IQ230

Panel Mount Serial Input Indicator

Data sheet – English 1.01

14 Segment LED Displays

0-10V
0-20mA
4-20mA
Analog Re-Transmission

RTU
ASCII
Modbus™ Communications

RTC Option

RS232 & RS485

High Resolution DAC

FW
Field upgradeable Firmware

4 Alarm Setpoints

Introduction

The IQ230 panel mount serial input indicator is used as a remote display of serial data either from the RS232 or RS485 port. The display can be programmed to flash whenever serial data is not received within a certain time period to indicate a communication error condition. The IQ1230 is ideal where multiple slave units are required.

Typical uses of the serial input display include:

- Remote display of serial data *
- RS232 or RS485 to 0/4-20mA or 0-10V conversion
- Serial data bus snooper. E.g.: Display a specific Modbus variable *
- Load cell summation unit **
- Software protocol conversion E.g.: Customer specific software protocol received via the RS232 or RS485 port can be converted and then retransmitted in a different protocol via the RS485 or RS232 port. **

RS232 and RS485 communications is supplied as standard with the MODBUS™ RTU and MODBUS™ ASCII protocol. A simple ASCII out protocol is also provided for serial printing and communicating to large displays.

The high bright 6-digit 14 segment LED displays make for easy setup and readability. A simple menu system with built in help hints allows for easy configuration of display and unit settings.

A universal mains switch mode power supply (85-264VAC) is provided as standard but an optional low voltage (10-30VDC) isolated power supply or a high voltage (25-70VDC) isolated power supply can be installed.

The IQ1230 also has an analog out or an isolated analog out option to generate a precise 0/4-20mA or 0-10V analog output signal.

The IQ1230 also includes advanced features such as max/min value recording, programmable front push buttons, programmable digital inputs, security menu lockout plus many more.

* Special serial protocols can be written on request
** Special firmware required

Features

- **High bright 6-digit 14 segment LED displays**
- **-199999 to +999999 display counts**
- **RS232 and RS485 communications standard (MODBUS™ RTU/ASCII and an Infiniteq ASCII out protocol)**
- **Type 4X, NEMA 4X front panel. 96X48 ABS/Polycarbonate enclosure**
- **Universal mains switch mode power supply (85-264VAC) standard with built in EMI and fuse protection**
- **2x Programmable digital inputs (pull up or pull down field jumper selectable)**
- **3x Programmable front panel push buttons**
- **Up to 4 front panel LED indicators for alarm set point status (Mechanical or solid-state option required)**
- **Maximum/Minimum recording**
- **Built in menu help hints**
- **Field upgradable firmware via the RS232 interface**
- **1 Year Warranty**

Additional hardware options include:

- **Up to 4 Mechanical (FORM-C) or solid state (FORM-A) alarm set points**
- **16 Bit analog output (0/4-20mA, 0-10V)**
- **16 Bit Isolated analog output (0/4-20mA, 0-10V)**
- **RTC (Real Time Clock) option for time and date stamping**
- **Low voltage 10-30VDC Isolated power supply**
- **High voltage 25-70VDC Isolated power supply**

