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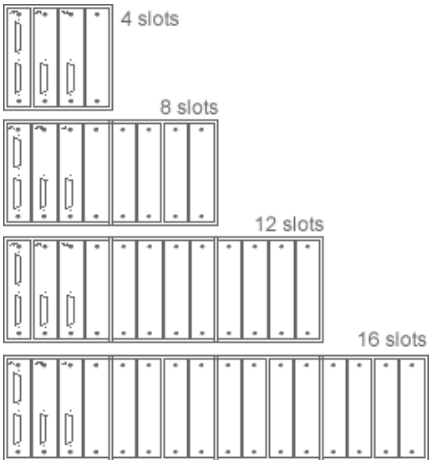
instruNet USB Data Acquisition Hardware and Software

- Usb 2.0 High Speed Data Acquisition Hardware for Windows ≥ Xp Sp2, Vista or 7 (Xp/Vs/7).
- Analog and Digital Input and Outputs
- Free instruNet World software
- Small 15 x 11 x 14 cm Aluminum Card Cage controlled by 32bit processor inside of i2x0 Controller, which attaches to Windows computer (e.g. via USB bus)
- Reduce noise by placing boxes near sensors and 0-1000 feet from noisy computer
- Digitize any combination of channels at 166,000 samples-per-second aggregate.
- Each channel has independently programmable analog filters, integration time, voltage range, and sample rate. Programmable digital filters on All channels (LP, HP, BP, BS)

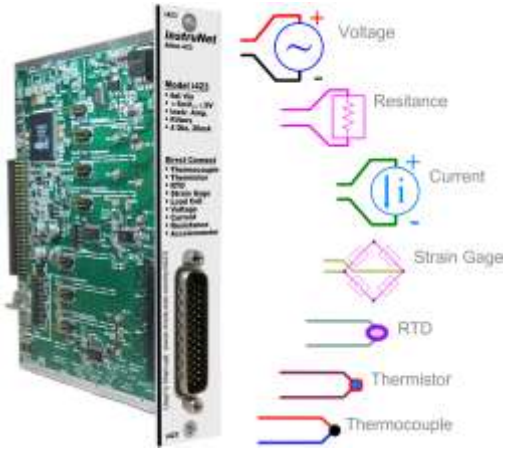
Low Cost 4/8/12/16 Sot Card Cage

The i400 product provides 4 slots, and multiple i400's can be bolted together by the end user, side-by-side, to create an 8, 12, or 16 slot system. In many applications, one i400 with 4 slots is sufficient.



Connect Directly to Common Sensors

Data Acquisition Cards Connect Directly to Thermocouple, Thermistor, Strain Gage, Load Cell, Counter/Timer, RTD, Voltage, Current, Resistance and Accelerometer.



i4xx Series Data Acquisition Cards

instruNet i4xx cards are installed by the end user into an instruNet card cage that is 4, 8, 12 or 16 slots wide. Each card is 13 x 2.5 x 13 cm in size. Below is a list of available cards.

	Voltage Input			Voltage Outputs		Digital I/O	
Model	# of Chan	Range	Low Pass (KHz)	# of Chan	Range	# of Chan	mA Sink
i420	20se/10di	±10V..±20mV				4	20
i423	6di	±5V..±5mV	0.006,4			4	20
i430	16se/8di	±10V..±10mV		2 2	±10 V 0-10V	4	20
i460						12 16	20 200
i410	The i410 connects Card Cage to Windows Computer via i2x0 instruNet Controller.						

The following table shows maximum aggregate sample rates for an i240 USB controller attached to an i4xx Card Cage. To calculate the sample rate for each channel, divide by the number of channels attached to the i240 controller. For example, if the maximum aggregate sample rate is 166Ksamples/sec/controller, and you digitize 4 channels, then you could digitize each channel at 41Ks/sec/channel. One can attach up to four i240 controllers to a computer to increase total system throughput.

