# CKD ABSODEX

## **ACTUATOR Driver**

V1.4.2 or higher

Supported version TOP Design Studio



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

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## **3.** TOP communication setting Page 4

Describes how to set the TOP communication.

#### 4. Cable table

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.

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## 1. System configuration

The system configuration of TOP and "CKD – ABSODEX Actuator" is as follows:

Series	CPU	Link I/F	Communication method	Communication setting	Cable
CKD	ABSODEX Actuator	-	RS-232C	<u>3. TOP</u> communication <u>setting</u>	4.1. Cable table 1

■ Connection configuration

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

	<b>Contract</b>	TOTAL BASE



## 2. External device selection

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

PLC select [COM2	]			
Filter : [All]	~		Search :	
		_	Model	() Vendor
Vendor	Model			
ROOTECH	^ 🌮 АВ	SODEX		
CKD Corporation				
CSCAM				
IDEC Corporation				
HAWE HYDRAULIK				
SEHAN Electools				
TOHO Electronics Inc.				
IAI Corporation				
МКР				
TEMCOLINE Co., Ltd.				
LINMOT				
CHINO Corporation				
KOLVER Srl				
SENGENIUTY	~			
				6
PLC Setting[ ABSODEX Alias Name : PLC1	<b>]</b>	]		
Interface / Com	outor Link			
Interface : Com, Protocol : ABSC	puter Link	•	6	mm Manual
Interface : Com Protocol : ABSC String Save Mode : First	puter Link  DDEX Link  LH HL Change	•	Co	mm Manual
Interface : Com Protocol : ABSC String Save Mode : First	puter Link  DDEX Link LH HL Change		Co	mm Manual
Interface : Com Protocol : ABSC String Save Mode : First Use Redundancy Operate Condition : AND	puter Link   DDEX Link   LH HL Change		Co	mm Manual
Interface : Com Protocol : ABSC String Save Mode : First Use Redundancy Operate Condition : AND Change Condition : TimeC	puter Link  DDEX Link  LH HL Change Change Dut 5	second)	Co	mm Manual
Interface : Com Protocol : ABS String Save Mode : First Use Redundancy Operate Condition : AND Change Condition : TimeC	DDEX Link Change	iecond)	Co	mm Manual
Interface : Com Protocol : ABS String Save Mode : First Use Redundancy Operate Condition : AND Change Condition : TimeC Change Condition : TimeC Cond Primary Option	DDEX Link Change	iecond)	Co	mm Manual
Interface : Com Protocol : ABSK String Save Mode : First Use Redundancy Operate Condition : AND Change Condition : TimeC Cond Primary Option Timeout 300	DDEX Link  DDEX Link  LH HL Change UH HL Change UU 5 0 (	iecond)	Co	mm Manual
Interface : Com Protocol : ABSK String Save Mode : First Use Redundancy Operate Condition : NND Change Condition : ND Change Condition : Cond Primary Option Timeout 300 Send Wait 0	DDEX Link DDEX Link Change	iecond)	Co	mm Manual
Interface : Com Protocol : ABSK String Save Mode : First Use Redundancy Operate Condition : AND Change Condition : TimeO Change Condition : Cond Primary Option Timeout 300 Send Wait 0 Retry 5	DUEX Link DDEX Link Change	iecond)	03	mm Manual
Interface : Com Protocol : ABS( String Save Mode : First Use Redundancy Operate Condition : AND Change Condition : TimeO Change Condition : Cond Primary Option Timeout 300 Send Wait 0 Retry 5 	puter Link  DDEX Link  LH HL Change Ut 5 0 ( Dut 5 0 ( msec msec (S3)	iecond)	03	mm Manual
Interface : Com Protocol : ABS( String Save Mode : First Use Redundancy Operate Condition : AND Change Condition : TimeO Change Condition : Condi Primary Option Timeout 300 Send Wait 0 Retry 5 NC Data Start System Address	DDEX Link DDEX Link Change	iecond)	03	mm Manual
Interface : Com Protocol : ABSC String Save Mode : First Use Redundancy Operate Condition : AND Change Condition : TimeO Change Condition : TimeO Condition : Condition Timeout 300 Send Wait 0 Retry 5 NC Data Start System Address Word Count	puter Link  DDEX Link  Lin HL Change Ut 5 \$ ()	econd)	Co	mm Manual
Interface : Com Protocol : ABSC String Save Mode : First Use Redundancy Operate Condition : AND Change Condition : TimeO Change Condition : Condi Condi Primary Option Timeout 300 Send Wait 0 Retry 5 	DDEX Link  DDEX Link  LH HL Change UH I Change Ut 5 0 0  msec (S3)  I 5 0 000  I 5 0 000	iecond)		mm Manual
Interface : Com Protocol : ABSK String Save Mode : First USE Redundancy Operate Condition : MND Change Condition : TimeC Condition : TimeC Condition : Condition Primary Option Timeout 300 Send Wait 0 Retry 5 NC Data Start System Address Word Count	puter Link  DDEX Link  LH HL Change Ut 5 0 ( tition msec ) (S3) Change C	iecond)		mm Manual
Interface : Com Protocol : ABSK String Save Mode : First Use Redundancy Operate Condition : AND Change Condition : MD Change Condit	puter Link  DDEX Link  Change UH HL Change Ut 5 0 ( ition msec ition msec ition sec ition msec ititio msec itition msec i	iecond)		mm Manual

