KDT Systems Co., Ltd.

CIMON PLC Series

V1.4.9.85 or higher

HMI Protocol Serial Driver

Supported version TOP Design Studio



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



1. System configuration

The system configuration of TOP and KDT Systems Co., Ltd. - CIMON HMI Protocol is as follows:

Series	СРИ	Link I/F	Communication method	System setting	Cable		
	CM1-XP1S	Built-in Serial	RS-232C				
	CM1-XP1F	CM1–SC02A	RS-232C				
	CM1-XP2F	CM1-SC02CDMA	RS-422/485				
	CM1-XP3F	CM1–SC01A	RS-232C				
	CM1-XP1E						
XP	CM1-XP2E	CM1–SC01B	RS-422/485				
	CM1-XP3E						
	CM1–XP1R	CM1–SC02A	RS-232C				
	CM1–XP1A	CM1-SC02CDMA	RS-422/485				
	CM1–XP2A	CM1–SC01A	RS-232C				
	CM1–XP3A	CM1–SC01B	RS-422/485				
		Built-in Serial	RS-232C				
	CM1-CP3E	CM1–SC02A	RS-232C				
	CM1-CP4E	CM1-SC02CDMA	RS-422/485				
		CM1–SC01A	RS-232C				
	CIVIT-CP4C	CM1–SC01B	RS-422/485				
		Built-in Serial	RS-485				
	CM1-CP4D	CM1–SC02A	RS-232C				
CD		CM1-SC02CDMA	RS-422/485	3. TOP communication <u>setting</u>			
CF	CMT-CP40	CM1–SC01A	RS-232C		5. Cable table		
		CM1–SC01B	RS-422/485	4. External device setting			
	CM1–CP3A	CM1–SC02A	RS-232C				
	CM1–CP3B	CM1-SC02CDMA	RS-422/485				
	CM1–CP3P	CM1–SC01A	RS-232C				
	CM1–CP3U						
	CM1–CP4A	CM1–SC01B	RS-422/485				
	CM1–CP4B						
	CM3-SP32MDT	Built-in Serial	RS-232C				
	CM3-SP32MDTE	CM3-SP02ERS	RS-232C				
	CM3-SP32MDC	CM3-SP02ERSC	RS-422/485				
	CM3-SP32MDCE	CM3-SP02ERR					
	CM3-SP16MDR	CM3-SP02ERC	RS-232C				
	CM3-SP16MDRE						
FLC=3	CM3-SP32MDTV	Built-in Serial	RS-232C				
	CM3-SP32MDTF		RS-485				
	CM3-SP32MDCV	CM3-SP02ERS	RS-232C				
	CM3-SP32MDCF	CM3-SP02ERSC	RS-422/485				
	CM3-SP16MDRV	CM3-SP02ERR	RS-232C				
	CM3-SP16MDRF	CM3-SP02ERC	NJ-232C				



