

## 500W Programmable Digital Power Supply

- ITE and Medical Safety Approvals
- Universal AC Input Full Range (90~264Vac)
- Programmable output voltage & current 0~105%
- Current sharing at parallel operation
- Constant current limit
- AUX POWER : 5V/1A
- Built-in OR'ing FETs
- Remote on/off & sense
- Support PMBus, Modbus, CANBus and Ethernet communication
- Protection: OLP, OCP, OVP, OTP and AC Input Failure
- Built-in VR to adjust output voltage
- Built-in EEPROM to memorize power supply settings



**ADM** : Product Series      **500** : Wattage      **XX** : Output voltage      ①②③ : can be RS4 or ETH

## Modbus, CANBus, Meet PMBus and RS-485 (Cotek STD protocol)

ETHERNET (ARP, Device Search Utility, DHCP Client, IPv4, SNMP, TCP, UDP, ICMP)

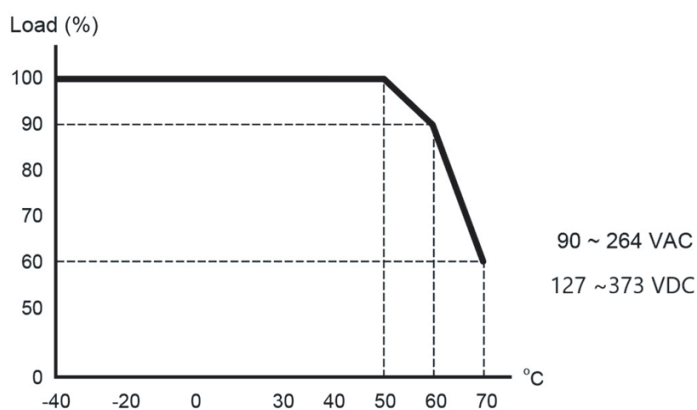
|        |                       | PADM-500-12                           | PADM-500-15 | PADM-500-24 | PADM-500-30 | PADM-500-36 | PADM-500-48 | PADM-500-60 |
|--------|-----------------------|---------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Output | DC Voltage Rated      | 12V                                   | 15V         | 24V         | 30V         | 36V         | 48V         | 57V         |
|        | Rated Current         | 41.7A                                 | 33.4A       | 20.9A       | 16.7A       | 13.9A       | 10.5A       | 8.8A        |
|        | Current Range         | 0~105% Rated Current                  |             |             |             |             |             |             |
|        | Voltage Range         | 0~105% Rated Voltage                  |             |             |             |             |             |             |
|        | Rated Power           | 500W                                  |             |             |             |             |             |             |
|        | Ripple & Noise (Max.) | 150mVp-p                              | 150mVp-p    | 240mVp-p    | 300mVp-p    | 360mVp-p    | 480mVp-p    | 570mVp-p    |
|        | Voltage Tolerance     | ±1.0% at rated voltage of single unit |             |             |             |             |             |             |
|        | Current Tolerance     | ±3.0% at rated current of single unit |             |             |             |             |             |             |
|        | Line Regulation       | ±1.0% at rated voltage                |             |             |             |             |             |             |
|        | Load Regulation       | ±1.0% at rated voltage                |             |             |             |             |             |             |
|        | Setup, Rise Time      | 1800ms , 130ms / 230Vac at full load  |             |             |             |             |             |             |
| Input  | Hold Up Time (Typ.)   | 16ms / 230Vac at full load            |             |             |             |             |             |             |
|        | Voltage Range         | 90~264Vac & 127~373Vdc                |             |             |             |             |             |             |
|        | Frequency Range       | 47/63Hz                               |             |             |             |             |             |             |
|        | Power Factor (Typ.)   | 115V/0.98 ; 230V/0.95                 |             |             |             |             |             |             |
|        | Efficiency (Typ.)     | 87%                                   | 88%         | 90%         | 90%         | 90%         | 90%         | 91%         |
|        | AC Current (Typ.)     | 2.6A at 230Vac                        |             |             |             |             |             |             |
|        | Inrush Current (Typ.) | 30A / 115VAC, 60A / 230VAC            |             |             |             |             |             |             |

