RKP-CMU1

1U Rack Mountable Control and Monitor Unit

UL60950-1 EN60950-1 TPTC004 IEC60950-1

Industrial Automate Telecom Network

Features

- 1U low profile/19-inch rack mountable
- Front panel LCD and buttons for on-site service without PC
- USB-, RS-232 or Ethernet interface for PC connection locally or remote monitoring and control via GSM modem
- Alarm/event log with time and date
- Windows-based PC communication software
- Easy wire connections on rear side
- 4 user programmable relay outputs for traditional remote monitoring or warning
- 5 years warranty

Applications

- Industrial automation
- Distributed power architecture system
- Wireless/telecommunication solution
- Redundant power system
- Electric vehicle charger system
- Constant current source system

Description

RKP-CMU1 is a fully digitalized control / monitor unit for the RKP-1U power system. Equipped with USB, RS-232, and ethernet interface, it can be connected locally to PC to execute the control and monitoring tasks. With built-in 4 configurable relay contacts, users can flexibility monitor specific events or alarms and react suitable action accordingly.

Model Encoding

Single unit:
RKP-CMU1

Model name

Rack:
RKP-1U□-CMU1□□□

- CMU1: With RKP-CMU1
- —: Without RKP-CMU1
- I: AC Inlet (IEC320-C20)
- T: Terminal block
- Profile fo the system
- Series name

※ Note Due to compatibility issue between old and new firmware of RKP-CMU1 and PSU, when choosing Rack PSU, please pay attention to the firmware revision of PSU and RKP-CMU1. Details please refer to the user's manual of RKP-CMU1.

SPECIFICATION

MODEL		RKP-CMU1	RKP-1U□-CMU1
OUTPUT	DIGITAL METER Note.6	Display the DC output voltage, current, and internal temperature	
	CONTROL OUTPUT Note.6	PMBus signal	
	LED INDICATOR	Green: Power on Red:Alarm	
	RELAY CONTACT	4 user programmable relay, relay contact rating(max.): 30V/1A resistive	
INPUT	VOLTAGE RANGE Note.3	12 ~ 15VDC	
	CURRENT	1A/12VDC 0.8A/15VDC	
	MONITORING INPUTS Note.6	PMBus signal	
FUNCTION	DISPLAY	LCD 16x2 Alphanumeric Matrix Display / PC Web Page Display	
	MONITOR	Output Voltage / Load Current / Temperature / Input Voltage	
	CONTROL	Output Voltage, Current Limit, ON/OFF	
	COMM. INTERFACE	USB, RS-232, Ethernet	
	MODEL SUPPORTED	RCP-1600, RCP-2000, DRP-3200	RCP-2000
ENVIRONMENT	WORKING TEMP. Note.1	-25 ~ +70℃	
	WORKING HUMIDITY	20 ~ 90% RH non-condensing	
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH non-condensing	
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes	
SAFETY & EMC (Note 4)	SAFETY STANDARDS	EAC TP TC 004 approved, design refer to TUV EN60950-1	UL60950-1, TUV EN60950-1, EAC TP TC 004 approved
	WITHSTAND VOLTAGE Note.2	O/P-FG:0.7KVDC	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.7KVDC
	ISOLATION RESISTANCE Note.2	O/P-FG:100M Ohms / 500VDC / 25℃/ 70% RH	I/P-O/P, I/P-FG,O/P-FG:100M Ohms / 500VDC / 25℃/ 70% RH
	EMC EMISSION	Compliance to EN55032 (CISPR32) Conduction Class B, Radiation Class A ; EN61000-3-2,-3, EAC TP TC 020	
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN61000-6-1(EN50082-2), light industry level, criteria A, EAC TP TC 020	
OTHERS	MTBF	110.5K hrs min. MIL-HDBK-217F (25℃)	
	DIMENSION	147.5*127*41mm (L*W*H)	350.8*483.6*44mm (L*W*H)
	PACKING	0.8Kg; 16pcs/13.8Kg/0.79CUFT	4.4Kg; 3pcs/14.2Kg/2.67CUFT