- Connectable configuration
- 1:1 connection



• 1:N connection





2. External device selection

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

PLC select [C	OM1]					
Filter : [All]			\sim		Search :	
						lodel 🔿 Vendor
Vendor		Mode	el			
YASKAWA Electric Corp	oration	^ 🎾	CIMON PL	C Series		
YOKOGAWA Electric Co	orporation					
Schneider Electric Indu	stries					
KDT Systems						
RS Automation						
HITACHI IES						
FATEK Automation Corp	poration					
DELTA Electronics						
KOYO Electronic Indust	ries					
VIGOR Electric Corpora	tion					
COMPILE TECHNOLOG	r Inc.					
DST ROBOT						
BACnet						
LS MECAPTON		*				
PLC Setting[CIM	DN PLC Serie	es]				I
PLC Setting[CIMC Alias Name	DN PLC Serie	es]				
PLC Setting[CIMC Alias Name Interface Protocol	DN PLC Serie : PLC1 : Serial	25]	~			Comp Manual
PLC Setting[CIMC Alias Name Interface Protocol String Save Mode	DN PLC Serie : PLC1 : Serial : HMI Protoco : First LH HL	es]	∼ ∼ hange			Comm Manual
PLC Setting[CIMC Alias Name Interface Protocol String Save Mode	DN PLC Serie : PLC1 : Serial : HMI Protoco : First LH HL	es]	v v hange			Comm Manual
PLC Setting[CIMC Alias Name Interface Protocol String Save Mode	DN PLC Serie : PLC1 : Serial : HMI Protoco : First LH HL Cy	es]	↓ ↓ hange			Comm Manual
PLC Setting[CIMC Alias Name Interface Protocol String Save Mode	DN PLC Seria : PLC1 : Serial : HMI Protoco : First LH HL Cy AND ~	es]	hange)		Comm Manual
PLC Setting[CIMC Alias Name Interface Protocol String Save Mode Use Redundan Operate Condition : [Change Condition :]	DN PLC Seria : PLC1 : Serial : HMI Protoco : First LH HL Cy AND ~ TimeOut Condition	es]	hange)		Comm Manual
PLC Setting[CIMC Alias Name Interface Protocol String Save Mode Use Redundan Operate Condition : [Change Condition : [DN PLC Seria : PLC1 : Serial : HMI Protoco : First LH HL CY AND ~ TimeOut Condition	es]	hange)		Comm Manual
PLC Setting[CIMC Alias Name Interface Protocol String Save Mode Use Redundan Operate Condition : Change Condition : Primary Option	DN PLC Serial : PLC1 : Serial : HMI Protoco : First LH HL CY AND ~ TimeOut Condition	25]	v hange (Second)		Comm Manual
PLC Setting[CIMC Alias Name Interface Protocol String Save Mode Use Redundan Operate Condition : Change Condition : Primary Option Timeout	DN PLC Serie : PLC1 : Serial : HMI Protoco : First LH HL CY AND TimeOut Condition 300 R	25]	hange (Second)		Comm Manual
PLC Setting[CIMC Alias Name Interface Protocol String Save Mode Use Redundan Operate Condition : Change Condition : Primary Option Timeout Send Wait	DN PLC Serie : PLC1 : Serial : HMI Protoco : First LH HL CY TimeOut Condition 300 300 0 300 300 300 300 300	es]	→ → → (Second)		Comm Manual
PLC Setting[CIMC Alias Name Interface Protocol String Save Mode Use Redundam Operate Condition : [Change Condition :] Primary Option Timeout Send Wait Retry	DN PLC Serie : PLC1 : Serial : HMI Protoco : First LH HL CY TimeOut : TomeOut : Condition : S : S : S : S : S : S : S	es]	↓ ↓ (Second)		Comm Manual
PLC Setting[CIMC Alias Name Interface Protocol String Save Mode Use Redunctan Operate Condition : Change Condition : Primary Option Timeout Send Wait Retry Station No	ON PLC Serie : PLC1 : Serial : Image: Serial : HMI Protoco : First LH HL Cy MND TimeOut Condition 300 \$ 0 \$ 5 \$ 255 \$	ss]	↓ v hange (Second)		Comm Manual
PLC Setting[CIMC Alias Name Interface Protocol String Save Mode Use Redundan Operate Condition : Change Condition : Primary Option Timeout Send Wait Retry Station No	ON PLC Serie : PLC1 : Serial : Serial : Image: Serial : : : : : : : : : : : : : : : : : : : : : : : : : : : : : : : : : : : : : : <td< td=""><td>ss]</td><td>v v hange (Second</td><td>)</td><td></td><td>Comm Manual</td></td<>	ss]	v v hange (Second)		Comm Manual
PLC Setting[CIMC Alias Name Interface Protocol String Save Mode Use Redundan Operate Condition : Change Condition : Primary Option Timeout Send Wait Retry Station No	DN PLC Serie : PLC1 : Serial : HMI Protoco : First LH HL CY MND : TimeOut : Condition : S : S : S : S : S : S : S : S	ss]	v v hange (Second)		Comm Manual Edit
PLC Setting[CIMC Alias Name Interface Protocol String Save Mode Use Redundan Operate Condition : Change Condition : Primary Option Timeout Send Wait Retry Station No	DN PLC Serie PLC1 Serial HMI Protoco HMI Protoco First LH HL CY TimeOut 300 5 5 5 5 5 5 5 5 5 5 5 5 5	25]	v v hange (Second)		Comm Manual
PLC Setting[CIMC Alias Name Interface Protocol String Save Mode Use Redundan Operate Condition : Primary Option Timeout Send Wait Retry Station No	DN PLC Serie PLC1 Serial HMI Protoco First LH HL CY TimeOut 300 5 5 255 8	ss]	↓ hange (Second)		Comm Manual
PLC Setting[CIMC Alias Name Interface Protocol String Save Mode Use Redundan Operate Condition : Primary Option Timeout Send Wait Retry Station No	DN PLC Serie PLC1 Serial HMI Protoco First LH HL CY TimeOut 300 5 5 255 8	225]	↓ hange (Second)		Comm Manual

