Easycon Operating instructions of FX3U485/Modbus

RS485 instructions;

*RS485-1 power-on default is FX programming port protocol;

*RS485-1 supports switching between Mitsubishi FX programming port protocol and MODBUS-RTU protocol;

* communication parameters of RS485-1 are set in D8400, and communication parameters of RS485-2 are set in D8420, which supports ADPRW to switch between RS485-1 and RS485-2;

* The maximum length of data read and written by ADPRW is 520, if it exceeds 6343 or 6363 fault;

RS485-1	RS485-2	name	Effective station	Detailed content	R/W
D8400	D8420	Communication format setting	Master/slave station	Set the communication format. See below for details.	R/W
D8401	D8421	MODBUS Protocol selection	Master/slave station	Select MODBUS master protocol when the value is H0, and select MODBUS slave protocol when the value is H1(H10/H11).	R/W
D8402	D8422	Communication error code	Master/slave station	The latest error code in MODBUS communication will be stored.	R
D8403	D8423	Error details	Master/slave station	The latest details of the error will be stored.	R

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RS485-1	RS485-2	name	Effective station	Detailed content	R/W
D8404	D8424	Step where communication error occurs	main station	The step number of the first ADPRW instruction with error will be stored.	R
D8407	D8427	Communication step number	main station	The step number of ADPRW instruction in MODBUS communication will be stored. When the instruction is not executed, 0 will be stored.) The step number of the last executed ADPRW instruction will be kept.	R
D8408	D8428	The current number of retries	main station	When the communication is retried due to the response timeout of the slave station, the current number of retries will be stored.	R
D8409	D8429	Slave station	main station	After the master station sends the request, if the response from the slave is not received within the set time, the master station will send the text again, or according to the number of retries (D8412, D8432) is judged that there is a timeout error, and then the processing of this instruction is finished. The setting range is 0~ 32767, 1 = 10ms, and when it is 0, it is 3 seconds. 1= 1msout.	R/W
D8410	D8431	Send delay	Master/slave station	The delay refers to the delay of receiving data and then sending data. Unit: ms Setting range: 0 ~ 16382 (ms), default: 10ms.	R/W

RS485 -1	RS485 -2	name	Effective station	Detailed content	R/W
D8412	D8432	Number of retries	main station	When the slave station fails to respond within the time set in the response timeout of the slave station, the master station sends the text until the set number of retries is reached, and the instruction processing will be ended due to timeout error. Setting range: 0 ~ 20 [times]. When setting a value above 20, the number of retries is 20.	R/W
D8414	D8434	passive station This site	passive station	Store the slave station number, with the setting range of 1 ~ 247.	R/W
D8063	D8438	Serial Communication error code	Master/slave station	When a communication error occurs, the error code corresponding to the error in MODBUS communication will be stored.	R
D8419	D8439	Action mode display	Master/slave station	0=FX programming port communication 4=RS instruction 5=RS2 instruction 19=MODBUS communication master station 29=MODBUS communication slave station	R

Special relay

RS485-1	RS485-2	name	Effective station	Detailed content	R/W
M8410		RS485-1/2 use ADPRW instruction switching	main station	OFF: RS485-1 Use ADPRW instruction. On: RS485-2 uses ADPRW instruction.	R/W
M8029		End of instruction execution	main station	OFF: the instruction is not being executed or the instruction has not been completed. ON: instruction execution is complete.	R
M8401	M8421	MODBUS In communication	main station	MODBUS Communication center is set to on.	R
M8402	M8422	MODBUS Communication error occurred.	Master/slave station	Set it ON when MODBUS Communication error occurs.	R
M8403	M8423	MODBUS Communication error lach	Master/slave station	Once MODBUS communication error occurs, it is set to ON.	R
M8408	M8428	Retry occurred,	main station	When the slave station fails to respond on time, it is set to ON during the transmission retry of the master station.	R
M8409	M8429	Timeout occurred.	main station	Set the response timeout to on.	R

Slave station protocol soft component address (bit component address)

MODBUS-RTU Slave station soft component address		Soft component address
Read out special	Read/write	
0x0000~0x10FF	0x0000~0x10FF	M0~M7679
0x1100~0x1FFF	0x1100~0x1FFF	M8000~M8511
0x0000~0x2FFF	0x0000~0x2FFF	S0~S4095
0x3000~0x31FF	0x3000~0x31FF	T50~T511
0x3200~0x32FF	0x3200~0x32FF	C50~C5255
0x3300~0x33FF	0x3300~0x33FF	Y0~Y377
0x3400~0x34FF	——	X0~X377