# PADM-500 Series 500W Programmable Power Supply

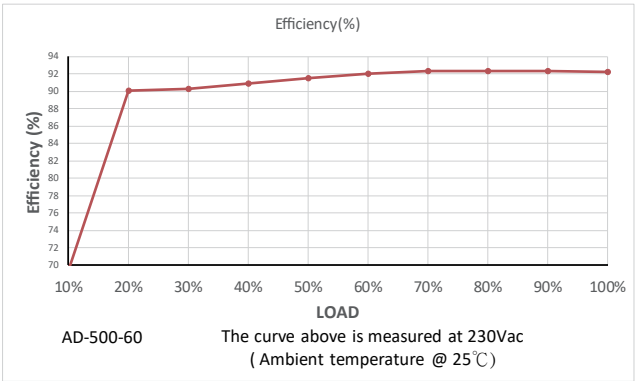
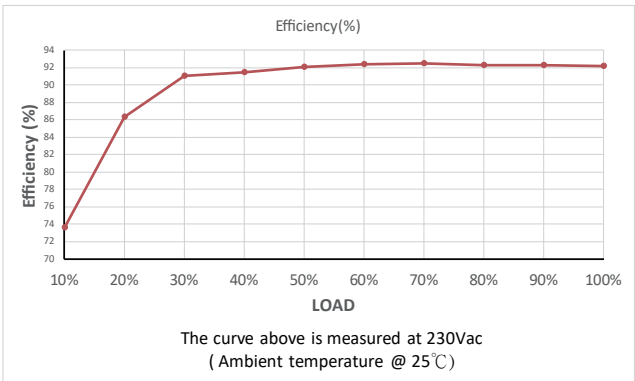
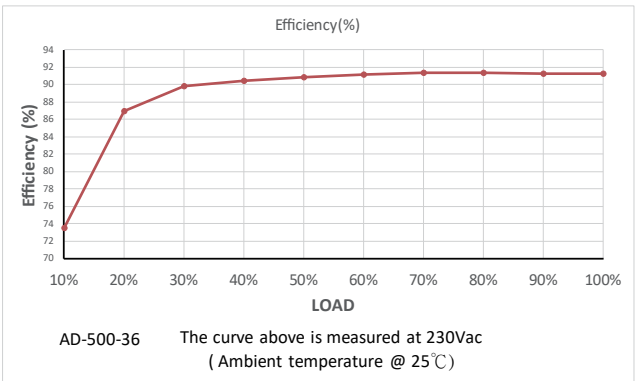
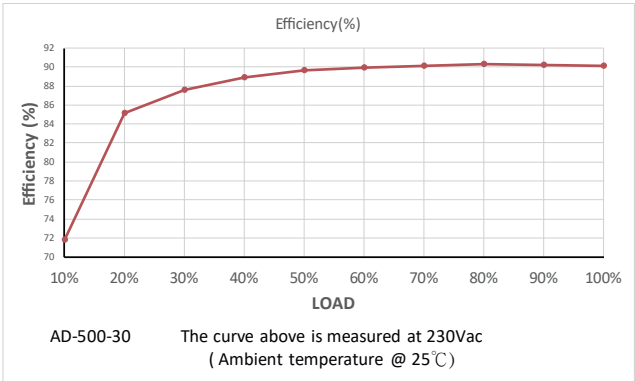
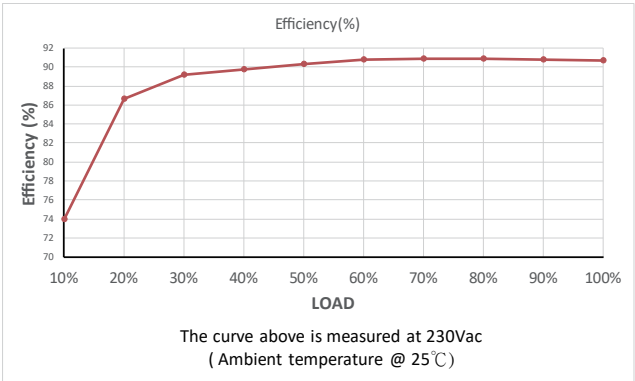
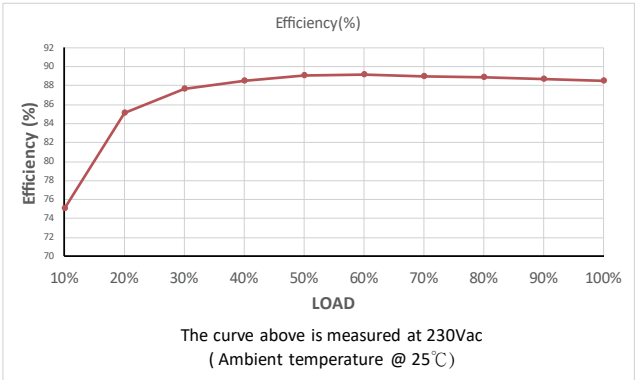
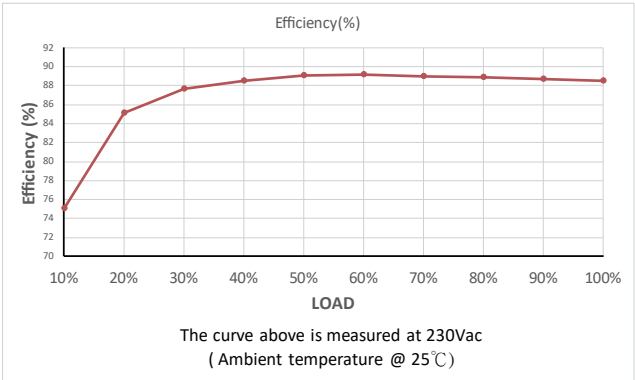


