


# i<sup>3</sup> User Start-up Guide

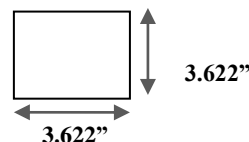


## Getting Started:

1. Connect the 24VDC power as shown on the connector below.
2. Install i<sup>3</sup> Configurator (V9.30 or later) onto your PC.
3. Connect serial programming cable into port MJ1 or USB cable to mini USB port.
4. If using the mini USB port, or a USB to serial convertor, please check in Window Device Manager which com port has been assigned. Then enter menu Tools->Editor Options->Communications port->Configure, and set accordingly.
5. Press the 'SYS' function key on the front of the unit and check Network ID. Then press the target sign  in the Configurator and make the Target ID match that of the i<sup>3</sup>



Panel Cut-out

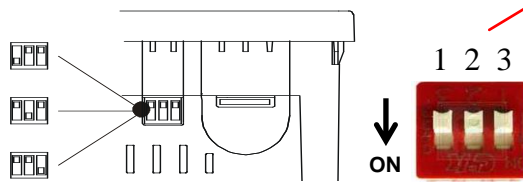


i 3 C M 1 2 Y /		320x240 Colour Touch Display, 4 programmable keys
	2 0	24 Digital Inputs
	B	2 Analogue Inputs (12-bit)
	0	0 Analogue Outputs
	5	16 Digital Outputs
	- S H	1 Serial Ports, iCAN Protocol
	E	1 CAN Port + In-Built Ethernet
	F	MicroSD Card

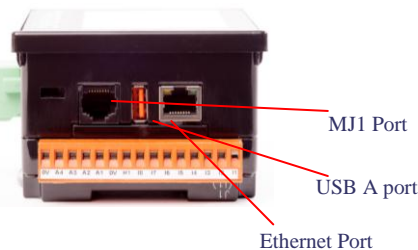
**WARNING:** Please ensure power is ON and i<sup>3</sup> is in Idle mode before inserting SanDisk™ MicroSD.

Back cover screws. Remove the 4 screws and back plate to access the Internal jumpers.  
**WARNING:** Do not Over-tighten screws.

### External Switch Configuration



Pin	Name	Function	Default
1	RS-485 Termination	ON = Terminated	OFF
2	Spare	Always Off	OFF
3	Factory Use	Always Off	OFF

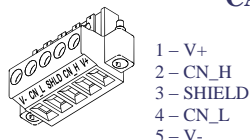


### Power Connector

**Power Up:**  
 Connect to Earth Ground. Apply 10 - 30 VDC. Screen lights up.



### CAN Connector



**WARNING:** After installing CANopen firmware, part number suffix becomes SEHF. See CANopen Application Note for more details.



### Serial Ports MJ1

Pin	Signal	Signal Description	Direction
8	TD <sup>1</sup>	RS-232 Transmit Data	Out
7	RD <sup>1</sup>	RS-232 Receive Data	In
6	0V	Ground	-
5	+5	+5 VDC 60mA max	Out
4	RTS <sup>1</sup>	RS-232 Request to Send	In
3	CTS <sup>1</sup>	RS-232 Clear to Send	Out
2	RX/TX-	Receive/Transmit Negative	In/Out
1	RX/TX+	RS-485 Receive/Transmit Positive	In/Out

<sup>1</sup>Signals are labeled for connection to a DTE device

This equipment is suitable for use in Class I, Division 2, Groups A, B, C and D or Non-hazardous locations only

**WARNING: EXPLOSION HAZARD** – Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.

**AVERTISSEMENT - RISQUE D'EXPLOSION** - AVANT DE DECONNECTER L'EQUIPMENT, COUPER LE COURANT OU S'ASSURER QUE L'EMPLACEMENT EST DESIGNÉ NON DANGEREUX.

**WARNING:** To avoid the risk of electric shock or burns, always connect the safety (or earth) ground before making any other connections.

**WARNING:** To reduce the risk of fire, electrical shock, or physical injury it is strongly recommended to fuse the voltage measurement inputs. Be sure to locate fuses as close to the source as possible.

**WARNING:** Replace fuse with the same type and rating to provide protection against risk of fire and shock hazards.

**WARNING:** In the event of repeated failure, do not replace the fuse again as a repeated failure indicates a defective condition that will not clear by replacing the fuse.

