AJINEXTEK CO,.LTD

SDC-N404 Series

V1.0 or higher

Computer link

Supported version TOP Design Studio



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We would like to thank our customers for using M2I's "Touch Operation Panel (M2I TOP) Series". Read this manual and familiarize yourself with the connection method and procedures of the "TOP and external device".

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1. System configuration

The system configuration of TOP and "AJINEXTEK CO, LTD – SDC-N404 Series" is as follows.

Series	CPU	Link I/F	Communication method	System setting	Cable
SDC-N404	All CPU	Loader Port(DSUB 9 pin)	RS-232C	3. TOP communication setting	5. Cable table

■ Connection configuration

• 1:1 (one TOP and one external device) connection – configuration which is possible in RS232C communication.

|--|--|



2. External device selection

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

select Device					
PLC select [CC)M2]				
Filter : [All]		~]	Search :	
					Model 🔿 Vendor
Vendor		Model			
PELCO	-	SDC	C-N404		
FASTECH Co., Ltd.					
HYOSUNG					
NMEA					
AJINEXTEK Co., Ltd.					
IEC Standard					
CAS					
A&D					
SEHWA CNM					
SHINHAN Electronics					
BONGSHIN LOADCELL					
FANUC Co., Ltd.					
MINEBEA Co., Ltd.					
Azbil Corporation		,			
PLC Setting[SDC-I	1404]				
Alias Name :	PLC1]		
Interface :	Computer Lin	k ~]	-	
String Save Mode :	First LH HL	Change			Comm Manual
	L)		
Operate Condition :	y vd v				
Change Condition :	TimeOut	5 📮 (S	econd)		
Change Condition :	TimeOut Condition	5 – (S	econd)		Edit
Change Condition :	TimeOut Condition	5 - (S	econd)		Edit
Change Condition :	TimeOut Condition	5 (S	econd)		Edit
Change Condition : Primary Option Timeout Send Wait	TimeOut Condition 300	5 V (S	econd)		Edit
Change Condition : Primary Option Timeout Send Wait Retry	TimeOut Condition 300	5 (S	econd)		Edit
Change Condition : Primary Option Timeout Send Wait Retry	TimeOut Condition 300 5 5	s ↓ (S msec msec	econd)		Edit
Change Condition : Primary Option Timeout Send Wait Retry	TimeOut Condition	5 • (5	econd)		Edit
Change Condition : Primary Option Timeout Send Wait Retry	TimeOut Condition	5 ♥ (S msec m msec	cond)		Edit
Change Condition : Primary Option Timeout Send Wait Retry	TimeOut Condition	s s s s s s s s s s s s s s s s s s s	econd)		Edit
Change Condition : Primary Option Timeout Send Wait Retry	TimeOut Condition 300 5	s ⊂ (S msec msec	econd)		Edit
Change Condition :	TimeOut Condition	s ↓ (S msec m msec m msec	econd)		Edit

ings	Contents
Model	Check the display and process of TOP to select the touch model.
Vendor	Select the vendor of the external device to be connected to TOP.
	Select "AJINEXTEK CO,.LTD."
PLC	Select an external device to connect to TOP.
	Select "SDC-N404."
	Please check the system configuration in Chapter 1 to see if the external device you want to
	connect is a model whose system can be configured.
	ings Model Vendor PLC



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 properties > TOP settings] → [Project option > Check "Use HMI settings" > Edit > Serial]
 - Set the TOP communication interface in TOP Design Studio.



Items		ТОР		External device	Remarks
Signal Level (port)	RS-232C	RS-422	RS-485	RS-232C	
				RS-422/485	
Baud Rate		38	3400		
Data Bit			8		
Stop Bit			1		
Parity Bit		N	one.		

* 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 properties > PLC settings > COM > "PLC1 : AJINEXTEK PLC Series"]

– AJINEXTEK CO, LTD – SDC-N404 Series. Set the options of the communication driver in TOP Design Studio.

Project Option		×
Change HMI[H] Add PL	LC [A] TIT Change PLC[C] C Delete PLC[D]	
 TOP Setting SYS : RD1520X Option Module Setting FieldBus (0) RFID (0) Device Setting COM1 (0) PLC1: SDC-N404 COM3 (0) Ethernet (0) Wireless (0) USBDevice (0) 	PLC Setting[SDC-H404] Alas Name : PLC1 Interface : Computer Link Protocol : SDC Link Protocol : SDC Link Change Use Redundancy Operate Condition : TimeOut Condition : TimeOut Condition Edit Primary Option Timeout Sou meec Send Wait	Comm Manual
	Aş	oply Close

Items	Settings	Remarks
Interface	Select "Computer Link".	Refer to "2. External
Protocol	Select "Computer link".	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.	
Retry	Select the number of communication retries.	