NOTE

1. LCD may freeze under -10℃.
2. SK100 and all of signal connectors (except CN502, CN503, and USB port) are considered as O/P.
3. Recommanded use MEAN WELL power adaptor series: GS12, GS15, GS18, GE12, GE18, GST18.
4. The power supply is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 720mm*360mm metal plate with 1mm of thickness. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to “EMI testing of component power supplies.” (as available on http://www.meanwell.com)
5. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft).
6. Please refer to respective specs of PSU models for the maximum number RKP-CMU1 can control and monitor.

■ Function Manual

1.Communication interface

※ RKP-CMU1 can control and monitor parameters of power units via PMBus communication, and PC can manage the whole system by using USB, RS232, or Ethernet to connect to RKP-CMU1.

※ PMBus: RKP-CMU1 supports PMBus Rev. 1.1 with maximum 100KHz bus speed, allowing information reading, status monitoring and output trimming. For details, please refer to the Installation Manual.

2.Monitoring and control

RKP-CMU1 can monitor parameters of power units such as output voltage, output current, internal temperature, status, serial number, and firmware version. It also can turn power units on/off together or separately by using "ON/OFF" pin in CN500 or PMBus "CONTROL" pin in JK1 or PMBus "OPERATION" command, shows below. By using PMBus, output voltage and over load protection of power units are adjustable. Please refer to the Installation Manual.

3.Real time clock, Data Log and Event Log

RKP-CMU1 has a build-in real time clock data to display actual date/time and for log time stamp. The data logger is designed to store operating data when the systems works. It has 1000 recodes and the interval of log is programmable from 1 to 60 minutes. The event log store system condition when alarm occur and remove. There are 600 records in event log.