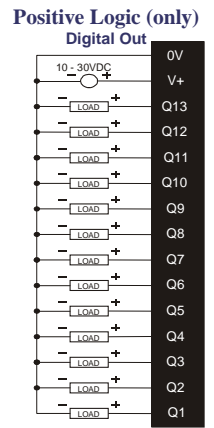
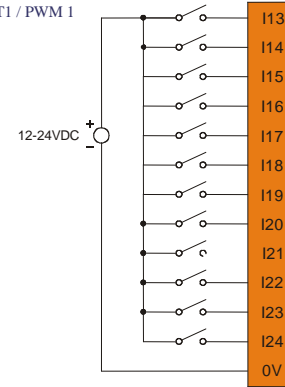
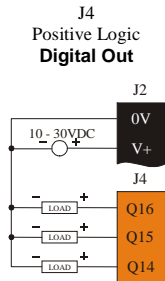
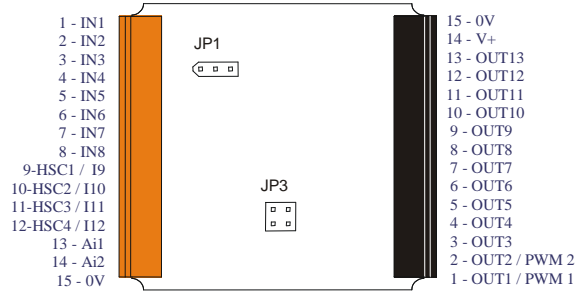
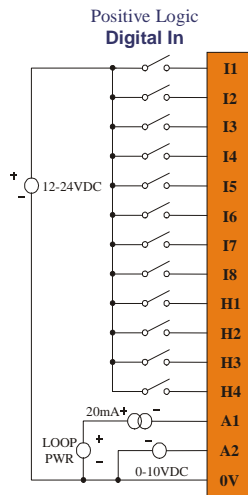
**WARNING: EXPLOSION HAZARD** – Substitution of components may impair suitability for Class I, Division 2  
**AVERTISSEMENT - RISQUE D'EXPLOSION** - LA SUBSTITUTION DE COMPOSANTS PEUT RENDRE CE MATERIAL INACCEPTABLE POUR LES EMBLEMES DE CLASSE 1, DIVISION 2

**WARNING:** The USB parts are for operational maintenance only. Do not leave permanently connected unless area is known to be non-hazardous.

**WARNING: EXPLOSION HAZARD - BATTERIES MUST ONLY BE CHANGED IN AN AREA KNOWN TO BE NON-HAZARDOUS**  
**AVERTISSEMENT - RISQUE D'EXPLOSION** - AFIN D'EVITER TOUT RISQUE D'EXPLOSION, S'ASSURER QUE L'EMPLACEMENT EST DESIGNÉ NON DANGEREUX AVANT DE CHANGER LA BATTERIE

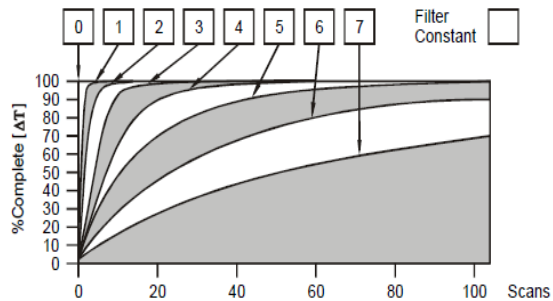
**WARNING:** Battery May Explode If Mistreated. Do Not Recharge, Disassemble or Dispose Of In Fire

**WARNING:** Only qualified electrical personnel familiar with the construction and operation of this equipment and the hazards involved should install, adjust, operate, or service this equipment. Read and understand this manual and other applicable manuals in their entirety before proceeding. Failure to observe this precaution could result in severe bodily injury or loss of life.



**JP3 CURRENT OR VOLTAGE INPUTS**

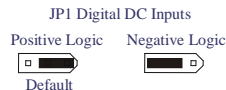
Channel	0 (4) - 20mA	0 - 10V
Ai1	1-2	Open
Ai2	3-4	Open



For more details on the i3C Mini, See i3C Mini Manual 0812R0

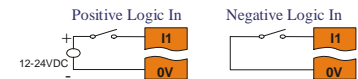
### Analogue I/O and Digital I/O Configuration

I/O Jumper settings are located internally. Remove the 4 screws on the back and lift casing off to access. **Only access when power is removed from the i<sup>3</sup>.** Care must be taken to avoid over tightening of the case screws.



