MITSUBISHI Electric Corporation MELSEC-Q (00JCPU) Series

CPU Direct Driver

Compatible OS version



XDesignerPlus Over 4.0.0.0

Over 4.0

CONTENTS

Thank you for using M2I's "Touch Operation Panel(M2I TOP) Series". Please read out this manual and make sure to learn connection method and process of TOP - External device"

Page 2 **1.** System configuration

It explains device for connection, setup of, cable and structural system.

Please choose proper system referring to this point.

2. Selecting TOP model and

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external devices

Select TOP model and external device..

Page 4 **3.** Example of system settings

It explains setup example for communication connection between the device and external terminal.

Select example according to the system you choose in "1. System structure"

Page 5 **4.** Communication settings details

It explains the way of configuring TOP communication.

If external setup is changed, make sure to have same setup of TOP with external device by referring to this chapter.

5. Cable diagram

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Explains cable specifications required for access.

Select proper cable specifications according to the system you chose in "1. System configuration".

6. Support address

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Check available addresses to communicate with external devices 1 / 13 referring to this chapter.



1. System configuration

Communication System Configuration of TOP and MITSUBISHI Electric Corporation's MELSEC-Q 00JCPUSeries is as follows.

Series	CPU	Link I/F	Method	System settings	Cable
MELSEC-Q	Q00JCPU	CPU Port	RS-232C	<u>3.1 설정 예제 13.1</u> Setting Example 1	5.1 Cable diagram 1
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Connection configuration

• 1:1 connection (TOP 1 vs. external device)





2. Selecting TOP model and external devices

Select the external devices to connect to TOP.

	정	
		HMI / PLC Uint
Series Model	XTOP Series XTOP04TVV-UD	Vendor MITSUBISHI Electric Corporation PLC Model MELSEC-Q(00JCPU) Series CPU Direct
		PLC
	Vendor	Model
PLC Vendor Model M2I Corporation CC-LINK(Remote Device Station) MITSUBISHI Electric Corporation MELSEC-A Series ETHERNET OMRON Industrial Automation MELSEC-An A Series Computer Link LS Industrial Systems MELSEC-AnA Series Computer Link MODBUS Organization MELSEC-AnA(A2A/A3A) Series CPU Direct MODBUS Organization MELSEC-AnN (A0J2) Series CPU Direct Rockwell Automation (AB) MELSEC-AnN (A0J2) Series CPU Direct GE Fanuc Automation MELSEC-AnN Series Computer Link VANASONIC Electric Vorks MELSEC-AnN Series CPU Direct VASKAWA Electric Corporation MELSEC-XN Series CPU Direct VOKOGAWA Electric Corporation MELSEC-FX Series CPU Direct VOKOGAWA Electric Industries MELSEC-FX Series Computer Link KDT Systems MELSEC-FX Series CPU Direct RS Automation(SAMSUNG) MELSEC-Q Series CPU Direct MELSEC-Q Series SERIAL(QJ71C24,Format1)		
KOYO Electri VIGOR Electr Comfile Tech Dongbu(DAS ROBOSTAR	onic Industries ic Corporation nology :AROBOT)	MELSEC-Q(00CPU/01CPU) Series CPU Direct MELSEC-Q(00JCPU) Series CPU Direct MELSERVO-J2 Series MELSERVO-J3 Series

Setting details		Contents			
TOP	Series	Select the name of a TOP series that is to be connected to PLC. Before downloading the settings, install the OS version specified in the table below according to			
		Series	Version name		
		XTOP / HTOP	V4.0		
	Name	Select the model name of TOP p	roduct.		
Communicatio n Device	Manufacturer	rer Select the manufacturer of external devices to be connected to TOP. Please select <u>"MITSUBISHI".</u>		OP.	
	PLC	Select the model series of external devices to be connected to TOP. Please select <u>"MELSEC-Q(00CPU) Series CPU Direct"</u> . Please check, in the "1. System configuration", if the relevant external device is available to		DP. ernal device is available to set a	



	system configuration.