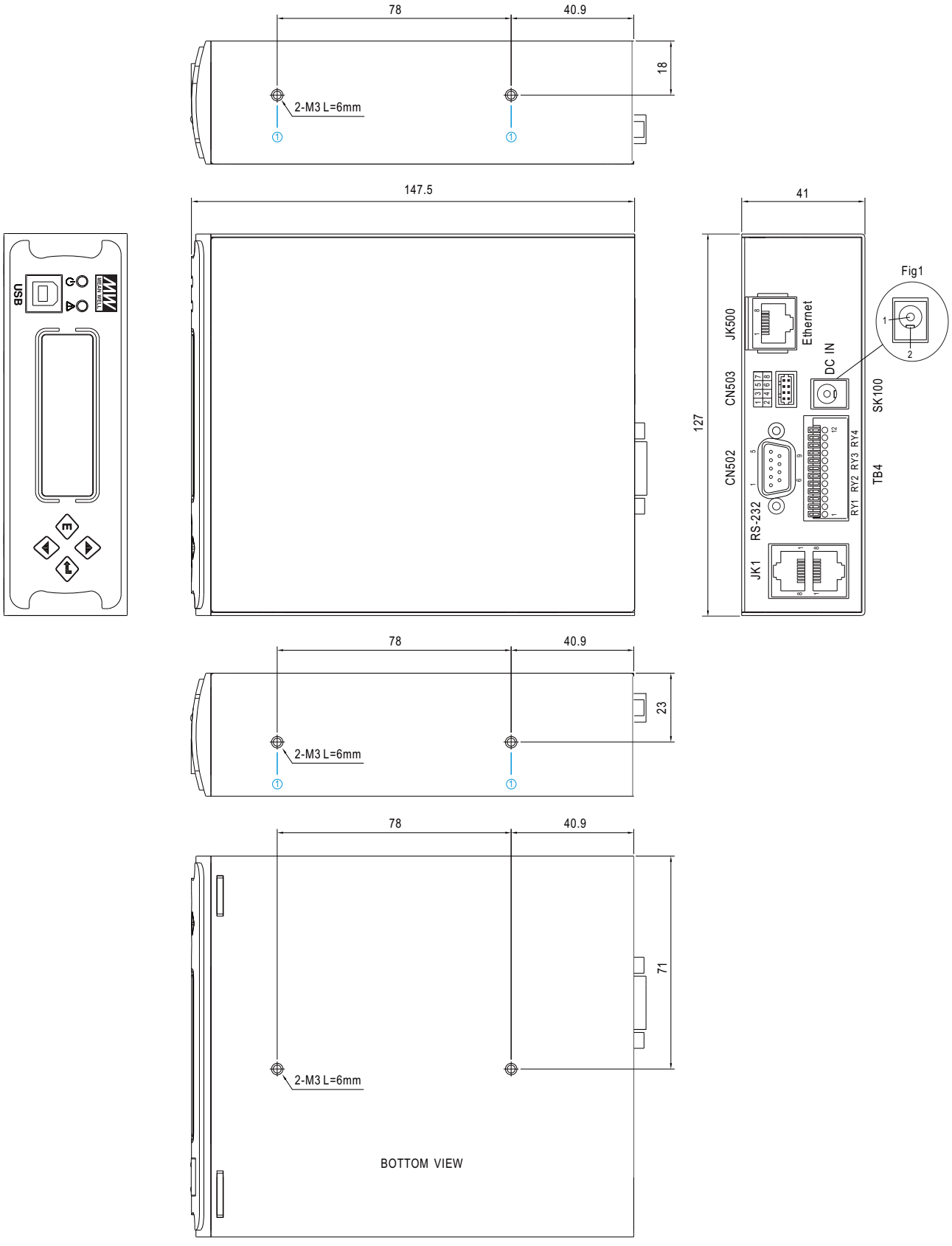
4.Programmable relay

There are 4 relays and each relay has normal open, normal close and common contact in terminal block. Their active conditions are programmable for flexible application, like charger and generator control.

Function	Sub-function	PSU	Parameter
Alarm	1.Any alarm 2.OVP 3.OLP 4.Short circuit 5.OTP 6.High Temperature 7.AC fail 8.Fan lock 9.PMBus error	N/A	N/A
PSU ON	1.Immediately	PSU0~ 31	0 sec.
	2.Delay		1 ~ 600 sec.
PSU OFF	1.Immediately	PSU0~ 31	0 sec.
	2.Delay		1 ~ 600 sec.
Digital input	D-IN1 ~ D-IN4	N/A	N/A

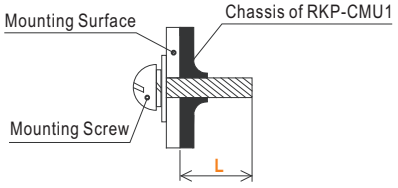
■ Mechanical Specification (Single Unit)

