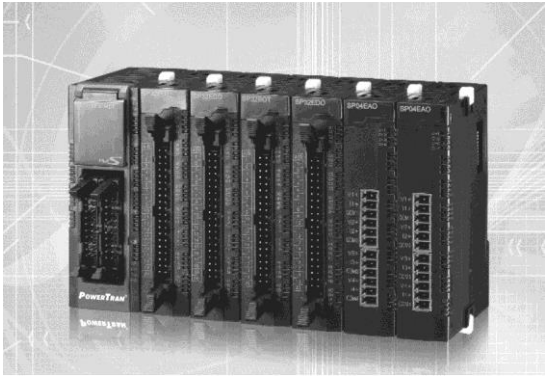
JK Fenner

POWERTRAN - PLC S

PROGRAMMABLE LOGIC CONTROLLER

PLC-S Series CPU

- CM3-SP32MDT/V/E/F(-SD)
- CM3-SP16MDR/V/E/F
- CM3-SP32MDC/V/E/F(-SD)



Before You Start

This manual contains important information on the use and operation of this device. Please read all the information carefully for optimal performance and to prevent any damage or misuse of the device.

To keep product safely, all activities including product installation, wiring operation, or maintenance required are to be treated by trained personnel.

Safety symbols are classified into two categories, “WARNING” and “CAUTION”.

⚠ Warning-This symbol describes situations that could cause major or fatal injury to the user.

⚠ Caution-This symbol describes situations that may cause minor injury or damage to the device.

SAFETY SYMBOLS USED IN THIS PRODUCT MEANS:

⚠ This symbol warns the user of potential hazards.

⚠ This symbol warns the user of un-insulated voltage within the unit that can cause dangerous electric shock.

Keep this manual nearby the user operating devices so it can be easily checked.

A-class equipment (Broadcasting communication equipment for business)

This product has passed the testing for electromagnetic waves for business use, and has not been designed or manufactured to be used as a household item; users are advised as such.

Design Precautions (⚠ Warning)

Please install a safety circuit to protect entire control system in case of an unexpected power shutdown and PLC module malfunction. Such anomalies may severely compromise the integrity of the overall system.

External to the PLC, please install circuits and switches to safeguard the system from mechanical damages (ex. Emergency stop, upper/lower limit switches, forward/reverse direction interlocking circuits, etc)

When the PLC detects either of the following failure conditions, it may stop operation and turn off all outputs.

- The overcurrent protection or overvoltage protection of the power supply module is activated.

- The PLC CPU detected a failure, such as the watchdog timer error or module installation failure, with its self-diagnostic function.

In addition, all outputs may be turned on when there is a failure that the PLC CPU cannot detect, such as in the relay or TR terminal. Build an extra monitoring circuit that will monitor any output signal that could cause serious accidents.

A greater than normal current passed through the PLC for an extended period of time, or a short-circuited load flows in the output module may cause a fire.

Build a circuit that turns on the external power supply after the PLC power supply is turned on. If the external power supply is turned on first, it could result in output failure or malfunction.

In order to ensure that the system operates safely, please configure an interlock circuit in the scan program for the following situations.

- When exchanging data with computer or other devices.

- When operated by a computer or other devices.

Not doing so could result in output failure or malfunction.

Precautions for design (⚠ Caution)

Do not bundle the input/output signal or communications cables with the main circuit and power cables. They should be installed at least more than 100 mm (3.94inches) apart. Not doing so could result in output failure or malfunction.

Precautions for mounting (⚠ Caution)

Use the PLC in the environment that meets the general specifications given in this manual.

Using this PLC in any environment outside the range of the general specifications could result in electric shock, fire, malfunction, or damage to or deterioration of the product.

Please ensure that each module is installed correctly in its place. Loosely or incorrectly installed pieces may result in malfunction, failure, or free-fall.

Power supply in PLC should be turned off before mounting the module. Not doing so could cause an electric shock or damage to the device.

Install I/O devices or extension connectors correctly. If they are installed incorrectly, it may result in an input or output failure.

Do not convey direct vibration into PLC. Doing so could cause electric shock, fire or malfunctions.

After wiring work, please make sure to close the terminal cover before turning on the power for the PLC system.

Precautions for wiring (⚠ Warning)

Make sure to check the device's rated voltage and circuit arrangement before wiring. Failure to do so may cause electric shock or damage on the device.

Make sure to close the terminal cover before turning on the power of PLC system after wiring work. Failure to do so may cause electric shock.

