DONGDO TECH

ML-CP Series

Computer Link (Slave)

V1.0 or higher

Supported version



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TOP Design Studio

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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 "DONGDO TECH : ML-CP Series Computer link (Slave)" is as follows:

| Series | CPU | Communication method | Communication setting | Cable |
|--------|---------|-------------------------|---|------------------|
| ML-CP | All CPU | RS-232 | <u>3. TOP</u> communication setting | 4.1. Cable table |

■ Connection configuration

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

| | Control of |
|--|---|
|--|---|



2. External device selection

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

| Select Device | | | | | × |
|---------------------------|---------------|----------------------|---------------------------|----------------|---------------|
| PLC select [CO | DM1] | | | | |
| Filter : [All] | | | ~ | Search : | |
| | | | | • M | odel 🔿 Vendor |
| Vendor FANUC Co., Ltd. | | Model | | | ^ |
| MINEBEA Co., Ltd. | | | SPEEDTECH : PUI-2000 Se | eries | |
| | | | JISANG : Rectifier | | |
| Azbil Corporation | | | ASN: T&H Sensor | | |
| KORO TECHNOLOGY | | 8 | SNC : Flow Meter | | |
| ROBOSTAR | | \$ \$ \$ \$ | SEORIM : PMC3000 | | |
| Ebmpapst | | | MEMORY MAP SLAVE | | |
| CoDeSys Automation Al | | | WILLINGS : Master-K | | |
| Ophir Optronics Solution | ns Ltd. | | SAMAHN TECH : Digital Air | Council Matter | |
| SERVOMEX | | | - | Speed Meter | |
| Tiger Optics, LLC | | | Si TEC : MUX | | |
| B & R Automation | | | DONGDO TECH : ML Serie | S | |
| Peripheral Device | | | Human Automation : TSD | | |
| OTHERS Manufacture | | 8 | On Off System : NEOS-HS | D | |
| | | × ` | | | * |
| | | | Back | 🔷 Next | X Cancel |
| Select Device | | | | | x |
| PLC Setting[DONG | DO TECH : | MI Serie | s] | | |
| Alias Name | | oene. | - 1 | | |
| Interface | : Serial | | \sim | | |
| | : ML Protocol | | ~ | | Comm Manual |
| String Save Mode | : First LH HL | Cha | ange | | |
| Use Redundance | | | | | |
| Operate Condition : | | 5 | (Second) | | |
| | Condition | | (000010) | | Edit |
| Primary Option | | | | | |
| Timeout | 300 | msec | | | |
| Send Wait | 0 | | | | |
| Retry | | - | | | |
| POS1 Format : | 5 S | | ~ | | |
| POS2 Format : | Data Numbe | | <u>~</u> | | |
| | | | - | | |
| Using Groups OK/ N | 0 | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| Sett | tings | Contents | | | | | |
|-----------------|--------|--|--|--|--|--|--|
| ТОР | 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 "OTHERS Manufacture". | | | | | |
| | PLC | Select an external device to con | Select an external device to connect to TOP. | | | | |
| | | Model Interface Protocol | | | | | |
| | | DONGDO TECH : ML-CP Serial DONGDO TECH ML-CP | | | | | |
| | | Series Computer link(Slave) | | | | | |

대한민국대표 터치패널 Touch Operation Panel

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 | |
| Baud Rate | 115200 | Fixed | |
| Data Bit | 8 | Fixed | |
| Stop Bit | 1 | Fixed | |
| Parity Bit | None | | Fixed |

*Programmer port of RS232C is configured identically as the above example settings.

* 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 > "PLC1 : ONGDO TECH : ML-CP Series Computer link (Slave)"]

– Set the options of the ONGDO TECH : ML-CP Series Computer link (Slave) communication driver in TOP Design Studio.

| Project Option | | | × |
|--|--|---------------|-------------|
| Change HMI[H] Add PL | .C [A] TTT Change PLO | C Delete PLCD | |
| TOP Setting SYS : RD 1520X Option Module Setting FieldBus (0) RFID (0) PLC1 : DONGDO TECH : M COM1 (1) COM2 (0) COM3 (0) Ethernet (0) Wireless (0) USBDevice (0) | Primary Option Timeout Send Wait Retry POS1 Format : | LC1 | Comm Manual |
| < >> | <u> </u> | | Apply Close |

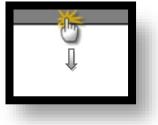
| Items | Settings | Remarks |
|---------------|---|-----------------------|
| Interface | Select "Serial". | Refer to "2. External |
| Protocol | Select the communication protocol between the TOP and an external device. | device selection". |
| TimeOut (ms) | Set the time for the TOP to wait for a response 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. | |



3.2. 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 <u>drag</u> it down. Touch "EXIT" in the pop-up window to go to the main screen.