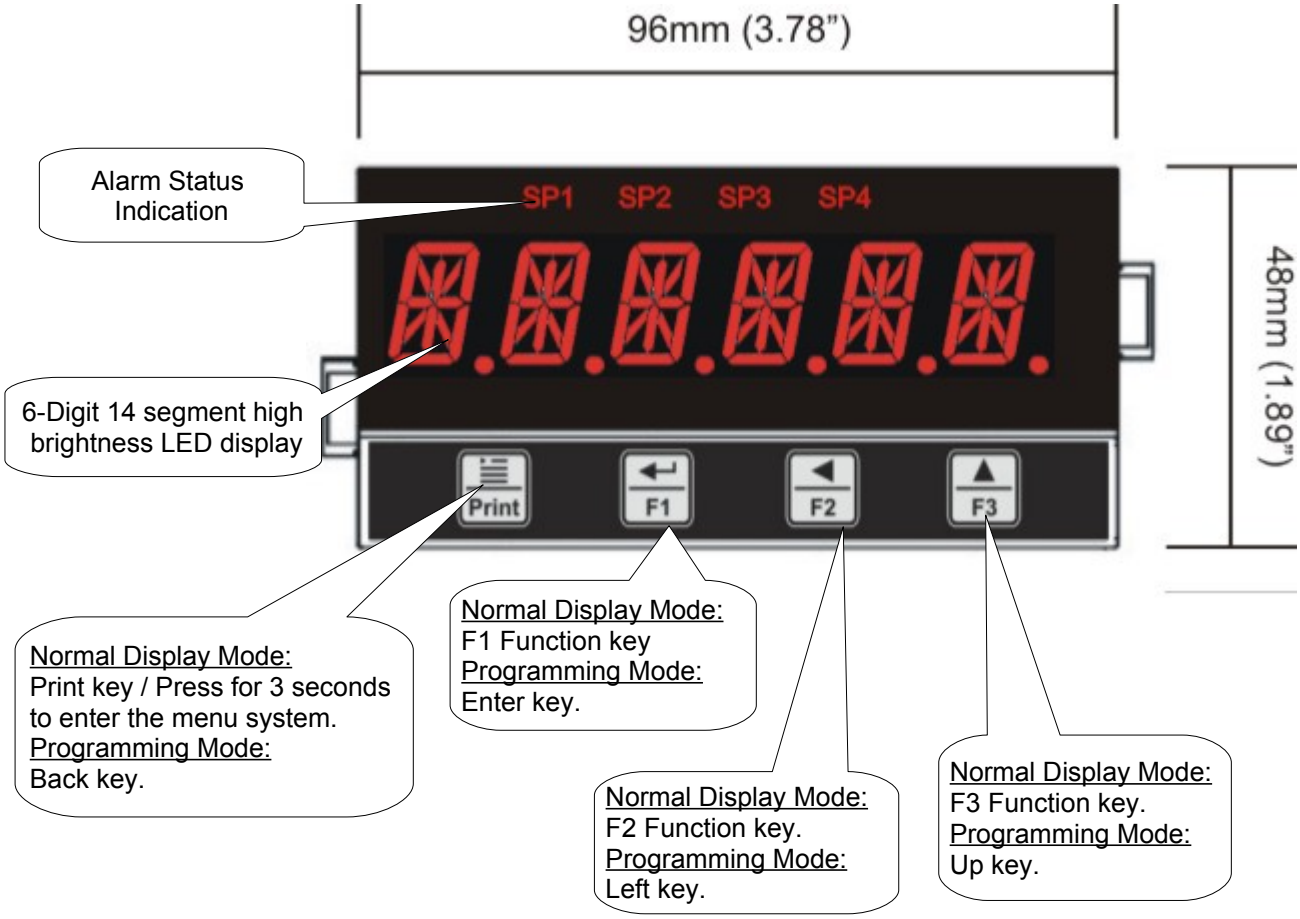
Specifications

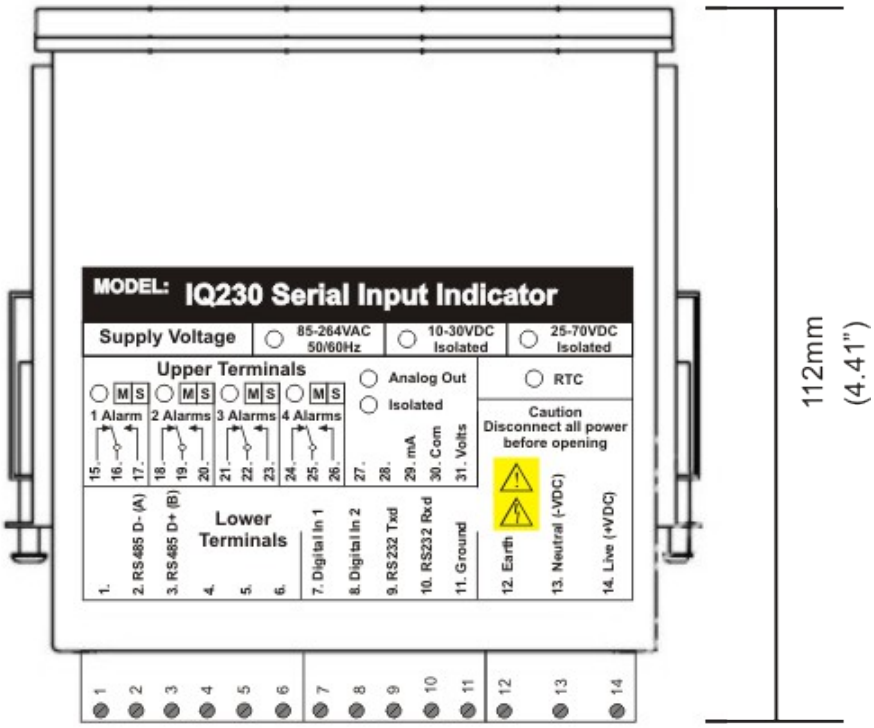
General:	
Display	6-Digit, 13.8mm (0.543") 14 segment high brightness red LED
Display range	-199999 to +999999
Display decimal point	0 to 0.00000
Status LEDS	4 LEDs total (SP1 to SP4)
Digital Inputs	2 Programmable digital inputs Built in hysteresis, filter and input over voltage protection Maximum input voltage <30VDC Input logic is field jumper selectable (Pull up, sinking inputs) - 10kΩ internal resistor to 5V (Pull down, sourcing inputs) – 10kΩ internal resistor to common Active/Non-Active input trigger: <1.9V Non-Active/Active input trigger: >2.3V
Keypad	4 keys total, 3 programmable keys
Memory storage	Non-volatile EEPROM, 100000 write cycles minimum
Warm up time	15 minutes
Power Requirements:	
AC Power Supply	85-264VAC, 50/60Hz or 120-370VDC Isolation: 3000VAC/1min
DC Power Supply, 10-30VDC (Optional)	10-30VDC input Reverse and over voltage protected Isolation: >1000V/1min