Settings		Contents					
ТОР	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 "KDT Systems".					
	PLC	Select an external device to connect to TOP.					
External device		Model	Interface	Protocol			
		CIMON PLC Series	Serial	HMI Protocol			
		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.					



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

 $\blacksquare [Project] \rightarrow [Property] \rightarrow [TOP Setting] \rightarrow [HMI Setup] \rightarrow [Use HMI Setup Check] \rightarrow [Edit] \rightarrow [Serial]$



Items	ТОР	External device	Remarks			
Signal Level (port)	RS-232C	RS-232C				
	RS-422/485	RS-422/485				
Baud Rate	384	400				
Data Bit	8	3				
Stop Bit		1				
Parity Bit	No	ne.				
* 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 be	tween the TOP and an external device.				

Stop BitSelect the serial communication stop bit between the TOP and an external device.Parity BitSelect the serial communication parity bit check method between the TOP and an external device.



(2) Communication option setting

- [Project] → [Project Property] → [Device Setting > COM > CIMON PLC Series]
 - Set the options of the CIMON PLC Series HMI Protocol communication driver in TOP Design Studio.

Project Option		×
Change HMI[H] Kadd PLC A The Change PLC[C] Change PLC[C] Change PLC[D]		
Processing Processing SYS: RD1320X Alas Name: [RL1 Option Module Setting Fieldbus (0) Protocol: Fieldbus (0) Protocol: Fieldbus (0) String Save Mode: Fieldbus (0) String Save Mode: Fieldbus (0) Wirdess (0) String Save Mode: Wirdess (0) String Save Mode: Wirdess (0) Use Redundancy Operate Condition : Alas Name: Other Model Setting Mo Operate Condition : TimeOut String Save Mode: String Save Mode: Wirdess (0) Use Redundancy Operate Condition : TimeOut Condition : TimeOut String Save Mode: String Save Mode: Primary Option Timeout Timeout Soo © meec Retry S © Station No © ©		mm Manual
	Apply	Close

Items	Settings	Remarks
Interface	Select "Serial".	Refer to "2. External
Protocol	Select "HMI Protocol".	device selection".
TimeOut (ms)	Set the time to wait for a response from an external device.	
SendWait (ms)	Set the waiting time before sending a data request to an external device.	
Station No	Enter the prefix of an external device.	



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

■ [Control Panel] → [Serial]

	5	Control Panel		×
Run	🔯 System 🔤 Dev	Se		
	PLC Security De	Serial Port: Signal Level RS-232C O RS-4	CUM1 ▼ 122(4) ○ RS-485(2)	
VNC Viewer		Baud Rate: Data Bit:	38400 •	
0	Ethernet Serial	Stop Bit:		
Screen		Parity Bit: Flow:	Off V	
	Diagnostic File Manager	Auto Search	Loopback Test	
	[System]		Apply Cancel	•
Toprx – Toprx080	OS		A 2021	-08-31 04:46:19 PW

Items	ТОР	External device	Remarks	
Signal Level (port)	RS-232C	RS-232C		
	RS-422/485	RS-422/485		
Baud Rate	38400			
Data Bit	8			
Stop Bit				
Parity Bit	None.			

* 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

 $\blacksquare [Control Panel] \rightarrow [PLC]$

	Control Panel	×
Pup	🔯 System 🔤 Dev 🚥 Serial >	
VNC Viewer Screen shot	Serial Port: COM1 PLC Security PLC Security Security De Security Baud Rate: Serial Security Diagnostic File File File Manager Auto Search Loopback Test	rvSe
TOPRX - TOPRX08009	s 🛛 🚺 2	021-08-31 04:46:19 PW
Items	Settings	Remarks
Interface	Select "Serial".	Refer to "2. External
Protocol	Select "HMI Protocol".	device selection".
TimeOut (ms)	Set the time to wait for a response from an external device.	
SendWait (ms)	Set the waiting time before sending a data request to an external device.	
Station No	Enter the prefix of an external device.	