Word address

MODBUS-RTU Slave station soft component address		Soft component address
Read out special	Read/write	
0x0000~0x1F3F	0x0000~0x1F3F	D0~D7999
0x1F40~0x213F	0x1F40~0x213F	D8000~D8511
0x4140~0x433F	0x4140~0x433F	T00~T511
0x4340~0x447F	0x4340~0x447F	C00~C0199
0x4408~0x4477	0x4408~0x4477	CX200~CX255(32 位)
0x4478~0x4657	0x4478~0x4657	M0~M7679
0x4658~0x4677	0x4658~0x4677	M8000~M8511
0x4678~0x4777	0x4678~0x4777	S0~S4095
0x4778~0x4797	0x4778~0x4797	T50~T511
0x4798~0x47A7	0x4798~0x47A7	C50~C5255
0x47A8~0x47B7	0x47A8~0x47B7	Y0~Y377
0x47B8~0x47C7	——	X0~X377

RS485-1/RS485-2 communication parameter setting D8400/D8420 setting instructions

Bit number	name	content	
		0(bit=OFF)	1(bit=ON)
b0	data sheet	7 place[*]	8 place
b1	odevity	b2	b1
b2		(0	0) -No parity
		(0	1) --odd number (ODD)
		(1	1) --even number(EVEN)
b3	Stop bit	1 bit	2 bit
b4	rate	b7 b6 b5 b4	b7 b6 b5 b4
b5		(0 0 0 1):300	(1 0 0 0):9600
b6		(0 1 0 0):600	(1 0 0 1):19200
b7		(0 1 0 1):1200	(1 0 1 0):38400
		(0 1 1 0):2400	(1 0 1 1):57600
		(0 1 1 1):4800	(1 1 0 0):115200
b8~b11	forbidden	Set as 0	
b12		b14 b13 b12	
b13		(0 0 0):FX Programming port protocol	
b14		(0 0 1): RS Protocol-free communication	
		(0 1 0): RS2 Protocol-free communication	
b15	forbidden	(0 1 1): MODBUS protocol (D8401/D8421	
		Set up master-slave station)	

* When the data bit is in 7 bits, parity cannot be selected-there is no test (report 6304 failure);

*FX programming port protocol: data length 7, stop bit 1, parity EVEN is fixed, and the rate can be set;

*MODBUS-RTU protocol: data length, stop bit, parity and speed can be set;

*RS instruction: data length, parity, stop bit and speed can be set;

*RS2 instruction: data length, parity, stop bit and speed can be set;

* choose MODBUS master station protocol when "D8401/D8421 value is H0; Select MODBUS slave protocol when the value of D8401/D8421 is H10. RS485-1/RS485-2 supports the following instructions:

Function	order	Types of supported soft components	
		Bit element	Word element
Bit read command	1 (01) 、2 (02)	X、Y、M、S、T、C、special M	——
Bit write command	5 (05)	Y、M、S、T、C、special M	——
Register read command	3 (03) 、4 (04)	X、Y、M、S、T、C、special M	D、T、C、special D
Register write command	6 (06)	Y、M、S、T、C、special M	D、T、C、special D
Register bulk write	16 (0110)	Y、M、S、T、C、special M	D、T、C、special D

* Using register to read bits, one register will read the state of 16-bit elements;

* Using register to write bits, a register will write the state that will affect 16-bit elements;

The functional elements of RS485-1 RS instruction are as follows

M8401-MS instruction is being sent

M8402-RS instruction is being sent

M8403-RS instruction receiving flag

M8409- communication timeout flag M8161-8-bit processing mode (ON-8 bits, OFF-16 bits)

D8400- selection of communication parameters and protocols

D8402-RS instruction sends data remainder Number of D8423-RS2 instructions received

Setting of time-out for receiving D8409-RS instruction (1=10ms, default 50=500ms)

D8419- Sign of communication in progress

* The maximum data sent and received by RS instruction is 520 (exceeding 6343 6363).

The functional elements of RS485-2 RS instruction are as follows:

M8421-RS2 instruction is being sent M8422-RS2 instruction sending

M8423-RS2 instruction receiving flag

M8429- communication timeout flag

D8420- Selection of communication parameters and protocols

D8422-RS2 instruction sends data remainder Number of D8423-RS2 instructions received

Setting of instruction receiving timeout for D8429-RS2 (1=10ms, default 50=500ms)

D8439- Sign of communication in progress

* The maximum data sent and received by RS2 instruction is 520 (exceeding 6706).