DC Power Supply, 20-70VDC (Optional)	25-70VDC input Reverse and over voltage protected Isolation: >1000V/1min
Power Consumption	<6W (Depending on options selected)
Fuse (Built in)	2A Slow Blow (Wickmann 3721200000) RS components part number 226-6599
Environmental:	
Operating temperature	-10°C to 50°C (14°F to 122°F)
Storage temperature	-40°C to 80°C (-40°F to 176°F)
Operating and storage humidity	<85% RH non-condensing
Enclosure:	
Overall Dimensions	96x48x112mm (LxHxD) (3.78x1.89x4.41") (Depth includes connectors)
Mounting	92x45mm (3.62x1.77")
Enclosure Material	Rear ABS plastic, Front Polycarbonate
Front Facia Rating	IP65, with o-ring supplied as standard
Wiring connections	Removable terminal blocks
Analog Out: (Optional)	
Ranges (Selectable through menu)	0-20mA 4-20mA 0-10V
DAC Resolution	16 Bit
Update rate	10 updates/second
Current output compliance (maximum load)	500Ω (Current is source, not sink)
Voltage output compliance (minimum load)	1kΩ
Current open loop detection	Display flashes "mA.Loop" error message
Linearity	<0.02% of full scale
Accuracy	0.05% of full scale

