Mitsubishi Q Driver Configuration Manual

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1. Mitsubishi Q Configuration

1.1 Mitsubishi Q PLC

Mitsubishi Q Series PLC are modular type PLC with Ethernet port and other types of connectors depending on the modules.



The MitsuQ driver will connect and read data directly from the PLC using the Ethernet port. The driver is listed in the TCPIP drivers.

1.2 Module Settings

To make sure the PLC is connected properly to your computer and change the settings you need to install the Mitsubishi GX software.



In GX Developer create a new project and select Q type CPU.

Project View Online Diagnostics Tools Help -
Hew Project Hew Project PLC series OK QCPU(Qmode)
Hew Project F5 F5 F6 F7 F7 F7 F7 F8 F8
F5 sF5 F6 sF6 PLC series OK Cancel
PLC Type Program type Label setting Ladder Ladder Ladder SFC MELSAP4L Use Label Use Label + FB Device memory data which is the same as program data's name is created Setup project name Setup project name Drive/Path C:\MELSEC\GPPW Project name Title

Then setup the network parameters to test the connection

Diagnostics	Tools	Window	Help
sfer setup			
	-	-	Diagnostics Tools Window sfer setup

For the PC select "Ethernet board" and set the network to 1 (or another number if your PLC doesn't have the default settings) and choose a Station number different from 0.

Connection	Setup					-		
PC side I/F	D Serial USB	₩ <u>₩</u> <u>NET/10(H)</u> <u>board</u>	NET(II) board	<u>CC-Link</u> board	Ethernet board	PLC board	AF board	SSC net
			PC side I/F	Etherne	t board s	etting		\mathbf{X}_{-}
PLC side I/F	PLC module	MNET/10(H module	Network No. Station No.	1 3			OK Cancel	us
	Computer t	Netw ype QJ71E7 rameter transf	execute the Network No	following se : Network N	tting. Io. of Ethern	e Ethernet boa et unit set in p	arameter.	-
Other station	No specific		Protocol	TCP		ot overlap on t	ne same loop.	hec dir

For the PLC select "Ethernet module" and type the IP address of your PLC.

PLC side I/F	PLC		
		Network communication route Detailed setting of Ethernet	
	Compute Routing		
Other station	No spec		
Network route	 C24	Routing parameter transfer method Automatic response system	
		system image	

Set "Other station" to "Single network" and "Network route" to "Ethernet". You can now test the connection and validate the settings.

Connection	Setup	X
PC side I/F	Serial NET/10(H) NET(II) CC-Link Ethernet PLC AF USB board board board board board board board board	rd net 💽
	Network No. 1 Station No. 3 Protoco	
PLC side I/F	PLC MNET/10(H) MNET(II) CC-Link <u>Ethernet</u> C24 G module module module module module module module	
	Network No 1 Station No 1	
	Computer type QJ71E71 IP address / Host 192.168.200.1	99
	Routing parameter transfer method Automatic transfer method	
Other station	No specification Other station(Single network) Other station(Co-existence network)	Connection channel list PLC direct coupled setting
	Time out (Sec.) 30 Retry times 0	Connection test
Network route		PLC type
	C24 NET/10(H) NET(II) CC-Link Ethernet Multiple PLC setting	
	Network No. 1 Station No. 1	System image
Co-existence network route		Line Connected (Q/A6TEL,C24)
	C24 NET/10(H) NET(II) CC-Link Ethernet	ОК
	Accessing other station Target PLC	
	No Choice made	Close

If the PLC has not been set you should define the different modules now in the software.

X	Qn(H) Parameter										
⊡ <mark>®</mark> (Unset projec ⊕ Program	PLC name PLC system PLC	file PLC RAS Device	e [Program Boot fi	ile SFC	I/O assignment						
⊡ 😴 Device co ⊡ 🗭 Paramete	I/O Assignment(*)										
PLC p	Slot Type	Model name	Points	Start 🔺	Switch setting						
🔊 Netwo	0 PLC PLC	•	-	·	Switch setting						
🔤 🎦 Remo	1 0(*·0)	•	•		N 1 1 1						
	2 1(*-1)	•		·	Detailed setting						
🔤 🖳 Device ini	3 2(*-2)	-									
	4 3(*-3) 5 4(*-4)	• •									
	6 5(×-5)	•									
	7 6(*-6)	• •									
	If the start X and Y are not i	anut, the PLC pesigns th	on automaticallu		-						
	It is not possible to check c		-	on the way							
	· ·	birectly, when there is a	slot of the unsetting	on the way.							
	Standard setting(*)										
	Base model nam	e Power model name	Extemsion cable	Points 📥	-Base mode-						
	Main			_	Auto						
	Increase1			I	C Detail						
	Increase2										
	Increase3			-	8 fixation						
	Increase4			-	12 fixation						
	Increase5			• •							
	(*)Settings should be set as sa using multiple PLC.	me when Diver	sion of multiple PLC	parameter	Read PLC data						
	Acknowledge XY assignment	Multiple PLC settings	Default Cheo	sk End	d Cancel						