|               |                               | PADM-500-12                                                                                 | PADM-500-15 | PADM-500-24                              | PADM-500-30                                                               | PADM-500-36 | PADM-500-48 | PADM-500-60 |
|---------------|-------------------------------|---------------------------------------------------------------------------------------------|-------------|------------------------------------------|---------------------------------------------------------------------------|-------------|-------------|-------------|
| Protection    | Output Over Load              | >105% Rated Output Power                                                                    |             | Protection Type : Constant Current Limit |                                                                           |             |             |             |
|               | Output Over Current           | >105% Rated Output Current                                                                  |             | Protection Type : Constant Current Limit |                                                                           |             |             |             |
|               | Output Over Voltage           | Programmable OVP, 120 ±7% Vout                                                              |             |                                          |                                                                           |             |             |             |
|               |                               | Protection Type :Auto Recovery after Output Voltage is within allowed range                 |             |                                          |                                                                           |             |             |             |
|               | Over Temperature              | Yes, Protection Type : Auto Recovery after Temperature goes down                            |             |                                          |                                                                           |             |             |             |
|               | Input AC Failure              | Yes, Protection Type : Auto Recovery after AC Voltage is within allowed range               |             |                                          |                                                                           |             |             |             |
|               | Input Over Current            | AC Input Fuse, 10A time lag type (not for user replacement)                                 |             |                                          |                                                                           |             |             |             |
| Function      | Auxiliary Power               | 5V up to 1A (0.1A With Ethernet , 1A Without Ethernet)                                      |             |                                          |                                                                           |             |             |             |
|               | Remote ON/OFF control         | Yes, By external switch or communication (With EPO function)                                |             |                                          |                                                                           |             |             |             |
|               | Remote Sense                  | Yes, Sense Load side voltage                                                                |             |                                          |                                                                           |             |             |             |
|               | DC OK Signal                  | Yes, base on the status of output voltage                                                   |             |                                          | Signal type : open drian, sink current 20mA max, drian voltage 40Vdc max. |             |             |             |
|               | Output Voltage Adj.           | Built-In VR : ±5% rated output voltage                                                      |             |                                          | User Interface : 1~105% rated output voltage                              |             |             |             |
|               | Output Current Adj.           | User Interface : 1~105% rated output current                                                |             |                                          |                                                                           |             |             |             |
|               | Parallel / Series Connection  | Parallel: Up to 3 units / Series : 2 units (PAR, SYNC, ISOGND have to be connected)         |             |                                          |                                                                           |             |             |             |
|               | Built-In OR'ing FETs          | Yes                                                                                         |             |                                          |                                                                           |             |             |             |
|               | Memory Power Setting          | Yes                                                                                         |             |                                          |                                                                           |             |             |             |
|               |                               | Intelligent GUI                                                                             | Yes         |                                          |                                                                           |             |             |             |
| Environment   | Operating Temperature         | -40~70 degree C (Refer to load de-rating curve)                                             |             |                                          |                                                                           |             |             |             |
|               | Operating Humidity            | 20~90%RH non-condensing                                                                     |             |                                          |                                                                           |             |             |             |
|               | Operating Altitude            | up to 3000M                                                                                 |             |                                          |                                                                           |             |             |             |
|               | Storage Altitude              | up to 13000M                                                                                |             |                                          |                                                                           |             |             |             |