Case No. 959A Unit:mm



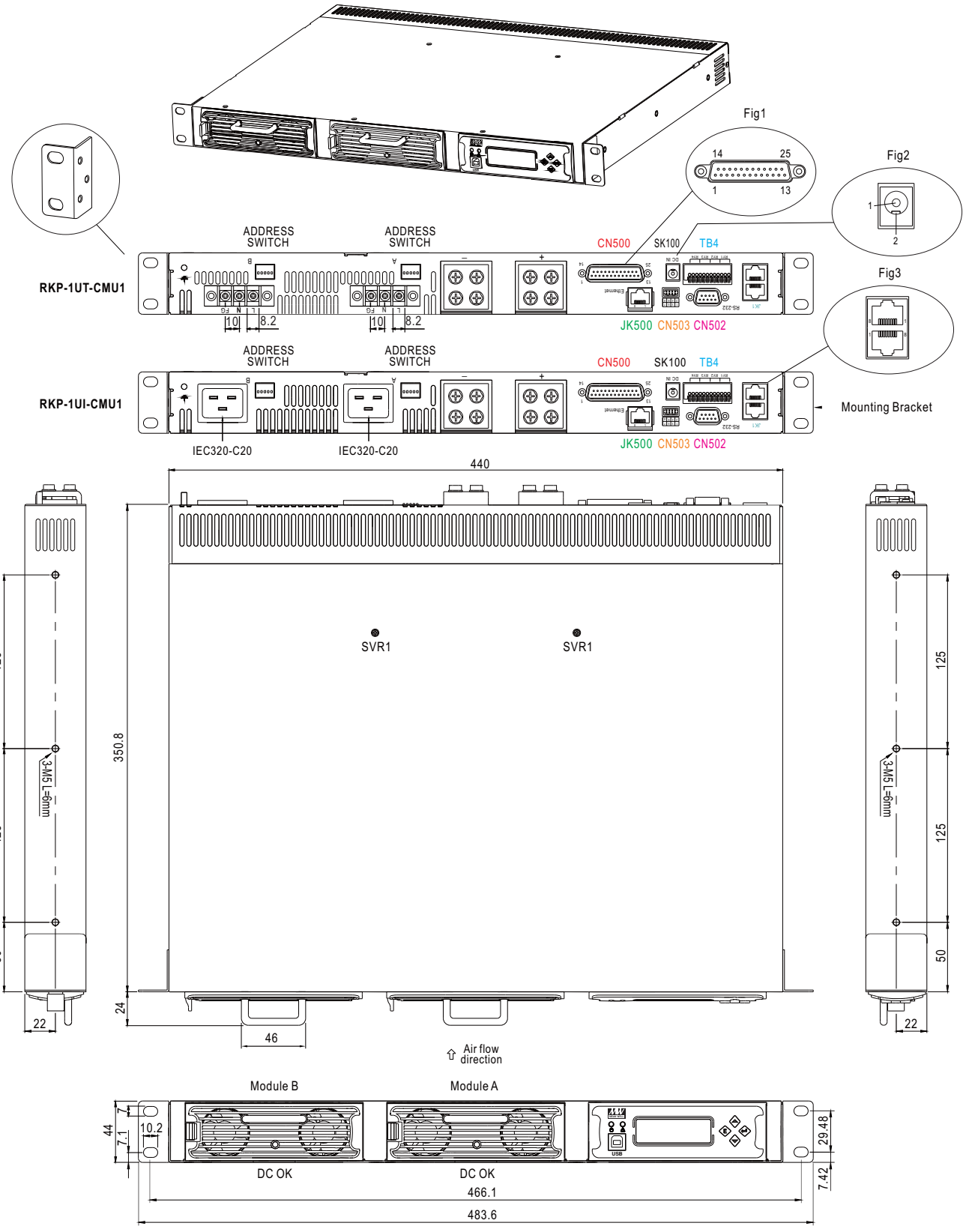
※ Mounting Instruction

Hole No.	Recommended Screw Size	MAX. Penetration Depth L	Recommended mounting torque
①	M3	6mm	6~8Kgf-cm



■ Mechanical Specification (Rack System)

