Communication examples
of
controller UC-3N MODBUS network communication protocol

For example, the station number of the controller is 247(F7H, default station number)

1: Read input status register

Function code: 02H

Broadcast is not supported

Address	Description	Example	Meaning(digits in this column is decimal)
0000	Input switch status	F702000000086D5A	When reading register, must follow the principle to read 8 bits (1byte).

Note: address and data are all hexadecimal.

2: Read holding registers

(UC-3N ignore data length field, it only supports one data that read start address pointing)

Function code: 03H

Broadcast is not supported.

address	Description	Example	Meaning (the figure in this column is decimal figure)
0000	Station number	F70300000001909C	Red- station number; Green –function code; Blace- data address to be read; orange-fixed data length 1; Blue-CRC check code.
0001	MODBUS protocol type	—	
0002	Communication Baud rate	—	Preserved address, cannot be read out.
0003	Parity	—	Preserved address, cannot be read out.
0010	Controller model	F703001000019159	Response: F70302000390FC
0011	Serial number (low)	F70300110001C099	Response: F7030256784FD3。Combine the high and low order byte, serial number should be 12345678.
0012	Serial number (high)	F703001200013099	Response: F7030212347D26
0013	software version	—	Response: F703020001B191, version number is 0.1 The read digit is the response data.
0014	Language	F70300140001D098	
0015	System protection password	F703001500019156	Response F70302270F2BA5, password is 9999
0020	System monitoring status register	F703002000019156	Response F70302004071A1, please refer to protocol for detailed bit definition.
0021	Power off protection function	F70300210001C096	Response F70302004EF065, 4E is ASCII code of English letter 'N', which means power off protection function is OFF.
0022	Power off protection voltage	F703002200013096	Response F703020198706B, 00E6 is decimal figure 230, which means power off protection voltage is 11.3V.

0023	External control	F703002300016156	Response F703020045B1A2, 45 is ASCII code of letter 'E', which means external control function is ON.
0024	Oil level monitoring setting	F70300240001D097	Response F70302004EF065, 4E is ASCII code of English letter 'N', which means oil level monitoring function is OFF.
0100	Current status of channel 1	F703010000019160	Response F70302004331A0. 43 is ASCII code of English letter 'C', which means current status of channel 1 is LUBE
0110	Lubrication control mode of channel 1	F7030110000190A5	Response F70302005471AE. 54 is ASCII code of English letter 'T', which means LUBE control mode of channel 1 is TIMER.
0111	Lubrication control parameter of channel 1	F70301110001C165	Response F70302003C7040. LUBE control parameter of channel 1 is 60s.
0113	Lubrication remaining parameter of channel 1	F7030113000160A5	Response F70302002AF18E. LUBE remaining parameter of channel 1 is 42s.
0120	Pause control mode of channel 1	F7030120000190AA	Response F70302005471AE. 54 is ASCII code of English letter 'T', which means pause control mode of channel 1 is TIMER.
0121	Pause control parameter of channel 1 (low)	F70301210001C16A	Response F7030256784FD3. Combine the low (5678) and high order (1234) byte, PAUSE control parameter is 12345678H.
0122	Pause control parameter of channel 1 (high)	F70301220001316A	Response F7030212347D26
0123	Pause remaining parameter of channel 1 (low)	F7030123000160AA	Response F703025671 8FD5. Combine the high order (1234) byte, PAUSE remaining parameter of channel 1 is 12345671H.
0124	Pause remaining parameter of channel 1 (high)	F70301240001D16B	Response F7030212347D26
0130	Pulse current on time of channel 1	F70301300001916F	Response F70302006471BA. Pulse current on time is 0064, convert into decimal value, it is 100, which means 1.0s.
0131	Pulse interval time of channel 1	F70301310001C0AF	Response F70302006471BA. Pulse interval time is 0064, convert into decimal value, it is 100, which means 1.0s.
0132	Pulse ratio of channel 1	F7030132000130AF	Response F703020001B191. Pulse ratio is 1:1.
0133	Fine adjustment for oil projection for channel 1	—	返回
0140	Signal monitoring status of channel 1	F7030140000190B4	Response F70302004EF065. 4E is ASCII code of English letter 'N', which means there is no signal monitoring error.
0141	Monitoring signal level of channel 1	F70301410001C174	Response F70302004EF065. 4E is ASCII code of English letter 'N', which means signal monitoring function is OFF.

0142	Signal monitoring parameter of channel 1	F703014200013174	Response F7030200007051. Monitoring parameter of channel 1 is 0 (zero).
0143	Signal monitoring remaining parameter of channel 1	F7030143000160B4	Response F7030200007051. Remaining parameter is 0.
0144	Signal counter of channel 1	F70301440001D175	Response F7030200007051. Signal counting is 0.

