i³A Intelligent Control Station

- 128 x 64 Monochrome LCD display
- Addressable function keys
- 2 Communication Port (RS 232/RS 485)
- 10 - 30 VDC Power Supply
- 256 KB Ram (Program), 1MB (Graphical)
- Free Configuration Software
- RS 232 Programming Cable
- IP65 (NEMA4)
- Optional: MicroSD upto 2GB, Modem (SMS, GSM, GPRS), Ethernet Expansion Card

### General Specification

**Required Power (Steady State)**: 130 mA @ 24 VDC

**Primary Power Range**: 10 - 30VDC

**Relative Humidity**: 5 to 95% Non-condensing

**Clock Accuracy @ 20°C**: (+/-7 Minutes per Month)

**Operating Temperature**: -10°C to +60°C

**Terminal Type**: Screw Type, 5mm Removable

**Weight**: 12.5 oz. (354.36g)

**Approved**: CE, UL

### Options & Ordering Codes

<table>
<thead>
<tr>
<th>Standard Options</th>
<th>DI</th>
<th>DO</th>
<th>AI</th>
<th>AO</th>
</tr>
</thead>
<tbody>
<tr>
<td>i3A12X/10D01-SDDF</td>
<td>12</td>
<td>6 Relay</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>i3A12X/10B04-SCHF</td>
<td>12</td>
<td>12</td>
<td>2</td>
<td>-</td>
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<tr>
<td>i3A12X/10D03-SCHF</td>
<td>12</td>
<td>6 Relay</td>
<td>4</td>
<td>-</td>
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<tr>
<td>i3A12X/20B05-SOHF</td>
<td>24</td>
<td>16</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>i3A12X/13C14-SOHF</td>
<td>12</td>
<td>12</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

**Monochrome**

- 128 x 64 pixels

**RS232, RS 232/485/422**

- 12 Programmable Keys

**No Digital Input**

- 0

**12 Digital Input**

- 1

**24 Digital Input**

- 2

**12 Digital Input + Temperature PT100/TC**

- 13

**No Analog Input**

- 0

1 (10 Bit) A

2 (10 Bit) B

2 (14 Bit) C

4 (10 Bit) D

**No Analog Output**

- 0

2 (12 bit) 1

**Serial**

- S

**No Digital Output**

- 0

**6 (Relay)**

- 1

**12 (DC)**

- 4

**16 (DC)**

- 5

**No Option**

- O

**CAN**

- C

**CANopen**

- A

**iCAN**

- H

**GSM Modem**

- M

**Expansion Ethernet**

- E

**µSD Flash Card**

- F

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### Technical Specifications

**Digital DC Inputs**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute Max. Voltage</td>
<td>35 VDC Max.</td>
</tr>
<tr>
<td>Input Impedance</td>
<td>10kΩ</td>
</tr>
<tr>
<td>HSC Max. Switching Rate</td>
<td>10 kHz Totalizer / Pulse, Edges</td>
</tr>
<tr>
<td>Absolute Max Voltage</td>
<td>35VDC</td>
</tr>
<tr>
<td>Time Response</td>
<td>1 ms</td>
</tr>
<tr>
<td>Max. Upper Threshold</td>
<td>8VDC</td>
</tr>
<tr>
<td>Min. Lower Threshold</td>
<td>3VDC</td>
</tr>
<tr>
<td>Voltage Range</td>
<td>12VDC/24VDC</td>
</tr>
</tbody>
</table>

**Digital Outputs**

- **Type**: Sourcing / 10K Pull Down
- **Absolute Max. Voltage**: 28VDC Max
- **Output Protection**: Short Circuit
- **Max. Output Current Per Point**: 0.5A
- **Max. Total Current**: 4A Continuous
- **Max. Output Supply Voltage**: 30VDC
- **Minimum Output Supply Voltage**: 10VDC
- **Max. Voltage Drop at Rated Current**: 0.25VDC
- **Max. Inrush Current**: 650mA Per Channel
- **OFF to ON / ON to OFF response**: 1ms
- **Output Characteristics**: Current Sourcing (Positive Logic)

**Analogue Inputs - Medium Resolution**

- **Input Ranges**: 0 - 10VDC
- **Safe input voltage range**: -0.5V to +12V
- **Nominal Resolution**: 10 Bits
- **%AI full scale**: 32,000 counts
- **Max. Over-Current**: 35mA
- **Max. Error at 25°C 0-20mA**: 1.00%
- **Max. Error at 25°C 0-19mA**: 1.00%
- **Filtering**: 160Hz Hash Noise Filter
- **Input Impedance**: Current Mode: 100W, 35mA Max
- **%AI full scale**: RTD/TC: 20 counts / °C
- **Max. Over-Current**: 35mA
- **Open Thermocouple Detect Current**: 50mA
- **Safe input voltage range**: 10VDC: -0.5V to +15V
- **Nominal Resolution**: 10 Bits
- **%AI full scale**: PT100: 20 counts / °C
- **Max. Over-Current**: 35mA
- **Open Thermocouple Detect Current**: 50mA
- **Thermocouple Temp. range**: B/R/S 2912°F to 32°F (1600°C to 0°C)
- **J, K, N, T, E, R, S, B Thermocouples**: 1652°F to -328°F (900°C to -200°C)
- **PT100 RTD**: 1382°F to -230°F (750°C to -120°C)
- **K/N**: 2498°F to -400°F (1370°C to -240°C)
- **Thermocouple Common Mode Range**: +/- 10V
- **Max. Error at 25°C (4(0)-20mA, 0-10VDC)**: +/- 0.1%
- **Max. Error at 25°C PT100**: +/- 0.05°C
- **Max. Error after 1Hr Warmup TC**: +/- 0.2%
- **RTD Excitation Current**: 250mA