|               | Storage Temp. & Humidity      | -40~80 degre eC, 10~95%RH                                                                   |             |                                          |                                                                           |             |             |             |
|               | Temp. Coefficient             | ±0.02% / °C (0~50 degree °C)                                                                |             |                                          |                                                                           |             |             |             |
|               | IP code                       | meet IP10                                                                                   |             |                                          |                                                                           |             |             |             |
|               | Drop (with packing)           | ISTA 1A                                                                                     |             |                                          |                                                                           |             |             |             |
|               | Vibration (Operating)         | IEC60068-2-6                                                                                |             |                                          |                                                                           |             |             |             |
| Communication | Ethernet                      | Option (10Base-T)                                                                           |             |                                          |                                                                           |             |             |             |
|               | PMBus                         | Option (SDA,SCL)                                                                            |             |                                          |                                                                           |             |             |             |
|               | Modbus                        | Yes (485-A, 485-B)                                                                          |             |                                          |                                                                           |             |             |             |
|               | CANBus                        | Option (CANH, CANL)                                                                         |             |                                          |                                                                           |             |             |             |
| Safety & EMC  | Safety                        | UL/EN62368-1, IEC/EN60601-1(type BF), cUL Recognized, TUV mark, CE doc, UKCA doc, CB report |             |                                          |                                                                           |             |             |             |
|               | Withstand Voltage             | I/P-O/P : 4kVac(2xMOPP) I/P-FG : 1.5kVac(MOPP) O/P-FG : 1.5kVac(MOPP)                       |             |                                          |                                                                           |             |             |             |
|               | Touch Leakage Current         | <100uA(NC) <500uA(SFC)                                                                      |             |                                          |                                                                           |             |             |             |
|               | Earth Leakage Current         | <5mA(NC) <10mA(SFC)                                                                         |             |                                          |                                                                           |             |             |             |
|               | AC Patient Leakage Current    | <100uA(NC) <500uA(SFC) (DC+,DC- to earth)                                                   |             |                                          |                                                                           |             |             |             |
|               | EMI                           | EN55032 Class B FCC part 15 subpart B Class B                                               |             |                                          |                                                                           |             |             |             |
|               | Power Harmonic                | EN61000-3-2                                                                                 |             |                                          |                                                                           |             |             |             |
|               | Voltage Fluctuation & Flicker | EN61000-3-3                                                                                 |             |                                          |                                                                           |             |             |             |
|               | EMS                           | EN55035                                                                                     |             |                                          |                                                                           |             |             |             |
| Others        | Cooling                       | Load & Temperature control fan                                                              |             |                                          |                                                                           |             |             |             |
|               | Enclosure                     | Aluminum sheet with ventilation hole                                                        |             |                                          |                                                                           |             |             |             |
|               | Dimension(WxHxD)              | 127 x 41 x 203 mm                                                                           |             |                                          |                                                                           |             |             |             |
|               | Weight                        | 1.2kg                                                                                       |             |                                          |                                                                           |             |             |             |

