

How to Set CC-LINK with OACIS-1XC_2XC

Version 01.03



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A. Overall Ethernet Connection



- During the initialization process, OACIS IP address shows on FND of the front panel for 2 seconds.
- Overall wiring can be different depending on the purpose of use. Generally, we recommend the above connection.

B. PLC System Requirement

- Hardware : Mitsubishi Q series CPU, CC-Link Module, #QJ61BT11N
- Software : GX Works2 or higher

C. PLC System Configuration Example

- CPU : Q02U
- Intelligent Module 1 : QJ71E71-100
- Intelligent Module 2 : QJ61BT11N
- GX Work2



D. PLC Wiring



E. PLC Parameter Setting

No.	Slot	Туре		Model Name	Points		Start XY	•	Switch Setting
0	PLC	PLC	-			-			
1	0(0-0)	Intelligent	*		32Points	-		- 1	Detailed Setting
2	1(0-1)	Intelligent	-		32Points	•		- 1	Select DLC ture
3	2(0-2)		-			-		- 1	Select PLC type
4	3(0-3)	-	•			•		- 1	New Module
5	4(0-4)	-	-			-		- 1	
6						-			
7 Assig Leavi	ning the I/O a	address is not necessary as ti g blank will not cause an error	the CPU does it a	sutomatically.		•		Ŧ	
7 Assig Leavi Base	ning the I/O a ing this setting Setting(*1)	address is not necessary as t g blank will not cause an error	the CPU does it a	sutomatically.		•		-	-Base Mode
7 Assig Leavi Base	ning the I/O a ing this setting Setting(*1)	address is not necessary as t g blank will not cause an error Base Model Name	the CPU does it a	automatically. Power Model Name	Extension Cab	•	Slots		Base Mode
7 Assig Leavi Base	ning the I/O a ing this setting Setting(*1) Main	ddress is not necessary as ti g blank will not cause an error Base Model Name	the CPU does it a r to occur.	automatically. Power Model Name	Extension Cab	•	Slots 5		Base Mode
7 Assig Leavi Base	ning the I/O a ing this setting Setting(*1)	ddress is not necessary as ti j blank will not cause an error Base Model Name	the CPU does it a	automatically. Power Model Name	Extension Cab	•	Slots 5	• •	Base Mode C Auto C Detail
7 Assig Leavi Base N Ext	ning the I/O a ing this setting Setting(*1)	iddress is not necessary as ti j blank will not cause an error Base Model Name	r to occur.	outomatically. Power Model Name	Extension Cab	▼ le	Slots 5	• •	Base Mode
7 Assig Leavi Base M Ext Ext Ext	ning the I/O a ing this setting Setting(*1) - Main . .Base1 . .Base2 . .Base3 . .Base4 .	ddress is not necessary as ti g blank will not cause an error Base Model Name	the CPU does it a	automatically. Power Model Name	Extension Cab	▼	Slots 5	× × ×	Base Mode Âuto Detail 8 Slot Default



Navigation 🕈 🗙	😫 Network Parameter - CC-Li 🗵 🔒 [PRG]R Write Monitor Stopping 👔	Device/Buffer Memory Batch Mo
Project 📑 🔁 🔁 🖉	Number of Modules 1 Boards Blank : No S	etting 🔲 Set the station informati	ion in the CC-Link configuration window
🕀 🚱 Parameter		1	2
PLC Parameter	Start I/O No.		0020
Network Parameter	Operation Setting	Operation Setting	
Ethernet / CC IE / MELSECNET	Туре	Master Station	•
CC-Link	Master Station Data Link Type	PLC Parameter Auto Start	•
Remote Password	Mode	Remote Net(Ver.2 Mode)	•
- 🚳 Intelligent Function Module	Total Module Connected		1
Global Device Comment	Remote input(RX)		X100
🗄 🔚 Program Setting	Remote output(RY)		Y100
E-69 POU	Remote register(RWr)		D 100
🖮 🛅 Program	Remote register(RWw)		D300
- OACISCCL	Ver.2 Remote input(RX)		
Local Device Comment	Ver.2 Remote output(RY)		
🗄 🧑 Device Memory	Ver.2 Remote register(RWr)		
👼 Device Initial Value	Ver.2 Remote register(RWw)		
	Special relay(SB)		
	Special register(SW)		
	Retry Count		3
	Automatic Reconnection Station Count		1
	Standby Master Station No.		
	PLC Down Select	Stop	•
	Scan Mode Setting	Asynchronous	•
	Delay Time Setting		0
	Station Information Setting	Station Information	
	Remote Device Station Initial Setting	Initial Setting	
	Interrupt Settings	Interrupt Settings	