3. Example of system settings

Regarding of communication interface settings in TOP and external devices, we suggest as below.

3.1 Example of settings 1

The system is set as below.

Details		ТОР	MELSEC-Q 00J Series	Remark
Serial level (port/cha	annel)	RS-232 (COM2)	RS-232 (CPU port)	Fixed
Serial baud rate	[BPS]	1152	200	User settings
Serial data bit	[Bit]	8		Fixed
Serial stop bit	[Bit]	1		Fixed
Serial parity bit	[Bit]	OD	D	Fixed

(1) XDesignerPlus setup

After setting the below details in [Project > Project Settings], download the detailed settings using TOP tool.



(2) External device settings

Loader port communication interface of MELSEC-Q 00J series doesn't need other setting. Communication speed will be automatically sets depends on TOP's setting speed.



4. Communication settings details

Communication settings are available at XDesignerPlus or TOP main menu. Communication settings must be identical with the external devices.

4.1 XDesignerPlus settings details

Select [Project > Project property] to show the below window.

E Project	■ [Project > Project	ect propert	y > Proje	ect > Settings > TOP N	Name]	
TOP Setting	Set the communication interface of TOP tool.					
XTOP04TW-UD	- From right wind	ow [HMI]	Setun >	Check Use HMI Setun	> Device Manao	er 1
E-PLC Setting	HMI Setup Sencial Bu	ffer Sync	Jetup >	check ose rivit setup		
		nor Sync				
PECT . MELSEC-Q(003C	Use HMI Setup	122		1		
Ethernet (0)	System Setup PLC Set	etup Device	Manager	Interface		
FieldBus (0)			u			
USB Device (0)	+ COM 1			+ COM 2		
- CF Card Setting	- Boud Rate :	115200		- Boud Rate :	115200	
CFCard	- Data Bit :	8		- Data Bit :	8	
	- Stop Bit :	1	•	- Stop Bit :	1	•
-	- Parity Bit :	Odd	87	- Parity Bit :	Odd	
				- Signal Level :	RS-232C	1.72
	- From right wind	ow [HMI S	etup > (Check Use HMI Setup	> PLC Setting]	
	HMI Setup Sepcial Bu	ffer Sync				
	💟 Use HMI Setup					
	System Setup PLC Se	etup Device (PLC1	Manager) MELSEC	Interface C-Q(00JCPU) Series CPU D	irect	
	PLC Station Number :	0	\$			
	Time Out :	1000	\$ msec	2		
	Wait before send :	0	msec	5.		
	External device s	ettings				
	This sets the option	of Commu	nication	Driver in "MELSEC-Q(00JCPU) Series C	PU Direct".
				PLC Comm Info		
	Station Number (PLC	0	;	ŧ		
	BlockOption	Discret	5 S.			
	Module	CPU	12	-0		

Communication Interface Settings

Details	Contents
Signal level	External device – select serial communication method between TOPs. (COM1 supplies RS-232C
	only)
Baud rate	External device – select serial communication speed between TOPs.
Data bit	External device – select serial communication data bit between TOPs.
Stop bit	External device – select serial communication stop bit between TOPs.
Parity bit	External device – select serial communication parity bit check method between TOPs.
Time out [x100 mSec]	Set up TOP's waiting time from external device at [0 - 5000] x 1mSec.
Transmitting Delay Time	
[x10 mSec]	Set up TOP's waiting time between response receiving – next command request transmission from
Receiving Wait Time	external device at [0 – 5000] x 1 mSec.
[x10 mSec]	
PLC address [0~65535]	Address of other device. Select between [0 - 65535].





4.2 TOP main menu setup item

- When a buzzer is on during the power reset, touch 1 spot at the upper LCD to move to "TOP Management Main" display.

- Set up driver interface at TOP according to	below Step1 \rightarrow Step2 .
(Press "TOP COM 2/1 setup" in Step1 to ch	nange setup at Step2 .)



Step 1. [PLC setup] .Setup driver interface.

