

## iSINC® ITS Electronics / WIM Controller

### Powerful Multi-Tasking Software Coupled with Hardened Electronics

The iSINC® Electronics form the core of Quarterhill's traffic and truck Weigh-In-Motion (WIM) systems. The iSINC® performs a broad range of ITS functions from data collection and web-based traffic monitoring to weigh-station automation.

The iSINC® connects with in-road sensors, signage, Automated Vehicle Identification (AVI) readers, cameras, communications systems, and custom equipment. Its modular hardware and software technologies result in configurable, scalable and reliable systems.

#### FEATURES

- Real-time operation and integration
- Powerful multi-tasking software
- Hardened electronics and weatherproof enclosures

#### APPLICATIONS

- Commercial Vehicle Operations (CVO)
- Virtual Weigh Stations
- Traffic Data Collection
- Weigh-in-Motion (WIM) at Toll
- Bridge Monitoring
- Border Crossings
- Real-time ITS Applications



iSINC® Electronics



iSINC® Lite Electronics

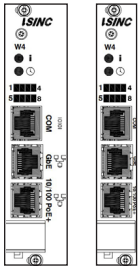
# ISINC ELECTRONICS MODULES

## WIM CONTROL UNIT (W4)

The W4 network-based plug-in module is the heart of the iSINC® product line. It configures, monitors, and controls all connected iSINC® equipment, and aggregates sensor module reports to build sophisticated data collection and commercial vehicle operation (CVO) systems.

The W4's built-in software provides a wide range of user-configurable Intelligent Transportation Systems (ITS) functions from data collection to weigh station automation. Integration with larger systems is encouraged as the W4's advanced software architecture allows customized processes to run on customer-supplied equipment using our open CVO protocol.

### HIGHLIGHTS



- Monitors up to 16 lanes simultaneously
- Creates and stores vehicle records
- Classifies and performs compliance checks as per standard and user-defined WIM-based schemes
- Transfers stored and real-time vehicle data
- Supervises sorting, signing and compliance operations
- Integrates with larger systems
- Provides network and serial-based user interfaces
- Aggregates and logs operating conditions and system health

## QUARTZ SENSOR MODULE (QSM)

The QSM connects iSINC® systems to Quartz WIM sensors. The QSM monitors, measures, and reports wheel or axle weight from multiple quartz sensors. It forwards road temperature data to the W4 (iSINC® WIM Control Unit) for use in temperature compensation. The sophisticated signal processing of the QSM ensures accurate weighing at speeds of 6 mph up to 155 mph (10 kph - 250 kph).

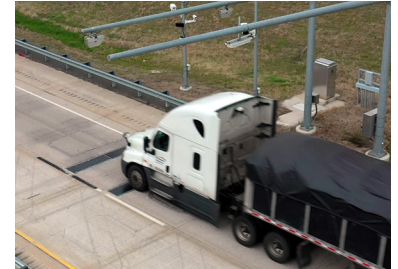
### HIGHLIGHTS



- Monitors up to four Quartz sensors simultaneously
- Reports wheel or axle weights in real-time
- Forwards road temperature data from an in-road temperature sensor
- Produces real-time sensor signal traces on request

## SCALE SENSOR MODULE (SSM)

The SSM connects iSINC® systems to IRD and PAT WIM scales. The SSM monitors, measures, and reports wheel or axle weight from multiple scale platforms. It forwards road temperature data to the W4 (iSINC® WIM Control Unit) for use in temperature compensation. The sophisticated signal processing of the SSM ensures accurate weighing over the full range of static to mainline weighing speeds.



### HIGHLIGHTS

- Monitors up to four resistive bridge weighing platforms simultaneously
- Automatically compensates for drifting scale baseline signals
- Suppresses scale ringing signatures
- Reports wheel or axle weights in real-time
- Forwards road temperature data from an in-road temperature sensor
- Produces real-time scale signal traces on request

## PIEZO SENSOR MODULE (PSM)

The PSM connects iSINC® systems to piezoelectric axle and WIM sensors. The PSM monitors, measures, and reports wheel or axle presence (class II) and/or weight (class I) from multiple piezoelectric sensors. It forwards road temperature data to the W4 (iSINC® WIM Control Unit) for use in temperature compensation. The sophisticated signal processing of the PSM ensures accurate weighing at speeds of 6 mph up to 155 mph (10 kph - 250 kph).



### HIGHLIGHTS

- Monitors up to four piezoelectric sensors simultaneously
- Reports wheel or axle weights in real-time
- Forwards road temperature data from an in-road temperature sensor
- Produces real-time sensor signal traces on request

# ISINC ELECTRONICS MODULES

## STRAIN GAUGE STRIP SENSOR MODULE (SGSM)

The SGSM connects iSINC® systems to strain gauge strip WIM sensors. The SGSM monitors, measures, and reports wheel or axle weight from multiple sensors. It forwards road temperature data to the W4 (iSINC® WIM Control Unit) for use in temperature compensation. The sophisticated signal processing of the SGSM ensures accurate weighing over the full range of ramp to mainline weighing speeds.



### HIGHLIGHTS

- Monitors up to four strain gauge strip sensors simultaneously
- Reports wheel or axle weights in real time
- Forwards road temperature data from an in-road temperature sensor
- Produces real-time scale signal traces on request

## LOOP SENSOR MODULE (LSM)

The LSM connects iSINC® systems to inductive loop vehicle presence sensors. The LSM monitors, measures, and reports vehicle presence from loop sensors. The sophisticated signal processing of the LSM ensures accurate loop detection at speeds of up to 125 mph (200 kph).



### HIGHLIGHTS

- Monitors up to four inductive loop sensors simultaneously
- Reports vehicle presence in real-time
- Provides loop detuning values for enhanced classification and matching
- Independently programmable channel frequency and sensitivity
- Produces real-time sensor signal-traces on request

## SERIAL CONTROL MODULE (SCM)

The SCM connects iSINC® systems to serial devices. A wide variety of application code currently exists making the SCM an indispensable tool for interfacing to and controlling various OEM serial devices.



### HIGHLIGHTS

- Monitors and provides interface to one serial device
- Firmware applications support serial devices including:
  - > Automatic Vehicle Identification (AVI)
  - > HELP data format devices
  - > PrePass data format devices
- DTE RS-232 port at data-rates of up to 57.6 kbps

## DIGITAL I/O MODULE (DIOM)

The DIOM connects iSINC® systems to devices with digital contact closure outputs and switch inputs. Its vast array of functions makes it an indispensable tool for interfacing to a wide variety of OEM devices.

### HIGHLIGHTS

- Monitors up to eight digital input or output channels
- Individually programmable channels for I/O direction, polarity, and voltage
- Programmable output modes and periods: DC, square-wave, and one-shot pulse
- Programmable input de-bounce times
- Configurable output-mirroring of remote or local inputs
- Outputs may be overridden for manual control
- