# Industrial Computer Source
## Product Manual

# Model EMC-PS50
# Reference Manual

MANUAL NO. 41417-143-01A

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# FORWARD

This instruction manual provides the necessary user information for the referenced product(s) manufactured or distributed by Industrial Computer Source for the user to install, operate and/or program the product properly. Please refer to the following pages for information regarding the warranty and repair policies.

Technical assistance is available at (619) 271-9340.

Manual Errors, Omissions and Bugs: A Bug Sheet is included as the last page of this manual. Please use it if you find a problem with the manual you believe should be corrected.

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# INDUSTRIAL COMPUTER SOURCE
# GUARANTEE, LIMITED WARRANTY AND RETURN POLICY

***LIMITED WARRANTY:** One year limited warranty on all products sold with the exception of the "Performance Series" I/O products, which are warranted to the original purchaser for as long as they own the product, subject to all other conditions below, including those regarding neglect, misuse and acts of God. Within one year of purchase, we will repair or replace, at our option, any defective product sold by us. At any time after one year, we will repair or replace, at our option, any defective "Performance Series" I/O product sold by us. This does not include products damaged in shipment, or damaged through customer neglect or misuse.

The Return Procedure below must be followed to assure repair or replacement. We will normally return your replacement or repaired item via UPS Blue. Overnight delivery or delivery via other carriers is available at additional charge.

The limited warranty is void if the product has been subjected to alteration, neglect, misuse, or abuse; if any repai rs have been attempted by anyone other than Industrial Computer Source or its authorized agent; or if the failure is caused by accident, acts of God, or other causes beyond the control of Industrial Computer Source or the manufacturer. Neglect, misuse, and abuse shall include any installation, operation, or maintenance of the product other than in accordance with the owners' manual.

No agent, dealer, distributor, service company, or other party is authorized to change, modify, or extend the terms of this Limited Warranty in any manner whatsoever. Industrial Computer Source reserves the right to make changes or improvements in any product without incurring any obligation to similarly alter products previously purchased.

***GUARANTEE:** Thirty day money-back guarantee on all standard products sold. Special order products are covered by our Limited Warranty, however they may not be returned for refund or credit.

**REFUNDS:** In order to receive a full refund of product purchase price, the product must not have been damaged by the customer or by the common carrier chosen by the customer to return the goods, and the product must be returned complete (meaning all manuals, software, cables, etc.) within 30 days of receipt and in as-new and resalable condition. RETURN PROCEDURE below must be followed to assure prompt refund.

**RESTOCKING CHARGES:** Product returns after 30 days, and before 90 days, after purchase will be subject to a minimum 20% restocking charge and any charges for damaged or missing parts.

Products not returned within 90 days of purchase, or products which are not in as-new and resalable condition, are not eligible for credit return and will be returned to the customer.

**RETURN PROCEDURE:** For any Limited Warranty or Guarantee return, every product returned to Industrial Computer Source for service or credit must be accompanied by a Return Material Authorization (RMA) Number, obtained from Industrial Computer Source Customer Service, **(619) 271-9340**, prior to its return. Freight on all returned items must be prepaid by the customer and customer is responsible for any loss or damage caused by common carrier in transit. Returns for warranty must include a failure report for each unit, by serial number as well as a copy of the original invoice showing date of purchase.

To reduce risk of damage, returns of product must be in an Industrial Computer Source shipping container. If the original container has been lost o r damaged, new shipping containers may be obtained from Industrial Computer Source Customer Service at a nominal cost.

SHIPMENTS NOT IN COMPLIANCE WITH THIS GUARANTEE AND LIMITED WARRANTY RETURN POLICY WILL NOT BE ACCEPTED BY INDUSTRIAL COMPUTER SOURCE.

**LIMITATION OF LIABILITY:** In no event shall Industrial Computer Source be liable for any defect in hardware or software or loss or inadequacy of data of any kind, or for any direct, indirect, incidental, or consequential damages in connection with or arising out of the performance or use of any product furnished hereunder. Industrial Computer Source liability shall in no event exceed the purchase price of the product purchased hereunder. The foregoing limitation of liability shall be equally applicable to any service provided by Industrial Computer Source or its authorized agent.

*** Some sale items and custom systems are not subject to the guarantee and limited warranty above, however in these instances any deviations will be disclosed prior to sale and noted on the original invoice. We reserve the right to refuse returns or refunds on software or special order items.**

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# POWER MODULE SAFETY AND SPECIFICATION SHEET

Installation of the EMC-PS50 power supply module is easy. There is only one way (or direction) that the module can be inserted into the backplane.

