

i-7000 **Remote I/O Modules**

SERIES

Controller



Remote Data Acquisition



Introduction

The I-7000 series provides cost-effective protection and conditioning for a wide range of valuable industrial control signals and systems. Our product line includes sensor-to-computer, computer-to-sensor, digital I/O, timer/counter, USB to RS-232 converter, USB to RS-485/422 converter, RS-232 to RS-485/422 converter, RS-485/422 repeater, RS-485 Hub, man machine interface, data display and application software. The I-7000 modules are good for small I/O channels, while I-87K I/O expansion units are good for middle-size I/O channels.



Piggy Back

Features

- More than 100 modules are provided
- And more new modules are coming □
- Industrial Quality
- Self-Tuner Design
- Dual Watchdog Design
- High Speed Isolated Repeater
- "Smart" Device Design
- I/O Range Programmable
- Wide Range Power Input
- Easy Mounting and Connection
- Complete Software Environment



DIN-Rail Mounting

i-7000 "Self Tuner" Innovative Design SERIES

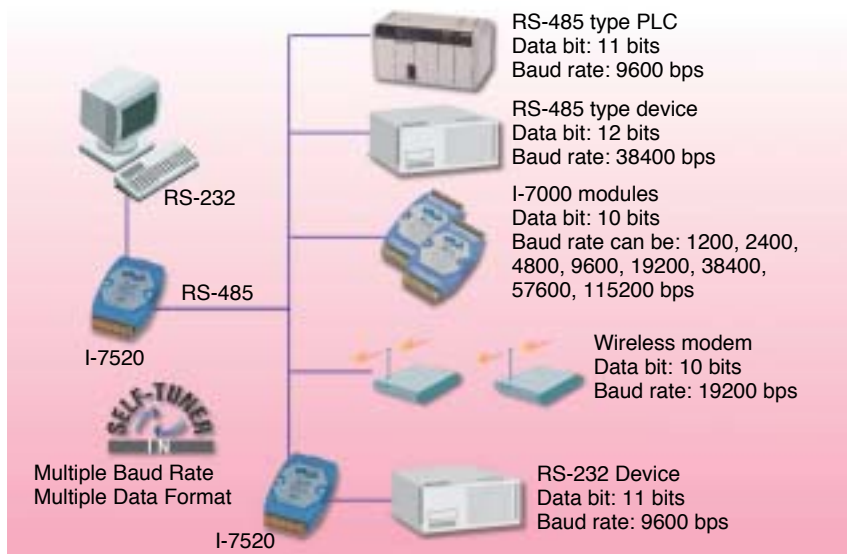
"Self Tuner" A New Technology You Should Know !

U.S. Patent, US 6,401,159 B1
P.R.O.C.PAT NO.
PAT No. 086674
PAT No. 132457

Self Tuner Chip



A conventional RS-232 to RS-485 converter uses the DIP switch to select the baud rate and data format for the whole RS-485 network. All modules, devices and equipment in the network should be configured to the same baud rate and data format. Unfortunately most real world applications can't be implemented in such a simple way. The "Self Tuner" is an innovative chip designed to solve this problem. Every converter contains a "Self Tuner" chip. This chip can auto-tune the baud rate and data format to the whole network. Therefore the I-7520 can connect to different baud rates and different data formats with devices in the same network.



i-7000 **RS-485 Repeater / Hub**

SERIES

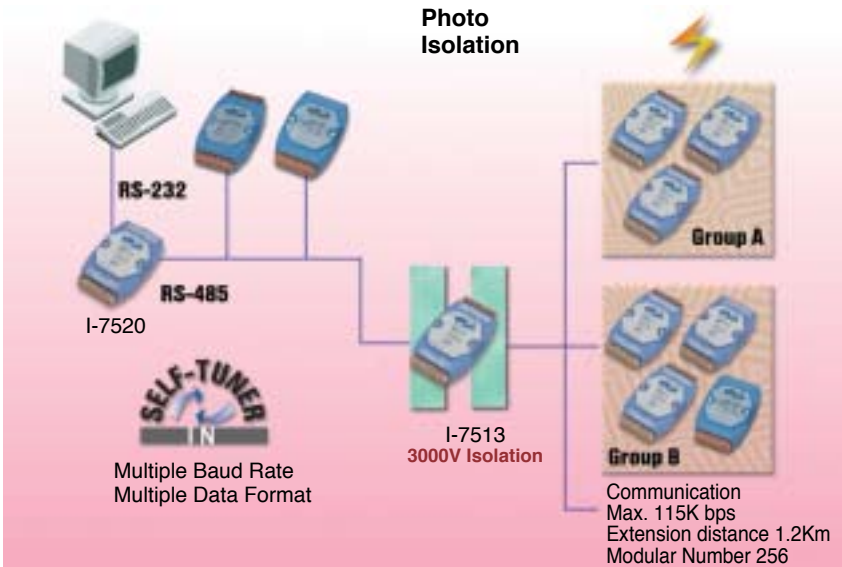
High Speed & High Quality Isolated RS-485 Repeater / Hub

Drop the Low-end Repeater / Hub Save Your RS-485 Network



A conventional RS-485 repeater / hub uses the DIP switch to select the baud rate and data format for the whole RS-485 network. Our repeater / hub contains an innovative "Self Tuner" chip. This chip auto-tunes the baud rate and the data format to the whole network and makes the network very stable. Due to the superior design, every repeater can extend the communication to another 1.2 Km at 9600bps speed. If the speed is lower than 9600bps, the extended distance can be up to 2.1 Km or 3.4Km. Some low-end repeaters can't repeat signals well and cause the whole network to become unstable. Those low-end repeaters don't have isolation. The whole network could be destroyed by lighting or transient high voltage. If your RS-485 is unstable, please change the converter and repeater / hub. □

Do you have any RS-485 wiring problems? Our new module I-7513 is one to three ports RS-485 hub. Each channel has its own RS-485 driver IC on it, so it can support wiring in star topology. Refer to section 5-14 for more repeater / hub modules.