## ■ De-rating Curve

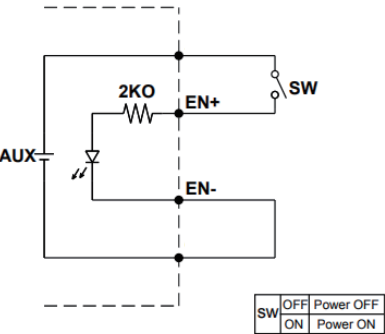


■ Efficiency Curve:



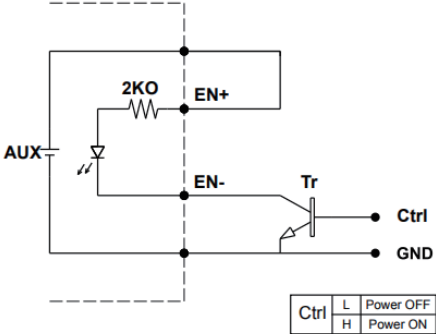
REMOTE ON/OFF

(A) Default Setting



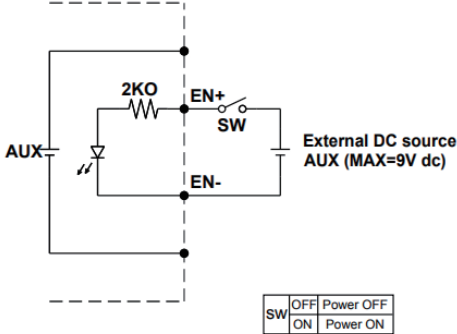
(A) Using internal 5V auxiliary source

(B)



(B) ON / OFF Control by NPN transistor

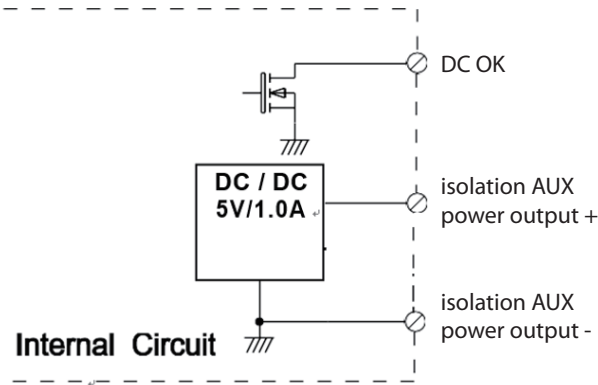
(C)



(C) Using external voltage source

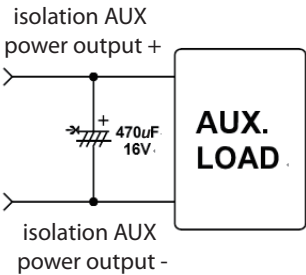
\*GND shown in above diagram is referring to the GND of the interchangeable interface card, not the Grounding from main power(NEG-).\*

DC OK Signal & Auxiliary Power Setting



AUX and DC OK Signal

Open drain signal low when PSU turns on, Max. DC OK sink current: 20mA, Max. drain voltage: 40V



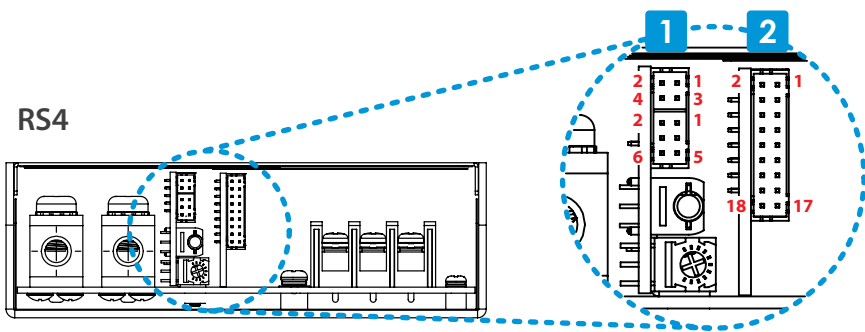
Do NOT exceed 5V/1.0A

To ensure better auxiliary power operation performance, place an additional capacitor per diag. as shown above

Function LED

| LED                 | LED Signal |
|---------------------|------------|
| Standby             | — — — —    |
| DC_OK_Local         | —————      |
| DC_OK_Remote        | —————      |
| OVP fail            | - - - - -  |
| OLP fail            | —————      |
| OTP/UTP fail        | —————      |
| AC fail             | ———        |
| Parallel Connection |            |
| Standby             | — — — —    |
| DC_OK_Remote        | —————      |
| OTP/UTP fail        | —————      |

PIN Function Description:



Built-In VR : Output Voltage Adj.

