MISUMI EXRS-C1 : SINGLE-AXIS ROBOT CONTROLLER

Supported version TOP Design Studio

V1.0 or higher



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We want to thank our customers who use the Touch Operation Panel.

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Describes the cable specifications required for connection.

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Refer to this section to check the addresses which can communicate with an external device.



1. System configuration

The system configuration of TOP and "MISUMI EXRS C1" is as follows:

Series	Link I/F	Communication method	Communication setting	Cable
MISUMI :EXRS-C1	-	RS-232C	3. TOP communication setting	5.1. Cable table 1

■ Connection configuration

- 1:1 (one TOP and one external device) connection

24	N -10			
N	II 48	1814	1 3	1
- 18 -		1218	118	
- 9	IL I	1115	1 2	R
	161	1112	110	臣



2. External device selection

■ Select a TOP model and a port, and then select an external device.

PLC select [COM2]				
			Capuela .	
Pilter: [Alij	×	:	Mod	el 🔾 Vendor
Vendor	Model			
SANGJI Precision Co., Ltd.	^ 🔗 EXRS	-C1		
DEVA				
OPTICON				
TOHNICHI				
Giddings & Lewis Motion Control				
DELTA TAU Data Systems				
KEYENCE Corporation				
Digital Electronics Corporation				
HONEYWELL				
MISUMI				
PARKER HANNIFIN Corporation				
TOSHIBA				
ATLAS COPCO				
	~			
lect Device		Back	Next	X Cancel
elect Device PLC Setting[EXRS-C1] Alias Name : PLC1		Back	Next	X Cancel
elect Device PLC Setting[EXRS-C1] Alias Name : PLC1 Interface : Computer	Link V	Back	Next	X Cancel
PLC Setting[EXRS-C1] Alias Name : PLC1 Interface : Computer Protocol : EXRS-C1		Back	Next	omm Manual
elect Device PLC Setting[EXRS-C1] Alias Name : PLC1 Interface : Computer Protocol : EXRS-C1 String Save Mode : First LH HL	Link V Change	Back	Next	X Cancel
PLC Setting[EXRS-C1] Alias Name : PLC1 Interface : Computer Protocol : EXRS-C1 String Save Mode : First LH HL Use Redundancy	Link V Change	Back	Next	X Cancel
PLC Setting[EXRS-C1] Alias Name : PLC1 Interface : Computer Protocol : EXRS-C1 String Save Mode : First LH HL Use Redundancy Operate Condition : AND Change Condition : TimeOut	Link v Change	Back Back	Next	omm Manual
elect Device PLC Setting[EXRS-C1] Alias Name : [PLC1 Interface : Computer Protocol : EXRS-C1 String Save Mode : First LH HL USE Redundancy Operate Condition : AND Change Condition : TimeOut Condition	Link v Change	Back	Next	omm Manual
elect Device PLC Setting[EXRS-C1] Alias Name : PLC1 Interface : Computer Protocol : EXRS-C1 String Save Mode : First LH HL Use Redundancy Operate Condition : AND Change Condition : TimeOut Condition Primary Option	Link v Change	Back	C	omm Manual
elect Device PLC Setting[EXRS-C1] Alias Name : PLC1 Interface : Computer Protocol : EVRS-C1 String Save Mode : First LH HL Use Redundancy Operate Condition : AND Change Condition : TimeOut Condition Primary Option Timeout 300	Link v Change	Ond)	Next	omm Manual
elect Device PLC Setting[EXRS-C1] Alias Name : PLC1 Interface : Computer Protocol : EVRS-C1 String Save Mode : First LH HL Use Redundancy Operate Condition : AND Change Condition : TimeOut Condition Primary Option Timeout 300 Send Wait 0	Link V Change 5 Change	Back	Next	omm Manual
elect Device PLC Setting[EXRS-C1] Alias Name : PLC1 Interface : Computer Protocol : EXRS-C1 String Save Mode : First LH HL Use Redundancy Operate Condition : AND Change Condition : TimeOut Condition Primary Option Timeout 300 Send Wait 0 Retry 5	Link V Change 5 0 (Sec msec msec	ond)	C	omm Manual
elect Device PLC Setting[EXRS-C1] Alias Name : [PLC1 Interface : Computer Protocol : EXRS-C1 String Save Mode : First LH HL USE Redundancy Operate Condition : AND Change Condition : TimeOut Change Condition : TimeOut Change Condition Primary Option Timeout 300 Send Wait 0 Retry 5 AXIS Total NUMBER 1	Link V Change 5 (Sec msec 5 msec	.cond)	Next	omm Manual
elect Device PLC Setting[EXRS-C1] Alias Name : PLC1 Interface : Computer Protocol : EXRS-C1 String Save Mode : First LH HL Use Redundancy Operate Condition : INTmeOut Change Condition : INTmeOut Condition Primary Option Timeout 300 Send Wait 0 Retry 5 AXIS Total NUMBER 1	Link v Change 5 ¢ (Sec msec 0 msec	. Back	Next	omm Manual
elect Device PLC Setting[EXRS-C1] Alias Name : PLC1 Interface : Computer Protocol : EXRS-C1 String Save Mode : First LH HL Use Redundancy Operate Condition : AND Change Condition : TimeOut Change Condition : TimeOut Condition Primary Option Timeout 300 Send Wait 0 Retry 5 AXIS Total NUMBER 1 Node NO 1	Link V Change S Change Meec msec S msec S msec	Eack Back	C	omm Manual
elect Device PLC Setting[EXRS-C1] Alias Name : PLC1 Interface : Computer Protocol : EVRS-C1 String Save Mode : First LH HL USE Redundancy Derate Condition : AND Change Condition : TimeOut Change Condition : TimeOut Primary Option Timeout 300 Send Wait 0 Retry 5 AXLS Total NUMBER 1 AXLS Total NUMBER 1 Node NO 1	Link V Change 5 Change	ond)	C	omm Manual
elect Device PLC Setting[EXRS-C1] Alias Name : PLC1 Interface : Computer Protocol : EVRS-C1 String Save Mode : First LH HL Use Redundancy Operate Condition : AND Change Condition : TimeOut Change Condition : TimeOut Primary Option Timeout 300 Send Wait 0 Retry 5 AXIS Total NUMBER 1 AXIS Total NUMBER Node NO 1	Link V Change S Change S (Sec msec msec S msec V I	• Back	C	omm Manual