Precautions for wiring (⚠ Caution)

Make sure to check device's regular voltage and sequence of terminals. Failure to do so may cause fire, electric shock and malfunctions.

Make sure to tighten the screw with standard torque. Loose connections may cause short-circuit, fire or malfunctions.

In grounding the FG ground terminals, be sure to conduct the product at least D type (Class 3) grounding. Not doing so could result in electric shock or malfunctions.

When wiring, make sure that wiring debris do not enter the module. Failure to do so may cause fire, equipment damage or malfunctions.

Precautions for test run and repair (⚠ Warning)

Please do not touch the terminals when the power is ON. Doing so could cause an electric shock or malfunctions.

When cleaning or tightening the screw, turn off the power of PLC and all other systems. Failure to do so could cause an electric shock or malfunctions.

Do not charge, disassemble, heat up, short, or solder the battery. Doing so could cause the battery to heat up, rupture or ignite thereby harming the user.

Precautions for test run and repair (⚠ Caution)

Do not dissociate the PCB from the module's casing or make any modifications to the device. Doing so may cause fire, electric shock or malfunction.

When mounting or separating the module, make sure to turn off power to PLC and all other devices. Failure to do so could cause an electric shock or malfunctions.

Use radio, walkie-talkie or cellphone devices at least 30cm away from the PLC. Not doing so could result in malfunction.

Precautions for Disposal (⚠ Caution)

When the product is disposed of, it should be done so according to your country's regulations for similar types of industrial waste. Not doing so may cause an occurrence of toxic substances or explosion.

GENERAL SPECIFICATIONS

<table>
<tr><th>Items</th><th colspan="5">Specification</th><th>Standards</th></tr>
<tr><td>Ambient Temp.</td><td colspan="5">-10℃~65℃</td><td>-</td></tr>
<tr><td>Storage Temp.</td><td colspan="5">-25℃~80℃</td><td>-</td></tr>
<tr><td>Ambient Humidity</td><td colspan="5">5~95%RH, Non-condensing</td><td>-</td></tr>
<tr><td>Storage Humidity</td><td colspan="5">5~95%RH, Non-condensing</td><td>-</td></tr>
<tr><td rowspan="8">Vibration</td><td colspan="4">For discontinuous vibration</td><td rowspan="8">IEC 61131-2</td></tr>
<tr><td>Frequency</td><td>Acceleration</td><td>Amplitude</td><td>Times</td></tr>
<tr><td>5≤f<9Hz</td><td>-</td><td>1.75mm</td><td rowspan="2">10 times in X, Y, Z</td></tr>
<tr><td>9≤f≤150Hz</td><td>9.8m/s^2{1G}</td><td>-</td></tr>
<tr><td colspan="4">Continuous vibration</td></tr>
<tr><td>Frequency</td><td>Acceleration</td><td>Amplitude</td><td>Times</td></tr>
<tr><td>5≤f<9Hz</td><td>-</td><td>3.5mm</td><td rowspan="2">10 times in X, Y, Z</td></tr>
<tr><td>9≤f≤150Hz</td><td>4.9m/s^2{0.5G}</td><td>-</td></tr>
<tr><td>Shocks</td><td colspan="5">•Max. impact acceleration : 147m/s^2{15G}
•Authorized time : 11ms
•Pulse wave : Sign half-wave pulse (3 times each in X,Y,Z)</td><td>IEC 61131-2</td></tr>
<tr><td rowspan="5">Noise</td><td>Square wave impulse noise</td><td colspan="4">± 2kV</td><td>POWERTRAN standard</td></tr>
<tr><td>Electrostatic discharge</td><td colspan="4">±4kV (Contact), ±8kV (Air)</td><td>IEC 61131-2
IEC61000-4-2</td></tr>
<tr><td>Radiated electro-magnetic field</td><td colspan="4">80~1000 MHz,10V/m</td><td>IEC 61131-2
IEC61000-4-3</td></tr>
<tr><td rowspan="4">Fast Transient Burst noise (Voltage)</td><td colspan="2">CPU, Power</td><td>3kV</td><td rowspan="4">IEC 61131-2
IEC61000-4-4</td></tr>
<tr><td colspan="2">Digital/Analog I/O (AC)</td><td>2kV</td></tr>
<tr><td colspan="2">Digital/Analog I/O (DC)</td><td rowspan="2">1kV</td></tr>
<tr><td colspan="2">Communication</td></tr>
<tr><td>Ambient Conditions</td><td colspan="5">No corrosive gas and no dust</td></tr>
<tr><td>Altitude</td><td colspan="5">2,000m or less</td></tr>
<tr><td>Pollution</td><td colspan="5">2 or less</td></tr>
<tr><td>Cooling</td><td colspan="5">Natural Air Cooling</td></tr>
</table>