### Digital Input

**Positive Logic vs. Negative Logic Wiring**  
The i<sup>3</sup> can be wired for Positive Logic inputs or Negative Logic inputs depending on the position of JP1.



### Wiring Specifications

- For I/O wiring (discrete), use the following wire type or equivalent: Belden 9918, 18 AWG (0.8 mm<sup>2</sup>) or larger.
- For shielded Analogue I/O wiring, use the following wire type or equivalent: Belden 8441, 18 AWG (0.8 mm<sup>2</sup>) or larger.
- For CAN wiring, use the following wire type or equivalent: Belden 3084, 24 AWG (0.2 mm<sup>2</sup>) or larger.

**WARNING:** Do not short loop power source directly to analogue inputs, more than 35mA load can damage input circuit.

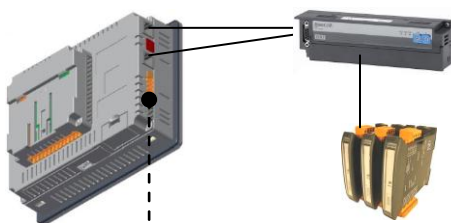
All i<sup>3</sup> controllers can have extra analogue and digital I/O added by connecting expansion modules to either MJ1 port or Modbus TCP modules to Ethernet port. Please inquire at IMO technical support. [automation@imopc.com](mailto:automation@imopc.com)

## Expansion I/O Modules

### Basic Options

Input - 4 Channel RTD (0-2000ohm, 0-500ohm, PT100, Ni100, PT1000, Ni1000)	iOS / M 04 I P X - D1
Input - 8 Channel DC Current (-20mA to +20mA)	iOS / M 08 I C X - D1
Input - 8 Channel DC Voltage (-10V to +10V)	iOS / M 08 I V X - D1
Input - 8 Channel Thermocouple (J, K, R, S, B, E, T, N, +/- 50mV, +/-100mV)	iOS / M 08 I T X - D1
Output - 4 Channel DC Voltage / Current (0-20mA, 0-10V)	iOS / M 04 O X A - D1
16 Digital Input, 16 Transistor output (0.1A / Channel, 2A / Common)	GSL - D T 4 A
16 Relay Output (2A / Channel, 5A / Common)	GSL - R Y 2 A
32 Digital Input	GSL - D 2 4 A

Note: Other I/O configurations and Fieldbus options are available. Please inquire at IMO. [automation@imopc.com](mailto:automation@imopc.com)



iCAN based expansion I/O is also available on special request. Please inquire at IMO technical support. [automation@imopc.com](mailto:automation@imopc.com)

For further information on Remote I/O please consult the Remote I/O datasheet, and the i<sup>3</sup> Remote I/O tutorial in the downloads section of the IMO website. [www.imopc.com/manuals](http://www.imopc.com/manuals)