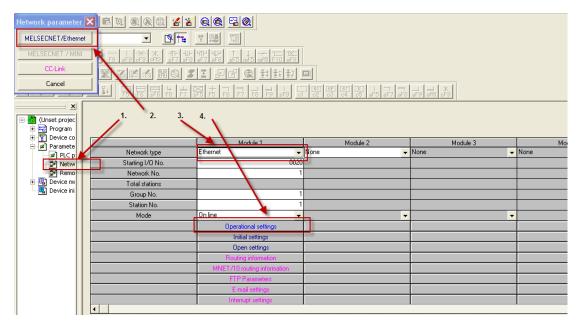
If the module has already been configured you can upload the settings.

Online	line Diagnostics		Window	Help	-			
Transfer setup								
Read from PLC								

Read from PLC		×
Connecting interface Ethernet board PLC Connection Network No. 1 Station No	<> Ethernet module	
Target memory Program memory/Device memory	▼Title	
File selection Device data Program Common Param+Prog Cancel all selection	Device data	Execute
Program MAIN Parameter PLC/Network/Remote password Device memory Device data	09/06/05 18:00:24 217 09/06/05 18	Related functions Transfer setup Keyword setup Remote operation
	>	Clear PLC memory
File register © Whole range © Range specification	ZR 0 ~ 32767	Format PLC memory Arrange PLC memory Create title
Free space volume	Total free space volume	Bytes

B F * B B	Qn(ł	H) Param	eter								X
물 (# error S1) 문	PLC	Ciname PL	.C system PLC	file	PLC RAS Devic	e Prog	jram Bo	ot file	SFC	l	/Oassignment
×	L_1/1	0 Assignme	nt(*)								
⊡ <mark>&</mark> (Unset projec ⊡ ¤ Program		Slot			Model name		Points		Start	-	Switch setting
E Program		D PLC	PLC	-				-			
- Paramete		1 0(0-0)	Input	-			6points	-		-	Detailed setting
PLC p		2 1(0-1) 3 2(0-2)	Output Intelli.	-			6points 32points	-		-	
🔊 Netwi		3 <u>2(0-2)</u> 4 3(0-3)	iriteiii.	÷			zpoints	÷		-	
🔊 🔛 Remo		5 4(0-4)		Ť				Ť		-	
🗄 📳 Device me		6		Ŧ				÷			
🖳 🖳 Device ini		7		-				-		-	
		It is not pos Standard se		orrec	ctly, when there is a	slot of t	he unsetti	ng or	n the wa <u>i</u>	у.	
			Base model nam	e f	Power model name	Extem	sion cable		Points -		Base mode
		Main							5 🔻		⊂ Auto ⊙ Detail
		Increase1							-		. Detail
		Increase2						_	-		8 fixation
		Increase3		+				+	-		
		Increase4		+				+	•		12 fixation
Increase5 Image: Constraint of the set as same when using multiple PLC.										Read PLC data	
	Ack	knowledge >	Y assignment	Mu	Itiple PLC settings	Defa	ult C	heck		End	Cancel

We should now configure the PLC network settings so that WebAccess Can read data. Enter the "Network Parameters"



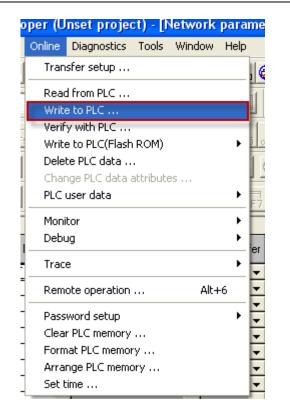
You can change the IP in the operational settings

Ethernet operations		X							
Communication data code Sinary code ASCII code	Initial timing Do not wait for OPEN (Communications impossible at STOP time) Always wait for OPEN (Communication possible at STOP time)								
IP address Input format DEC.	•	Send frame setting • Ethernet(V2.0)							
IP address 192	168 200 199	C IEEE802.3							
✓ Enable Write at RUN time									
End Cancel									

Then go to "Open settings" to set the transaction options. Depending on the software version the pairing option will be named "No Pair" or "Disabled". Please note the port number. The default port should be 5001 which in Hexa becomes 1389 (the port number is in Hexa in the settings page).