PLC-S CPU PERFORMANCE SPECIFICATIONS

Items		Specification	Remark
Power		DC 12-24V / 10W (In case of maximum expansion)	-
Program Control Method		Cyclic Execution, Time Driven Interrupt	-
I/O Control Method		Indirect method, Directed by program instruction	-
Program language		LD(Ladder Diagram), IL(Instruction List), SFC(Sequential Function Chart)	-
Data Processing Method		32 Bit	-
Instructions	Sequence	55 Instruction	-
	Application	389 Instruction	-
Processing speed (Sequence)		300ns / Step	-
Program capacity		10k Step	-
Maximum I/O points		1,024 Points	-
Operation mode		Remote Run, Remote Stop	-
Back-up method		K Device Memory, Latched Device Memory	-
Total Program		128	-
Program types	Scan	Scan, Subroutine, Cold/Hot Start initialization, Periodic Interrupts	-
	Periodic Interrupts	Maximum 16 scan program (Minimum period : 10ms)	-
	Special	PID Control, HSC, Positioning, I/O input Filter	-
	Communication	Serial, EtherNet, MODBUS/RTU Master, MODBUS TCP, High Speed PLC Link	-
	Etc.	SFC, FBD (Function Block Diagram)	-
Self-diagnosis function		WDT(Detects delay of scan time), Memory error, I/O error, Low Battery Power ON/OFF Status	-
Re-start		Cold, Hot Restart	-

PLC-S CPU PERFORMANCE SPECIFICATIONS

Items		Specification	Remark
Device memory	X	1,024 points (X0000 – X063F)	Bit
	Y	1,024 points (Y0000 – Y063F)	Bit
	M	8,192 points (M0000 – M511F)	Bit
	L	4,096 points (L0000 – L255F)	Bit
	K	4,096 points (K0000 – K255F)	Bit
	F	2,048 points (F0000 – F127F)	Bit
	T	512 points (T0000 – T0511)	Word
	C	512 points (C0000 – C0511)	Word
	S	100 states x 100 set (00.00 - 99.99)	-
	D	10,000 words (D0000 - D9999)	Word
	Z	1,024 words (Call Stack : Z0000 - Z0063, Z1000 - Z1063)	Word
	Q	8,192 points (Q0000 – Q511F)	Bit
	R	16 points (Index)	-
High Speed Counter		1Phase Pulse Input + Direction signal(20kpps) 2 Phase 2Ch (In case of operating 2Ch simultaneously 10kpps)	-
Positioning		X axis: Position / Speed control 100kpps Y axis: Position control 5Kpps, Speed control 100kpps	-
PID		32 Channels, Auto-Tuning	-
RTC		Real Time Clock (Battery CR2032 Backup)	-
Comm. Channel		Built-in : USB Loader (for POWERTRAN Program), RS232C 1CH Option : RS485 1Ch / Ethernet 1port	-
Etc.		Floating-point operation, Online edit	-

DEVICE & ADDRESS

► **Device**

- Input: X
- Output: Y
- Sub Relay: M
- Keep Relay: K
- Timer: T
- Counter: C
- Data Device: D
- Sub Data Device: @D
- Link Relay: L
- Step Control Relay: S
- Special Relay: F
- Index register: R

► **Device Address**

- Bit Data: [Device] + [Card No.] + [Bit No.]

Device: X, Y, M, K, L, F Card No. : 10 Dec (Decimal). 3Characters

Bit No. : 16Hex. 1Character

Ex) X0100 → 10Dec. (word) + 16Hex

(Last Bit) : [10th Address and 0th bit]

- Word Data: [Device] + [Card No.]

Device: D, Z, T, C Card No. : 10Dec. 5Characters

Ex) D0100→10Dec. (Word): [100th word Address]

- Timer, Counter Output: [Device] + [Bit No.]

Device: T, C, Bit No. : 10Dec. 4Characters

Ex) T0100→10Dec. (Word): [T 100th Bit Address]

- Step Controller I/O: [Device] + [Card No.] + [.] + [Step No.]