**Digital Relay Outputs**

- **Max. Output Current per Relay**: 3A at 250 VAC, resistive
- **Max. Total Output Current**: 5A continuous
- **Max. Output Voltage**: 275 VAC, 30 VDC
- **Max. Switched Power**: 1250VA, 150W
- **Contact Isolation to i3 ground**: 1000VAC
- **Max. Voltage Drop at Rated Current**: 0.5V
- **Expected Life at No load**: 5,000,000
- **At Rated load**: 100,000
- **Max. Switching Rate at no load**: 300 CPM
- **At rated load**: 20 CPM
- **Type**: Mechanical Contact
- **Response Time**: One update per ladder scan plus 10ms

**Analogue Outputs**

- **Output Range**: 0-10V, 0-20mA
- **Nominal Resolution**: 12 bits
- **Maximum Load at 20mA**: 500W
- **Minimum Load at 10V**: 1000W
- **Maximum Error at 25°C**: 0.10%

**Analogue Inputs - High Resolution**

- **Input Ranges**: 0 - 10VDC
- **0 - 20mA**: 100mV
- **4 - 20mA**: J, K, N, T, E, R, S, B Thermocouples
- **PT100 RTD**: 250MA
- **Safe input voltage range**: 10VDC: -0.5V to +15V
- **Nominal Resolution**: 12 Bits
- **%AI full scale**: PT100: 20 counts / °C
- **Max. Over-Current**: 35mA
- **Open Thermocouple Detect Current**: 50mA
- **Thermocouple Temp. range**: B/R/S 2912°F to 32°F (1600°C to 0°C)
- **J, K, N, T, E, R, S, B Thermocouples**: 1652°F to -328°F (900°C to -200°C)
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- **Thermocouple Common Mode Range**: +/- 10V
- **Max. Error at 25°C (4(0)-20mA, 0-10VDC)**: +/- 0.1%
- **Max. Error at 25°C PT100**: +/- 0.05°C
- **Max. Error after 1Hr Warmup TC**: +/- 0.2%
- **RTD Excitation Current**: 250mA

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### Communication Ports

#### MJ1 Serial Port Pin Assignments

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>Signal Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>TD1</td>
<td>RS-232 Transmit Data</td>
</tr>
<tr>
<td>7</td>
<td>RD1</td>
<td>RS-232 Receive Data</td>
</tr>
<tr>
<td>6</td>
<td>0V</td>
<td>Ground</td>
</tr>
<tr>
<td>5</td>
<td>+5</td>
<td>+5 VDC max</td>
</tr>
<tr>
<td>4</td>
<td>RTS1</td>
<td>RS-232 Request to Send</td>
</tr>
<tr>
<td>3</td>
<td>CTS1</td>
<td>RS-232 Clear to Send</td>
</tr>
<tr>
<td>2</td>
<td>RX/TX-</td>
<td>Receive / Transmit Negative</td>
</tr>
<tr>
<td>1</td>
<td>RX/TX+</td>
<td>Receive / Transmit Positive</td>
</tr>
</tbody>
</table>

#### MJ2 Serial Port Pin Assignments

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>Signal Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>TD1</td>
<td>RS-232 Transmit Data</td>
</tr>
<tr>
<td>7</td>
<td>RD1</td>
<td>RS-232 Receive Data</td>
</tr>
<tr>
<td>6</td>
<td>0V</td>
<td>Ground</td>
</tr>
<tr>
<td>5</td>
<td>+5</td>
<td>+5 VDC 60mA max</td>
</tr>
<tr>
<td>4</td>
<td>TX-</td>
<td>RS-485 Transmit Negative</td>
</tr>
<tr>
<td>3</td>
<td>TX+</td>
<td>RS-485 Transmit Positive</td>
</tr>
<tr>
<td>2</td>
<td>RX-</td>
<td>RS-485 Receive Negative</td>
</tr>
<tr>
<td>1</td>
<td>RX+</td>
<td>RS-485 Receive Positive</td>
</tr>
</tbody>
</table>

### External Jumper Configuration

- **Factory Use**
  - RS 485 Termination For MJ2
  - RS 485 Termination For MJ1

### Dimension without Modem

#### Panel Cut out

![Dimension without Modem](image)

- 3.780 [96.0 mm]
- 3.622 [92mm]
- 3.780 [96.0 mm]
- 2.264 [57.5 mm]

### Dimension with Modem

#### Panel Cut out

![Dimension with Modem](image)

- 3.780 [96.0 mm]
- 3.622 [92mm]
- 3.780 [96.0 mm]
Accessory Products

1. Communication Cable: RS 232 Serial Communication Cable for programming and i3 Controllers, Part No. i3PC45.

2. USB to RS232 Converter for PC’s without a serial Com port to communicate with the controllers, Part No. PC501.

Add - ins

1. Ethernet Expansion Card - Link an i3 to an ethernet netwrok. Program, debug and monitor and even run i3 as a Modbus TCP Server, Part No. i3-E

2. GSM Modem Expansion Card - Send and recieve SMS messages via the i3, 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, Part No. i3M.

3. ODIN OPC SERVER with LOKI Data Logger - ODIN can be used with LOKI to log either to an excel spreadsheet or an access database, with no tag limit and 30+ protocols to chose from (including IMO products, Mitsubishi, Allen Bradley and Siemens), Part No. IMO-OPC-Server.

4. Panel Point SCADAlite - A powerful graphical editor, and a VB-based scripting language. Panel Point allows a PC to become the central data hub of an application, with no tag limit and 30+ protocols to chose from (including IMO products, Mitsubishi, Allen Bradley, Siemens), Part No. PANELPOINT (Developer) - Part No. PANELPOINT (Runtime)