PLC	setup				
PLC Address : 00 Communication Interface		Communication Interface			
Tim	eout : 1000 [mSec]		Settings		
Dela	ay time of transmission : 0 [mSec]				
TOP	COM 2/1 : RS - 232C , 115200 ,	8 , 1 , ODD			
тÐ	P COM 2/1 setup	on test			
S	tep 1-Reference.				
	Details	Contents			
	PLC address [0~65535]	Address of other device. Select between [0 - 65535].			
	Timeout [x1 mSec]	Set up TOP's waiting time from external device at $[0 - 5000] \times 1m$	nSec.		
	Delay time of transmission Set up TOP's waiting time between response receiving – next command request transmission				
	[x1 mSec] from external device at [0 – 5000] x 1 mSec.				
	TOP COM 2/1	TOP's Interface setup to external device.	OP's Interface setup to external device.		

Step 2. [PLC setup] > [TOP COM2/COM1 setup] - Setup relevant port's serial parameter.

Port Settings	
* Serial communication	COM 1 Port
+ COM-1 Port	Communication Interface
- Baud Rate : 115200 [BPS]	Settings
- Data bit : 8 [BIT]	
- Stop bit : 1 [BIT]	
- Parity Beat : ODD [BIT]	
- Signal level : RS – 232C	
+ COM-2 Port	COM 2 Port
- Baud Rate : 115200 [BPS]	Communication Interface
- Data bit : 8 [BIT]	Settings
- Stop bit : 1 [BIT]	
- Parity Beat : ODD [BIT]	
- Signal level : RS – 232C	
Step 2-Reference.	

Details	Contents
Baud rate	External device – select serial communication speed between TOPs.
Data bit	External device – select serial communication data bit between TOPs.
Stop bit External device – select serial communication stop bit between TOPs.	
Parity bit External device – select serial communication parity bit check method between TOPs.	





4.3 Communication diagnosis

■ TOP - Confirming interface setting condition between external devices

- Move to Menu by clicking the top side of LCD screen as resetting the power of TOP.

- Confirms if Port [COM 2 or COM 1] setting that is willing to use in [Communication Settings] matches with the setting of external devices.

Port Communication Diagnosis

- PLC Setting > TOP [COM 2 or COM 1] click "Communication Diagnosis" button.

- Diagnosis dialog box will pop up on the screen, you can judge by following information that are shown on box no. 3 section.

OK!	Communication setting succeeded
Time Out Error!	Communication setting error
	- Error in the setting situation of Cable and TOP / External device
	(reference : Communication Diagnosis sheet)

■ Communication Diagnosis Sheet

- Please refer to the information below if you have a problem between external devices and communication connection.

Designer Version			O.S Versio	on					
Details	Contents							Confirm	
System configuration	Name of CPU							NG	
	Nam com	ne of confront port that is municating					ОК	NG	
	Syste	em Connection Method	1:1	1	:N	N:1	ОК	NG	
Connection Cable	Name of Cable						ОК	NG	
PLC setup	Setu	p address					ОК	NG	
	Seria	al baud rate				[BPS]	ОК	NG	
	Seria	al data bit				[BIT]	ОК	NG	
	Seria	al Stop bit				[BIT]	ОК	NG	
	Seria	al parity bit				[BIT]	ОК	NG	
	Assigned Address Limit						ОК	NG	
TOP setup	Setu	p port	COM 1			COM 2	ОК	NG	
	Nam	ne of Driver					ОК	NG	
	Con	front Address	Project Property	y Setup			ОК	NG	
			Diagnosing Communication			ОК	NG		
	Seria	al baud rate				[BPS]	ОК	NG	
	Seria	al data bit				[BIT]	ОК	NG	
	Seria	al Stop bit				[BIT]	ОК	NG	
	Seria	al parity bit				[BIT]	ОК	NG	



5. Cable diagram

5.1 Cable diagram 1

■ 1:1 Connection



*Caution1) Pin arrangement is shown from connecting face in cable connection connecter.1