Device: S

Card No. : 10Dec. 2Characters, Step No. : 10Dec. 2Characters

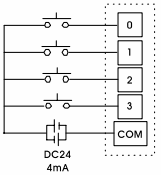
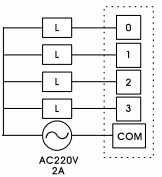
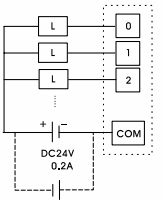
Ex) Sxx.xx→ xx is 10Dec. (0~99)

- Assign Bit Device to Word: [Device] + [Card No.] + [0]

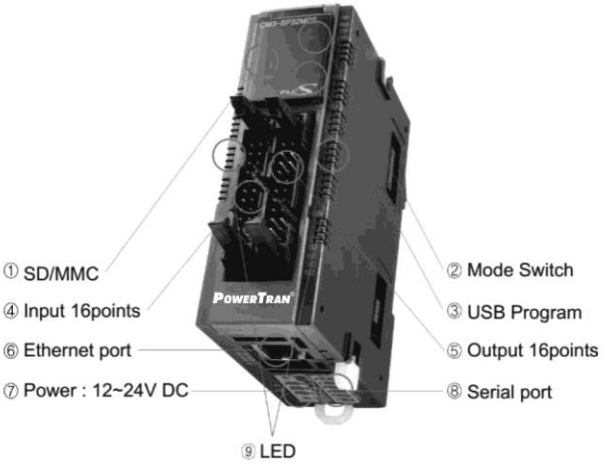
Device: X, Y, M, K, L, F, Card No. : 10Dec. 3Characters

Ex) X010 → 10Dec. (Word), [X 10th Address]

I/O SPECIFICATION

Items	DC Input	Relay Output	TR Output
Rated I/O Voltage	DC 24V DC 12V/24V (High Speed Counter)	AC 220V / DC 24V	DC 12V / 24V
Rated I/O Current	4mA	1 point 2A / COM 5A	1 point 0.2A / COM 2A
On V/A	DC 9V(Ch1~4) / 3mA DC 14V(Ch5~8) / 3mA	-	-
Off V/A	DC 7V(Ch1~4) / 3mA DC 12V(Ch5~8) / 3mA	-	-
Response time	3ms or less	10ms or less	1ms or less
Operation indicator	Input ON, LED ON	Input ON, LED ON	Input ON, LED ON
Insulation method	Photocoupler insulation	Relay insulation	Photocoupler insulation
Input method	Sink/Source	-	-
Output method	-	Relay	Sink/Source
Circuit Diagram			

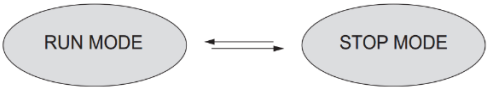
NAMES OF PART AND MODE CHANGE



► Slot number is assigned in order from left.

√ Maximum 11 expansion modules are available.

► Mode change



► Operation mode is changed by mode switch.

►The mode can be changed through POWERTRAN but when power reset,

√ RUN / STOP mode is decided through switch position.

FEATURES OF CPU

► Built-in Functions

- PID Control

  It operates 32LOOP PID without PID module.
- RTC

  It reads time from RTC and saves it in F device address.
- I/O reservation

  It scans module at designated slot.

  It refers to reservation function in which writes a program without I/O change in case of expansion, damage or replacement.
- Online Edit

  Program can be edited while Run mode.

► Features

- SD/MMC Built-in

  Scan program or firmware can be upgraded by SD memory card.

  (Stop mode → Power off → Insert SD card → Power on → Run mode in 5sec → Firmware downloading (wait 20sec) → Confirm flickering RUN, STOP, ERR LED → Remove SD card → Power off → Power on)
- 20kpps High Speed Counter (2Channel) Built-in.

  2PH. 2 / 4 Multi. (2PH. 2Multi – 10Kpps) Input mode possible, Voltage input type (Photocoupler Insulated)
- 100kpps 2axis Pulse Output built-in. (Positioning)

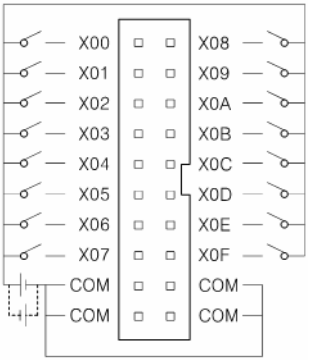
  Pulse + Direction Output, Position/Speed/Speed-Position, Position-Speed Control.
- Max. 3 communications can work simultaneously.