	Max Aggregate Sample Rate per Controller (K samples/second/controller)			
Model	±10V range	±5V range	±1.2V range	±10mV..±80mV range
i430	166	166	129	1.4
i420	94	90	83	1.4
i423		113	98	68

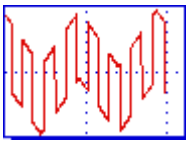
Connect Directly To Sensors

The table below shows which sensors directly connect to each hardware product. The numbers in the table refer to number of channels. The following sensors require an external shunt resistor: RTD, thermistor, resistance measurement, current measurement, ¼ bridge strain gage, and ½ bridge strain gage. Thermocouple sensors require an i51x Wiring Box attached to the i4xx card.

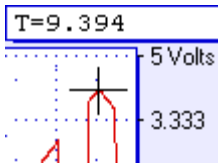
Model	Voltage	Current	Resist-ance	Therm-istor	RTD	Thermo-couple	Load Cell	Acceler-ometer	Strain Gage
i420	20/10	10	10	10	10	10	10		10
i423	6di	6	6	6	6	6	6	6	6
i430	16/8	8	8	8	8	8	8		8
i100	16/8	8	8	8	8	8	8	8	8

instruNet Software

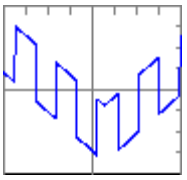
instruNet includes software to interrogate, test, configure, and do I/O with all network channels. This includes an application program called "instruNet World" and interfaces to Visual Basic, C, and C++. instruNet software can configure all I/O channels, store your settings, view digitized data in real time, stream data to disk, and scroll through your waveform post-acquisition. instruNet software runs on Windows computers.
For full Monitoring, Control, Alarm Management etc, please consider our Orchestrator SCADA software.



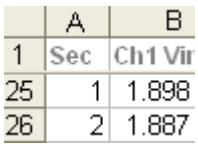
instruNet World



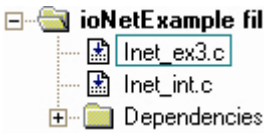
iW+



instruNet Scope



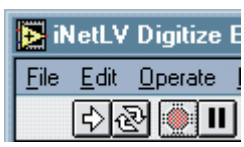
Direct To Excel



C/C++

Visual BASIC

Orchestrator SCADA



LabVIEW

DASYLab

i555 Starter System

The i555 Starter System, shown to the right, provides the following:

- Usb 2.0 High Speed Data Acquisition Hardware for Windows ≥ Xp Sp2, Vista or 7 (Xp/Vs/7)
- instruNet Software
- 16se/8di Voltage Inputs, 16-bit A/D
- 2x Precision Voltage Out (±10V, 14bit)
- 2x Voltage Outputs (0..+10V, 8bit)
- 4x Universal Digital I/O (10V..30V)
- Connect Directly To Sensors: Voltage, Thermocouple, Thermistor, RTD, Load Cell, Strain Gage, Potentiometer, Current, Resistance.
- Easily expand via 2 free slots in 4 slot i4xx Card Cage
- The i555 includes the following products: i240, i430, i510, i400, i410, i312.

Why is instruNet Better Than Other Systems?

Low Cost Card Cage

instruNet is a low cost card cage that attaches to Windows computers via USB 2.0. The advantage of a card cage is one can mix and match modules as needed, to build exactly what they need. The advantage of the instruNet card cage is cost in in that it can be half (or more than half) the cost of comparable chassis.

Analog Backplane Reduces Cost

The instruNet card cage typically has one A/D measurement module and additional modules provide signal conditioning. The conditioned analog signal is routed to the A/D module via the backplane. This is dramatically different from comparable systems which place A/D measurement electronics on each module. The advantage of the instruNet topology is cost. After the 1st module is installed, additional instruNet channels are conditioned at much lower costs to comparable systems.

Universal Inputs Reduces Cost

instruNet measurement modules have universal inputs that enable one to directly connect each channel to one of: Thermocouple, Thermistor, Strain Gage, Load Cell, Counter/Timer, RTD, Voltage, Current, Resistance and Accelerometer. Absolute accuracy for all of these sensor types is specified. In some cases, the end user adds an external shunt resistor. The advantage of universal inputs is cost.