Isolation (Optional)	1000VDC @ 1mA for 1 minute
Communications:	
Protocol	MODBUS RTU MODBUS ASCII ASCII In (Infiniteq Protocol) ASCII Out (Infiniteq Protocol)
RS232 Communications (Standard)	Baud rate: 1200,2400,4800,9600,19200,38400,57600,115200 Data bits: 7 or 8 bits Parity: Odd, Even or None Stop bits: 1 or 2 stop bits Non isolated
RS485 Communications (Standard)	Baud rate: 1200,2400,4800,9600,19200,38400,57600,115200 Data bits: 7 or 8 bits Parity: Odd, Even or None Stop bits: 1 or 2 stop bits Internal 120Ω field jumper selectable termination resistor Max 32 instruments per line
SetPoints: (Optional, Up to 4 can be fitted) **Electro-mechanical Relays:**	
Contact rating	3A@250VAC or 30VDC (Resistive load)
Type	FORM-C (Change over contact (NO/NC))
Life expectancy	>100K cycles min. at full load rating. External RC snubber extends relay life for operation with inductive loads
Solid-State Relays (SSR):	
Contact rating	120mA@400VAC/DC
Dielectric strength	>1000VAC for 1 minute
Type	FORM-A (Normally open)
RTC (Real Time Clock): (Optional)	
Battery	CR2032
Accuracy	Better then 2 seconds per day (Temperature dependent)