  (Ethernet, RS232, RS485) POWERTRAN HMI, MODBUS RTU/TCP, PLC Link, Protocol program (user protocol), Loader protocol support, Remote access & up/down load support.
- Abundant memory (10k Step)
- Data reserved in case of power cut

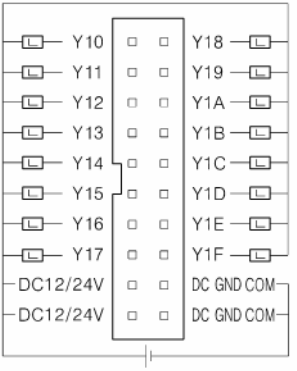
  Built-in Flash memory enabling permanent backup of program without any separate battery.

CPUI/OPIN MAP

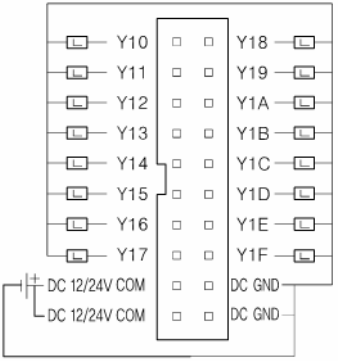
► **MDT, MDC Input**



► **MDT Output**

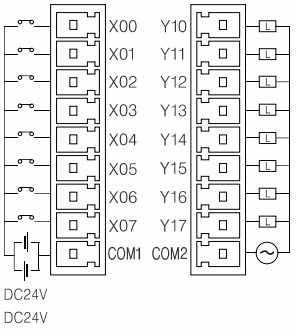


► **MDC Output**

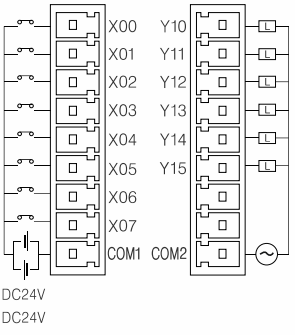


CPU I/OPIN MAP

► **SP16MDR, SP16MDRV Output**



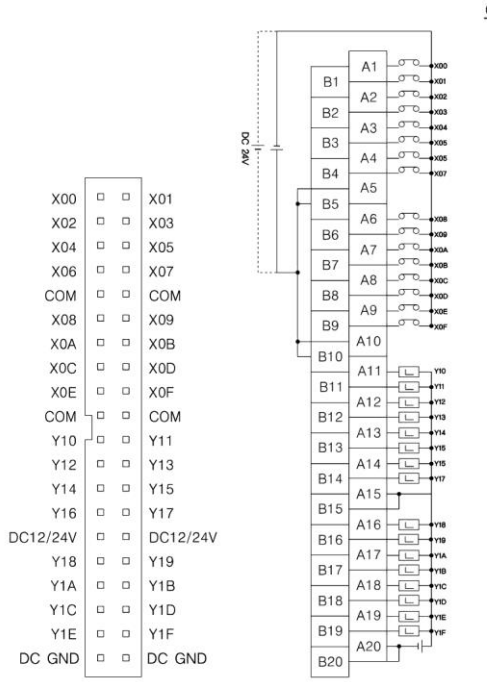
► **SP16MDRE, SP16MDRF Output**



*** SP16MDRE and SP16MDRF have only 6points of Relay output**

CM3-SP32MDT I/O PIN MAP

► Terminal (CM0-TM32M)



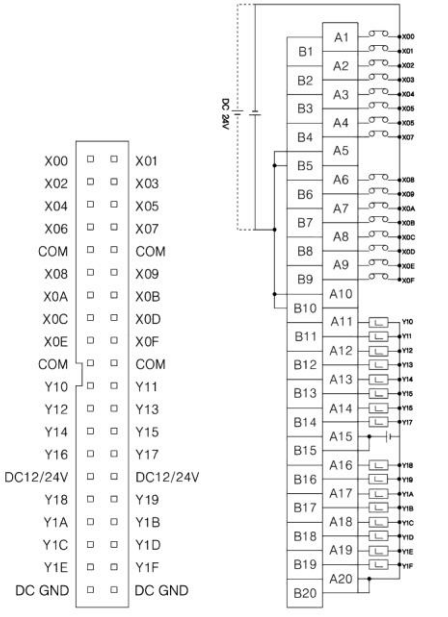
CM0-TB32M	CM3-SP32MDT
A1	X00
B1	X01
A2	X02
B2	X03
A3	X04
B3	X05
A4	X06
B4	X07
A5	COM
B5	COM
A6	X08
B6	X09
A7	X0A
B7	X0B
A8	X0C
B8	X0D
A9	X0E
B9	X0F
A10	COM
B10	COM
A11	Y10
B11	Y11
A12	Y12
B12	Y13
A13	Y14
B13	Y15
A14	Y16
B14	Y17
A15	DC12/24V
B15	DC12/24V
A16	Y18
B16	Y19
A17	Y1A
B17	Y1B
A18	Y1C
B18	Y1D
A19	Y1E
B19	Y1F
A20	DC GND
B20	DC GND