## SAFETY

indicates DANGER. These are safety issues that, if not followed, could result in severe personal injury.

! indicates WARNING. These are information instructions that pertain to proper use and protection of the EMC-PS50.

The EMC-PS50 power supply does not contain an OFF switch. When the system is attached to a live electrical source, internal circuits are live even though the power switch is in the STBY (standby) position. Some type of power disconnect must be provided by the user, in the form of an appropriate power cord, fuse, or circuit breaker.

The EMC-PS50 case is grounded via the front-panel ground connection on the power input terminal strip. This terminal MUST be connected to ground to prevent a shock hazard in the event of a malfunction of the EMC-PS50 unit.

Do not operate this product without its cover/front panel properly installed. To avoid personal injury, do not remove the cover. The module contains no user-serviceable parts.

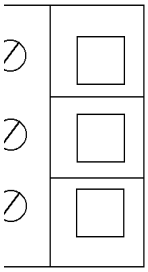
Do not operate this product in an atmosphere of explosive gases. The module provides no explosion protection from static discharge or arcing components.

! Never apply a voltage higher than the rating shown on the front panel of the EMC-PS50 unit. Higher voltages may cause the fuse on the EMC-PS50 to blow, and may cause damage to the power supply circuits.

! To avoid fire hazard, use only the fuse specified for the product, matched by type, voltage rating, and current rating.

! Use only the power cord specified. Use only a power cord that is in good condition. The standard power cord shipped to United States and Canadian customers with the AC power module is an 18x3 AWG type SVT or SJT cable assembly listed by UL and certified by CSA and meeting NEMA 5-15-P, and IEC 320, sheet C13, standards. For countries other than the United States and Canada, alternate power cords should have harmonized cordage type HD21 or HD22 and connectors that are approved by the appropriate testing organization for the specific countries where they are to be used.

## POWER CONNECTOR




To attach a power cord to the front-panel power connector, strip back the outer insulation 1 1/2" and separate the individual wires. Strip the insulation on each individual wire 1/4" to 3/8". Twist the shield wire and the ground wire together before inserting into the connector. One wire at a time, insert each wire until no bare wire is showing and tighten the holding screw.

## SPECIFICATIONS (All Models)

| | | | | | |
|---|---|---|---|---|---|
| Output rating | +5VDC | 10A | Vibration | Operating | .025" P-P |
| | +12VDC | 0.85A | | Storage | .030" P-P |
| | -12VDC | 0.85A | Shock | Operating | 30G, 11 msec, 1/2 sine wave |
| | Total power | 50.0W max | | Storage | 50G, 11 msec, 1/2 sine wave |
| | Load regulation | 0.2% max | MTBF | Hours | 250,000 hrs @ 35C |
| | Line regulation | 0.2% max | Dimensions as installed | Height | 111.7 mm (4.4 in) |
| | Ripple and Noise | 5V: 150mV<br>+/- 12V: 250mV | | Width | 43.15 mm (1.7 in) |
| | Current limit | 5V: 13A max<br>+/-12V: (TBD) | | Depth | 151 mm (5.95 in) |
| Efficiency | | 80% min at Full load | Dimensions (including tabs and connectors) | Height | 140.9 mm (5.55 in) |
| Temperature | Operating | -15C to +60C | | Width | 43.15 mm (1.7 in) |
| | Storage | -62C to +85C | | Depth | 157.4 mm (6.2 in) |
| Humidity | Operating | 5% to 95% non-cond. | | | |
| | Storage | 5% to 95% non-cond. | Weight | | 1.02 kg (2.25 lbs) |

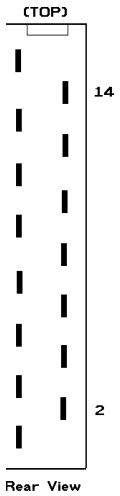
| | EMC-PS50-AC | EMC-PS50-DC12 | EMC-PS50-DC24 | EMC-PS50-DC48 |
|---|---|---|---|---|
| Input voltage | 85-264 VAC, 47-440 Hz | 10-16 VDC | 21-32 VDC | 40-64 VDC |
| Max input current | 1.0 A | 6.0 A | 3.0 A | 1.5 A |
| Fuse type | IEC Pub. 127/III, 1.0A 250V | IEC Pub. 127/1, 6.3A 250V | IEC Pub. 127/1, 3.15A 250V | IEC Pub. 127/1, 1.6A 250V |

## COOLING REQUIREMENTS

The EMC-PS50 power supply is convection cooled, requiring no forced air in or around the unit. However, the system should be installed so that a minimum of 5" of air space is provided on each of the three exposed sides of the power supply unit.

