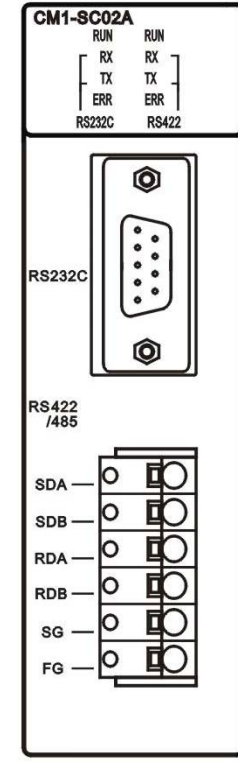




CIMON-PLC
PROGRAMMABLE LOGIC CONTROLLER

RS232C/422/485 CM1 – SC02A
CM1 – SC01A
CM1 – SC01B

Features and Operation



RS485 channel.

- As other makers' protocols are written to use RS-232 and RS-422(485) each, independent operation is available by protocols.
- It is available to use an exclusive protocol to read/write data.
- The exclusive communication function suitable for the multi-drop configuration of 32 units access as max. is offered.
- As modem communication function is built in, a PLC at a long distance can be controlled through exclusive communications.
- Baud rate is set up in the range from 300bps to 38400bps..
- It is available to set up RS232C/RS422(485) communication port as independent or linked channel.
- 1:1 / 1:N / N:M communications (RS422 used) are supported.
- Full-Duplex(RS422) and Half-Duplex(RS485) are supported.
- RS485 multi-drop communication system can be configured, using

General Specifications

No	Item	Specification	Reference		
1	Op. Temp.	Operating Temperature -10 ~65			
2	St. Temp.	Storage Temperature -25 ~80			
3	Op. Hum.	Operating Humidity 5 ~95%RH, Not Condensed			
4	St. Hum.	Storage Humidity 5 ~95%RH, Not Condensed			
5	Vibration	In case of intermittent vibration		IEC61131-2	
		Frequency	Acceleration		Amplitude
		10 ≤ f ≤ 57 Hz			0.075 mm
		57 ≤ f ≤ 150 Hz	9.8 m/s ² (1G)		-
		In case of continuous vibration			
		Frequency	Acceleration		Amplitude
10 ≤ f ≤ 57 Hz		0.035 mm			
57 ≤ f ≤ 150 Hz	4.9 m/s ² (0.5G)				
6	Shock	□ Max. shock Acc. : 147 m/s ² (15G) □ Time : 11 □ Pulse wave: Half sine wave pulse (3 times in X, Y, Z)	IEC61131-2		
7	Noise	Square wave impulse noise	□ 2,000 V KDT Standards		
		Electro-static discharge	Voltage : 4kV (Contact discharge) IEC61131-2 IEC1000-4-2		
		Radiated electro-magnetic field	27 ~ 500 MHz, 10 V/m IEC1131-2 IEC1000-4-3		
		Fast transient burst noise	Power Module v 2kV 1kV 0.25kV Digital I/O (24V or more) Digital I/O (Less than 24V) Analog I/O comm. Interface IEC1131-2 IEC1000-4-4		
8	Environ..	No corrosive gas and no dust			
9	Altitude	2,000m or less			
10	Pollution	2 or less			
11	Cooling	Natural Air Cooling			

Module Specifications

Model	CM-SC02A	CM1-SC01A	CM1-SC01B
Interface	RS232C / RS422 / RS485	RS232C	RS422 / RS485
Comm. Method	Null Modem	Direct communication between a PC and RS232C/RS422 port	
	Leased-Line Modem	Communication using a leased-line modem	
	Dial-up Modem	Remote communication using a dial-up modem	
Operation Mode	User Protocol	Communication using user protocol	
	HMI Protocol	Communication using exclusive protocol	
	MODBUS Protocol	Communication using Modicon protocol	
	PLC Link Protocol	Communication sharing data between CIMON-PLCs	
Data Type	Graphic Loader Protocol	Controls a PLC, using link function in the CICON.	
	Data Bit	7 or 8 bits	
	Stop Bit	1 or 2 bits	
	Parity	Even/Odd/None	
Synchronous Type	Asynchronous		
Baud Rate	300bps / 600 / 1200 / 2400 / 4800 / 9600 / 19200 / 38400bps		
Modem Link Function	Long-distance communication linking modem		