* Terminal (CM0-TM32M) has its own Terminal Cable.

Terminal Cable: CM0-SCB15M

CM3-SP32MDC I/O PIN MAP

► Terminal (CM0-TM32M)

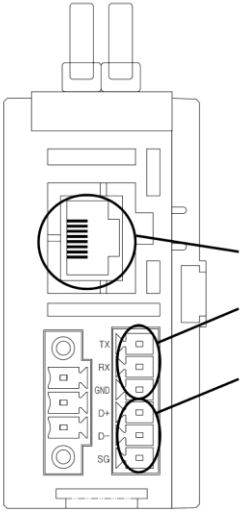


CM0-TB32M	CM3-SP32MDC
A1	X00
B1	X01
A2	X02
B2	X03
A3	X04
B3	X05
A4	X06
B4	X07
A5	COM
B5	COM
A6	X08
B6	X09
A7	X0A
B7	X0B
A8	X0C
B8	X0D
A9	X0E
B9	X0F
A10	COM
B10	COM
A11	Y10
B11	Y11
A12	Y12
B12	Y13
A13	Y14
B13	Y15
A14	Y16
B14	Y17
A15	DC12/24V
B15	DC12/24V
A16	Y18
B16	Y19
A17	Y1A
B17	Y1B
A18	Y1C
B18	Y1D
A19	Y1E
B19	Y1F
A20	DC GND
B20	DC GND

* Terminal (CM0-TM32M) has its own Terminal Cable.

  Terminal Cable : CM0-SCB15M

COMMUNICATION INTERFACE



Pin	Name
1	24V
2	24G
3	FG

Pin	Name
1	TX
2	RX
3	GND
4	D+
5	D−
6	SG

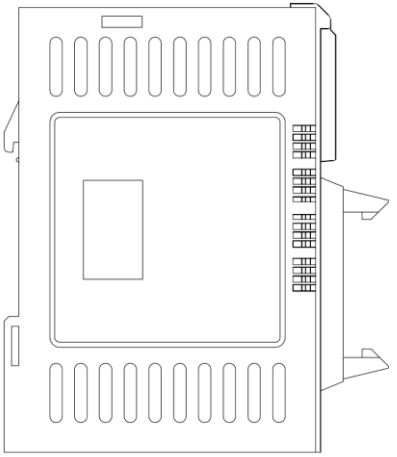
BUILT-IN COMM. SPECIFICATION

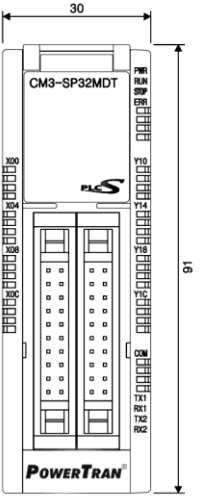
Items		Ch 1	Ch 2
		RS232C	RS485
Comm. Mode	POWERTRAN HMI Protocol	O	
	POWERTRAN Protocol	O	O
	Protocol Program	O	O
	MODBUS / RTU	Master / Slave	Master / Slave
Types	Data Bit	7 or 8 Bit	
	Stop Bit	1 or 2 Bit	
	Parity	Even / Odd / None	
Synchronization		Asynchronous	
Transmission speed		300~38400	

Items		Ethernet
Comm. Mode	POWERTRAN HMI Protocol	O
	POWERTRAN Protocol	O
	Protocol Program	X
	MODBUS / TCP	Slave
	High speed PLC Link	O
	DHCP	O
Max.online client		Max.5clients simultaneously
Comm, speed		10Mbps, 100Mbps
Comm, specification		100 base TX