Sett	ings	Contents			
ТОР	Model	Check the TOP display and proc	Check the TOP display and process to select the touch model.		
External device	Vendor	Select the vendor of the externa	al device to be connected to TOP	2	
		Select "MISUMI".			
	PLC	Select an external device to con	nect to TOP.		
		Model	Interface	Protocol	
		Misumi Exrs C1 Computer Link EXRS-C1			
		Please check the system configuration in Chapter 1 to see if the external de connect is a model whose system can be configured.			



3. TOP communication setting

The communication can be set in TOP Design Studio or TOP main menu. The communication should be set in the same way as that of the external device.

3.1 Communication setting in TOP Design Studio

(1) Communication interface setting

■ [Project > Project Property > TOP Setting] → [Project Option > "Use HMI Setup" Check > Edit > Serial]

- Set the TOP communication interface in TOP Design Studio.



Items	ТОР	External device	Remarks
Signal Level (port)	RS-232C	RS-232C	Fixed
Baud Rate	3840	00	Fixed
Data Bit	8		Fixed
Stop Bit	1		Fixed
Parity Bit	Od	d	Fixed

* The above settings are examples recommended by the company.

Items	Description
Signal Level	Select the serial communication method between the TOP and an external device.
Baud Rate	Select the serial communication speed between the TOP and an external device.
Data Bit	Select the serial communication data bit between the TOP and an external device.
Stop Bit	Select the serial communication stop bit between the TOP and an external device.
Parity Bit	Select the serial communication parity bit check method between the TOP and an external device.



(2) Communication option setting

- [Project > Project Property > Device Setting > COM > "Misumi Exrs C1"]
 - Set the options of the Computer Link communication driver in TOP Design Studio.

Project Option		×
Change HMI[H] Add PLC [A] The Change PLC[C] X Delete PLC[D]		
PLC Setting SYS: TOPXISIONX Optim Madde Setting Fieldbus (0) Fieldbus (0) Fieldbus (0) COMI (0) COMI (0) Fieldbus (0)	Co	mm Manual
	Apply	Close

Items	Settings	Remarks
Interface	Configure the communication interface between the TOP and an external device.	Refer to "2. External
Protocol	Configure the communication protocol between the TOP and an external device.	device selection".
TimeOut (ms)	Set the time for the TOP to wait for a response from an external device.	
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external device	
	and sending the next command request.	
ASIS Total NUMBER	Configure the total number of axes.	
NODE NO	Configure the Node ID number.	
	Ex) P <u>01:</u> 001; the red text in the device address corresponds to the axis number.	
	P <u>01:</u> 001; when configuring as shown in the above figure, the number 1 next to the	
	Node NO and below the AXIS NUMBER 1 becomes the Node ID.	



3.2. Communication setting in TOP

* This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.

■ Touch the top of the TOP screen and drag it down. Touch "EXIT" in the pop-up window to go to the main screen.



(1) Communication interface setting

■ [Main Screen > Control Panel > Serial]



Items	ТОР	External device	Remarks
Signal Level (port)	RS-232C	RS-232C	Fixed
Baud Rate	3840	00	Fixed
Data Bit	8		Fixed
Stop Bit	1	1	
Parity Bit	Od	d	Fixed

* The above settings are setting examples recommended by the company.

Items	Description
Signal Level	Select the serial communication method between the TOP and an external device.
Baud Rate	Select the serial communication speed between the TOP and an external device.
Data Bit	Select the serial communication data bit between the TOP and an external device.
Stop Bit	Select the serial communication stop bit between the TOP and an external device.
Parity Bit	Select the serial communication parity bit check method between the TOP and an external device.



(2) Communication option setting

■ [Main Screen > Control Panel > PLC]

	ö	PLC ×	
	🔞 System	Driver(COM2) PLC1(EXRS-C1) -	
Run		Interface Computer Link	
		Protocol EXRS-C1 🔹	
ANC		Timeout 300 🜩 msec	
	PLC Sec	Send Wait 0 🚔 msec	
VNC Viewer	~ -	Retry 5	
		AXIS Total NUMBER 🚺 💌	
	Ethernet Se	AXIS NUMBER 1	
1		Node NO 1	
Screen shot	Infli ¹		
	Diagnostic F		
	Ma		
		Diagnostic Apply Cancel	
	[System]		

Items	Settings	Remarks
Interface	Configure the communication interface between the TOP and an external device.	Refer to "2. External
Protocol	Configure the communication protocol between the TOP and an external device.	device selection".
TimeOut (ms)	Set the time for the TOP to wait for a response from an external device.	
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external device and	
	sending the next command request.	
ASIS Total NUMBER	Configure the total number of axes.	
NODE NO	Configure the Node ID number.	
	Ex) P <u>01:</u> 001; the red text in the device address corresponds to the axis number.	
	P <u>01:</u> 001; when configuring as shown in the above figure, the number 1 next to the	
	Node NO and below the AXIS NUMBER 1 becomes the Node ID.	



3.3 Communication diagnostics

■ Check the interface setting status between the TOP and an external device.

- Touch the top of the TOP screen and drag it down. Touch "EXIT" in the pop-up window to go to the main screen.
- Check if the COM port settings you want to use in [Control Panel > Serial] are the same as those of the external device.
- Diagnosis of whether the port communication is normal or not
- Touch "Communication diagnostics" in [Control Panel > PLC].
- The Diagnostics dialog box pops up on the screen and determines the diagnostic status.

ОК	Communication setting normal
Time Out Error	Communication setting abnormal
	- Check the cable, TOP, and external device setting status. (Reference: Communication diagnostics sheet)

Communication diagnostics sheet

- If there is a problem with the communication connection with an external terminal, please check the settings in the sheet below.