	Protocol	Open system	Fixed buffer	Fixed buffer	Pairing opon	Existence confirmation	Local station Port No.	Destination IP address	Dest. Port No.
1	TCP 🔻	Unpassive 💌	Send 🛛 🔻	Procedure exist 💌	No pairs 💌	Confirm 📃 👻	1389		
2	•	•	•	•	-	•			
3	-	•	-	•	-	•			
4	•	•	-	•	-	-			
5	-	•	•	•	•	-			
6	•	•	-	•	-	-			
7	-	•	-	•	-	-			
8	-	•	-		-	-			
9	-	•	-	•	-	-			
10	-	•	-	•	-	•			
11	-	•	-	•	-	•			
12	-	•	-	•	-	•			
13	-	•	-		-	-			
14	-	•	-		-	-			
15	-	•	-		-	-			
16	-	•	-	-	-	-			

Now download the updated settings.



2. WebAccess Configuration

2.1 Port

The MitsuQ protocol uses a TCPIP port. Unlike Serial Ports multiple connections (and therefore multiple WebAccess TCPIP ports) can be opened on the same physical IP port.

2.1.1 Check the port number

For TCPIP ports the port number does not impact the driver. It is used to recognize the port inside WebAccess. You can choose any number bellow 64 but you should make sure that the port number does not correspond to a serial port on your computer (As the port number for serial connections must match the comport number in your computer).

2.1.2 WebAccess Comport Page

Open your WebAccess Configuration and select the SCADA node you want to add the device to. Then select "Add a new Comport"

All the settings in this page must match the settings in all the modules attached to the port. So all the modules attached to the same comport must have the same settings.

	Update C	omport	[Cancel]	Subm	iit	
Interface Name	TCPIP	•				
Comport Number	2					
Description	Mitsubishi Q					
Scan time	1	© MilliSe	cond 💿 S	Second	⊙ Minute	⊙ Hour
TimeOut	1000	MilliSecon	ıd			
Retry count	3					
Auto Recover Time	60	Second				
Backup Port Number	0					
		[Cancel]	Submit	:		

2.1.3 Comport Number

Choose any available comport number

2.1.4 Description

This is an optional field used for user reference.

2.1.5 Scan Time

This is the time in milliseconds to scan the Devices. This must match the ability of the device to respond. **A typical scan rate is 1 per second**.

If the Device cannot respond as fast as the SCAN Time entered, WebAccess will scan at a slower rate.

2.1.6 Timeout

With a 1 second scan rate, a typical Time Out = 200 Milliseconds.

Timeout is the time waited before re-sending a communications packet that did not have a reply.

Timeout specifies how long the software waits for a response to a data request, specifically to wait for a reply from one packet. A recommended value is one-fifth the scan rate, longer if the communication device is slow.

Combined with Retry count, Timeout also determines time to consider a device or port as BAD. Timeout is the time to wait since last communication packet sent without a reply. Time is in milliseconds. Slow or poor quality communications require longer timeout. The faster the communications, the shorter the timeout required. Shorter timeouts result in faster reconnects after communication failures.

2.1.7 Retry Count

A typical Retry count = 3.

Number of times to retry communications if no reply is received from a device. Combined with Timeout, also determines time to consider a device or port as BAD.

This is the number of times after the first attempt has failed that communication should be attempted before indicating a failure. (If Retry count is 3, a total of 4 failed requests have occurred before tags are marked bad). Specifically, this is how many times to send a single packet after the field device fails to respond to the first packet. After the retry count is exceeded, all the tags in the packet are marked with asterisks and the next packet of requests is sent. A reasonable value is 3 to 5 times. After this number of tries, the tags in this packet are marked as "fail to respond" (i.e. asterisks) and are disabled. In reality, increasing the number of retries hides failures on the part of the field device to respond to a request. Essentially, increasing the retries gives the field device more chances to reply.