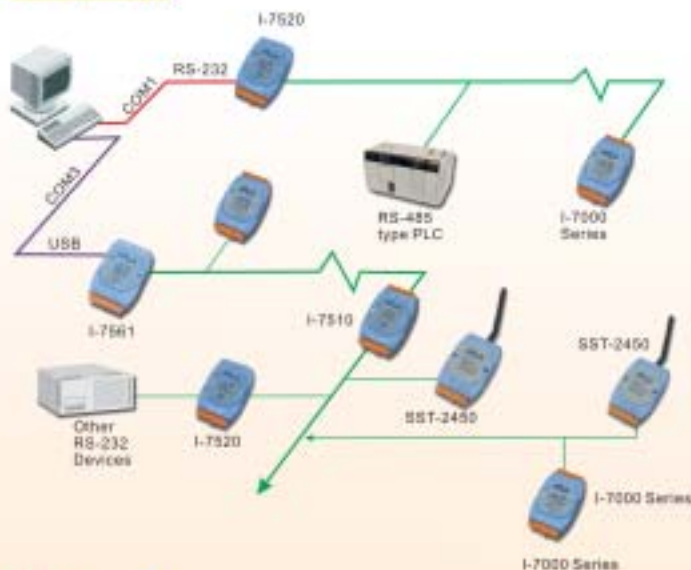


i-7000 *The Most Flexible RS-485 Network*

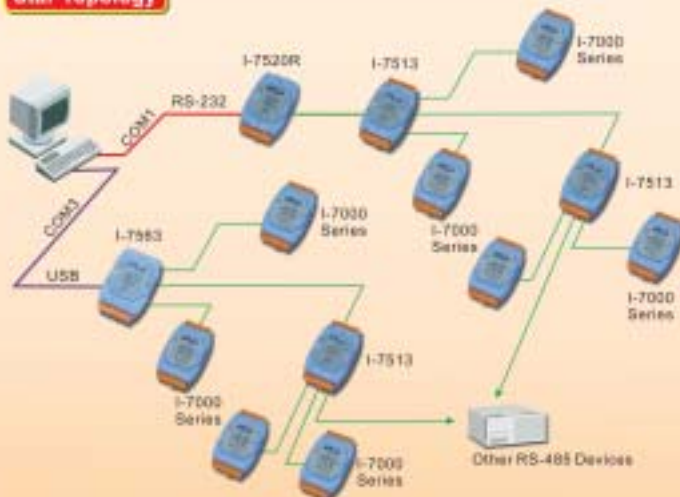
SERIES

I-7000 Series RS-485 Network Configuration

Bus Topology

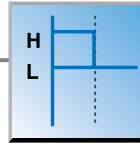
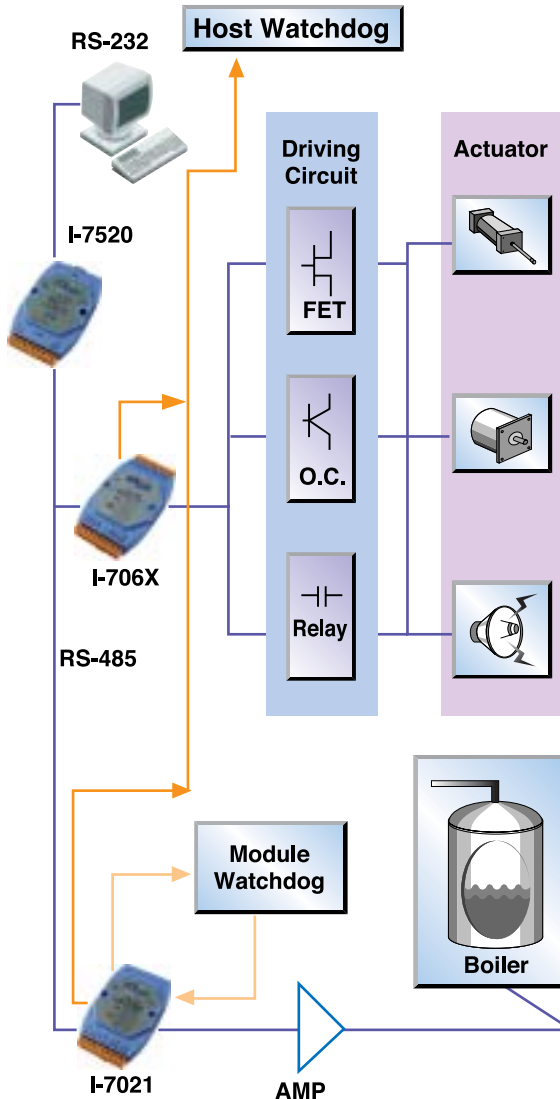


Star Topology



i-7000 "Dual Watchdog" SERIES

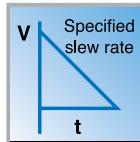
Network Control Made Reliable



Active host watchdog
Output state goes to safe state: L



Active host watchdog
Output state goes to safe state: H



Active host watchdog
D/A output goes to safe state

Why "Dual Watchdog"

Some company's remote I/O modules don't have the "Dual Watchdog", it may cause unrecoverable damage to the whole control system.

What is "Dual Watchdog"

I-7000 provides Module and Host Watchdogs. The module watchdog is a hardware watchdog. The host watchdog is a software watchdog. The module watchdog is designed to automatically reset the μp when the module fails. The host watchdog monitors the host controller (PC or PLC). The output of module can go to a safe state, if the host fails.

Example 1

When the host watchdog is active, the output of Digital I/O will go to a safe state, logical high or low. The user can specify the logical state.

Example 2

When the host watchdog is active, the output of D/A is stepped down until the final (safe) value is reached and a gradual controlled output slew rate is followed. The user can specify the slew rate of the output voltage.

Analog Input Modules Selection Guide

Module		I-7011/ I-7011D	I-7011P/ I-7011PD	I-7012/ I-7012D	I-7012F/ I-7012FD	I-7013/ I-7013D	I-7014D	I-7015	I-7005	I-7033 I-7033D
Analog Input	Resolution	16 bit	16 bit	16 bit	16/12 bit	16 bit	16 bit	16 bit	16 bit	16 bit
	Input channel	1 diff.	1 diff.	1 diff.	1 diff.	1 diff.	1 diff.	6 diff.	8 diff.	3 diff.
	Sampling rate	10Hz	10Hz	10Hz	10/100Hz	10Hz	10Hz	12Hz	8Hz	10Hz
	Voltage input	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-150mV +/-500mV +/-1V +/-5V +/-10V	+/-150mV +/-500mV +/-1V +/-5V +/-10V	—	+/-150mV +/-500mV +/-1V +/-5V +/-10V	—	—	—
	Current input	+/-20mA	+/-20mA	+/-20mA	+/-20mA	—	+/-20mA	—	—	—
	Sensor input	J.K.T.E.R. S.B.N.C Thermocouple	J.K.T.E.R. S.B.N.C L.M Thermocouple	—	—	Pt Ni-RTD (2/3/4 wire)	—	Pt/Ni/Cu RTD (2/3 wire)	Thermistor (2 wire)	Pt Ni-RTD (2/3/4 wire)
	4 1/2 digit LED Display	Yes for I-7011D	Yes for I-7011PD	Yes for I-7012D	Yes for I-7012FD	Yes for I-7013D	Yes for I-7014D	—	—	Yes for I-7033D
	Isolated loop power	—	—	—	—	—	Yes +15V	—	—	—
	Input Linear scaling	—	—	—	—	—	Yes	—	—	—
	Isolation Voltage	3000V	3000V	3000V	3000V	3000V	3000V	3000V	3000V	3000V
Digital Input & Digital O utput	Digital input channels	1	1	1	1	—	1	—	—	—
	Digital output channels	2	2	2	2	—	2	—	6	—
	Event counter	Yes	Yes	Yes	Yes	—	Yes	—	—	—
	High/Low Alarm	Yes	Yes	Yes	Yes	—	Yes	—	Yes	—
Individual Channel Configurable		—	—	—	—	—□	—	Yes	Yes	—□
Dual Watchdog Timer		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Frame Ground		—	—	—	—	—	—	Yes	Yes	—
Availability		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Call	Yes