- Type : Master Station
- Mode : Romote Net (Ver.2 Mode) should be selected.
- Total Module Connected : The number of current connected modules. If CC-Link is connected to only OACIS, it is supposed to be 1.

CC-Link Station Information Module 1			С	C Link Station	-				x	
			Expanded Cyclic	Number of	Remote Station	Reserve/Invalid	Intelligent Buffer Select(W		t(Word)	
	Station No.	Station Type	Setting	Occupied Stations	Points	Station Select	Send	Receive	Automatic	
	1/1	Ver.2 Remote Device Station	▼ Octuple	Occupied Stations 4 💌	896Points 🗸	No Setting 🔹				-

- OACIS needs 244 bytes of inputs and outputs for fieldbus communications with PLC respectively.
- In order to use 244 bytes, users should select Station Type(Ver.2), Expanded cyclic Setting(Octuple), Number of Occupied Stations(4) and Remote Station Points(896Points).

CC-Link Version 2

By implementing the attribute attribute Network Settings (#4) in the CC-Link Host Object (F7h) it is possible to customize the implementation for CC-Link version 2 and use larger data sizes through extension cycles. In such case, the following sizes are possible:

Occupied	1 Extension Cycle		2 Extension	n Cycles	4 Extension	n Cycles	8 Extension	Cycles	
Stations	Points	Total	Points	Total	Points	Total	Points	Total	
1	32 bits	12 bytes	32 bits	20 bytes	64 bits	40 bytes	128 bits	80 bytes	
	4 words		8 words		16 words		32 words		
2	64 bits	24 bytes	96 bits	44 bytes	192 bits	88 bytes	384 bits	176 bytes	
	8 words		16 words		32 words		64 words		
3	96 bits	36 bytes	160 bits	68 bytes	320 bits	136 bytes	640 bits	272 bytes	
	12 words		24 words		48 words		96 words		
4	128 bits	48 bytes	224 bits	92 bytes	448 bits	184 bytes	896 bits	368 bytes	
	16 words		32 words		64 words		128 words		

• Then, CC-Link can transfer and receive 896 bits and 128 words(256 bytes) with OACIS.



• But OACIS can use only system area of bit memory and word memory.

Remote input(RX)	X100
Remote output(RY)	Y100
Remote register(RWr)	D 100
Remote register(RWw)	D300

- RX: Bit memory 896 points from X100 are available.
- RY: Bit memory 896 points from Y100 are available.
- RWr: Read memory 128 words from D100 are available.
- RWw: Write memory 128 words from D300 are available.
- X100, Y100, D100 and D300 addresses can be modified but be careful for their domains not to overlap with each other.

Station No. setting	Set the module's station No. (Default setting: 0)
switch	<setting range=""></setting>
STATION NO.	Master station : 0
X10 3€	Local station : 1 to 64
-25°	Standby master station : 1 to 64
225	The "ERR." LED will turn ON if a value other than 0 to 64 is set.
A	

Transmission rate/	Set the module's transmission rate and operation state. (Default setting:							
mode setting switch	0)							
	No.	Transmission rate setting	Mode					
MODE	0	Transmission rate 156kbps						
1987E	1	Transmission rate 625kbps						
	2	Transmission rate 2.5Mbps	On-line					
	3	Transmission rate 5Mbps						
	4	Transmission rate 10Mbps						
	5	Transmission rate 156kbps	Line test					
	6	Transmission rate 625kbps	When station NO. setting switch					
	7	Transmission rate 2.5Mbps	is 0: Line test 1					
	8	Transmission rate 5Mbps	When station NO. setting switch is					
	9	Transmission rate 10Mbps	1 to 64: Line test 2					
	Α	Transmission rate 156kbps						
	В	Transmission rate 625kbps						
	С	Transmission rate 2.5Mbps	Hardware test					
	D	Transmission rate 5Mbps						
	E	Transmission rate 10Mbps						
	F	Setting is inhibited.						

- PLC should be the master station.
- Transmission rate : 2 (2.5Mbps, default) If PLC wants to change the rate, baud rate should also be updated equally with it in fieldbus module config of OACIScom User Config.



F. PLC Program



(Y478

- To get started, the above rung should be added on your main routine
- These addresses can be changed according to RX and RY address.
- X478 and Y478 are from the below setting.
- If starting address, X100 is converted to decimal, it is 256.

0x478 = Starting address (0x100 / 256) + 896 points - 1 - 7 = 1144 (0x478)

Remote input(RX)	X100
Remote output(RY)	Y100

		Expanded Cyclic		Number of		Remote Station		
Station No.	Station Type		Setting		Occupied Stations		Points	
1/1	Ver.2 Remote Device Station	•	Octuple	•	Occupied Stations 4	•	896Points	-



G. Application I

- OACIS-1XC 제어기 1대를 사용한다면 아래와 같이 사용할 수 있습니다.
 - -. Total Module Connected : 1
 - -. Remote Input(RX) : X100
 - -. Remote Output(RY) : Y100
 - -. Remote Register(RWr) : D100
 - -. Remote Register(RWw) : D300 (larger than D228 = D100 + D128 x 1)

Retwork Parameter - CC-Li X M [PRG]R Write Monitor Stopping							
Number of Modules 1 💌 Boards Blank : No S	Setting 🔲 Set the station infor	mation in the					
	1						
Start I/O No.		0020					
Operation Setting	Operation Setting						
Туре	Master Station	•					
Master Station Data Link Type	PLC Parameter Auto Start	•					
Mode	Remote Net(Ver. 2 Mode)	-					
Total Module Connected		1					
Remote input(RX)		X100					
Remote output(RY)		Y100					
Remote register(RWr)		D 100					
Remote register(RWw)		D300					
Ver.2 Remote input(RX)							

• To get started, the below rungs should be added on your main routine



MISC



Memory Mapping

			Write (oacis>	PLC)	
Туре	Length (items)	Length (bytes)	Byte Index	Bit Index	OACIS	CC-LINK
DO	48	6	0	0	Home OK	D100.0
				1	Program Home OK	D100.1
				2	Ready	D100.2
				3	Error	D100.3
				4	Program End	D100.4
				5	E-Stop	D100.5
				6	Heartbeat	D100.6
				7	Reserved	
			1	0	Program Set Out 1	D100.8
				1	Program Set Out 2	D100.9
				2	Program Set Out 4	D100.A
				3	Program Set Out 8	D100.B
				4	Program Set Out 16	D100.C
				5	Program Set Out 32	D100.D
				6	Program Set Out 64	D100.E
				7	Reserved	
			2	0	Programmable DO 1	D101.0
				1	Programmable DO 2	D101.1
				2	Programmable DO 3	D101.2
				3	Programmable DO 4	D101.3
				4	Programmable DO 5	D101.4
				5	Programmable DO 6	D101.5
				6	Programmable DO 7	D101.6
				7	Programmable DO 8	D101.7
			3	0	Programmable DO 9	D101.8
				1	Programmable DO 10	D101.9
				2	Programmable DO 11	D101.A
				3	Programmable DO 12	D101.B
				4	Programmable DO 13	D101.C
				5	Programmable DO 14	D101.D
				6	Reserved	
				7	Reserved	
			4	0	Status Binary 1	D102.0
			-	1	Status Binary 2	D102.1
				2	Status Binary 4	D102.2
				3	Status Binary 8	D102.3
				4	Status Binary 16	D102.4
				5	Reserved	2.02.4
				6	Reserved	
				7	Reserved	
			5	0~7	Reserved	
Real	45	180	6~9	v - 1	Global Variable 1	D103~D104
i vedi	40	100	10~12		Global Variable 2	D105~D104
			10-10			5105-5100
			182~185		Global Variable 45	D191~D192
Serial	1	58	186~243		Serial Number (ASCii)	D193~D221