I/O Signals

Signal Direction (CPU←Cnet)		Signal Direction (CPU→Cnet)	
Input	Signal Name	Output	Signal Name
X0	Error in module	Y0	Clear error
X1	Initialized	Y1	
X2		Y2	
X3		Y3	
X4	Rx data existing (CH1)	Y4	Clear Rx Buffer (CH1)
X5	Tx Buffer Empty (CH1)	Y5	Clear Tx Buffer (CH1)
X6	Rx Data Existing (CH2)	Y6	Clear Rx Buffer (CH2)
X7	Tx Buffer Empty (CH2)	Y7	Clear Tx Buffer (CH2)
X8		Y8	
X9		Y9	
XA	Modem Initialized	YA	Modem initialization request
XB	Dialing	YB	Dialing request (Line connection)
XC	Line connection	YC	Connection release request
XD		YD	
XE		YE	
XF	Parameter applied	YF	Parameter setup request

User Program Memory Devices

Offset	Description	R/W
0	Status Code (0=Normal, Others=Error Code)	R
1	Mode	R/W
2	CH1 Port Parameter	R/W
3	CH2 Port Parameter	R/W
4	Number of retrying dialing	R/W
5	Interval of retrying dialing	R/W
6	Modem initialization/Dialing Timeout	R/W
7	Number of retrying modem initialization	R/W
8	Station Number	R/W
9	SND command timeout	R/W
10	RCV command timeout	R/W
11		
...	Modem initialization command	R/W
31		
...		
37	PLC Link station number	R
38	PLC Link Connection	R
39	PLC Link Connection	R
40	Dial Number(H)	R/W
..	Dial Number	R/W
49	Dial Number	R/W
50	Response Delay Time(CH1)	R/W
51	Response Delay Time(CH2)	R/W
...		
63	OS Version	R
64		
...	User Message	R/W
255		

Caution
To use this product correctly, it is absolutely required to read the product description before use.

* R & D: #102-6, Chobu-ri, Mohyeon-myeon, Yongin-si, Gyeonggi-do, Korea
TEL : 031-322-8303
FAX : 031-332-8343
*Internet Technical Inquiry
<http://www.kdtsys.com>
*As the contents of specifications are subject to change for quality improvement, please consult with us when purchasing products.

KDT SYSTEMS KDT SYSTEMS CO., LTD.
Head Office: #102-6, Chobu-ri, Mohyeon-myeon, Yongin-si, Gyeonggi-do, Korea
Tel: 82-31-322-8303 Fax: 82-31-332-8343
<http://www.kdtsys.com>

Setting up Parameters

Setting up parameters

- 1) Click the CICON to set up Specialty Card in Tool menu
- 2) Select RS232C/422 as Card Type, Base and Slot No.

Base: Number of the base on which a communication module is mounted.

If not expansion, select Local.

Slot: Number of the slot on which a communication module is mounted.

The slot number is counted from the slot next to a CPU module like 0,1...11.

- 3) Enter values to set up the parameters used in a communication card for Channel 1 and 2.

- Read : This is used to read and display the currently set parameter of the RS232C/422 module which is mounted on a slot from buffer memory.
- Current Status : This is used to read and display the error status, version and PLC link status from buffer memory.

HMI Exclusive Service

This service is used to read or write the information and data in a PC and other devices, and to control a PLC (RUN, STOP, PAUSE). As station numbers are assigned in the system configured with master and slave, multi-drop communication is available.

- In case of exclusive communication mode, station numbers for RS232C side and RS422 side are to be set up in specialty card setup.
- All the frames used in exclusive communication are composed of ASCII code.
- In case of multi-drop, access up to 32 stations is allowed.
- When station number is set up, duplicate station number is not to be set up in a network. In case of multi-drop network configuration, the baud rate, stop bit, parity bit and data bit of a RS232C/422module are to be same.
- To use HMI exclusive service, HMI protocol is to be selected as action mode in the specialty card setup of the CICON. If a RS232C/422module is used in inter-link mode, check CH 1 inter-link box in the action mode of CH 2. In this case, the data received to CH 1(RS232C) are received inside and sent to CH 2(RS422/485).

Modem Communications

RS232C/422 has the function to use the public network for a long-distance network.

This function enables long-distance communication through public network by sending and receiving phone call after connecting a RS232C/422 module to an external modem.

- In case of modem specifications, it is required to use the modem complying with the recommendable specifications for reliability. According to the performance of a modem and the state of a public network, the case that a line is not linked or the case that a line is cut off while exchanging data may occur.
 1. Baud rate: Over 14400bps
 2. DTE Interface: CTS / RTS Flow Control
 3. Command: AT Command
 4. Error correction: While sending data
 5. Controlling carrier: Controls to send carrier

- How to connect an external modem with a RS232C/422module
 1. Use RS-232C interface cable to connect a computer link module and an external type RS232C modem.
 2. Connect a RS-232C interface cable to the RS-232C port of the computer link module and DTE link terminal.
 3. Connect the telephone line of a public network to the line terminal of the modem.
 4. If there is a telephone set, connect the telephone terminal of the modem with the telephone set.
 5. Turning on the power for the PLC and the modem, make sure the modem is initialized.