Settings		Contents					
TOP	Model	Check the TOP display and process to select the touch model.					
External device	Vendor	Select the vendor of the external device to be connected to TOP.					
		Select "CKD Corporation".	Select "CKD Corporation".				
	PLC	Select an external device to cor	Select an external device to connect to TOP.				
		Model	Interface	Protocol			
		CKD ABSODEX Computer Link ABSODEX Link					
Please check the system configuration in Chapter 1 to see if connect is a model whose system can be configured.			the external device you want to				

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## 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	TOP External device		Remarks
Signal Level (port)	RS-232C RS-232C		
Baud Rate	9600 (fixed)		
Data Bit	7		
Stop Bit	1		
Parity Bit	Od	d	

\* 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 > "CKD ABSODEX"]
  - Set the options of the Computer Link communication driver in TOP Design Studio.

Project Option			×
Change HMI[ <u>H</u> ] Add PL	C [A] Thange PLC[C] Clette PLC[D]		
<ul> <li>TOP Setting</li> <li>SYS : RD 1520X</li> <li>Option Module Setting</li> <li>Fieldbus (0)</li> <li>RFID (0)</li> <li>COM2 (1)</li> <li>COM2 (1)</li> <li>Ethernet (0)</li> <li>Wireless (0)</li> <li>USBDevice (0)</li> </ul>	PLC Setting[ ABSODEX ] Alias Name : PLC1 Interface : Computer Link Protocol : ABSODEX Link String Save Mode : First LH HL Change Use Redundancy Operate Condition : TimeOut Condition : TimeOut Condition : TimeOut Condition : Condition Frimary Option Timeout 300 © msec Send Wait 0 © msec Retry Start System Address Vord Count 1 © Vord Count 1 © Vord Count Start System Address Vord Count Condition	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.	
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.	



#### 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]

	ō	Control Pane	I	×
	🔯 System  🔤 Do	ev	Serial ×	
Run VNC Viewer Screen shot	PLC System	Serial Por Signal Leve RS-232C OF Baud Rate Data Bi Stop Bi Parity Bi Flow Auto Search	t: COM1 el AS-422(4) O RS-485(2) e: 9600 t: 7 t: 1 t: 0dd : 0ff Loopback Test Apply Cancel CTose	e
Toprx – Toprxo80	DOS		A 2021	-08-31 04:56:40 PM
Items	тс	DP	External device	Remarks
Signal Level (port)	RS-2	232C	RS-232C	
Baud Rate		960	0	Fixed
Data Bit		7		
Stop Bit		1		

Parity Bit

\* 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.

Odd



#### (2) Communication option setting

■ [Main Screen > Control Panel > PLC]

	🏷	Control Panel	-ial	×	×
Run	PLC Security	Serial Port: Signal Level RS-232C ORS-4	COM1 22(4) O RS-48	5(2)	
VNC Viewer Screen shot	Ethernet	Baud Rate: Data Bit: Stop Bit: Parity Bit: Flow:	3840081NoneOf f	•     •     •     •     •     •	
TOPRX - TOPRX080	Eliagnostic File Manager [System]		Apply Ca	A 2021-	D8-31 04:45:02 PM

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.	



#### **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		Ch	eck	Remarks
System	How to connect the system		OK	NG	1 Custom configuration
configuration	Connection cable name		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	ÜK	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	014	NC	4. External device setting
		Speed	ŬK	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.)



## 4. 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 "CKD ABSODEX")

#### 4.1. Cable table 1

#### ■ RS-232C (1:1 connection)

TOP COM				External device		
Pin	Signal	Pin	Cable connection	Pin	Signal	Pin
arrangement*Note 1)	name	number		number	name	arrangement*Note 1)
15	CD	1		1	TXD	15
$(\circ \circ)$	RD	2		2	RXD	$(\circ \circ)$
	SD	3		3	NC	
6 9 Pacad on	DTR	4		4	NC	6 9 Pacad on
	SG	5		5	FGND	
cable connector	DSR	6		6	NC	cable connector
front.	RTS	7		7	EMG	front
D-SUB 9 Pin male	CTS	8		8	DGND	D-SUB 9 Pin male
(male, convex)		9		9	+5V	(male, convex)