Items	Contents		Check		Remarks	
System	How to connect the sys	stem	OK	NG	1 Cretem configuration	
configuration	Connection cable name	2	ОК	NG	<u>1. system configuration</u>	
TOP	Version information		OK	NG		
	Port in use		OK	NG		
	Driver name		OK	NG		
	Other detailed settings		ОК	NG		
	Relative prefix	Project setting	OK	NG		
		Communication		NC	2. External device selection	
		diagnostics	ŬK	NG	3. Communication setting	
	Serial Parameter	Transmission	OK	NC		
		Speed	ŬK	NG		
		Data Bit	OK	NG		
		Stop Bit	OK	NG		
		Parity Bit	OK	NG		
External device	CPU name		OK	NG		
	Communication port na	ОК	NG			
	Protocol (mode)	OK	NG			
	Setup Prefix	OK	NG			
	Other detailed settings	OK	NG	4 Estemplishes anthree		
	Serial Parameter	Transmission	OK	NC	4. External device setting	
		Speed	ÜK	NG		
		Data Bit	OK	NG		
		Stop Bit	OK	NG		
		Parity Bit	OK	NG		
	Check address range				6. Supported addresses	
			ОК	NG	(For details, please refer to the PLC	
					vendor's manual.)	



Refer to the vendor's user manual to identically configure the communication settings of the external device to that of the TOP.



5. Cable table

This chapter introduces a cable diagram for normal communication between the TOP and the corresponding device. (The cable diagram described in this section may differ from the recommendations of "MISUMI EXRS-C1")

5.1. Cable table 1

■ 1:1 connection						
(A) TOP COM Port (9 pin)						
TOP COM				External device		
Pin	Signal	Pin	Cable connection	Pin	Signal	Pin
arrangement*Note 1)	name	number		number	name	arrangement*Note 1)
	CD	1		1	DC12	2 1
1 5	RD	2		5	RDX	
	SD	3		3	TXD	5 (()) 3
6 9	DTR	4		4	-	
Based on	SG	5		2	GND	876
communication	DSR	6		6	-	Based on
cable connector	RTS	7		7	E-STOP	communication
front,	CTS	8		8	E-STOP	cable connector
D-SUB 9 Pin male		9		9		front,
(male, convex)						MINI DIN8 Pin

*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.

(B) TOP COM Port (15 pin)						
TOP COM				External device		
Pin	Signal	Pin	Cable connection	Pin	Signal	Pin
arrangement*Note 1)	name	number		number	name	arrangement*Note 1)
	CD	1		1	DC12	2 1
1 5	RD	2		5	RDX	
	SD	3		3	TXD	5 (()) 3
6 9	DTR	4		4	-	
Based on	SG	5		2	GND	876
communication	DSR	6		6	-	Based on
cable connector	RTS	7		7	E-STOP	communication
front,	CTS	8		8	E-STOP	cable connector
D-SUB 9 Pin male		9		9		front,
(male, convex)						MINI DIN8 Pin

*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.



6. Supported addresses

The devices available in TOP are as follows:

The device range (address) may differ depending on the CPU module series/type. The TOP series supports the maximum address range used by the external device series. Please refer to each CPU module user manual and be take caution to not deviate from the address range supported by the device you want to use.