Analog Input Modules Selection Guide

Module		I-7016/ I-7016D	I-7016P/ I-7016PD	I-7017	I-7017F	I-7017C	I-7017FC	I-7017R	I-7017RC
Analog Input	Resolution	16 bit	16 bit	16 bit	16/12 bit	16 bit	16/12 bit	16/12 bit	16/12 bit
	Input channel	2 diff.	1 diff.	8 diff.	8 diff.	8 diff.	8 diff.	8 diff.	8 diff.
	Sampling rate	2/10Hz	10Hz	10Hz (total)	10/60Hz (total)	10Hz (total)	10/60Hz (total)	10/60Hz (total)	10/60Hz (total)
	Fast Mode (12bit)	—	—	—	Yes	—	Yes	Yes	Yes
	Voltage input	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-150mV +/-500mV +/-1V +/-5V +/-10V	+/-150mV +/-500mV +/-1V +/-5V +/-10V	—	—	+/-150mV +/-500mV +/-1V +/-5V +/-10V	—
	Current input	+/-20mA	+/-20mA	+/-20mA	+/-20mA	+/-20mA	+/-20mA	+/-20mA	+/-20mA
	Sensor input	4-wire Strain gauge Input	6-wire Strain gauge Input	—	—	—	—	—	—
	4 1/2 digit LED Display	Yes for I-7016D	Yes for I-7016PD	—	—	—	—	—	—
	Input Linear scaling	Yes	Yes	—	—	—	—	—	—
	Isolation Voltage	3000V	3000V	3000V	3000V	3000V	3000V	3000V	3000V
Digital Input & Digital Output	Digital input channels	1	1	—	—	—	—	—	—
	Digital output channels	4	4	—	—	—	—	—	—
	Event counter	Yes	Yes	—	—	—	—	—	—
	High/Low Alarm	Yes	Yes	—	—	—	—	—	—
Dual Watchdog Timer		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Over voltage protection		—	—	+/-35V	+/-35V	+/-35V	+/-35V	240 Vrms	240 Vrms
Frame Ground		—	—	—	—	Yes	Yes	Yes	Yes
Availability		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Analog Input Modules Selection Guide

Module		I-7018	I-7018P	I-7018R	I-7018BL	I-7019R
Analog Input	Resolution	16 bit	16 bit	16 bit	16 bit	16 bit
	Input channel	8 diff.	8 diff.	8 diff.	8 diff.	8 diff.
	Sampling rate	10Hz (total)	10Hz (total)	10Hz (total)	10Hz (total)	8Hz (total)
	Voltage input	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/-15mV +/-50mV +/-100mV +/-500mV +/-1V +/-2.5V	+/- 15mV +/- 50mV +/- 100mV +/- 150mV +/- 500mV +/- 1V +/- 2.5V +/- 5V +/- 10V
	Current input	+/-20mA	+/-20mA	+/-20mA	+/- 20mA	+/-20mA
	Sensor input	J. K.T.E.R.S.B N.C. thermocouple	J.K.T.E.R.S.B N.C.L.M. thermocouple	J.K.T.E.R.S.B N.C.L.M. thermocouple	J.K.T.E.R.S.B. N.C.L.M. thermocouple	J.K.T.E.R.S.B. N.C.L.M.L2 (DIN43710) thermocouple
	4 1/2 digit LED Display	—	—	—	—	—
	Isolation Voltage	3000V	3000V	3000V	3000V	3000V
Break Line Detection				Yes	Yes	Yes
Individual Channel Configurable		—	—	—	—	Yes
Dual Watchdog Timer		Yes	Yes	Yes	Yes	Yes
Over voltage protection		+/- 35V	+/- 35V	240 Vrms	+/- 35V	240 Vrms
Frame Ground		—	—	Yes	Yes	Yes
Availability		Yes	Yes	Yes	Yes	Yes

i-7000 **Digital I/O Modules Selection Guide**

SERIES

Digital I/O, Relay and Counter Selection Guide

Module		I-7050/ I-7050D	I-7051/ I-7051D	I-7052/ I-7052D	I-7053/ I-7053D	I-7055/ I-7055D	I-7058/ I-7058D
Digital input and Digital output	Digital input channels	7	16 Isolation (3750V)	8 Isolation (5000V)	16	8 Isolation (3750V)	8 Isolation (5000V)
	Digital output channels (open collector)	8	—	—	—	8 Isolation (3750V)	—
	Alarm Setting	—	—	—	—	—	—
Counter	Channels	7	16	8	16	8	8
	Input frequency	100Hz	100Hz	100Hz	100Hz	100Hz	100Hz
LED Display		Yes for I-7050D	Yes for I-7051D	Yes for I-7052D	Yes for I-7053D	Yes for I-7055D	Yes for I-7058D
Safe Value (When Host Fail or communication fail)		Yes	—	—	—	Yes	—
Power-on Preset Value		Yes	—	—	—	Yes	—
Dual Watchdog Timer		Yes	Yes	Yes	Yes	Yes	Yes
Availability		Yes	call	Yes	Yes	call	Yes

Digital I/O, Relay and Counter Selection Guide

Module		I-7041/ I-7041D	I-7042/ I-7042D	I-7043/ I-7043D	I-7044/ I-7044D	I-7045 I-7045D
Digital input and Digital output	Digital input channels	14 Isolation (3750V)	—	—	4 Isolation (3750V)	—
	Digital output channels (open collector)	—	13 Isolation (3750V)	16	8 Isolation (3750V)	16 Isolation (3750)
	Alarm Setting	—	—	—	—	—
Counter	Channels	14	—	—	4	—
	Input frequency	100Hz	—	—	100Hz	—
LED Display		Yes for I-7041D	Yes for I-7042D	Yes for I-7043D	Yes for I-7044D	Yes for I-7045D
Safe Value (When Host Fail or communication fail)		—	Yes	Yes	Yes	Yes
Power-on Preset Value		—	Yes	Yes	Yes	Yes
Dual Watchdog Timer		Yes	Yes	Yes	Yes	Yes
Availability		Yes	Yes	Yes	Yes	call

i-7000 **Digital I/O Modules Selection Guide**

SERIES

Digital I/O, Relay and Counter Selection Guide

Module		I-7060/ I-7060D	I-7063/63D/63A/63AD/ I-7063B/63BD	I-7065/65D/65A/65AD/ I-7065B/65BD
Digital input and Digital output	Digital input channels	4 Isolation (3750V)	8 Isolation (3750V)	4 Isolation (3750V)
	Digital output channels	4 Channel Relay Form A x 2 Form C x 2	3 Channel Relay I-7063: Form A; AC 250V5A; DC 30V/5A I-7063A: AC type SSR I-7063B: DC type SSR	5 Channel Relay I-7065: Form A; AC 250V5A; DC 30V/5A I-7065A: AC type SSR I-7065B: DC type SSR
	Alarm Setting	—	—	—
Counter	Channels	4	8	4
	Input frequency	100Hz	100Hz	100Hz
LED Display		Yes for I-7060D	Yes for 7063D/7063AD/7063BD	Yes for 7065D/7065AD/7065BD
Safe Value (When Host Fail or communication fail)		Yes	Yes	Yes
Power-on Preset Value		Yes	Yes	Yes
Dual Watchdog Timer		Yes	Yes	Yes
Availability		Yes	Yes	Yes