Technical Specifications				
Digital DC Inputs		Digital DC Outputs		
Inputs per Module	24 including 4 configurable HSC inputs		Outputs per Module	16 including 2 configurable PWM outputs
Commons per Module	1		Commons per Module	1
Input Voltage Range	12 VDC / 24 VDC		Output Type	Sourcing / 10 K Pull-Down
Absolute Max. Voltage	35 VDC Max.		Absolute Max. Voltage	28 VDC Max.
Input Impedance	10 K $\Omega$		Output Protection	Short Circuit
Input Current	Positive Logic	Negative Logic	Max. Output Current per point	0.5 A
Upper Threshold	0.8 mA	-1.6 mA	Max. Total Current	4 A Continuous
Lower Threshold	0.3 mA	-2.1 mA	Max. Output Supply Voltage	30 VDC
Max Upper Threshold	8 VDC		Minimum Output Supply Voltage	10 VDC
Min Lower Threshold	3 VDC		Max. Voltage Drop at Rated Current	0.25 VDC
OFF to ON Response	1 ms		Max. Inrush Current	650 mA per channel
ON to OFF Response	1 ms		Min. Load	None
HSC Max. Switching Rate	10 kHz Totalizer/Pulse, Edges		OFF to ON Response	1 ms
	5 kHz Frequency/Pulse, Width		ON to OFF Response	1 ms
	2.5 kHz Quadrature		Output Characteristics	Current Sourcing (Positive Logic)
Analogue Inputs Medium Resolution				
Number of Channels	2		General Specifications	
Input Ranges (Selectable)	0 - 10 VDC		Required Power (Steady State)	95 mA @ 24 VDC, 190mA @12VDC
	0 - 20 mA		Required Power (Inrush)	2A for <1ms @ 24VDC - DC switched
	4 - 20 mA		Primary Power Range	10 - 30 VDC
Safe input voltage range	-0.5 V to +12 V		Operating Temperature	-10° to 60° Celsius
			Storage Temperature	-30 to 70°C
Nominal Resolution	12 Bits		Relative Humidity	5 to 95% Non-condensing
			Display Type	3.5" QVGA TFT
Input Impedance (Clamped @ -0.5 VDC to 12 VDC)	Current Mode: 100 $\Omega$ , 35mA Max. Continuous		Screen Resolution	320 X 240
	Voltage Mode: 500 K $\Omega$ , 35mA Max. Continuous		Display Memory	64MB
			Scan Rate	Controller 0.13 mS/K
			Display Life	Minimum 50000 hours ( 50% brightness , 25°C)
%AI full scale	32,000 counts full scale.		User Keys	4 User Defined Function Keys and a System Key
Max. Over-Current	35 mA		Screens and Colours Supported	1023 screens and 65535 Colours
Conversion Speed	All channels converted once per ladder scan		Weight	12 oz. (340 g)
Max. Error at 25°C (excluding zero)	4 - 20 mA	1.00%	CE / UL	Approved
	0 - 20 mA	1.00%		
Filtering	0 - 10 VDC	0.50%		
	160 Hz hash (noise) filter 1-128 scan digital running average filter			

## Small Extras:

RS232 Serial Programming Cable  
For programming any *i*<sup>3</sup> Model.



PART No: i3PC45

IP65 RJ45 Panel-Mounted Socket  
Bring either MJ1 or MJ2 ports to the outside world by installing this into a 22.5mm cut-out.



PART No: i3PAD

USB to RS232 Converter  
For PCs without a serial Com Port.  
Add one with this device.



PART No: PC501

Display...  
Control...  
Connect...

# i<sup>3</sup> Intergrated Controller & Associated Products

## Communication:

### Ethernet Expansion card

Part No. i3-E

Link an *i*<sup>3</sup> to an Ethernet network. Program monitor and debug remotely, or run *i*<sup>3</sup> as a Modbus TCP server.

### GSM Modem Expansion Card

Part No. i3-MA

Send and Receive SMS messages via the *i*<sup>3</sup>, dial-up connection over GSM data link for remote programming, debugging etc. Or, use a GPRS always-on data connection ideal for programming, debugging, monitoring and connection to a SCADA package for constant data logging and remote control.

### ODIN OPC Server (LOKI Datalogger)

Part No. IMO-OPC-SERVER

With no tag limits and 30 + protocols to select from (including IMO, Siemens, Allen Bradley, Mitsubishi), ODIN can be used with LOKI to log data either to an excel spreadsheet or access database.

### Panel Point SCADA<sup>lite</sup>

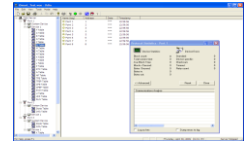
Part No. PANELPOINT (Developer)

Part No. PANELPOINTRT (Runtime)

With no tag limit and 30+ Protocols to choose from (including IMO products, Mitsubishi, Allen Bradley, Siemens), a powerful graphical editor, and a VB-based scripting language, Panel-Point allows a PC to become the central data hub of an application.

### i3Transfer Part No. i3-Transfer

*i*<sup>3</sup>Transfer is a low-cost, Windows® based software application that allows you to easily transfer files between your PC and the IMO *i*<sup>3</sup> Controllers via PC.