Installation

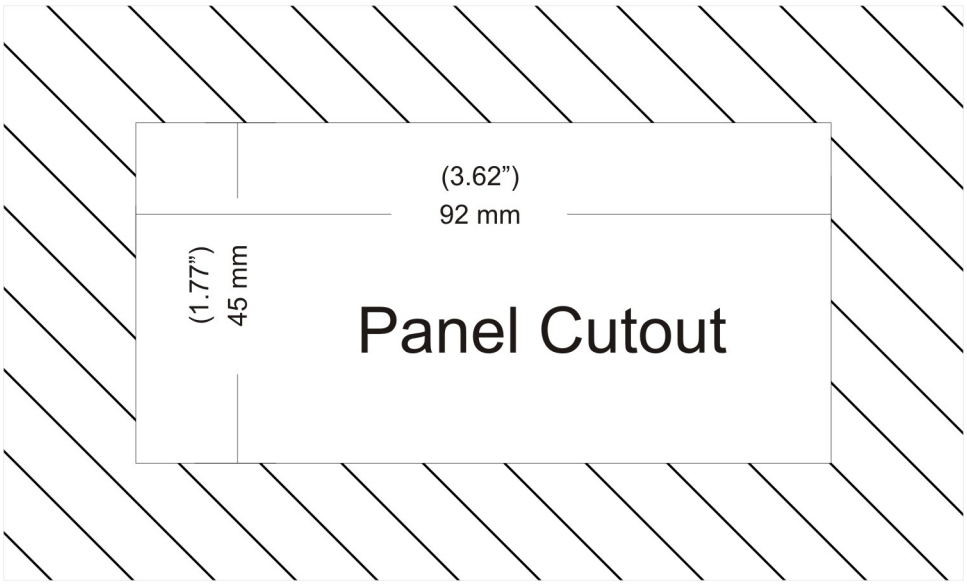
Dimensions & Front panel layout



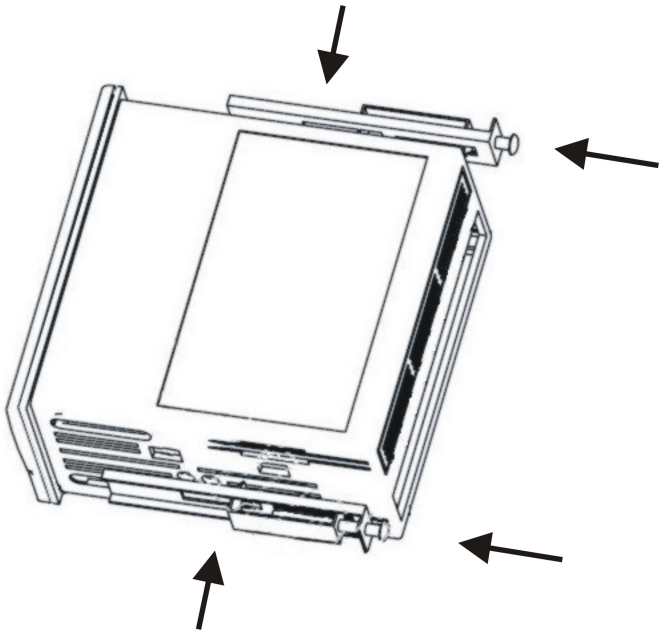


Panel Cutout

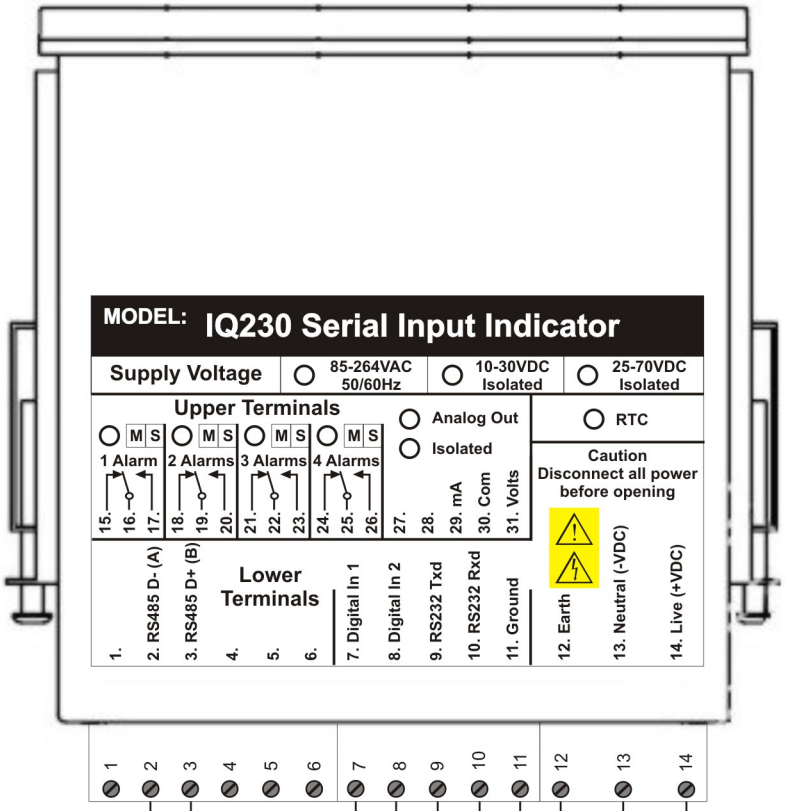
A rectangular cutout measuring 92x45mm (3.62”x1.77”) must be made in the mounting enclosure. The IQ230 instrument should preferably be mounted in a grounded metal enclosure.