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]

	õ		Control Pane	1	×	
Run VNC Viewer Screen shot	Syste Syste PLC C C Ethernet Diagnost ic	em De De Security Security Serial	Serial Port: Signal Level Signal Level RS-232C O RS Baud Rate: Data Bit: Stop Bit: Parity Bit: Flow: Auto Search	erial COM1 -422(4) O RS-4 38400 8 1 None Off Loopback	× * * * * * Test	
	[System]			Close	
TOPRX - TOPRX0800	DS				A 2021-08-31	02:01:37 PM
Items			ТОР		External device	Remarks
Signal Level (port) RS-232C		RS-422	RS-485	RS-232C RS-422/485		
Baud Rate		38400				
Data Bit		8				
Stop Bit			1			
Parity Bit			None.			

Parity Bit

 \ast The above settings are setting $\underline{examples}$ 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]

-		
	Control Panel	×
	PLC PLC	×
Run	System Driver(COM2) PLC2(SDC-N4O4) ▼	
	Interface Computer Link 🔹	
VINC	Protocol SDC Link 🔻	
	Timeout 300 🗣 msec	
VNC Viewer	Send Wait 0 🗣 msec	
	Retry 5	
	Ethernet	
Screen shot	Diagnost ic	
	[System] Diagnostic	Apply Cancel
toprx – toprx0800	IS	A 2021-08-31 02:47:42 PM
tems	Settings	Remarks
nterface	Select "Computer Link".	Refer to "2. Externa
rotocol	Select "Computer link".	device selection".
imeOut (ms)	Set the time for the TOP to wait for a response from an external devi	ce.
endWait (ms)	Set the waiting time between TOP's receiving a response from an external and sending the next command request.	ernal device
etry		



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 system Connection cable name		OK	NG	1 Custom configuration	
configuration			OK	NG	1. System configuration	
ТОР	Version information Port in use Driver name		OK	NG		
			OK	NG		
			OK	NG		
	Other detailed settings		OK	NG		
	Relative prefix	Project setting	OK	NG	 Esternal de las esteritss 	
		Communication diagnostics	ОК	NG	<u>2. External device selection</u> <u>3. Communication setting</u>	
	Serial Parameter	Transmission Speed	OK	NG		
		Data Bit	OK	NG		
		Stop Bit	OK	NG		
		Parity Bit	OK	NG		
External device	CPU name	OK	NG			
	Communication por	OK	NG			
	Protocol (mode)	OK	NG			
	Setup Prefix	OK	NG			
	Other detailed settir	OK	NG	4. External device setting		
	Serial Parameter	Transmission Speed	OK	NG		
		Data Bit	OK	NG		
		Stop Bit	OK	NG		
		Parity Bit	OK	NG		
	Check address range		ОК	NG	<u>6. Supported addresses</u> (For details, please refer to the PLC vendor's manual.)	



4. External device settings

- Refer to the manual of the external device and configure the communication options.



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 chapter may differ from the recommendations of "AJINEXTEK CO, LTD.")

COM				PLC		
Pin	Signal	Pin	Cable connection	Pin	Signal	Pin
arrangement*Note 1)	name	number		number	name	arrangement*Note 1)
1 5	CD	1		1	CD	1 5
$(\circ \circ)$	RD	2		2	RD	$\left(\circ \circ \right)$
	SD	3		3	SD	
6 9 Based on	DTR	4		4	DTR	6 9 Based on
communication	SG	5		5	SG	communication
cable connector	DSR	6		6	DSR	cable connector
front	RTS	7		7	RTS	front.
D-SUB 9 Pin male	CTS	8		8	CTS	D-SUB 9 Pin male
(male, convex)		9		9		(male, convex)

■ RS-232C (1:1 connection)

*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.