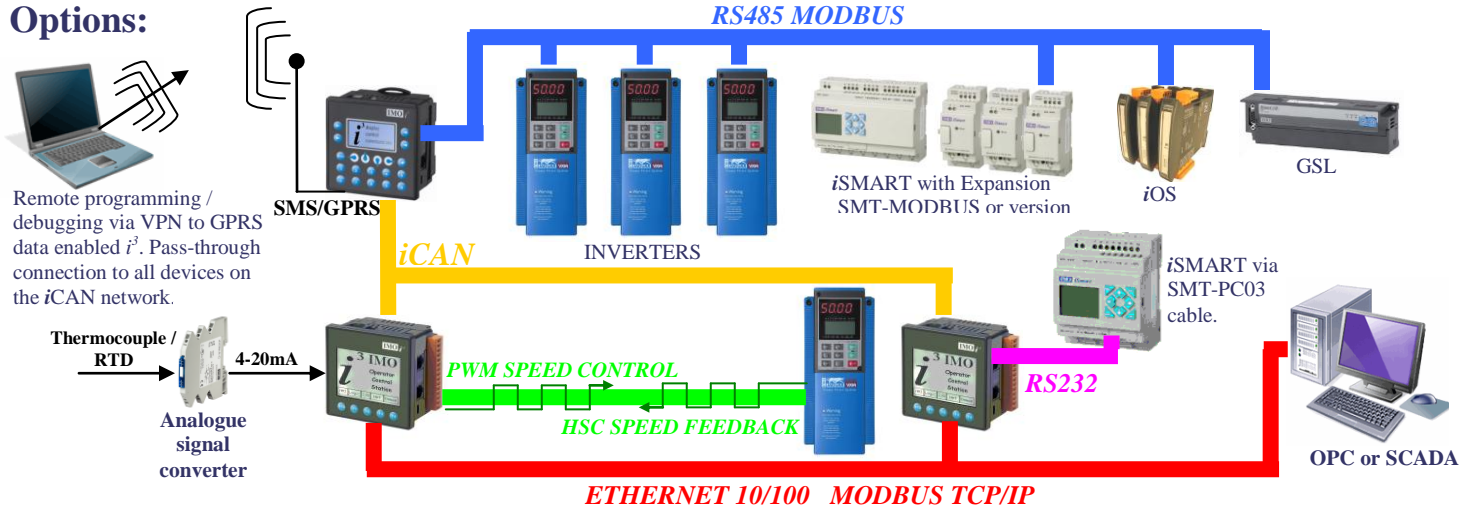


### i3Portal Part No. i3Portal

*i*<sup>3</sup>Portal is a low-cost, powerful Windows® based software application that will allow you to view and access remote IMO *i*<sup>3</sup> controllers via PC.



## Options:

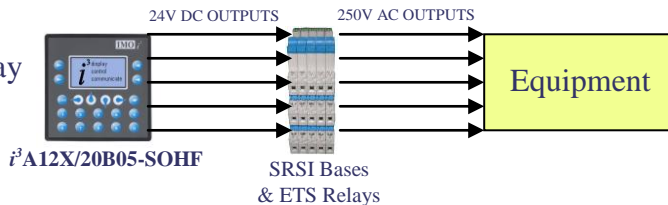


## Miscellaneous:

### DIN rail mounted SRSI Base and ETS Relay

Use the Transistor outputs of the *i*<sup>3</sup> to operate the relay coils to switch up to 6A @ 250VAC.

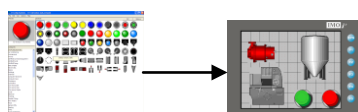
Part Numbers: SRSI-24AC/DC, ETS-1AN-SL-24VDC



### *i*<sup>3</sup> Configurator with Symbol Library

Obtain a copy of the *i*<sup>3</sup> Software with a library of colour buttons, pipes, vessels, motors, pumps, fans etc. To enhance the look and feel of applications on the *i*<sup>3</sup>C, *i*<sup>3</sup>C Mini, *i*<sup>3</sup>D, *i*<sup>3</sup>H.

Part Numbers: IMO-CDSUITE



### GPS Receiver

Locate your *i*<sup>3</sup> Controller anywhere in the world by connecting this device to MJ2 of a unit equipped with a GPRS enabled modem.



Part Number: *i*<sup>3</sup>-GPS

### Custom screen overlays

Ask at IMO for custom overlays. Overlays are tooled to a customer's design.