1 4 PIN connector : ( form factor equal to JST PHDR-20VS & JST SPHD-002T-P0.5 )

| Pin No. | Description             | Pin No. | Description |
|---------|-------------------------|---------|-------------|
| 1 , 3   | SYNC , PAR for parallel | 2 , 4   | ISOGND      |

6 PIN connector : ( form factor equal to JST PHDR-20VS & JST SPHD-002T-P0.5 )

| Pin No. | Description                 | Pin No. | Description |
|---------|-----------------------------|---------|-------------|
| 1 , 2   | Load side voltage sease +/- | 4 , 6   | GND         |
| 3 , 5   | VCI , ACI                   |         |             |

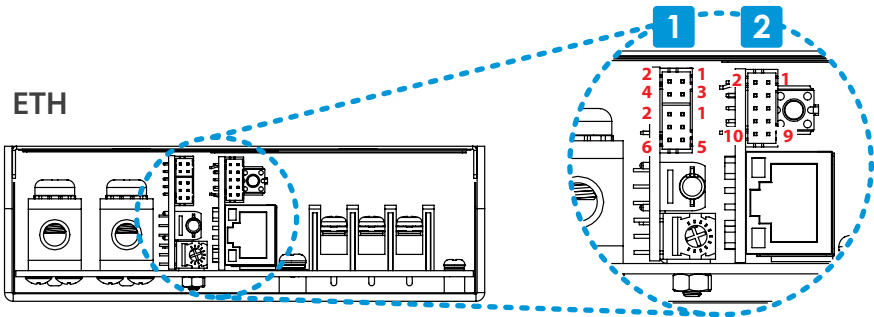
The external device connected to the Pin connector need to be isolated to PE (when for type BF medical equipment purpose)

2 18PIN connector : ( JST PHDR-20VS & JST SPHD-002T-P0.5 equivalent)

| Pin No. | Description                       | Pin No.     | Description                          |
|---------|-----------------------------------|-------------|--------------------------------------|
| 1 , 2   | PMbus (SCL, SDA)                  | 10 , 13     | isolation AUX power output + (5V/1A) |
| 3 , 4   | Modbus (485-A, 485-B)             | 8 , 12 , 14 | isolation AUX power output -         |
| 5 , 6   | Modbus termination                | 15 , 16     | CANBus (CANH, CANL), Reserved        |
| 7       | DC Output OK indication           | 17 , 18     | CANBus termination                   |
| 9 , 11  | Remote on/off control(ENB+, ENB-) |             |                                      |

NOTE: When integrating PADM-500 with Type BF medical system, any external device connected to Pin 18 must maintain galvanic isolation from the Protective Earth (PE) / Chassis Ground to ensure patient safety and minimize leakage current.

ETH



RJ45 : Ethernet (SNMP)  
button : Reset for Ethernet  
Built-In VR : Output Voltage Adj.

**1** 4 PIN connector : ( form factor equal to JST PHDR-20VS & JST SPHD-002T-P0.5 )

| Pin No. | Description             | Pin No. | Description |
|---------|-------------------------|---------|-------------|
| 1 , 3   | SYNC , PAR for parallel | 2 , 4   | ISOGND      |

6 PIN connector : ( form factor equal to JST PHDR-20VS & JST SPHD-002T-P0.5 )

| Pin No. | Description                 | Pin No. | Description |
|---------|-----------------------------|---------|-------------|
| 1 , 2   | Load side voltage sease +/- | 4 , 6   | GND         |
| 3 , 5   | VCI , ACI                   |         |             |

The external device connected to the Pin connector need to be isolated to PE (when for type BF medical equipment purpose)

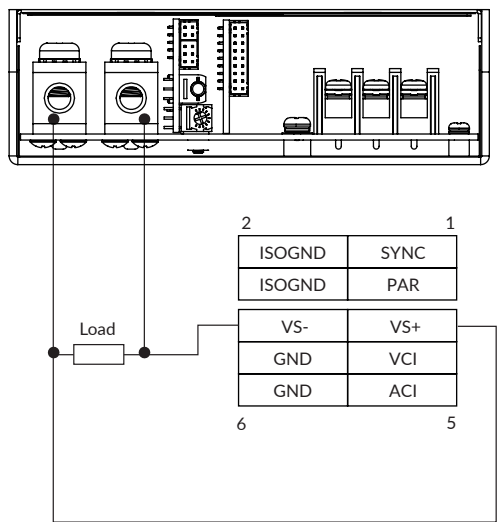
**2** 10PIN connector : (JST PHDR-20VS & JST SPHD-002T-P0.5 equivalent)

| Pin No. | Description             | Pin No. | Description                          |
|---------|-------------------------|---------|--------------------------------------|
| 1 , 2   | Modbus (485-A, 485-B)   | 7 , 9   | Remote on/off control(ENB+, ENB-)    |
| 3 , 4   | Modbus termination      | 8       | isolation AUX power output + (5V/1A) |
| 5       | DC Output OK indication | 6 , 10  | isolation AUX power output -         |