C

Status/Settings							
Area	Bit address	Word Address	Remarks				
Axis status	AXI0.0 ~ AXI3.7		*F1 *1 *3				
Full status	ROB0.0 ~ ROB3.7		*F1 *1 *3				
System status	SYS0.0 ~ SYS3.7		*F1 *1 *4				
Mechanical signal	MES0.0 ~ MES3.7		*F1 *1 *5				
Mechanical Active Level	MELOO ~ MEL37		*F1 *1 *6				
Motion error status	WILLOUG WILLOUT	EDD	*1				
			+F0 +1 +7				
		150 ~ 151	^F3 ^T ^/				
Run			*F3 *2				
Pause	TP0 ~ TP1		*F3 *2				
[Address format]							
*F1 Axis	*F3	Task					
*1 Read only *2 Write or	וly						
*3 Each axis has the following information.	*4 Each axis has the following infor	mation. *5 Each axis has th	ne following information.				
Bit pos Comment	Bit pos Comment	Bit pos Comment					
0 Servo-on status	0 Emergency stop status	0 + Limit sig	gnal status				
Zero return status Busy status	1 Alarm status	1 – Limit sig 2 Alarm sigr	jnal status				
3 – Limit status	3 – Limit status	3 In-position	n signal status				
4 + Limit status	4 In-position status	4 Emergence	y stop signal status				
5 Alarm status	5 In-motion status	5 Home sign	nal status				
6 Emergency stop status	6 Servo-on status	6 Z-phase si	gnal status				
7 In-position status	7 Alarm clear status	7 (Unused)					
*6 Each axis has the following information.	*/ Word data has the following info	ormation.					
Bit pos Comment	Data Comment						
1 – Limit signal active level	1 Run						
2 Alarm signal active level	2 Pause						
3 In-position signal active level							
4 Emergency stop signal active level							
5 Home signal active level							
Z-phase signal active level (Unused)							
■ Variable	1						
Area	Bit address	Word Address	Remarks				
Input	10.0 ~ 10.27		*1 27 _{BIT}				
Output	O0.0 ~ O0.27		27 _{BIT}				
M variable		M0/0 ~ M7/3	*F2 32 _{BIT}				
Point file		P0/0 ~ P3/9999	*F4				
[Address format]							
*F2 Address *F4 Axis / Address							
*1 Read only							
Area	Bit address	Word Address	Remarks				
Encoder input		PEO ~ PE3	*F1				
Pulse output		PPO ~ PP3	*F1				
ABS/REL mode		PA0 ~ PA3	*F1				
Profile mode		PF0 ~ PF3	*F1				
Unit/Pulse		PU0 ~ PU3	*F1				
[Address format]		1	J				

*F1 Axis





Area			Bit address	Word Address	Remarks
Axis command position				ASP0 ~ ASP3	*F1 *1 32 _{BIT}
Axis actual position				ACP0 ~ ACP3	*F1 *1 32 _{BIT}
Axis drive speed				AVE0 ~ AVE3	*F1 *1 32 _{BIT}
Single	Position drive Run		AM0 ~ AM3		*F1 *2 *3
axis					
		Drive position		_AM_P	32 _{BIT}
		Drive speed		_AM_V	32 _{BIT}
		Drive acceleration		_AM_A	32 _{BIT}
		Drive deceleration		_AM_D	32 _{BIT}
	Speed drive	Run	AV0 ~ AV3		*F1 *2 *4
		Drive speed		_AV_V	32 _{BIT}
		Drive acceleration		_AV_A	32 _{BIT}
		Drive deceleration		_AV_D	32 _{BIT}
	Drive stop		AS0 ~ AS3		*F1 *2
	Emergency sto	р	AE0 ~ AE3		*F1 *2
Multiple	Position drive	Run	XJ		*2 *5
axis					
		Drive position		_XJO ~ _XJ3	*F1 32 _{BIT}
	Interpolation	Run	XL		*2 *6
	drive				
		Drive position		_XL0 ~ _XL3	*F1 32 _{BIT}
	Speed		XV		*2 *7
	setting				
		Drive speed		_XV0 ~ _XV3	*F1 32 _{BIT}
	Acceleration		ХА		*2 *8
	setting				
		Drive acceleration		_XA0 ~ _XA3	*F1 32 _{BIT}
	Deceleration		XD		*2 *9
	setting				
		Drive deceleration		_XD0 ~ _XD3	*F1 32 _{BIT}
	Axis setting		XX		*2 *10
		Drive axis		_XX0 ~ _XX3	*F1 32 _{BIT}
Servo ON/OFF			SERVO0 ~ SERVO3		*F1 *2
Alarm ON/OFF			ALM0 ~ ALM3		*F1 *2
Home search			H0 ~ H3		*F1 *2
Zero position setting			ZPO ~ ZP3		*F1 *2
Position compensation setting			PC0 ~ PC3		*F1 *2
Multi-axis zero return			XZ		*2
[Address	format]				
*F1		Axis			

...

*1 Read only *2 Write only *3 _AM_P, _AM_V, _AM_A, AM_D reference run

*5 _XJ0 ~ _XJ3 reference run

*9 XD0 ~ XD3 reference run

*6 _XL0 ~ _XL3 reference run

e run *10 XX0 ~ XX3 reference run

*4 _AV_V, _AV_A, AV_D reference run