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 that the settings of the connected ports in [Control Panel] \rightarrow [Serial] are the same as the settings of the external device.
- Diagnosis of whether the port communication is normal or not
- Touch "Communication Diagnostics" in [Control Panel] \rightarrow [PLC].
- Check whether communication is connected or not.

Communication	Communication setting normal
diagnostics	
succeeded	
Error message	Communication setting abnormal
	- Check the cable, TOP, and external device settings. (Refer to 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		OK	NG	1 Custom configuration
configuration	Connection cable name		OK	NG	1. System configuration
TOP	TOP Version information		OK	NG	
	Port in use		OK	NG	
	Driver name		OK	NG	
	Other detailed setting	S	OK	NG	
	Relative prefix	Project setting	OK	NG	
		Communication	OK	NC	2. External device selection
		diagnostics	ÜK	NG	3. Communication setting
	Serial Parameter	Transmission	OK	NG	
		Speed	ŬK	NG	
		Data Bit	OK	NG	
		Stop Bit	OK	NG	
		Parity Bit	OK	NG	
External device	CPU name	OK	NG		
	Communication port r	OK	NG		
	Protocol (mode)	OK	NG		
	Setup Prefix		OK	NG	
	Other detailed settings		OK	NG	4 External device setting
	Serial Parameter	Transmission	OK	NG	4. External device setting
		Speed	ŬK	NG	
		Data Bit	OK	NG	
		Stop Bit	OK	NG	
		Parity Bit	OK	NG	
	Check address range		OK	NG	6. Supported addresses



4. External device setting

Items		Settings	Remarks
Operation mode	Protocol	HMI protocol	Fixed
	Prefix	0	
Communication	Communication speed (BPS)	38400	
parameter		None	
	Data bit	8	
	Stop bit	1	
		0	

Refer to the user manual of the vendor and configure the communication channel options.



5. Cable table

This chapter introduces a cable diagram for normal communication between the TOP and the external device. (The cable diagram described in this section may differ from the recommendations of "KDT Systems Co., Ltd.")

■ RS-232C

TOP				External device			
Pin	Signal	Pin	Cable connection	Pin	Signal	Pin	
arrangement ^{*Note 1)}	name	number		number	name	arrangement ^{*Note 1)}	
1 5		1		1		1 5	
(° °)	RD	2		2	RD	(° °)	
	SD	3		3	SD		
Based on		4		4		Based on	
communication	SG	5		5	SG	communication	
cable connector		6		6		cable connector	
front.		7		7		front,	
D-SUB 9 Pin male		8		8		D-SUB 9 Pin male	
(male, convex)		9		9		(male, convex)	

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

■ RS-422

TOP				External device		
Pin	Signal	Pin	Cable connection	Signal	Din arrangement	
arrangement ^{*Note 1)}	name	number		name	Pin arrangement	
1 5	RDA	1		SDA		
(° °)		2	ę	SDB	RS422/ 485	
		3	•	RDA		
Based on	RDB	4	• •	RDB	SDB—O	
communication	SG	5		SG		
cable connector	SDA	6	.			
front,		7			sg—O	
D-SUB 9 Pin male		8				
(male, convex)	SDB	9	-			

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

■ RS-485

ТОР					External device
Pin	Signal	Pin	Cable connection	Signal	Din orrangement
arrangement ^{*Note 1)}	name	number		name	Pin arrangement
1 5	RDA	1		SDA	
(° °)		2	• • •	SDB	RS422/ 485
		3		RDA	
Based on	RDB	4	•	RDB	SDB—O
communication	SG	5		SG	
cable connector	SDA	6			
front.		7			sg—O ◘O
D-SUB 9 Pin male		8			
(male, convex)	SDB	9			

