
r43rD	004Eh	0000~5999 (0.1second)	Energized Delay Time of Relay 3	0	R/W	
r43Fd	004Fh	0000~5999 (0.1second)	De-Energized Delay Time of Relay 3	0	R/W	
r45EL	0050h	0~1	Relay 4 energized relative display 1 <b>【DS1】</b> or display2 <b>【DS2】</b> <b>0:</b> display 1 <b>【DS1】</b> <b>1:</b> display 2 <b>【DS2】</b>	0	R/W	
r44rd	0051h	0~7	Relay 4 Energized Mode <b>0:</b> OFF(no use); <b>1:</b> Lo(Low Energized); <b>2:</b> Hi(High Energized) <b>3:</b> Lo Hold(Low Energized Hold) <b>4:</b> High Hold(High Energized Hold) <b>5:</b> Do(Digital Output); <b>6:</b> Go-1.2(Go function compare with SP1 & SP2); <b>7:</b> Go-2.3(Go function compare with SP2 & SP3);	2	R/W	
r44H4	0052h	0000~5000	Hysteresis of Relay 4	0	R/W	
r44rD	0053h	0000~5999 (0.1second)	Energized Delay Time of Relay4	0	R/W	
r44Fd	0054h	0000~5999 (0.1second)	De-Energized Delay Time of Relay4	0	R/W	
r4r5E	0055h		Reset for Relay Energized Hold <b>0:</b> No <b>1:</b> Yes	0	R/W	

### 【AO Group】

Name	Address	Range	Explanation	Initial	Write/Read	Note
AOSEL	0056h	0~1	Analogue output relative display 1 <b>【DS1】</b> or display2 <b>【DS2】</b>			
AOtYP	0057h	0~5	Analog Output Type <b>0:</b> 0~10V <b>1:</b> 0~5V <b>2:</b> 1~5V <b>3:</b> 0~20mA <b>4:</b> 4~20mA <b>5:</b> 0~10mA	0	R/W	
PSCLR	0058h	0~3	The clear of AO_ZERO and AO_SPAN <b>0:</b> None <b>1:</b> AO_ZERO <b>2:</b> AO_SPAN <b>3:</b> Both	3	R/W	
AOLnE	0059h	00.00%~110.00%	Analogue Output High Limit	110.00%	R/W	

### 【RS485 Group】

Name	Address	Range	Explanation	Initial	Write/Read	Note
AdRES	005Ah	1~255	RS485 address	1	R/W	
bAUD	005Bh	0~5	RS485 baud rate	3	R/W	

			<b>0:</b> 1200 <b>1:</b> 2400 <b>2:</b> 4800 <b>3:</b> 9600 <b>4:</b> 19200 <b>5:</b> 38400			
Prity	005Ch	0~3	RS485 parity <b>0:</b> n-8-1 <b>1:</b> n-8-2, <b>2:</b> odd, <b>3:</b> even,	0	R/W	