APPEARANCE

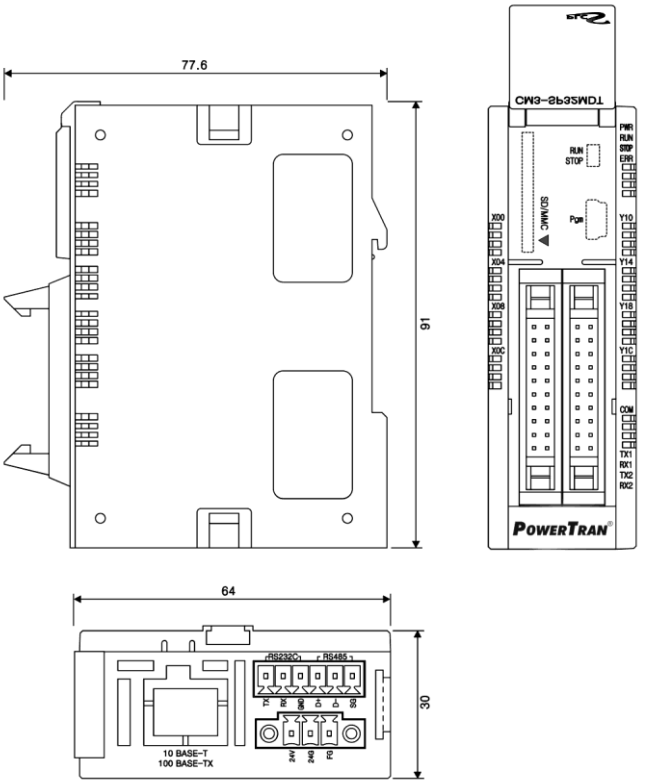
(Unit : mm)





DIMENSION

(Unit : mm)



MEMO

MEMO

MEMO

PRODUCT WARRANTY

JKFIL Industrial automation products including hardware, software, and firmware (collectively called "Products") carry a **one-year warranty** against defects in materials and workmanship beginning from the date of product receipt from seller or its appointed distributor. If a product proves defective in materials and workmanship within one year from the date of purchase, we will replace or repair it. JKFIL makes no representation or warranty, express or implied, that the operation of the Products will be uninterrupted or error free, or that the functions contained therein will meet or satisfy buyer's intended use or requirements.

Repaired or replaced Products provided as a result of this warranty are warranted for a period of six (6) months from the date of replacement. JKFIL's standard policy is that all customers are responsible for freight charges to JKFIL when returning products under the warranty return policy.

This warranty will be void if Products date codes or serial numbers are removed or defaced. Warranties do not apply to products that have been subjected to abnormal use, abnormal conditions, improper storage, exposure to moisture or dampness, unauthorized modifications, unauthorized repair, misuse, neglect, accident, alteration, improper installation or other acts which are not the fault of JKFIL, including damage caused in shipping. Our warranty also does not apply to any product that has been damaged by external causes such as fire, flood, sand, dirt, lightning, acts of God, battery leakage, theft, blown fuses, improper use of any electrical source or connection to product not recommended in writing for interconnection by JKFIL.

In no event will JKFIL be liable, whether in contract, tort or under any other legal theory, for lost profits or revenues, loss of use or similar economic loss, for any indirect, special, incidental, consequential, punitive or similar damages arising out of or in connection with any products including non-conforming products, or for any third party claims against you relating to the products, even if we have been advised of the possibility of such claim. **In no event will our monetary liability in respect of any product exceed the purchase price that you paid for it.**

PRODUCT WARRANTY

To minimize the risk of potential safety problems, you should follow all applicable local and national codes that regulate the installation and operation of your equipment. These codes vary from area to area and usually change with time. It is your responsibility to determine which codes should be followed, and to verify that the equipment, installation and operation is in compliance with the latest revision of these codes.

JKFIL INDUSTRIAL AUTOMATION SOFTWARE AND HARDWARE (COLLECTIVELY REFFERED TO AS, "PRODUCTS") LICENSE DISCLAIMER AND LIMITATION OF WARRANTIES

YOUR USE OF ANY JKFIL INDUSTRIAL AUTOMATION PRODUCTS AND CONTENT ACCESSIBLE THROUGH THE PRODUCTS IS ENTIRELY AT YOUR OWN RISK. EXCEPT AS DESCRIBED IN THIS AGREEMENT, THE PRODUCTS ARE PROVIDED "AS IS." TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, JKFIL, ITS AFFILIATES, AND ITS THIRD PARTY SERVICE OR DATA PROVIDERS, LICENSORS, DISTRIBUTORS OR SUPPLIERS (COLLECTIVELY REFERRED TO AS, "SUPPLIERS") DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY THAT THE PRODUCTS ARE FIT FOR A PARTICULAR PURPOSE, TITLE, MERCHANTABILITY, DATA LOSS, NON-INTERFERENCE WITH OR NON-INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHTS, OR THE ACCURACY, RELIABILITY, QUALITY OR CONTENT IN OR LINKED TO THE PRODUCTS.