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



■ RS-485

TOP			External device		
Pin arrangement	Signal	Cable connection	Signal	Pin arrangement	
O SG - +	name + - SG		SDA SDB RDA RDB SG	R5422/ 485 SDA - O EO SDB - O EO RDA - O EO RDB - O EO	
0					

■ RS-232C

TC)P				Externa	l device
Pin	Signal	Pin	Cable connection	Pin	Signal	Pin
arrangement ^{*Note 1)}	name	number		number	name	arrangement ^{*Note 1)}
1 5	CD	1		1		
$(\circ \circ)$	RD	2	•	2		
	SD	3		3		
6 9	DTR	4	•	4	SG	8
Based on	SG	5	⊢	5	RD	Based on
communication	DSR	6	•	6	SD	communication
	RTS	7		7		cable connector
Tront,	CTS	8		8		front,
D-SOR & Pin male		9				8-pin male RJ45
(male, convex)		5				(Male, convex)

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

■ RS-422

TC)P				Externa	l device
Pin	Signal	Pin	Cable connection	Pin	Signal	Pin
arrangement ^{*Note 1)}	name	number		number	name	arrangement ^{*Note 1)}
1 5	RDA	1		1	SDA	
$(\circ \circ)$		2	0	2	SDB	
		3	•	3	RDA	
6 9 Paced on	RDB	4	─ ▲	4		8
	SG	5		5	RDB	Based on
	SDA	6	── ◀	6		communication
front		7		7		cable connector
D SLIB Q Din malo		8	↓	8	SG	front,
	CDD	9				8-pin male RJ45
(maie, convex)	SDR	5				(Male, convex)

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



■ RS-485

TC	OP						Externa	l device
Pin	Signal	Pin		Cable connection		Pin	Signal	Pin
arrangement ^{*Note 1)}	name	number				number	name	arrangement ^{*Note 1)}
1 5	RDA	1 .			•	1	SDA	
$(\circ \circ)$		2			🛉	2	SDB	
		3				3	RDA	
6 9	RDB	4	•			4		' 8
Based on	SG	5			•—	5	RDB	Based on
communication	SDA	6				6		communication
cable connector		7				7		cable connector
front,		8				8	SG	front,
D-SUB 9 Pin male		9					-	8-pin male RJ45
(male, convex)	SDB	9						(Male, convex)

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

■ RS-485

ТОР				Externa	l device
Pin arrangement	Signal name	Cable connection	Pin number	Signal name	Pin arrangement* <mark>Note</mark> 1)
	+	0	1	SDA	
	-	•	2	SDB	
0	SG		3	RDA	
O SG			4		· 8 Basad an
0.1 -		•	5	RDB	based on
167 +			6		
			7		front
0			8	SG	8-nin male RI45
					(Male, convex)

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

RS-422 1:N connection – Refer to 1:1 connection to connect in the following way.

TOP	Cable connection and signal direction	External device	Cable connection and signal	External device
Signal name		Signal name	direction	Signal name
RDA		SDA		SDA
RDB		SDB		SDB
SDA		RDA		RDA
SDB		RDB		RDB
SG		SG		SG

RS-485 1:N connection – Refer to 1:1 connection to connect in the following way.

TOP	Cable connection and signal direction	External device	Cable connection and signal	External device
Signal name		Signal name	direction	Signal name
RDA		SDA	- P	SDA
RDB	<u>├ ╄ </u>	SDB	<u>├ ╄ </u>	SDB
SDA	╞╼┥╎╴──┤╘──	RDA	╞━┥│ │┕──	RDA
SDB	├ ─�	RDB	<u> </u>	RDB
SG		SG		SG



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.

Address		Bit	Word	Remarks
Input rela	у	X00000– X1023F	X00000 – X10230	
Output re	elay	Y00000 – Y1023F	Y00000 – Y10230	
Sub relay	,	M00000 – M4095F	M00000 – M40950	
Keep rela	у	K00000 – K4095F	K00000 – K40950	
Link relay	/	L00000 – L4095F	L00000 – L40950	
Timer	contact	T0000 – T4095		
	current		TC0000 – TC4095	
	setting		TS0000 – TS4095	
Counter	contact	C0000 – C4095		
	current		CC0000 – CC4095	
	setting		CS0000 – CS4095	
Data regi	ster	D00000.00 - D32766.15	D00000 – D32766	