(B) XTOP COM 2 Port (15 pin)

XTOP COM2				PI		_C
pin arangement * caution 1)	Name of Signal	Pin Number	Cable Connection	Pin Number	Name of Signal	pin arangement * caution 1)
	CD			1	RD	
1 8 0 0 9 15 Front View of D-SUB 9 Pin (Male, convex)	RD	2		2	SD	6 4 2
	SD	3		3	SG	loo A
	DTR	4		4		
	SG	5		5	DSR	5 1
	DSR	6		6	DTR	Front View of
	RTS	7				D-SUB 6 Pin
	CTS	8				(Male, convex)
		9				

*Caution1) Pin arrangement is shown from connecting face in cable connection connecter.

(C) XTOP/ATOP COM 1 Port (6 Pin)

XTOP/ATOP COM 1 Port		t	-	PLC			
pin aran <u>gement *</u> caution 1)	신호명	Pin Number	Cable Connection	Pin Number	Name of Signal	pin arangement * caution 1)	
			-				



1*Caution1) Pin arrangement is shown from connecting face in cable connection connecter.



6. Support address

Devices that are usable with TOP is as below.

There might be difference in the range of device (address) by type / series of CPU module TOP series supports the maximum address range that external device series use Please refer each CPU module user manual carefully for devices that you desired to use to prevent not getting out of range.

Device	Bit Address	Word Address	Word Address NOTE	32 BIT	
Input Relay	X0000 - X1FFF (HEX)	X0000 - X1FF0 (HEX)	X***0 *caution1)		
Output Relay	Y0000 - Y1FFF (HEX)	Y0000 - Y1FF0 (HEX)	Y***0 *caution1)	7	
Internal Relay	M0000 - M32767	M0000 - M32752	M0000 + 16*n *caution2)		
Special Relay	SM0000 - SM2047	SM0000 - SM2032	SM0000+16*n *caution2)		
Latch Relay	L0000 - L32767	L0000 - L32752	L0000 + 16*n *caution2)]	
Annunciator	F0000 - F32767	F0000 - F32752	F0000 + 16*n *caution2)]	
Edge Relay	V0000 - V32767	V0000 - V32752	V0000 + 16*n *caution2)]	
Step Relay	S0000 - S8191	S0000 - S8176	S0000 + 16*n *caution2)]	
Link Relay	B0000 - B7FFF (HEX)	B0000 - B7FF0 (HEX)	B***0 *caution1)]	
Special Link Relay	SB000 - SB7FF (HEX)	SB000 - SB7F0 (HEX)	SB***0 *caution1)]	
Timer	TC00000 TC0007]	
(contact)	1500000 - 1523087				
Timer	TC00000 TC22087]	
(coil)	100000 - 1025087				
Aggregate Timer	550000 5532087				
(contact)	3300000 - 3323087			L/H	
Aggregate Timer	500000 5022087			*caution3)	
(coil)	300000 - 3023087				
Counter	CS00000 CS22087				
(contact)	C300000 - C323087				
Counter	CC00000 CC23087				
(coil)					
Timer					
(current value)		1100000 - 11023007			
Aggregate Timer					
(current value)		31100000 - 31123087			
Counter		CN00000 - CN23087			
(current value)		C1400000 - C1423007			
Data Register		D00000 - D25983			
Special Data					
Register		300000 - 30204/			
File Register		☞User Defined Range			

*Caution1) If the bit address is hexadecimal number '0~F', starting bit 0 bit shall be used as word address.

*Caution2) If the bit address is decimal number, it shall be used as word address by every value of '16'.

*Caution3) The address will be saved where the 16BIT data which is subordinate to 32BIT data monitor registered and super ordinate 16BIT data will be saved right after the address that is monitor registered.

Ex) If in 32BIT, hexadecimal data 12345678 is saved to the address number D00100, it shall be saved with 16BIT device address as below.

Details	32BIT	16BIT		
Address	D00100	D00100	D00101	
Input data (Hexadecimal Number)	12345678	5678	1234	