JKFIL AND ITS AFFILIATES AND SUPPLIERS DO NOT WARRANT THAT THE PRODUCTS ARE SECURE, FREE FROM BUGS, VIRUSES, INTERRUPTION, ERRORS, THEFT OR DESTRUCTION. FURTHER, JKFIL DOES NOT WARRANT ACCESS TO THE INTERNET OR TO ANY OTHER SERVICE, CONTENT OR DATA TRANSMITTED THROUGH THE PRODUCTS.

EQUIPMENT DAMAGE OR SERIOUS INJURY TO PERSONNEL INCLUDING DEATH CAN RESULT FROM THE FAILURE TO FOLLOW ALL APPLICABLE CODES AND STANDARDS INCLUDING ENGINEERING STANDARDS. JKFIL DOES NOT ASSUME ANY RESPONSIBILITY FOR YOUR PRODUCT DESIGN, INSTALLATION OR OPERATION.

PRODUCT WARRANTY

JKFIL LTD AND ITS AFFILIATES AND SUPPLIERS DISCLAIM ANY REPRESENTATIONS OR WARRANTIES THAT YOUR USE OF THE PRODUCTS WILL SATISFY OR ENSURE COMPLIANCE WITH ANY LEGAL OBLIGATIONS OR LAWS OR REGULATIONS.

LIMITATION OF LIABILITY AND INDEMNITY. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, THE ENTIRE LIABILITY OF JKFIL, AND ITS AFFILIATES AND SUPPLIERS FOR ALL MATTERS OR CLAIMS RELATING TO THIS AGREEMENT SHALL BE LIMITED TO THE AMOUNT YOU PAID FOR THE PRODUCTS DURING THE TWELVE (12) MONTHS PRIOR TO SUCH CLAIM.

THE STATUTE OF LIMITATIONS FOR FILING A CLAIM SHALL BE LIMITED TO THE SHORTER OF TWELVE MONTHS, OR THE SHORTEST PERIOD ALLOWED UNDER APPLICABLE LAW.

SUBJECT TO APPLICABLE LAW, JKFIL AND ITS AFFILIATES AND SUPPLIERS ARE NOT LIABLE FOR ANY OF THE FOLLOWING: (A) INDIRECT, SPECIAL, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES; (B) DAMAGES RELATING TO FAILURES OF TELECOMMUNICATIONS, THE INTERNET, ELECTRONIC COMMUNICATIONS, CORRUPTION, SECURITY, LOSS OR THEFT OF DATA, VIRUSES, SPYWARE, LOSS OF BUSINESS, REVENUE, PROFITS OR INVESTMENT, OR USE OF SOFTWARE OR HARDWARE THAT DOES NOT MEET POWERTRAN SYSTEM REQUIREMENTS. THE ABOVE LIMITATIONS APPLY EVEN IF JKFIL AND ITS AFFILIATES AND SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES AND/OR THE POSSIBILITY OF DAMAGES GREATER THAN THE LIMITATION ABOVE. THIS AGREEMENT SETS FORTH THE ENTIRE LIABILITY OF JKFIL, ITS AFFILIATES AND YOUR EXCLUSIVE REMEDY WITH RESPECT TO THE SOFTWARE AND ITS USE.

THE COURT AT CHENNAI SHALL HAVE EXCLUSIVE JURISDICTION.

JK Fenner **www.jkfennerindia.com**

Plant Address	:	Plot No.11&12, Phase IV, TSIIC, IDA, Pashamailaram - 502 307, Medak Dist, Telangna, India. Tel : 08455-224501, Email : info-ia@jkfenner.com
Registered Address	:	No.3, Madurai-Melakkal Road, Kochadai, Madurai – 625 016. Tamilnadu, India. Tel : 0452-2383801 / 483800, Email : info-ia@jkfenner.com
Corporate Address	:	Khivraj Complex II, 480, Anna Salai, Nandanam, Chennai – 600 035, Tamilnadu, India. Tel : 044-43994666, Email : info-ia@jkfenner.com

Version : 1.0

Printed : AUGUST, 2019

Manual No : 2516102