Case No. 959D Unit:mm



※ IN/OUT Connector Pin No. Assignment(CN500) : D-Type Right Angle 25 positions

Pin No.	Function	Description
1,7	ON/OFF	Each unit can separately turn the output on and off by electrical signal or dry contact between ON/OFF A,B(pin 1,7) and +5V-AUX(pin 13). Short: ON, Open:OFF. (Note.2)
2,8	AC-OK	Low : When the input voltage is ≧87Vrms. High : when the input voltage in ≦75Vrms. (Note.2)
3,9	DC-OK	High : When the Vout ≦80±5%. Low : When Vout ≧80±5%. (Note.2)
4,10	PV	Connection for output voltage trimming. The voltage can be trimmed within its defined range. (Note.1)
5,11	T-ALARM	High : When the internal temperature (TSW1 or TSW2 open) exceeds the limit of temperature alarm. Low : When the internal temperature (TSW1 or TSW2 short) under the limit temperature. (Note.2)
6,12	FAN FAIL	High : When the internal fan fail. Low : When the internal fan is normal. (Note.2)
13	+5V-AUX	Auxiliary voltage output, 4.5 ~ 5.5V, referenced to GND-AUX (pin 15). The maximum load current is 0.3A. This output has the built-in "Oring diodes" and is not controlled by the remote ON/OFF control.
14	+12V-AUX	Auxiliary voltage output, 10.8 ~ 13.2V, referenced to GND-AUX (pin 15). The maximum load current is 0.8A. This output has the built-in "Oring diodes" and is not controlled by the remote ON/OFF control.
15	GND-AUX	Auxiliary voltage output GND. The signal return is isolated from the output terminals (+V & -V).
16~21	N.C.	Not used.
22	+S	Positive sensing. The +S signal should be connected to the positive terminal of the load. The +S and -S leads should be twisted in pair to minimize noise pick-up effect. The maximum line drop compensation is 0.5V.
23	-S	Negative sensing. The -S signal should be connected to the negative terminal of the load. The -S and +S leads should be twisted in pair to minimize noise pick-up effect. The maximum line drop compensation is 0.5V.
24	+V(signal)	Positive output voltage. For local sense use only, can't be connected directly to the load.
25	-V(signal)	Negative output voltage. For local sense use only, can't be connected directly to the load.

※ IN/OUT Connector Pin No. Assignment(JK1) : RJ45 8 positions

Pin No.	Function	Description
1,2	DA,DB	Differential digital signal for parallel control. (Note.1)
3	-V(signal)	Negative output voltage. For parallel control, can't be connected directly to the load.
4	CONTROL	Remote ON/OFF control pin used in the PMBus interface. (Note.2)
5	NC	Not use.
6	SDA	Serial Data used in the PMBus interface. (Note.2)
7	SCL	Serial Clock used in the PMBus interface. (Note.2)
8	GND-AUX	Auxiliary voltage output GND. The signal return is isolated from the output terminals (+V & -V).

Note.1: Non-isolated signal, referenced to -V(signal).
Note.2: Isolated signal, referenced to GND-AUX.

※ IN/OUT Connector Pin No. Assignment(CN502) : D-type Male 9 positions

Pin No.	Function	Description
1,4,6,7,8,9	NC	Not used.
2	RXD	Data receiving pin of RS-232 interface.
3	TXD	Data transmitting pin of RS-232 interface.
4	GND-FG	RS-232 common GND. This signal connects to FG and isolated from -V and GND-AUX.

※ IN/OUT Connector Pin No. Assignment(CN503) : HRS DF11-8DP-2DS or equivalent

Pin No.	Function	Description
1,3,5,7	D-IN1 D-IN2 D-IN3 D-IN4	The isolated digital input signal and referenced to GND-FG. Open from GND-FG or +5V : Logic "1" input to RKP-CMU1 short to GND-FG or 0V : Logic "0" input to RKP-CMU1
2,4,6,8	GND-FG	Common GND for D-IN. This signal connects to FG and isolated from -V and GND-AUX.

※ IN/OUT Connector Pin No. Assignment(JK500) : RJ45 8 position

Pin No.	Function	Description
1,2	TX+/TX-	Transmit data used in the Ethernet interface.
3,6	RX+/RX-	Receive data used in the Ethernet interface.
4,5,7,8	NC	Not used.

※ IN/OUT Connector Pin No. Assignment(TB4) : DECA MX422-25412 or equivalent

Pin No.	Function	Description
1,4,7,10	Relay-NO	Normal-open contact of programmable relay.
2,5,8,11	Relay-NC	Normal-close contact of programmable relay.
3,6,9,12	Relay-COM	Common for NO/NC contact.

Note: Relay contact rating (max.) : 30Vdc/1A resistive.

※ IN/OUT Connector Pin No. Assignment(SK100): Schurter 4840.2201 or equivalent

Pin No.	Function	Description
1	+VIN	Positive input voltage for RKP-CMU1.
2	-VIN	Negative input voltage for RKP-CMU1.