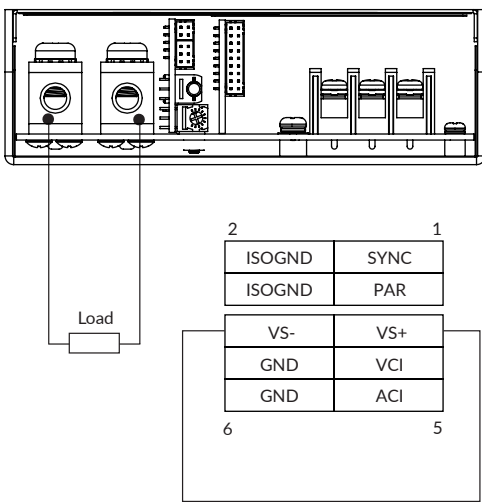
NOTE: When integrated into Type BF medical systems, any external device connected to Pin 10 or RJ45 connectors must maintain galvanic isolation from the Protective Earth (PE) / Chassis Ground to ensure patient safety and minimize leakage current.

■ Models Sensing

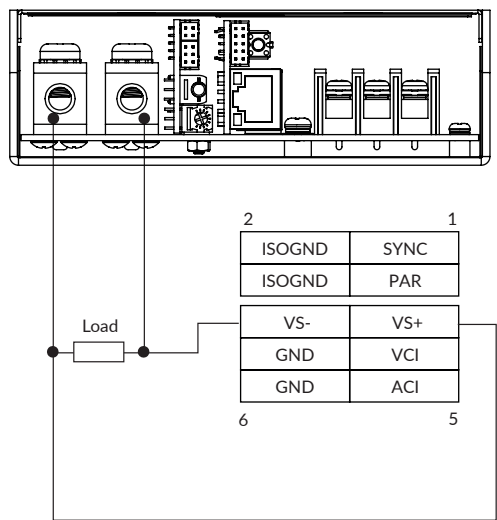
RS4 / Remote Sense



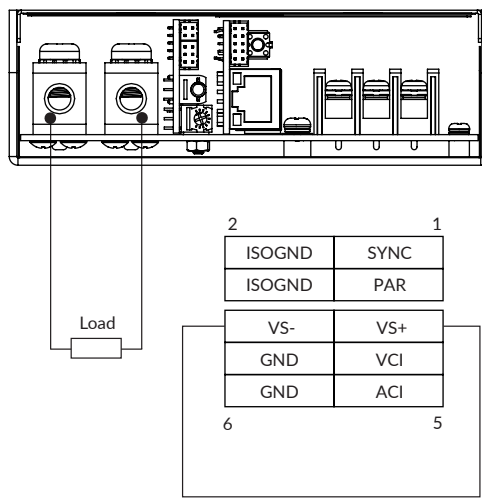