## REAR CONNECTOR

The rear connector on the power supply is a 15-pin male T&B/Ansley 371-21530-305X (or equivalent) power connector. The mating female connector is a T&B/Ansley 376-21530-095X (or equivalent). The signals provided are specified as follows:



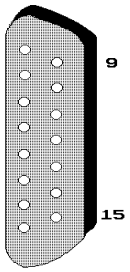

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | ACF- | 2 | ACF+ |
| 3 | IRQ- | 4 | IRQ+ |
| 5 | RST- | 6 | RST+ |
| 7 | (not used) | 8 | -12V |
| 9 | +12V | 10 | GND |
| 11 | GND | 12 | GND |
| 13 | +5V | 14 | +5V |
| 15 | +5V | | |

Rear connector signals IRQ and RST (+ & -) are provided to pass the Front-panel remote connector signals through to the backplane. These signals are defined below under the remote connector section.

In addition, when using the EMC-PSSO-AC power supply, ACF (AC Fail + & -) is provided to signal a processor when the AC input Fails. ACF is tied to -I/O Channel Check on the backplane.

## REMOTE CONNECTOR

The Front-panel remote connector is a DB15 Female connector. It is used to provide remote control of the power supply and to signal the CPU through the backplane. The signal definitions for the remote connector are listed in the table below.




| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | GND | 9 | GND |
| 2 | FLT- | 10 | FLT+ |
| 3 | OT- | 11 | OT+ |
| 4 | (not used) | 12 | SD- |
| 5 | SD+ | 13 | IRQ- |
| 6 | IRQ+ | 14 | RST- |
| 7 | RST+ | 15 | +5V EXT |
| 8 | +5V EXT | | |

+5V EXT This is a current limited +5V output with a maximum current of 100 mA.

GND This is chassis/logic ground.

All of the following signals occur as pairs (+ and -). Output signals will provide an uncommitted optoisolator collector/emitter, rated at 50V max, 50mA max. The phototransistor conducts whenever the particular condition exists. Therefore, applying 5V to the + signal and Gnd to - signal will provide a TTL level output. Input signals require a 5V potential to be applied across the pair to signal the condition.

FLT FAULT is an output signal which occurs whenever the 5V output falls below 4.6V.

OT OVERTEMP is an output signal which occurs whenever the internal temperature (at the heat sink) exceeds 80°C.

SD SHUTDOWN is an input signal. It is used to remotely turn the power supply on or off. It is active only when the front-panel power switch is in the ON/REMOTE position. As long as a 5V potential exists across these two lines, the power supply will remain in standby mode and will not provide power to the backplane. When the potential no longer exists, the power supply will again power the backplane.

IRQ INTERRUPT is an input signal which allows an external event to signal IRQ15 on the backplane. This is a buffered (inverted) input. Since IRQs are positive edge-triggered (with pull-up resistors), to signal the interrupt, apply a voltage across these 2 lines for a minimum of 100 microseconds. This sets IRQ15 low. When the power is removed, the pull-up resistor returns the

line to +5V causing a positive edge which triggers the interrupt.

**RST** RESET is an input signal that allows a remote hardware reset of the CPU on the backplane.

**Power Switch** The front-panel power switch does not shut off input power to the power supply. It toggles the power supply output between ON and STBY (standby).

**Fuse** The replaceable fuse is accessible from the front panel. It is housed in a 1/4 turn socket immediately above the power switch. The correct replacement fuse type is specified on the front panel immediately above the fuse socket. When replacing the fuse, be sure to use the same type and rating fuse specified.

**LEDs** There are three front-panel LEDs; Power on, Overtemp, and 5VDC OK.

**Power On** indicates that the power supply is providing output power to the backplane.

**Overtemp** is lit whenever the internal temperature of the power supply (measured at the heat sink) exceeds 80 C. If the internal temperature reaches 100 C, the power supply will automatically shut off.

**5VDC OK** indicates that the 5V output voltage is greater than 4.6V. This LED circuit only measures under-voltages, not over-voltages.

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# BUG REPORT

While we have tried to assure this manual is error free, it is a fact of life that works of man have errors. We request you to detail any errors you find on this BUG REPORT and return it to us. We will correct the errors/problems and send you a new manual as soon as available. Please return to:


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Product: **EMC-PS50**

Manual Revision: **41417-143-01A**

Please list the page numbers and errors found. Thank you!