-



			Read (PLC> 0/	ACIS)		
Туре	Length Length (items) (bytes)		Byte Index	Bit Index	OACIS	CC-LINK	
DI	48	6	0	0	Program Start	D300.0	
				1	Program Stop	D300.1	
				2	Return Home	D300.2	
				3	Reset	D300.3	
				4	Program Set Strobe	D300.4	
				5	Reserved		
				6	Reserved		
				7	Reserved		
			1	0	Program Set In 1	D300.8	
				1	Program Set In 2	D300.9	
				2	Program Set In 4	D300.A	
				3	Program Set In 8	D300.B	
				4	Program Set In 16	D300.C	
				5	Program Set In 32	D300.D	
				6	Program Set In 64	D300.E	
				7	Reserved		
			2	0	Programmable DI 1	D301.0	
				1	Programmable DI 2	D301.1	
				2	Programmable DI 3	D301.2	
				3	Programmable DI 4	D301.3	
				4	Programmable DI 5	D301.4	
				5	Programmable DI 6	D301.5	
				6	Programmable DI 7	D301.6	
				7	Programmable DI 8	D301.7	
			3	0	Programmable DI 9	D301.8	
				1	Programmable DI 10	D301.9	
				2	Programmable DI 11	D301.A	
				3	Programmable DI 12	D301.B	
				4	Programmable DI 13	D301.C	
				5	Programmable DI 14	D301.D	
				6	Reserved		
				7	Reserved		
			4	0	Reserved		
				1	Reserved		
				2	Reserved		
				3	Reserved		
				4	Reserved		
				5	Reserved		
				6	Reserved		
				7	Reserved		
			5	0~7	Reserved		
Real	45	180	6~9		Global Variable 1	D303~D304	
			10~13		Global Variable 2	D305~D306	
			182~185		Global Variable 45	D391~D392	
Serial	1	58	186~243		Serial Number (ASCii)	D393~D421	





H. Application II

- If you use four OACIS-1XC controllers in succession, you need to modify or add the following.
 - -. Total Module Connected : 4
 - -. Remote Input(RX) : X100
 - -. Remote Output(RY) : Y100
 - -. Remote Register(RWr) : D100
 - -. Remote Register(RWw) : D600 (larger than D612 = D100 + D128 x 4)

Number of Modules	1 💌 Boards Blank : No	Setting 🔲 Set the station infor	mation in the		
		1			
Sta	rt I/O No.		0020		
Opera	ation Setting	Operation Setting			
	Туре	Master Station 🔹			
Master Stat	ion Data Link Type	PLC Parameter Auto Start 👻			
	Mode	Remote Net(Ver.2 Mode) 🗸			
Total Mo	dule Connected		4		
Remo	te input(RX)		X100		
Remot	e output(RY)		Y100		
Remote	register(RWr)		D100		
Remote	register(RWw)		D700		
Ver.2 Re	mote input(RX)				

• To get started, the below rungs should be added on your main routine

X478	(Y478
X7F8	(Y7F8
XB78	(YB78
XEF8	(\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
	(12F0