Command	Туре	Bit address range	Word address range	R/W	Device description	
START	16bit	-	0	W	Positioning operation	
STOP	16bit	-	0	W	Operation stop	
ORG	16bit	-	0	W	Return-to-origin	
JOG+	16bit	-	0	W	JOG movement_+	
JOG-	16bit	-	0	W	JOG movement	
INCH+	16bit	-	0	W	Inching movement+	
INCH-	16bit	-	0	W	Inching movement-	
SRVO	16bit	-	0	W	Servo status change	
BRK	16bit	-	0	W	Brake status change	
RESET	16bit	-	0	W	Reset	
SETID	16bit	-	-	W	Automatic node number setting	
М	16bit	1–255.15	1–255	R/W	Operation type	
Р	32bit	1–255.15	1–255	R/W	Position	
P_	32bit	1–255.15	1–255	R/W	Position	
S	16bit	1–255.15	1–255	R/W	Speed	
S_	16bit	1–255.15	1–255	R/W	Speed	
AC	16bit	1–255.15	1–255	R/W	Acceleration	
AC_	16bit	1–255.15	1–255	R/W	Acceleration	
DC	16bit	1–255.15	1–255	R/W	Deceleration	
DC_	16bit	1–255.15	1–255	R/W	Deceleration	
Q	16bit	1–255.15	1–255	R/W	Push	
Q_	16bit	1–255.15	1–255	R/W	Push	
ZL	32bit	1–255.15	1–255	R/W	Zone (-)	
ZH	32bit	1–255.15	1–255	R/W	Zone (+)	
Ν	32bit	1–255.15	1–255	R/W	Near width	
J	16bit	1–255.15	1–255	R/W	Jump	
F	16bit	1–255.15	1–255	R/W	Flag	
Т	16bit	1–255.15	1–255	R/W	Timer	
К	32bit	1–138.15	1–138	R/W	Parameter data writing	
TEACH	16bit	1–255.15	1–255	R/W	Current position teaching	
COPY	16bit	0	0	R/W	Point data copying	
DEL	16bit	0	0	R/W	Point data deleting	
D	32bit	-	0–20	R	Status data reading	
IN	16bit	1,0–15	1	R	Input/output information reading	
INB	16bit	0–15	-	R	Input/output information reading	
OUT	16bit	1,0–15	1	R	Input/output information reading	
OUTB	16bit	0–15	-	R	Input/output information reading	
WIN	16bit	-	0–3	R	Word input/output information reading	
WOUT	16bit	-	0–3	R	Word input/output information reading	
OPT	32bit	0–31	0–2	R	Option information reading	
OPTB	32bit	0–31	0–2	R	Option information reading	
ALM	16bit	-	1–32	R	Alarm/warning information reading	
WARN	16bit	-	1–32	R	Alarm/warning information reading	



7. alarm list

Alarm No		Reset *1	Origin position *2
02	DATA ERROR	-	-
03	DATA RANGE OVER	-	-
04	MONITOR MODE	-	-
05	RUNNING	-	-
06	MANUAL MODE	-	-
41	SERVO OFF	-	-
42	ORIGIN INCOMPLETE	-	-
43	NO POINT DATA	-	-
44	SOFTLIMIT OVER	-	-
45	INTERLOCK	-	-
46	STOP KEY	-	-
47	PUSH MISTAKE	-	-
48	ORG. MISTAKE	-	-
49	Serial comm. err.	-	-
Q1		Postart	C1 : ×
01	AC FOWER DOWN	Restart	C21/C22 : -
82	ENCODER ERROR	Restart	Х
83	ABS. ENCODER ERR (C21,C22)	Reset	Х
84	IPM ERROR(C21,C22)	Reset	_
85	OVERHEAT	Reset	_
86	OVERLOAD	Reset	_
87	OVERVOLTAGE	Reset	_
88	LOW VOLTAGE	Reset	_
89	POSITION ERROR	Reset	_
8A	ABS. BATTERY ERR(C21,C22)	Reset	Х
8B	ABS. COUNT ERROR(C21,C22)	Reset	Х
8C	ABS. ME. ERROR(C21,C22)	Reset	Х
8D	ABS.OVERFLOW ERR(C21,C22)	Reset	Х
8E	OVERCURRENT	Reset	_
8F	MOTOR CURRENT ERR.	Reset	_
91	INT. COMM. ERROR	Reset	-
92	CPU ERROR	Reset	_
93	I/O FAULT	Reset *3	_
C1	EMERGENCY STOP	Eliminate cause	_
C2	MOTOR POWER DOWN	Eliminate cause	-
F1	ABS. BATT. LOW WARNIN(C21,C22)	-	-
F2	PUSH WARNING	-	-
F4	I/O ERROR	-	-

*1. Indicates the alarm reset method

*2. Indicates whether or not origin position is retained when alarm occurred. (\cdot : Not retained) *3. Power must be turned off and then back on when using CC-Link or DeviceNet.