Error Codes for HMI Exclusive Service

Error Code	Description
01	Receives unknown command code.
02	An error occurs in BCC.
03	CPU does not respond.
04	Receives unknown device code
05	Exceeds the device read.
06	Invalid address
07	Internal error
08	Receives the number of invalid data
09	Invalid data
10	Unregistered (Not initialized) frame number
11	Invalid monitor frame No. (0h – Fh) Invalid frame number
12	CPU is not in REMOTE status.
13	Invalid CPU status is assigned.
14	Error in the size of the data written
15	Error in changing remote mode
16	Error in writing to remote memory device

Connection

RS232

1. In case of null modem

RS232C Side	Connection and Signal Direction	Comm. Device
1	DCD	DCD
2	RXD	RXD
3	TXD	TXD
4	DTR	DTR
5	SG	SG
6	DSR	DSR
7	RTS	RTS
8	CTS	CTS
9	RI	RI

2. In case of modem (Lease-line modem, Dial-up modem)

- Connect each pin in 1 to 1 basis.

RS422/485

1. In case of RS422

RS422 Side	Connection and Signal Direction	Comm. Device
1	TX+	TX+
2	TX-	TX-
3	RX+	RX+
4	RX-	RX-
5	SG	SG
6	FG	FG

2. In case of RS485

RS422 Side	Connection and Signal Direction	Comm. Device
1	TX+	TX+
2	TX-	TX-
3	RX+	RX+
4	RX-	RX-
5	SG	SG
6	FG	FG

User Communications

This is used when the communication frame defined in a user program is used to send and receive data in the program.

1) SND

- This is used to send the data as much as the length of the data requested from a computer link module.

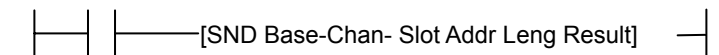
Command	Description
Base-Chan-Slot	Base(1Byte): h00XX, Expansion base number in upper 1Byte (Local:00) Channel mode, Slot number → hXX00 : RS-232C, hXX10 : RS-422
Addr	Address of the data sent
Leng	Length of the data sent (BYTE), Decimal figure, Maximum 500BYTE
Result	Address where the result of sending is noticed is assigned. (X,Y,M,L,K,T,C,D,@D,Z) Result Format : Bit 0 : If sending completed, 1Scan ON. If failed, always ON. Bit 1 : If failed, always ON Bit 2-7 : OFF Bit 8-F : Error Code (0=No Error)

ModBus Service

- This is used to access CPU Data Memory, using ModBus Protocol.
- This corresponds to Device Memory of all types.
- Address Map

Bit / Word	Modicon Address	CIMON-PLC Address	Size Cimon-PLC
Bit Read Input	100001 ~	X0000 ~	4096 Bits
	104097 ~	F0000 ~	2048 Bits
	106145 ~ 107169 ~ 108192	T0000 ~	1024 Bits
Bit Read Coil	000001 ~	Y0000 ~	4096 Bits
	004097 ~	M0000 ~	8192 Bits
	012289 ~	K0000 ~	2048 Bits
Word Input Register	014337 ~ 016384	L0000 ~	2048 Bits
	300001 ~	X0000 ~	256 Words
	300257 ~	F0000 ~	128 Words
	300385 ~	TC0000 ~	1024 Words
Word Holding Register	301409 ~	CC0000 ~	1024 Words
	302433 ~ 302482	S0000 ~	50 Words
	400001 ~	Y0000 ~	256 Words
	400257 ~	K0000 ~	128 Words
	400385 ~	TS0000 ~	1024 Words
	401409 ~	CS0000 ~	1024 Words
	402433 ~	L0000 ~	128 Words
402561 ~	M0000 ~	512 Words	
	403073 ~ 413072	D0000 ~	10000 Words

- Format



2) RCV

- This is used to store the data as much as the length of the data requested from a computer link module.

Command	Description
Base-Chan-Slot	Base(1Byte): h00XX, Expansion base number in upper 1Byte (Local:00) Channel mode, Slot number → hXX00 : RS-232C, hXX10 : RS-422
Addr	Address where data are received and stored
Leng	Length of the data received (BYTE), Decimal figure, Maximum 500BYTE
Result	Address where the result of receiving is noticed is assigned. (X,Y,M,L,K,T,C,D,@D,Z) Result Format : Bit 0 : If receiving completed, 1Scan ON. If failed, always ON. Bit 1 : If failed, always ON Bit 2-7 : OFF Bit 8-F : Error Code (0=No Error)

- Format