• Memory mapping

Write (OACIS> PLC)									
Туре	Length (items)	Length (bytes)	Byte Index	Bit Index	OACIS	CC-LINK (1국)	CC-LINK (5국)	CC-LINK (9국)	CC-LINK (13국)
DO	48	6	0	0	Home OK	D100.0	D228.0	D356.0	D484.0
				1	Program Home OK	D100.1	D228.1	D356.1	D484.1
				2	Ready	D100.2	D228.2	D356.2	D484.2
				3	Error	D100.3	D228.3	D356.3	D484.3
				4	Program End	D100.4	D228.4	D356.4	D484.4
				5	E-Stop	D100.5	D228.5	D356.5	D484.5
				6	Heartbeat	D100.6	D228.6	D356.6	D484.6
				7	Reserved				
			1	0	Program Set Out 1	D100.8	D228.8	D356.8	D484.8
				1	Program Set Out 2	D100.9	D228.9	D356.9	D484.9
				2	Program Set Out 4	D100.A	D228.A	D356.A	D484.A
				3	Program Set Out 8	D100.B	D228.B	D356.B	D484.B
				4	Program Set Out 16	D100.C	D228.C	D356.C	D484.C
				5	Program Set Out 32	D100.D	D228.D	D356.D	D484.D
				6	Program Set Out 64	D100.E	D228.E	D356.E	D484.E
				7	Reserved				
			2	0	Programmable DO 1	D101.0	D229.0	D357.0	D485.0
				1	Programmable DO 2	D101.1	D229.1	D357.1	D485.1
				2	Programmable DO 3	D101.2	D229.2	D357.2	D485.2
				3	Programmable DO 4	D101.3	D229.3	D357.3	D485.3
				4	Programmable DO 5	D101.4	D229.4	D357.4	D485.4
				5	Programmable DO 6	D101.5	D229.5	D357.5	D485.5
				6	Programmable DO 7	D101.6	D229.6	D357.6	D485.6
				7	Programmable DO 8	D101.7	D229.7	D357.7	D485.7
			3	0	Programmable DO 9	D101.8	D229.8	D357.8	D485.8
				1	Programmable DO 10	D101.9	D229.9	D357.9	D485.9
				2	Programmable DO 11	D101.A	D229.A	D357.A	D485.A
				3	Programmable DO 12	D101.B	D229.B	D357.B	D485.B
				4	Programmable DO 13	D101.C	D229.C	D357.C	D485.C
				5	Programmable DO 14	D101.D	D229.D	D357.D	D485.D
				6	Reserved				
				7	Reserved				
			4	0	Status Binary 1	D102.0	D230.0	D358.0	D486.0
				1	Status Binary 2	D102.1	D230.1	D358.1	D486.1
				2	Status Binary 4	D102.2	D230.2	D358.2	D486.2
				3	Status Binary 8	D102.3	D230.3	D358.3	D486.3
				4	Status Binary 16	D102.4	D230.4	D358.4	D486.4
				5	Reserved				
				6	Reserved				
				7	Reserved				
			5	0~7	Reserved				
Real	45	180	6~9		Global Variable 1	D103~D104	D231~D232	D359~D360	D487~D488
			10~13		Global Variable 2	D105~D106	D233~D234	D361~D362	D489~D490
			182~185		Global Variable 45	D191~D192	D319~D320	D447~D448	D575~D576
Serial	1	58	186~243		Serial Number (ASCii)	D193~D221	D321~D349	D449~D477	D577~D605