(1) Communication interface setting

■ [Main Screen > Control Panel > Serial]

| 0 | | | | | | | | |
|---|------|------------|-----------------|--|--------------|---------------|-------------|------------|
| | õ | | | Control Pan | el | | × | |
| | | System | De | | Serial | × | | |
| Run | | | | Serial Por | t: COM | 1 🔹 | | |
| MNC | | PLC Se | ecurity I | Signal Lev RS-232C O F | |) RS-485(2) | | |
| VNC | | | | Baud Rate | e: 115 | 200 🔻 | | |
| Viewer | ll 6 | <u></u> | 0 | Data Bi | t: 8 | - | | |
| | Et | hernet S | Serial | Stop Bi | t: 1 | - | | |
| | | | | Parity Bi | t: Non | e 🔽 | | |
| Screen shot | 1 | HIN! | File Manager | Flow | : Off | - | | |
| | Dia | gnostic M | | Auto Search | Loopt | back Test | | |
| | | System] | | | Арріу | | Tose | / |
| | | | | | | | | |
| Toprx – Toprxo8 | 00S | | | | | A 2 | 021-09-01 1 | 1:19:03 AM |
| Items | | | TOP |) | | External devi | ce | Remarks |
| Signal Level (port) | | | RS-23 | 2C | | RS-232C | | |
| Baud Rate | | | 115200 | | | | | Fixed |
| Data Bit | | 8 | | | | | Fixed | |
| Stop Bit | | 1 Fixe | | | | | Fixed | |
| Parity Bit | | None Fixed | | | | | Fixed | |
| *Programmer port * The above settings ar | | - | | ally as the above exar y the company. | nple setting | S. | | |
| Items | | Descriptio | n | | | | | |
| | | | | | | | | |

| 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]

| | õ | 1001 | PLC | × | |
|--|---|--|--|-------------------------------------|----|
| Run VNC Viewer Screen shot | System PLC Ethernet Diagnostic | Driver(COM1) Interface Protocol Timeout Send Wait Retry POS1 Form POS2 Form Using Groups | PLC1(DONGDO TECH : ML Series Serial ML Protocol 300 	msec 0 	msec 5 	msec 0K/NG Data Number 0K/ NG | | |
| TOPRX - TOPRX0800 | [System] | Diagnostic | A 2 | Apply Cancel 2021-09-01 11:19:28 | АН |

| 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 | | Check | | Remarks | |
|-----------------|---------------------------|------------------------------|-------|-------------------------|--|--|
| System | How to connect the system | | OK | NG | 1. Containing formation | |
| configuration | Connection cable nam | OK | NG | 1. System configuration | | |
| ТОР | Version information | OK | NG | | | |
| | Port in use | OK | NG | | | |
| | Driver name | OK | NG | | | |
| | Other detailed setting | OK | NG | | | |
| | Relative prefix | Project setting | OK | NG | | |
| | | Communication diagnostics | ОК | NG | 2. External device selection 3. Communication setting | |
| | Serial Parameter | Transmission Speed | ОК | 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 estimat | |
| | Serial Parameter | Transmission Speed | ОК | NG | 4. External device setting | |
| | | 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. External device setting

Refer to the vendor's user manual to identically configure the communication settings of the external device to that of the TOP. 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 "DONGDO TECH : ML-CP Series Computer link (Slave)")

5.1. Cable table

| ТОР | | | | 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 | 0 0 |
| | 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) |

*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.

1. Displacement data of the external device is saved in the order of "(SYS)0000", "(SYS)0001", "(SYS)0002", etc.

2. Configuration of displacement data quantity for the external device is determined by the number of ML-CP Series channels configured.

3. Examples: If there are more than 3 channels

| Channel (ML-CP Series) | Storage address (Touch panel) | Remarks |
|------------------------|-------------------------------|---------|
| First channel | (SYS)0000 | *1) *2) |
| Second channel | (SYS)0001 | *1) *2) |
| Third channel | (SYS)0002 | *1) *2) |

*1) Signed data

*2) Data range: -9999 - +9999