3: Read input registers

Function code: 04H

Broadcast is not supported.

address	description	Example	Meaning (the figure in this meaning column is decimal figure.)
0000	The 1st analogue signal measuring value	F70400000001255C	
0001	The 2nd analogue signal measuring value	F70400010001749C	
0002	The 3rd analogue signal measuring value	F70400020001849C	
0003	The 4th analogue signal measuring value	F70400030001D55C	
0010	Power voltage	F704001000012499	Response F7040201F7B13B. Convert 01ED to decimal value is 503, current power voltage is 24.4V Voltage (V)=measured value $\times 0.04858$
0011	Control station's temperature	F704001100017559	Response F70402011C717C. Convert 011C to decimal value is 284, which means current control station's temperature is 35.2℃ Control station temperature (℃)= measured value / 3.333-50
FFFE	Input terminal status		Bit definition is as same as function code 02H. It is used to help those modbus masters who do not support function code 02H.

4: Set single register

Function code: 06H

Except address 0000, all the other addresses support broadcast.

Address	Description	Example	Meaning
			(the figure in this column is decimal figure)
0000	Station number (Broadcast is not supported)	F70600000015C9C	Change station number to 1
0001	MODBUS protocol type	—	Preserved address, cannot be read out.
0002	Communication Baud rate	F70600024B000A6C	Set baud rate 19200(4B00H)
0003	Parity	F70600030004F2CA8	Odd parity 'O' (ACCII code: 4FH)
0010	Serial number (low)	—	Preserved address, cannot be read out.
0011	Serial number (high)	—	Preserved address, cannot be read out.
0012	software version	—	Preserved address, cannot be read out.
0013	Language	—	
0014	System protection password	F7060014270F86AC	New password is decimal value: 9999
0021	Power off protection setting	F7060021004E4D62	Set power off protection as 'N', OFF
		F706002100450CA5	Set power off protection as 'E' , ON
0022	Power off protection voltage	F706002201983D6C	Set power off protection voltage as 20V
0023	External control setting	F7060023004EECA2	Set external control as 'N' , OFF
		F70600230045AD65	Set external control as 'E', ON
0024	Oil level monitoring setting	F7060024004E5D63	Set level monitoring as 'N', OFF
		F706002400451CA4	Set level monitoring as 'E', ON
0026	System monitoring status register	—	
0100	Current status of channel 1	—	Use function code 05H to force current status change
0110	LUBE control mode of CH1	F70601100043DC94	LUBE control mode is 'C' (counter)
0111	LUBE control parameters of CH1	F706011103E8CC1B	Change LUBE control parameter to 1000
0113	LUBE remain value of CH1	—	
0120	PAUSE control mode of CH1	F70601200043DC9B	PAUSE control mode is 'C' (counter)
0121	CH1 PAUSE parameter (Low)	F7060121423FBC1A	Combine high order byte 000F, set PAUSE parameter as 999999
0122	CH1 PAUSE parameter (High)	F7060122000F7CAE	Must set high-order first, then low-order
0123	CH1 PAUSE remain value (Low)	—	
0124	CH1 PAUSE remain value (High)	—	
0130	Pulse time of CH1	F7060130001E1CA7	Set Pulse current on time as 0.3s
0131	Pulse interval of CH1	F7060130001E1CA7	Set pulse interval time as 0.3s
0132	Pulse ratio of CH1	F70601320002BCAE	Set pulse ratio as 2:1
0133	Projection fine adjustment of CH1	—	
0140	Signal monitoring state of CH1	—	
0141	Signal monitoring level of CH1	F706014100410C84	Set monitoring level as ALARM (A)
0142	Signal monitoring parameter of CH1	F7060142001EBCBC	Set monitoring parameter as 30sec
0143	Signal monitoring remain value of CH1	—	
0144	Signal counting of CH1	F70601440000DCB5	Clear signal counter

5: Force channel status change (force single coil)

Function code: 05H

Broadcast is supported

Address	Description	Example	Meaning (figures in this column are decimal)
0000	Force channel 1 as 0	F70500000000D95C	If force change succeed. The data frame that the slave station responses is an echo of the query
0000	Force channel 1 as 1	F7050000FF0098AC	
0001	Force channel 2 as 0	F70500010000889C	
0001	Force channel 2 as 1	F7050001FF00C96C	
0002	Force channel 3 as 0	F70500020000789C	
0002	Force channel 3 as 1	F7050002FF00396C	
0003	Force channel 4 as 0	F70500030000295C	
0003	Force channel 4 as 1	F7050003FF0068AC	
FFFE	Force system as 0	F705FFFE000088D8	Received the command, system reboot.
FFFE		0005FFFE00009DFF	Reboot all online slaves by broadcasting method (please note RED station number 0)

6: Set multiple registers

Function code: 10H

Except address 0000, all other addresses support broadcast.

This function code is only used to compatible with modbus standard. In fact, we use 06H to implement. Limit data quantity is 1

7: Error code

Function code: slave received function code +80H

code	Description	Meaning (figures in this column are decimal)
01	Illegal function	The function code received in the query is not an allowable action for the slave
02	Illegal data address	The data address received in the query is not an allowable address for the slave.
03	Illegal data	The value contained in the data field is not an allowable value for the slave.
06	Slave device busy	Slave device is engaged. Typical reasons are the salve is busy in processing a local manual operation or setting parameters.
07	Negative acknowledge	The slave cannot perform the program function received in the query.

If the CRC check error occurs in the frame slave received, or parity error occurs in data transmission, slave will remain silence.