2.1.8 Auto Recover Time

A typical Auto Recover Time = 60 Seconds.

Auto Recover Time is the time to wait before attempting to re-establish communications with a BAD device or port.

If communications to the PLC is unusually slow due to hardware, communications or network issues, you might consider increasing this value. If communications to the PLC or RTU fails frequently, you may want to decrease this number in order to have WebAccess try to re-establish communications sooner.

If communications to the PLC, RTU or device Fails (i.e. exceeds Timeout) WebAccess will wait the Auto Recover Time before trying to re-establish communications.

2.1.9 Backup Port

The Backup Port has not been tested for Adam 6K

2.2 Device

Then Go to the port page and select "Add a new device". Select the ADAM6K device Type.

	Crea	te New Device [Cancel] Submit
Device Nam	e MitsuModule	
Descriptio	in 🗌	
Unit Numb	er O	
Device Typ	e MitsuQ 💌	
	IP Add	ress 192.168.200.199
Prima	ry Port Nur	nber 5001
	Device Add	ress 1 jif other than Unit Number
	IP Add	ress
Secondary	ry Port Nur	nber
	Device Add	ress
Use UDF	': O	Network No. 1
PCN	0. 255	Destination IO # : 1023
		[Cancel] Submit

2.2.1 Unit Number

The Unit number is not important for TCPIP communication as it is replaced by the IP Address. Just select any available unit number.

2.2.2 Port Number

The port number should match the one set previously so if you entered 1389 in the PLC you should type 5001 here.

2.2.3 Use UDP

As we set a TCP type transaction set "Use UDP" to 0. It is also possible to use an UDP transaction but the settings are different.

2.2.4 Network No.

The network number in WebAccess should match the one in the PLC. The default network number is 1.

2.2.5 PC No.

The PC station number should be set to 255.

2.2.6 Destination IO#

The destination IO address should be set to 1023 if it was not changed in the PLC.

2.3 Block

There are no Blocks defined for MitsuQ driver but users can define their own blocks if necessary.

2.4 Tag

If you do not use all the channels in the device and you want to reduce your tag count you can add the parameters one by one using "Add tag".

	Create New Tag [Cancel] Submit
Parameter	X Point (discrete)
Alarm	No Alarm
Tag Name	DIO
Description	Inout Relay
Scan Type	Constant Scan 💌
Address	X0000
Conversion Code	Unsigned Integer
Start bit	0
Length	1

2.4.1 Parameter

The parameter gives the type of tag you want to import. Try to select a parameter as close to the tag type as possible because it will fill the other option with the default parameters.

In MitsuQ all the available types have been put to the parameter list so by choosing the correct one all the other fields are set automatically. And the address template is given

2.4.2 Address

The address is composed of letters giving the data type followed by the position in the memory containing that data type.

2.4.3 Scaling Type

If the data sent by the module is not in a human readable unit you can use the scaling to change the unit and display a more convenient unit in the node. In most cases a linear scaling type will be sufficient.

2.5 Supported Block List

There are no predefined blocks in the MitsuQ driver.

2.6 Main Parameter List

Parameter	Description	Address
CN	Counter Current	CN0000
D	Data Register	D0000
R	File Register	R0000
SD	Special Register	SD0000
SN	Retentive Timer Current	SN0000
SW	Special Link Register	SW0000
TN	Timer Current	TN0000
W	Link Register	W0000
Z	Index Register	Z0000
ZR	File Register	ZR0000
В	Link Relay	B0000
СС	Counter Coil	CC0000
CS	Counter Contact	CS0000
DX	Direct Input	DX0000
DY	Direct Output	DY0000

Parameter	Description	Address
F	Annunciator	F0000
L	Latch Relay	L0000
М	Internal Relay	M0000
S	Step Relay	S0000
SB	Special Link Relay	SB0000
SC	Retentive Timer Coil	SC0000
SM	Special Relay	SM0000
SS	Retentive Timer Contact	SS0000
ТС	Timer Coil	TC0000
TS	Timer Contact	TS0000
V	Edge Relay	V0000
x	Input Relay	X0000
Y	Output Relay	Y0000
TEXT	Text in D Memory	D0000