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



## 5. 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.

(1) Operation Mode

Device	evice Bit Address Word Address		Description	Remarks
М	-	0001 ~ 0006	Operation Mode Switching Code	Write Only

#### Device Details

Device	Address	Description	Remarks		
М	0001	Automatic mode	Power-on mode		
			Mode in which programs are run continuously		
	0002 Single block mode Mode in which programs are executed block by block				
	0003	MDI(manual data input)	Mode in which NC code input through RS232C port is instantaneously		
		mode	executed		
	0004	Jog mode	Communication codes S5 and S6 enable job motion		
	0005	Servo off mode	Selecting M1 to M4 and M6 will turn the servo ON		
	0006	Pulse string input	In this mode, operation proceeds according to pulse string input signals.		
		mode	Disable motions by using the NC program, and changing parameters. To		
			change, switch to M1 to M5		

#### (2) Motion Instructions

Device	Bit Address Word Address		Description	Remarks
S	-	0001 ~ 0020	Motion Instruction Codes	Write Only

#### Device Details

Device	Address	Description	Remarks
S	0001	Start	Same function as CN3 program start input (Auto run, single block)
	0002	Program stop	Same function as CN3 program stop input
	0003	MDI & execution	One block of NC code is input and executed. (Note1)
	0004	Home return	Same function as home return instruction input
	0005	Jog(CW)	Rotation continues in accordance with PRM 14 and 15 until CN3
	0006	Jog(CCW)	program stop input or continuous rotation stop or S2 and S20
			communication code in input
	0007	Alarm Reset	Effective only for alarm
			Same function as that of CN3 answer input
	0010	Answer response	Valid only when an answer is waited for.
			Same function as that of CN3 answer input
	0020	Continuous rotation	Continuous rotation G7 jog operation stop.
		stop	Same function as CN3 continuous rotation stop input

#### (Note1)

(Note 1)

For S0003 devices, the NC code for one block can be entered by the user.

Enter the NC Code by specifying the TOPR internal address and word count (code character count = word count x 2) to store NC code in the "Project Information" -> "PLC Comm Info" option as shown in the figure below.

Primary Option	
Timeout	300 sec
Send Wait	0 msec
Retry	5
NC	Data(S3)
Start System Address	SYS V 00100
Word Count	50

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The above figure is an example of specifying 50 words (100 characters) from 100 TOP internal addresses to allow the user to enter up to 100 characters beginning from NC code 100.

- Word Address Description Remarks Device **Bit Address** Alarm Number Output L01 0000 Read Only \_ L03 0000 Current Position Output Read Only \_ Unit : Pulse Coordinate : Actuator coordinate L04 0000 Current Position Output Read Only \_ Unit : Degree Coordinate : Actuator coordinate L05 0000 Current Position Output Read Only \_ Unit : Pulse Coordinate : G92 coordinate L06 \_ 0000 Current Position Output Read Only Unit : Degree Coordinate : G92 coordinate L07 0000 ~ 9999 Parameter Data Input Read: L09 -(Program Number) (To read PRM) Write : L07 L07A 0000 ~ 9999 Parameter Data Input Read : L09A \_ (Program Number) (To read PRM in angel unit) Write : L07A L07R 0000 ~ 9999 Read : L09R Parameter Data Input -(To read the data on RAM of PRM 8 in angle unit) Write : L07R (Program Number) Program Number Output L10 0000 Read Only \_ 0000 ~ 4095 L11 NC Program Input / Output Read : L12 Write : L11 (note1) L12 Not Supported Not Supported Not Supported \_ L13 0000 NC program Number/Directory Output Read Only -0000 Designation of Program Number Write Only L16 \_ L17 0000 Delete of Program Number Write Only \_ 0000 ~ 0002 Change of Program Number Write Only (note2) L18 L19 \_ 0000 Output of the Next Block of Program to be executed Read Only Read Only L21 0000 Mode Output \_ L89 0000 Serial actuator number output Read Only Write only (note3) PRG\_RD 0000 Read NC Program in L11 Buffer -Write only (note3) PRG\_WR 0000 Write NC Program in L11 Buffer \_
- (3) Data Input and Output

(Note 1)

(1) Address for program saving and program reading commands run for NC program writing.

(2) The L11 device is a 32-bit device that saves 4 program characters in one address.

(3) The program capacity is 16k bites.



(Note 2)

Device	Word Address	Idress Description	
L18	0000	Trigger Command for change of Program Number	
	0001	Current Program number	Write Only
	0002	New Program number	Write Only

(Note 3)

- (1) For Write-only PRG\_RD device, if you enter the PRG-RD device program number read as data, it reads the program number corresponding to the entered data and displays it on the L11 device.
- (2) For Write-only PRG\_WR device, if you enter any data (regardless of the data value) on the PRG\_WR device, the program entered in L11 is sent.