Digital I/O, Relay and Counter Selection Guide

Module		I-7066/ I-7066D	I-7067/ I-7067D	I-7080/ I-7080D
Digital input and Digital output	Digital input channels	—	—	—
	Digital output channels	7 Channel Photo Mos Relay	7 Channel Relay Form A	2 Channel
	Alarm Setting	—	—	—
Counter	Channels	—	—	2
	Input frequency	—	—	100 KHz
LED Display		Yes for I-7066D	Yes for I-7067D	Yes for I-7080D
Safe Value (When Host Fail or communication fail)		Yes	Yes	Yes
Power-on Preset Value		Yes	Yes	Yes
Dual Watchdog Timer		Yes	Yes	Yes
Availability		Yes	Yes	Yes

Analog Output Module Selection Guide

Module		I-7021	I-7021P	I-7022	I-7024
Analog Output	Resolution	12 bit	14 bit	12 bit	14 bit
	Output Channels	1	1	2 (* 1)	4
	Voltage Output	0-10V	0-10V	0-10V	+/-10V, 0-10V, +/-5V, 0-5V
	Current Output	0-20mA 4-20mA	0-20mA 4-20mA	0-20mA 4-20mA	0-20mA 4-20mA
Safe Value (When Host Fail or communication fail)		Yes	Yes	Yes	Yes
Power-on Preset Value		Yes	Yes	Yes	Yes
Dual Watchdog Timer		Yes	Yes	Yes	Yes
Availability		Yes	Yes	Yes	Yes

* 1: channel to channel isolation

Touch Panel Selection Guide

Module	Touch 506L	Touch 506S	Touch 510T
Display	5.7" STN LCD	5.7" STN LCD	10.4" STN LCD
Max colors	4-Gray	256 color	256 color
Resolution	320 x 240	320 x 240	640 x 480
Touch Type	Resistive	Resistive	Resistive
Back light	CCFL x 1	CCFL x 1	CCFL x 2
Interface Port	RS-232/RS-485	RS-232/RS-485	RS-232/RS-485
Power Consumption	220 mA @ 24VDC	220 mA @ 24VDC	430 mA @ 24VDC
Dimension	204x150x75mm	204x150x75mm	315x238x62mm
Weight	Approx. 0.8Kg	Approx. 0.8Kg	Approx. 2.0Kg

i-7000 **USB Converter & Hub**

SERIES

What is USB?

USB, or Universal Serial Bus is a connectivity specification developed by computer and telecommunication industry members for attaching peripherals to computers.

USB is designed to free all the troubles when installing external peripherals. It eliminates the hassle to open computer case for installing cards needed for certain devices.

It is designed to meet Microsoft Plug and Play (PnP) specification, meaning users can install, and hot-swap devices without long installation procedures and reboots.

I-7560



I-7560:

USB to RS-232 Converter

- Compatibility: USB 1.1 standard
- Input port : USB
- Output port: 9-wire RS-232
- RS-232 Signals: TxD, RxD, RTS, CTS, □
- DSR, DTR, DCD, RI and GND
- Driver Supported:
- Windows 98/ME/2000/XP/Linux

I-7561



U.S. Patent,
US 6,401,159 B1

I-7561:

USB to RS-232/422/485 Converter

- Compatibility : USB 1.1 standard
- Input Port : USB
- Output : RS-232/422/485
- "Self Tuner" inside
- 3000V DC-to-DC Power Isolation.
- Driver Supported:
- Windows 98/ME/2000/XP/Linux

I-7563



U.S. Patent,
US 6,401,159 B1

I-7563:

USB to 3 channels RS-485 Converter & Hub

- Compatibility: USB 1.1 standard
- Input port: USB.
- Output port: Three RS-485.
- "Self Tuner" inside.
- 3000V DC-to-DC Power Isolation.
- Driver supported:
- Windows 98/ME/2000/XP/Linux

PCISA-7520R



U.S. Patent, US 6,401,159 B1

PCISA-7520R:

PCI / ISA Bus RS-232 to RS-485 Card

- PCI/ISA Bus interface
- Input: RS-232
- Output: RS-485
- "Self Tuner" inside
- Speed: 300 ~115,200 bps
- 3000 V isolation
- Multiple Baud Rate; Multiple Data Format

PCISA-7520AR



U.S. Patent, US 6,401,159 B1

PCISA-7520AR:

PCI / ISA Bus RS-232 to RS-422/485 card

- PCI/ISA Bus interface
- Input: RS-232
- Output: RS-422/485
- Other spec. same as PCISA-7520R

I-7551



I-7551:

Isolated RS-232 to RS-232 Converter

- Jumpers JP1 and JP2 select the RS-232
- input source type.
- Input: TxD, RxD, CTS, RTS, GND or TxD,
- RxD, DSR, DTR, GND
- Output: TxD, RxD, CTS, RTS, GND or TxD,
- RxD, DSR, DTR, GND
- 3000V DC-to-DC Power Isolation.
- 3570Vrms Channel-to-Channel isolation

I-7520

I-7520R



U.S. Patent, US 6,401,159 B1

I-7520:

RS-232 to RS-485 Converter

I-7520R:

I-7520 with 3000V DC isolation at RS-485 side

- Input: RS-232 protocol
- Output: RS-485 protocol
- "Self Tuner" inside
- Speed: 300 ~115,200 bps
- 3000 V isolation
- Multiple Baud Rate; Multiple Data Format

I-7520A

I-7520AR



U.S. Patent, US 6,401,159 B1

I-7520A:

RS-232 to RS-422/RS-485 Converter

- Input: RS-232 protocol
- Output: RS-422/485 protocol
- Other spec. is the same as I-7520

I-7520AR:

RS-232 to RS-422/RS-485 Converter

- Same as I-7520A, except the power side
- is different

i-7000 **Isolated RS-422/485 Repeaters & Hubs**

SERIES

I-7510



U.S. Patent, US 6,401,159 B1

I-7510A

I-7510AR



U.S. Patent, US 6,401,159 B1

I-7513



U.S. Patent, US 6,401,159 B1

I-7530-G



I-2541



I-7510:

RS-485 Repeater

- "Self-Tuner" inside
- Multiple Baud Rate: 300,...9600,...115200 bps
- Multiple Data Format
- Automatically adjust Baud Rate and Data Format

I-7510A:

RS-422/RS-485 Repeater

- Same as I-7510
- Plus RS-422 repeater

I-7510AR:

Three-way isolated RS-422/485 Repeater

- Same as I-7510A
- 3000V DC-to-DC Power Isolation.