Read (PLC> OACIS)									
Туре	Length (items)	Length (bytes)	Byte Index	Bit Index	OACIS	CC-LINK (1국)	CC-LINK (5국)	CC-LINK (9국)	CC-LINK (13국)
DI	48	6	0	0	Program Start	D700.0	D828.0	D956.0	D1084.0
				1	Program Stop	D700.1	D828.1	D956.1	D1084.1
				2	Return Home	D700.2	D828.2	D956.2	D1084.2
				3	Reset	D700.3	D828.3	D956.3	D1084.3
				4	Program Set Strobe	D700.4	D828.4	D956.4	D1084.4
				5	Reserved	D700.5	D828.5	D956.5	D1084.5
				6	Reserved	D700.6	D828.6	D956.6	D1084.6
				7	Reserved				
			1	0	Program Set In 1	D700.8	D828.8	D956.8	D1084.8
				1	Program Set In 2	D700.9	D828.9	D956.9	D1084.9
				2	Program Set In 4	D700.A	D828.A	D956.A	D1084.A
				3	Program Set In 8	D700.B	D828.B	D956.B	D1084.B
				4	Program Set In 16	D700.C	D828.C	D956.C	D1084.C
				5	Program Set In 32	D700.D	D828.D	D956.D	D1084.D
				6	Program Set In 64	D700.E	D828.E	D956.E	D1084.E
				7	Reserved				
			2	0	Programmable DI 1	D701.0	D829.0	D957.0	D1085.0
				1	Programmable DI 2	D701.1	D829.1	D957.1	D1085.1
				2	Programmable DI 3	D701.2	D829.2	D957.2	D1085.2
				3	Programmable DI 4	D701.3	D829.3	D957.3	D1085.3
				4	Programmable DI 5	D701.4	D829.4	D957.4	D1085.4
				5	Programmable DI 6	D701.5	D829.5	D957.5	D1085.5
				6	Programmable DI 7	D701.6	D829.6	D957.6	D1085.6
				7	Programmable DI 8	D701.7	D829.7	D957.7	D1085.7
			3	0	Programmable DI 9	D701.8	D829.8	D957.8	D1085.8
				1	Programmable DI 10	D701.9	D829.9	D957.9	D1085.9
				2	Programmable DI 11	D701.A	D829.A	D957.A	D1085.A
				3	Programmable DI 12	D701.B	D829.B	D957.B	D1085.B
				4	Programmable DI 13	D701.C	D829.C	D957.C	D1085.C
				5	Programmable DI 14	D701.D	D829.D	D957.D	D1085.D
				6	Reserved				
				7	Reserved				
			4	0	Reserved	D702.0	D830.0	D958.0	D1086.0
				1	Reserved	D702.1	D830.1	D958.1	D1086.1
				2	Reserved	D702.2	D830.2	D958.2	D1086.2
				3	Reserved	D702.3	D830.3	D958.3	D1086.3
				4	Reserved	D702.4	D830.4	D958.4	D1086.4
				5	Reserved				
				6	Reserved				
				7	Reserved				
			5	0~7	Reserved				
Real	45	180	6~9		Global Variable 1	D703~D704	D831~D832	D959~D960	D1087~D1088
			10~13		Global Variable 2	D705~D706	D833~D834	D961~D962	D1089~D1090
			182~185		Global Variable 45	D791~D792	D919~D920	D1047~D1048	D1175~D1176
Serial	1	58	186~243		Serial Number (ASCii)	D793~D821	D921~D949	D1049~D1077	D1177~D1205



APPENDIX #1: ANY BUS DATA MAP

: PLC communicates on the bus with OACIS via Industrial Network. Max. process data is 244 bytes between OACIS and PLC.

A. DIO Type

 Total length of Digital Outputs and Digital Inputs is 6 bytes respectively. The byte index ranges from 0 to 5. Each item size is 1 bit.

B. Real Type

- Total length of Real is 180 bytes respectively. The byte index ranges from 6 to 185. Each item size is 4 bytes.
- Real in PLC is the counterpart of global variables in OACIS.
- Caution: The type size of OACIS GV and PLC Real is different. The size of OACIS GV is 8 bytes but the one of PLC Real is 4 bytes. When OACIS sends or receives GV data with PLC, round-off error can occur due to the difference in size.

C. Serial Type

- Total length of Serial is 58 bytes respectively. The byte index ranges from 186 to 243.
- It is normally used for Serial Number.
- When OACIS writes Serial numbers to PLC, CR(0x0D) should be added in the last byte of serial bytes. On the contrary, if it reads from PLC, LF(0x0A) should be added.
- If you want to send "ABCD" as a serial number to OACIS, you need to update the tags as below.
 Byte[186] = A / Byte[187] = B / Byte[188] = C / Byte[189] = D / Byte[190] = 0x0A

MISC



REVISION

v1.00: Engineering Released

v1.01:

-. Reference Image Added in I.E

-. Images Updated in I.F

v1.02:

-. Memory mapping Updated in H

v1.03:

-. Setting Image & calculation Updated in G, H