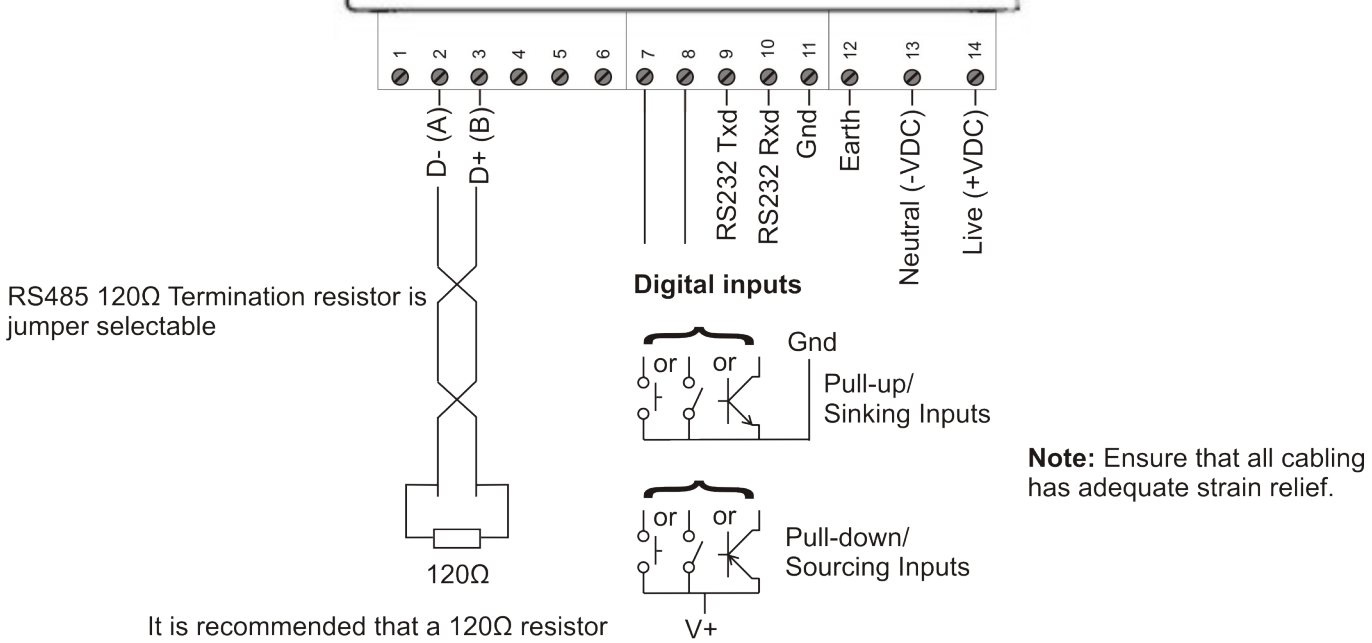


The supplied o-ring must be attached to the front cover to provide sealing between the indicator and the mounting enclosure. The two supplied fastening metal side clips must be attached to either side as in the diagram below. Do not over tighten the screws.



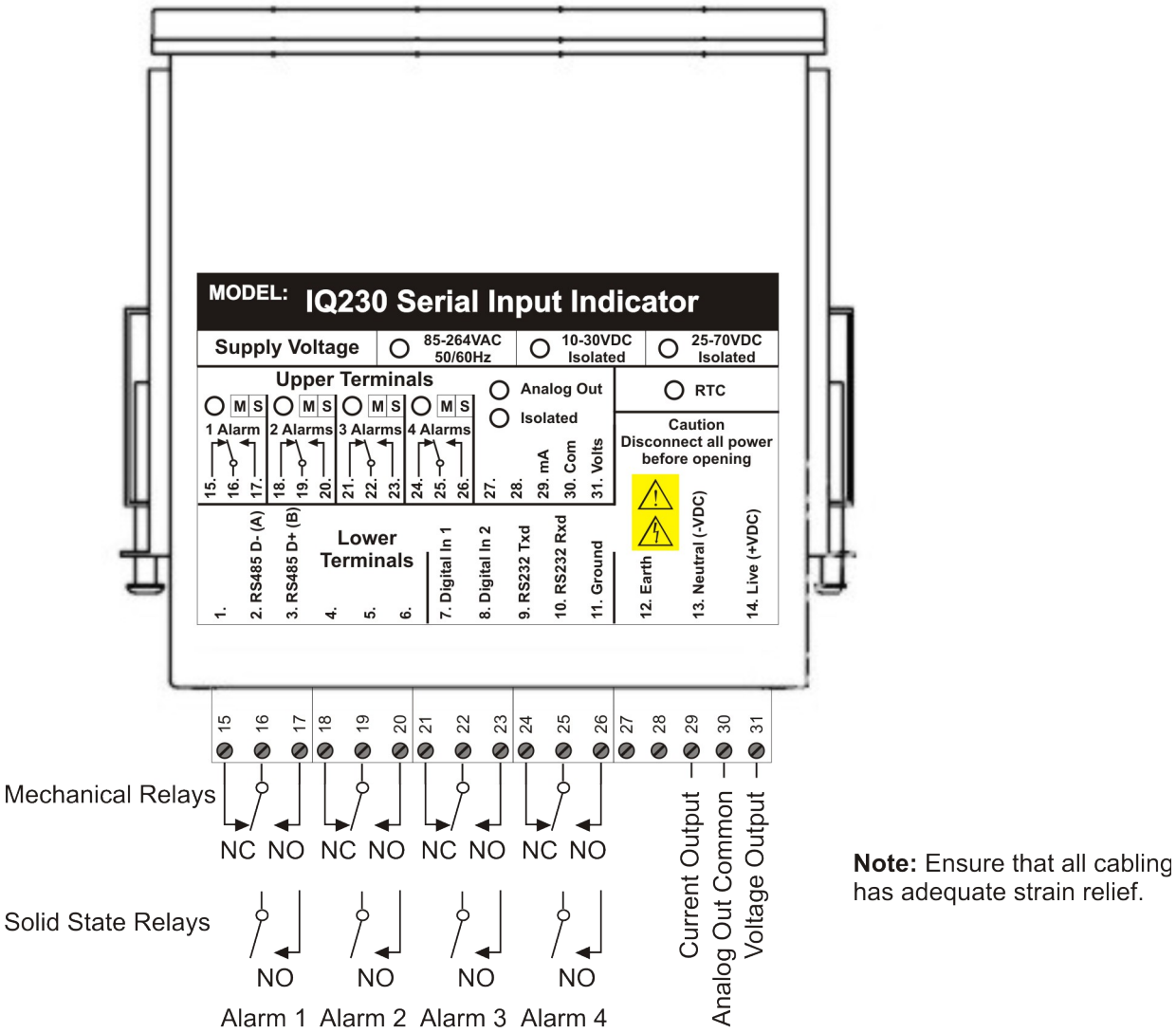
Hardware Connection (Lower Terminals)