I-7513:

Three-way isolated RS-485 to 3 Channels RS-485 Hub

- Input port: One RS-485.
- Output port: Three channels RS-485.
- "Self Tuner" inside.
- Speed: 300 ~ 115200 bps.
- 3000V DC-to-DC Power Isolation.

I-7530-G:

RS-232/CAN Converter

- RS-232 Prot: RS-232 protocol
- CAN Port: CAN protocol
- Speed: For RS-232, 110~115200 bps
- For CAN, 10K~1M bps
- Isolation: 3000 Vrms on the CAN side
- Support CAN 2.0A/2.0B
- Configurable acceptance filter□

I-2541:

RS-232 /422/485 to Fiber Optic Converter

- Fiber Port: ST (Multi-mode)
- Wave Length: 850 nm
- Fiber Cable: 62.5/125 □m
- Speed: "Self Tuner", auto switching baud rate,
- 300~115200 bps
- Extend transmission distance up to 2 Km.
- Isolation voltage: 3000V dc
- Optical isolation: 3570Vrms
- Power requirement: Unregulated +10V dc ~ +30V dc.
- Power consumption: 2.0W max.

i-7000 Analog I/O Modules

SERIES

I-7011



I-7011D

I-7011:

Thermocouple Input Module

I-7011D: I-7011 with LED Display

- Analog input types: thermocouple, mV, V or mA (requires optional external 125 Ω resistor)
- Input Ranges: ± 15 mV, ± 50 mV, ± 100 mV, ± 500 mV, ± 1 V, ± 2.5 V, ± 20 mA
- Thermocouple types: J, K, T, E, R, S, B, N, C
- Sampling rate: 10 samples/sec
- Programmable Hi/Low alarm

I-7011P



I-7011PD

I-7011P

I-7011PD: I-7011P with LED Display

- Enhanced version of I-7011
- Thermocouple types: J, K, T, E, R, S, B, N, C, **L**, **M**

I-7012



I-7012D

I-7012:

Analog Input Module

I-7012D:

I-7012 with LED Display

- Analog input types: mV, V, mA (requires optional external 125 Ω resistor)
- Input Ranges: ± 150 mV, ± 500 mV, ± 1 V, ± 5 V, ± 10 V, ± 20 mA
- Sampling rate: 10 samples/sec.

I-7012F



I-7012FD

I-7012F

I-7012FD: I-7012F with LED Display

- High speed version of I-7012
- Can be configured as 12-bit resolution and 100Hz sampling rate
- Other spec. is the same as I-7012

I-7013



I-7013D

I-7013:

RTD Input Module

I-7013D: I-7013 with LED Display

- Analog input types: Pt or Ni RTD
- Sampling rate: 10 samples/sec.
- Input connection: 2, 3, or 4 wires
- Pt 100 input range: $\pm 100^\circ\text{C}$, $0-100^\circ\text{C}$, $0-200^\circ\text{C}$, $0-600^\circ\text{C}$
- Ni input range: $-80-100^\circ\text{C}$, $0-100^\circ\text{C}$

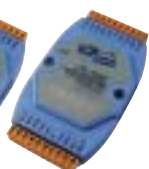
i-7000 Analog I/O Modules

SERIES

I-7033



I-7033D



I-7033:

3-channel RTD Input Module

I-7033D:

I-7033 with LED Display

- Sampling rate: 15Hz (Total)
- Other Spec. is the same as I-7013

I-7015



NEW!!

I-7015:

6-channel 3 wire RTD Input Module

- Analog input types: Pt, Ni or Cu RTD
- Sampling rate: 12 samples/sec
- Accuracy: 0.05%
- Input Connection: 2 or 3 wires
- Individual channel configurable
- Wire Opening Detection

I-7014D



I-7014D:

Analog/Transmitter Input with LED Display

- Analog input types: V, mV, mA
- Input Ranges: $\pm 150\text{mV}$, $\pm 500\text{mV}$, $\pm 1\text{V}$
- $\pm 5\text{V}$, $\pm 10\text{V}$, $\pm 20\text{mA}$
- Sampling rate: 10 samples/sec.
- Isolated loop power: $\pm 15\text{Vdc}$
- Input Linear Scaling
- LED indicator: 4 1/2 digit readout

I-7016



I-7016D



I-7016/7016D:

Strain Gauge Input Module

- Resolution: 16 bit
- Channels: 2 channel
- Input type: mV, V and mA
- Input range: $\pm 15\text{mV}$, $\pm 50\text{mV}$, $\pm 100\text{mV}$,
- $\pm 500\text{mV}$, $\pm 1\text{V}$, $\pm 2.5\text{V}$, $\pm 20\text{mA}$
- Isolation: 3000V
- Sampling rate: 10Hz

I-7016P



I-7016PD



7016P/7016PD:

Strain Gauge Input Module For Longer Cable Length

- Channel: 1 channel
- Other Spec. is the same as I-7016
- Requires two more cables for remote sensing

i-7000 Analog I/O Modules

SERIES

I-7017



I-7017:

8-channel Analog Input Module

- Input types: mV, V, mA (requires optional external 125 Ω resistor)
- Input Ranges: ± 150 mV, ± 500 mV, ± 1 V, ± 5 V, ± 10 V, ± 20 mA,
- Channels: 6 differential, 2 single-ended or 8 differential (jumper selectable)
- Sampling rate: 10 samples/sec total

I-7017F



I-7017F:

8-channel Analog Input Module

- High speed version of I-7017
- Can be configured as 12-bit resolution and 60Hz sampling rate
- Other spec. is the same as I-7017

I-7017R



I-7017R:

8-channel Analog Input Module

- Input Channels : 8 differential
- Input Types : mV, V, mA (requires optional external 125 Ω resistor)
- Sampling Rate : 10/60 samples/second total
- -3dB BandWidth : 15.7Hz
- Accuracy : $\pm 0.1\%$
- Common Mode Rejection : Typical 86dB
- Voltage Input Impedance : > 2 M Ohms
- Overvoltage Protection : 240 VRMS
- Isolation Voltage : 3000Vrms

I-7017C



I-7017C:

8-channel Current Input Module

- Input Range : **Only Current Input (± 20 mA)**
- Channels : 8 differential (no external resistor required)
- Sampling rate : 10 samples/sec total