RS4 / Local Sense



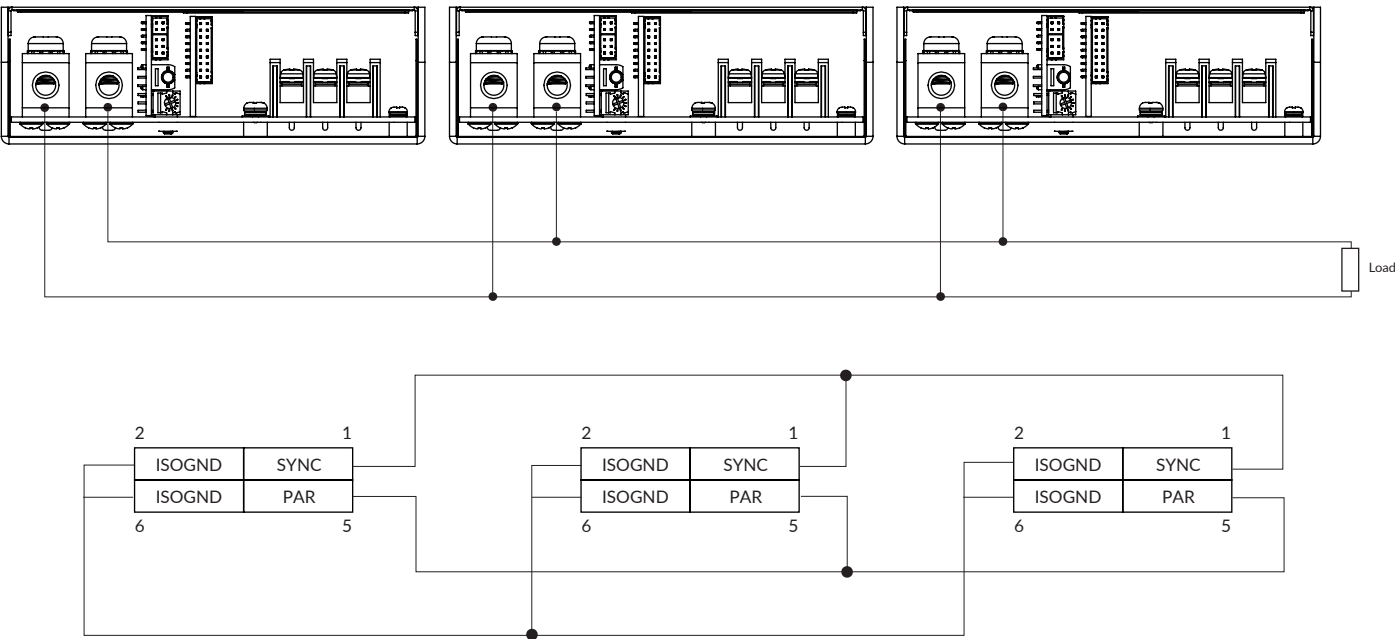
ETH / Remote Sense



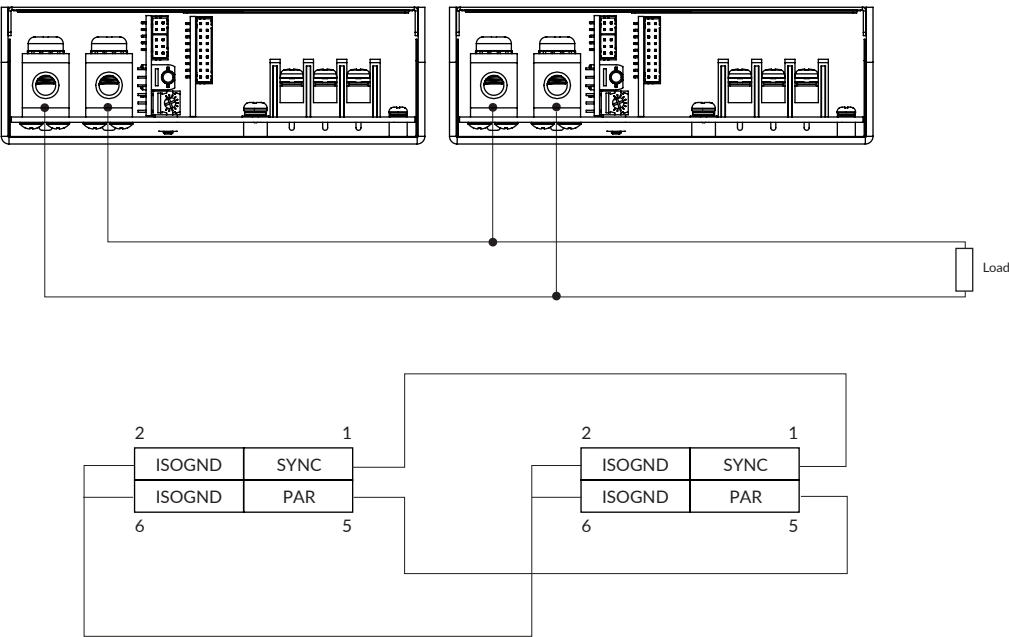
ETH / Local Sense



■ Parallel Connection



■ Series Connection



Unit: mm [inch]

M6 TORQUE:  $14 \pm 1$  Kgf. cm [ $1.4 \pm 0.1$  N. m]

TORQUE: 11.5Kgf. cm[1.1N. m]

2-2 Recommended the torque of mounting screw: M4 screw: 1.27N・m (13.0kgf・cm)