Note: Ensure that all cabling has adequate strain relief.

Hardware Connection (Upper Terminals – Option PCB)



Note: Ensure that all cabling has adequate strain relief.

Cleaning

The unit should not be cleaned with any abrasive substances. The screen is very sensitive to certain cleaning materials and should only be cleaned using a clean, damp cloth.

Ordering Information

Add option codes to suffix of model number separated by hyphens.

Example:
IQ230 Serial Input indicator with 2 mechanical relays, non-isolated analog output)

IQ230-711-730

Option part numbers:

700 - Low voltage 10-30VDC isolated power supply
701 - High voltage 25-70VDC isolated power supply
710 - 1 Mechanical relay
711 - 2 Mechanical relays
712 - 3 Mechanical relays
713 - 4 Mechanical relays
720 - 1 Solid-state relay
721 - 2 Solid-state relays
722 - 3 Solid-state relays
723 - 4 Solid-state relays
730 - 16 Bit Analog Output (0/4-20mA, 0-10V)
731 - 16 Bit Isolated Analog Output (0/4-20mA, 0-10V)
750 - RTC (Real Time Clock)
760 - Panel mount engineering units
761 - Power connector protective cover
762 - 115VAC Inductive load suppressor
763 - 230VAC Inductive load suppressor
764 - 2A Slow blow replacement fuse
765 - R-C Snubber noise and arc suppressor
766 - Transparent protective front cover

Website

An electronic copy of this Data Sheet and the Operating Manual may be downloaded from

www.instrotech.com.au

Notice

Specifications of the products displayed herein are subject to change without notice. Infiniteq cc, or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Infiniteq's terms and conditions of sale for such products, Infiniteq assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Infiniteq products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Infiniteq for any damages resulting from such improper use or sale.

Warranty

This product carries a warranty for a period of one year from date of purchase against faulty workmanship or defective materials, provided there is no evidence that the unit has been mishandled or misused. Warranty is limited to the replacement of faulty components and includes the cost of labor. Shipping costs are for the account of the purchaser.

Note: Product warranty excludes damages caused by unprotected, unsuitable or incorrectly wired electrical supplies and or sensors, and damage caused by inductive loads.

DISTRIBUTED BY: