



## APPLICATIONS

The EMTrust ICP-DIO has been designed to supply industrial applications with 16 independent digital input channels and 16 independent digital output channels with additional flexibility provided by the ability to configure four of its inputs for counter tasks.

Typical application areas include:

- ▶ Industrial Control and Automation
- ▶ Measurement and Control
- ▶ Automation
- ▶ Energy Management
- ▶ Environment Management

# ICP-DIO

## 32-Channel Composite Digital Input & Output Board



## ICP-DIO

### FEATURES

- ▶ 16 independent digital input channels
- ▶ 4 configurable up/down counters
- ▶ 16 independent digital output channels
- ▶ Output loading limited to 2A
- ▶ Common GND referencing
- ▶ Programmable interrupts
- ▶ Industry-standard 37-pin female D-Sub I/O interface
- ▶ Universal V I/O
- ▶ Front-panel status LEDs
- ▶ Design, Production and Support "Made in Germany"

### BENEFITS

- ▶ All I/O are accessible of the front-panel
- ▶ IEC 61131-2 PLC compatibility
- ▶ Basic hot-swap support
- ▶ Optoisolated for improved security
- ▶ Fully protected
- ▶ Reduced power consumption
- ▶ Extensive driver support for all popular OS
- ▶ Long-term product availability
- ▶ Integrates with Phoenix terminal panel for DIN-rail mounting
- ▶ Open standard architecture





# ICP-DIO

EM Compact

## OVERVIEW

Being an industrial-grade, optoisolated 32-channel digital I/O board with 16 inputs and 16 outputs, the ICP-DIO is PLC compatible, complies with the IEC 61131-2 standard, and is fully protected on both input and output halves.

Interrupt driven events and comprehensive driver support permit installation in a range of harsh industrial environments.

## SPECIFICATION SUMMARY

- ▶ 16 independent inputs
- ▶ 16 independent outputs
- ▶ 4 up/down counters
- ▶ IEC 61131-2 compatible
- ▶ Fully protected
- ▶ Programmable interrupts
- ▶ Comprehensive driver support
- ▶ Extended operational temperature option

## SPECIFICATIONS

### DIGITAL INPUT CHANNELS

16, independent, filtered & arranged in a single group with reference to a common GND.

### COUNTERS

Four of the inputs can be configured as 16-bit programmable up/down counters

### INPUT VOLTAGE

- ▶ 16V DC (minimum),
- ▶ 24V DC (typical),
- ▶ 32V DC (maximum)

### INPUT CURRENT

Less than 8mA per channel

### DIGITAL OUTPUT CHANNELS

16, independent & arranged in a single group with reference to a common GND

### OUTPUT CURRENT

500mA per channel but not exceeding 2A total

### OUTPUT VOLTAGE

- 24V DC (IEC 61131-2 type 1)
- ▶ 16V DC (minimum),
  - ▶ 24V DC (typical),
  - ▶ 32V DC (maximum)

### SWITCHING TIMES

- ▶ Input: 20µs (typical)
- ▶ Output: 200µs (typical)

### OPTOISOLATION

500V DC between I/O and system

### PROTECTION

Over-voltage, thermal shutdown, reverse polarity and short circuit

### INTERRUPT

Counter, input change-of-state and error

### STATUS LEDs

- ▶ Green: No function
- ▶ Yellow: Power
- ▶ Red: Error (output only)
  - ▶ Open load
  - ▶ Short circuit
  - ▶ Over temperature
  - ▶ Over (under) voltage

### POWER REQUIREMENTS

- ▶ +3.3V, +5V, 0.7W (typical)
- ▶ Power consumption 2.5W (typ.)

### BOARD INTERFACE

37-pin female D-Sub connector

### COMPACT PCI INTERFACE

32-bit/33 MHz slave, 3.3V/5.0V signalling voltage and full Plug&Play compatibility

### MASS

100g (typical)

### DIMENSIONS

3U (100x160 mm) x 4HP

### CLIMATIC CONDITIONS

- ▶ 0°C to +70°C (standard)
- ▶ -40°C to +85°C (optional)
- ▶ -40°C to +85°C (storage)
- ▶ Humidity 5% to 95% (non-condensing) @ 40°C

### SOFTWARE SUPPORT

The EMTrust driver software supports the widely-used industrial Windows XP (Embedded) and Linux operating systems. VxWorks and QNX can be supported upon request

### CONFORMANCE

CompactPCI R2.1, IEC 61131-2

## ORDERING INFORMATION

PRODUCT	DESCRIPTION
ICP-DIO-0	32-channel, optoisolated 24V DC digital input/output board for standard operational temperatures.
ICP-DIO-1	As above but designed for extended operational temperatures
ICP-STATUS-1	Termination panel for ICP-DIO with channel status LEDs
ICP-DCSET-1	2m cable set for ICP-DIO. Other lengths available on request
	Notes: Driver software for chosen OS must be ordered separately



**EMTrust GmbH**  
**Headquarters**  
 Gewerbering 1  
 85258 Weichs - Germany  
 Phone +49 8136 80 677-800  
 Fax +49 8136 80 677-809  
 sales@emtrust.de  
 www.emtrust.de

**Trucomp, Inc.**  
 11555 Heron Bay Blvd  
 Suite 200  
 Coral Springs, FL 33076 - USA  
 Phone +1 954 603-0582  
 Fax +1 954 603-0581  
 sales@trucompusa.com  
 www.trucompusa.com

The information contained in this document has been carefully checked and is believed to be reliable. However, EMTrust GmbH makes no guarantee or warranty concerning the accuracy of said information and shall not be responsible for any loss or damage of what ever nature resulting from the use of, or reliance upon, it. EMTrust does not guarantee that the use of any information contained herein will not infringe upon the patent, trademark, copyright or other rights of third parties, and no patent or other license is implied hereby. Intel and Intel logo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

This document does not in any way extend EMTrust's warranty on any product beyond that set forth in its standard terms and conditions of sale. EMTrust reserves the right to make changes in the products or specifications, or both, presented in this publication at any time and without notice.

LIFE SUPPORT APPLICATIONS  
 EMTrust's products are not intended for use as critical components in life support appliances, devices or systems in which the failure of a EMTrust product to perform could be expected to result in personal injury. All mentioned trademarks are registered trademarks of their owner.

© 2013 EMTrust GmbH. All rights reserved. Rev. 1.5 / 21.11.2013