I-7017RC



I-7017RC:

8-channel Current Input Module

- Input Type : **Only Current Input (± 20 mA)**
- Other Spec. is the same as I-7017R (no external resistor required)

i-7000 Analog I/O Modules

SERIES

I-7018



I-7018:

8-channel Thermocouple Input Module

- Input type: same as I-7011
- Input Range: same as I-7011
- Channels:
 - 6 differential, 2 single-ended or
 - 8 differential (jumper selectable)
- Sampling rate: 10 samples/sec total

I-7018P



I-7018P:

8-channel Thermocouple Input Module

- same as 7018
- Add two thermocouple input type: L, M

I-7018R



I-7018R:

8-channel Thermocouple Input Module

- Input Type: mV, V, mA (requires optional external 125 Ω resistor), Thermocouple
- Thermocouple Type: J, K, T, E, R, S, B, N, C, L, M
- Sampling Rate: 10 samples/Second total
- -3d B BandWidth: 15.7Hz
- Accuracy: $\pm 0.25\%$
- Common Mode Rejection: Typical 86dB
- Voltage Input Impedance: $>2M$ Ohms
- Overvoltage Protection: 240 VRMS
- Isolation Voltage: 3000 VDC
- Break Line Detection

I-7018BL



I-7018BL:

8-channel Thermocouple Input Module

- Break Line Detection
- Other Spec. is the same as I-7018

I-7019R



I-7019R:

8-channel Universal Analog Input Module

- Input Type: mV, V, mA, Thermocouple,
- Voltage Range: $\pm 15mV$, $\pm 50mV$, $\pm 100mV$, $\pm 150mV$, $\pm 500mV$, $\pm 1V$, $\pm 2.5V$, $\pm 5V$, $\pm 10V$
- Current Range: $\pm 20mA$ (jumper selectable)
- Thermocouple Type: J, K, T, E, R, S, B, N, C, L, M, L2
- Sampling Rate: 8 samples/second total
- -3dB BandWidth: 5.24Hz
- Accuracy: $\pm 0.15\%$
- Individual Channel Configurable
- Common Mode Rejection: Typical 86dB
- Voltage Input Impedance: $>1M$ Ohms
- Overvoltage Protection: ± 240 Vrms
- Isolation Voltage: 3000 VDC

i-7000 **Analog I/O Modules**

SERIES

I-7021



I-7021:

Analog Output Module

- Resolution: 12 bit
- Analog output type: mA, V
- Output Range: 0-20mA, 4-20mA, 0-10V
- Accuracy: +/-0.1%
- Programmable output slew rate:
□ 0.0625 to 512V/sec. 0.125 to 1024mA/sec.

I-7021P



I-7021P:

Analog Output Module

- Resolution: 14 bit
- High precision version of I-7021
- Current output 0-20mA, 4-20mA
- Voltage output 0-10V

I-7022



I-7022:

2-channel Analog Output Module

- Resolution: 12 bit
- Analog output channel: 2
- Current output: 0-20mA, 4-20mA
- Voltage output: 0-10V
- Channel to channel isolated

I-7024



I-7024:

4-channel Analog Output Module

- Resolution: 14 bit
- Current output 0-20mA, 4-20mA
- Voltage output: +/-10V, 0-10V, +/-5V, 0-5V
- Programmable output slew rate
0.0625 to 1024V/sec
0.125 to 2048 mA/sec

i-7000 **Digital I/O Modules**

SERIES

I-7041



I-7041D



I-7041:

Isolated Digital Input Module

I-7041D:

I-7041 with LED Display

- Input: 14 single-ended
- High level: 4V to 30V.
- Low level: 0 to 1V.
- Isolation voltage: 3750V rms
- Input resistance: 3K Ohms, 1/4w

I-7042



I-7042D



I-7042:

Isolated O.C. Output Module

I-7042D:

I-7042 with LED

- Digital Output channels: 13
- Open collector to 30V, 100mA max load
- Isolation voltage: 3750V rms
- Direct drive power relay module

I-7043



I-7043D



I-7043:

Non-isolated O.C. Output Module

I-7043D:

I-7043 with LED

- Digital Output channels: 16
- Open collector or 30V, 100mA max load
- Direct drive power relay module

I-7044



I-7044D



I-7044: Isolated Digital Input & Output Module

I-7044D: I-7044 with LED Display

- Input: 4 single-ended
- high level: 4V to 30V.
- Low level: 0 to 1V.
- Input isolation voltage: 3750V rms
- Digital Output channels: 8
- Open collector to 30V.
- 375mA max per channel

i-7000 **Digital I/O Modules**

SERIES

I-7045

I-7045D



Available soon

I-7045: 16 channel Isolated Digital Output Module

I-7045D: I-7045 with LED Display

- Channels : 16
- External Voltage : 10 to 40V max.
- Output current : 650mA per channel
- Isolation Voltage : 3750Vrms
- Direct drive power relay module
- Power consumption: 0.5W
- Short circuit protection

I-7050

I-7050D



I-7050: Non-isolated Digital I/O Module

I-7050D: I-7050 with LED Display

- Digital input channels: 7
- Level:
- Logic level 0: +1V max.
- Logic level1: +3.5 ~ +30V
- Digital output channels: 8
- Open collector to 30V, 30mA max. load
- Power dissipation: 300mW

I-7050A

I-7050AD



I-7050A: Digital I/O Module (Current Source)

I-7050AD: I-7050A LED Display

- Digital Input Channels:7
- Logic level 0: +1V max
- Logic level 1: +3.5V~+30V
- Digital Output Channels:8
- Open Collector to 30V, 50mA(max). load

I-7051

I-7051D



NEW!!

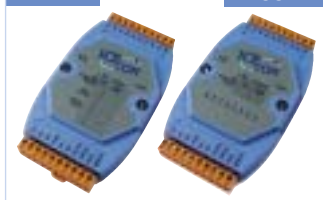
I-7051: Isolated Digital Input Module

I-7051D: I-7051 LED Display

- Digital Input Channels: 16
- Isolation voltage: 3750 Vrms
- Digital input status:
- Dry contact:
- logic level 0: close to GND
- logic level 1: open
- Wet contact:
- logic level 0: +3V max
- logic level 1: +10V to +50V
- Effective distance for dry contact:
- 500m max

I-7052

I-7052D



I-7052: Isolated Digital Input Module

I-7052D: I-7052 with LED Display

- Input: 6 differential and 2 single-ended
- high level: 3.5V to 30V.
- Low level: 0 to 1V.
- Isolation voltage: 5000V rms
- Input resistance: 3K Ohms, 1/4w

i-7000 **Digital I/O Modules**

SERIES

I-7053



I-7053D



I-7053:

Non-isolated Digital Input Module

I-7053D:

I-7053 with Display

- Input: 16 single-ended
- High level: 4V to 30V.
- Low level: 0 to 2V.

I-7055: Isolated Digital Input Module

I-7055D: I-7055 LED Display

- Digital Input Channels: 8
- Digital Input status
- Dry contact: logic level 0: close to GND
- logic level 1: open
- Wet contact: logic level 0: +3V max
- logic level 1: +10V to +50V
- Effective distance for dry contact: 500m max
- Digital Output channels: 8
- Open collector to 40V, 650mA max. load
- (Short Circuit Protection)
- Optical Isolation: 3750VDC

I-7055



I-7055D



Available soon

I-7058



I-7058D



NEW!!

I-7058: 8-channel Isolated Digital Input Module

I-7058D: I-7058 with Display

- Digital input channel : 8
- Input type : differnetial
- Input Voltage
- Logical High : AC 80V mini
- Logical Low : AC 30V max.
- Maxiumum Input Voltage :AC 250V
- AC frequency : 45Hz(min.)
- Isolation :5000Vrms

I-7060



I-7060D



I-7060:

Relay Output & Isolated Digital Input Module

I-7060D: I-7060 with LED Display

- Input: 4 single-ended
- High level: 4V to 30V.
- Low level: 0 to 1V.
- Isolation voltage: 3750V rms
- Input resistance: 3K Ohms, 1/4w
- Output: 4-channel relay

I-7063



I-7063D



I-7063: Power Relay & Isolated Digital Input Module

I-7063D : I-7063 with LED Display

- Input : 8 single-ended
- High level: 4V to 30V.
- Low level: 0 to 1V.
- Input resistance: 3K ohms
- Isolation voltage: 3750Vrms
- Output: 3 Form A power relay
- Contact rating: 5A@250VAC / 5A@30VDC

i-7000 **Digital I/O Modules**

SERIES

I-7063A

I-7063AD



I-7063A: AC-SSR & Isolated Digital Input Module

I-7063AD: I-7063A with LED Display

- Digital input spec. is the same as I-7063
- Output: 3 AC-SSR , Normal open
- Contact rating: Load voltage: AC 24 to 265Vrms
- Leakage current: 1.5mA
- Max load current: 1.0A

I-7063B

I-7063BD



I-7063B: DC-SSR & Isolated Digital Input Module

I-7063BD: I-7063B with LED Display

- Digital input spec. is the same as I-7063
- Output: 3 DC-SSR , Normal open
- Contact rating: Load voltage: DC 3 to 30V
- Leakage current: 0.1mA
- Max load current: 1.0A

I-7065

I-7065D



I-7065: Power Relay & Isolated Digital Input Module

I-7065D: I-7065 with LED Display

- Input : 4 single-ended
- High level: 4V to 30V.
- Low level: 0 to 1V.
- Input resistance: 3K Ohms
- Output: 5 Form A power relay
- Contact rating: 5A@250VAC
- 5A@30VDC

I-7065A

I-7065AD



I-7065A: AC-SSR & Isolated Digital Input Module

I-7065AD: I-7065A with LED Display

- Digital input spec. is the same as I-7065
- Output: 5 AC-SSR , Normal open
- Contact rating:
- Load voltage: AC 24 to 265Vrms
- Leakage current: 1.5mA
- Max load current: 1.0A
- Isolation voltage: 3750Vrms

i-7000 **Digital I/O Modules**

SERIES

I-7065B



I-7065BD



I-7065B: DC-SSR & Isolated Digital Input Module

I-7065BD: I-7065B with LED Display

- Digital input spec. is the same as I-7065
- Output: 5 DC-SSR , Normal open
- Contact rating:
- Load voltage: DC 3 to 30V
- Leakage current: 0.1mA
- Max load current: 1.0A
- Isolation voltage: 3750Vrms

I-7066



I-7066D



I-7066: Photo Mos Relay Output Module

I-7066D: I-7066 with Display

- 7 form A Photo Mos Relays
- Load voltage : 350V
- Continuous load current: 0.13A
- 5,000V Optional Isolation

I-7067



I-7067D



I-7067: Relay Output Module

I-7067D: I-7067 with Display

- Relay output: 7 Form A
- Contact rating: AC: 125V @0.5A
- □ DC: 24V @2A

Counter Modules

I-7080



I-7080D



I-7080: Counter/Frequency Input Module

I-7080D: I-7080 with LED Display

- Counter input: 2 independent 32 bit counter
- Frequency input: 100K Hz max
- Input: 3750V isolated or non-isolated
- Non-isolated programmable threshold value
- Programmable digital noise filter
- LED indicator: 5 digit readout (I-7080D)

i-7000 **Relay Module**

SERIES



Relay Modules

RM-10X Series Relay Module

- 16A, 1 form C Relay
- RM-104/RM-108/RM-116

RM-20X Series Relay Module

- 5A, 2 form C Relay
- RM-204/RM-208/RM-216

DN-PR4:□

- Channels: 4
- Relay Type: Form A
- Load Voltage: 50~250VAC/5A

DN-SSR4:□

- Channels: 4
- Relay Type: Form A
- Load Voltage: 50~250VAC/4A

Power Supply

ACE-540A/DIN-540A:□

- Inputs: 85~264VAC@47~63Hz
- Output: +24VDC/1.7A
- Over Load protection
- DIN-Rail Mounted(DIN-540A)

KA-52F/DIN-KA52F□

- Inputs: 100~250VAC
- Outputs: +24VDC/1A
- DIN-Rail Mounted(DIN-KA52F)

PWR-24/110□

- Inputs: 110VAC/60Hz
- Outputs: +24VDC/200mA

PWR-24/220F□

- Inputs: 220AC/60Hz
- Outputs: +24VDC/100mA

PWR-24/230R□

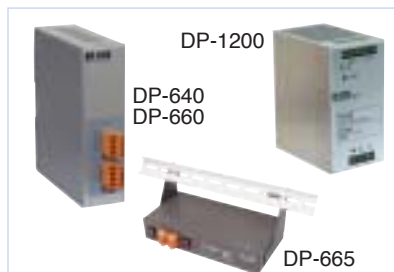
- Inputs: 230VAC(Round type plugged)
- Outputs: +24VDC/200mA

DP-640/DP-660/DP-665

- Inputs: 85~264VAC@47~63Hz
- Outputs: +24V/1.7A (DP-640);
- +24VDC/2.5A; +5VDC/0.5A
- (DP-660/DP-665)

DP-1200

- Inputs: 85~ 264VAC@47~63Hz
- Outputs: +24V/5A
- DIN-Rail Mounted



i-7000 Industrial LCD Display

SERIES

MMICON



Man Machine Interface

MMICON

- Man-Machine interface Control Board
- 240x64 dots Graphics LCD interface
- LCD display area: 107.97x77mm
- 4x4 keyboard interface
- RS-232/RS-485 interface

Touch series



Touch 506L/506S



Touch 510T

Touch 506S

- 5.7" Color STN Touch Panel Display
- RS-232 / RS-485 Interface
- Connect to I-7188, I-8000, W-8000 or
- other Embedded Controller

Touch 506L

- 5.7" 4-Gray STN Touch Panel Display
- RS-232 / RS-485 Interface
- Connect to I-7188, I-8000, W-8000 or
- other Embedded Controller

Touch 510T

- 10.4" Color TFT Touch Panel Display
- RS-232 / RS-485 Interface
- Connect to I-7188, I-8000, W-8000 or
- other Embedded Controller

i-7000 **Radio Modems and Antennas**

SERIES



SST-2450

SST-900EXT

SST-2450:

- Based on DSSS and RF technology
- Operating in 2410~2472MHz,
- ISM band
- Number of channels: 16
- Transmit Power: 0.05W
- Communication distance: 100~300M
- (obstacle free environment)
- CE Report No:02AH055E1
- FCC ID:Q6MIT450000

SST-900EXT:

- Based on DSSS and RF technology
- Operating in 902~928MHz,
- ISM band
- Number of channels: 8
- Transmit Power: 0.1W
- Communication distance: 100~300M
- (obstacle free environment)



ANT-8

ANT-3

ANT-12P

ANT-900A

ANT-3

**1 Km external antenne
for SST-2450 (Directional)**

ANT-8

**1 Km external antenne
for SST-2450 (Omnidirectional)**

ANT-12P

**5 Km external antenne
for SST-2450 (Directional)**

ANT-900A

**1 Km external antenne
for SST-900ext**



Accessories

I-950-ENC Industrial Enclosure

- IP66 Industrial enclosure
- Built-in DIN-Rail for easy mounting
- Seal design provides anti-leak
- protection
- Dimensions: 254x180x90mm

I-3625-ENC

- Dimension: 360 x 254 x 165mm

Accessories



Terminal Block cover

CA-5810

- For 10 pin 5.08mm pitch

CA-3813

- For 13 pin 3.81mm pitch
- And 14 pin 3.5 mm pitch

CA-0945

- For 9 pin 3.81 mm pitch with
- RJ-45 connector



Relay Modules

RM-38 Series Relay Module

- 6.2 mm wide
- Contact configuration : 1 co (SPDT)
- Load Voltage : 12~240VAC/6A
-

RM-48.61/RM-48.62 Series Relay Module

RM-48.61

- 15.5 mm wide,
- Contact configuration : 1 co (SPDT)
- Load voltage : 12~240VAC/16A

RM-48.62

- 15.5 mm wide
- Contact configuration : 2 co (DPDT)
- Load voltage : 12~240VAC/10A

Installation



Ordering Information

- RM-38 SPDT (5 piece in one box)
- Option: 20-way jumper link for RM-38
- RM-48.61 RM-48 SPDT
- (4 pieces in one box)
- RM-48.62 RM-48 DPDT
- (4 pieces in one box)
- Option: 18-way jumper link for
- RM-48 series

M-7017-G



NEW!!

M-7017-G: 8-channel Analog Input Module

- Input Channels: 8 differential and 2 single-ended or 8 differential (jumper selectable)
- Input Types: mV, V, mA (requires optional external 125 ohms resistor)
- Input Ranges: $\pm 150\text{mV}$, $\pm 500\text{mV}$, $\pm 1\text{V}$, $\pm 5\text{V}$, $\pm 10\text{V}$, $\pm 20\text{mA}$
- Sampling Rate: 10 samples/sec total

M-7017R-G



NEW!!

M-7017R-G: 8-channel Analog Input Module

- Input Channels: 8 differential
- Over Voltage Protection: $\pm 240\text{VRMS}$
- Sampling Rate: 10/60 samples/sec total
- Other Spec. is the same as M-7017

M-7018-G



NEW!!

M-7018-G: 8-channel Thermocouple Input Module

- Input Channels: 6 differential and 2 single-ended or 8 differential (jumper selectable)
- Input Types: mV, V, mA (requires optional external 125 ohms resistor), Thermocouple
- Input Ranges: $\pm 15\text{mV}$, $\pm 50\text{mV}$, $\pm 100\text{mV}$, $\pm 500\text{mV}$, $\pm 1\text{V}$, $\pm 2.5\text{V}$, $\pm 20\text{mA}$
- Thermocouple Types: J, K, T, E, R, S, B, N, C
- Sampling Rate: 10 samples/sec total

M-7018R-G



NEW!!

M-7018R-G: 8-channel Thermocouple Input Module

- Input Channels: 8 differential
- Over Voltage Protection: $\pm 240\text{VRMS}$
- Other Spec. is the same as M-7018

M-7019R-G



Available soon

M-7019R-G: 8-channel Universal Analog Input Module

- Input Channels: 8 differential
- Input Types: mV, V, mA (jumper selectable), Thermocouple
- Input Ranges: $\pm 15\text{mV}$, $\pm 50\text{mV}$, $\pm 100\text{mV}$, $\pm 150\text{mV}$, $\pm 500\text{mV}$, $\pm 1\text{V}$, $\pm 2.5\text{V}$, $\pm 5\text{V}$, $\pm 10\text{V}$, $\pm 20\text{mA}$
- Thermocouple Types: J, K, T, E, R, S, B, N, C, L, M, L2
- Sampling Rate: 8 samples/sec total
- Accuracy: $\pm 0.15\%$
- Over Voltage Protection: $\pm 240\text{VRMS}$
- Isolation Voltage: 3000 VDC

M-7060-G



M-7060D-G



Available soon

M-7060-G/M-7060D-G:

- Supports Modbus and DCON protocols
- The other Spec. is the same as I-7060
- M-7060D is the M-7060 with LED display

WinCon-8000 *Learning Kit*

SERIES



WINKIT-01: **InduSoft Embedded Controller** **Learning Kit**

Purpose:

To adept in Wincon-8000 automation with InduSoft Web Studio(SCADA).

Including:

W-8739x1
I-8024x1 I-8017hx1
I-8041x1 I-8040x1
DN37x1 I-8077x1
DP-665x1
Indusoft Software



WINKIT-02: **WinCon-8000 SDK Learning Kit**

Purpose:

Programming Windows CE .NET applications to control I-8000 series digital and analog I/O modules.

Including:

W-8731x1
I-8040x1 I-8017hx1
I-8077x1 I-8024x1
DN37x1 I-8041x1
DP-665x1



WINKIT-03: **ISaGRAF Embedded Controller** **Learning Kit**

Purpose:

Using ISaGRAF programming tools to control Wincon-8000.

Including:

Software: ISaGRAF-256-E
(or ISaGRAF-256-C)
W-8737 x 1
I-8040 x 1 I-8017h x 1
I-8077 x 1 I-8024 x 1
DN37 x 1 I-8041 x 1
DP-665 x 1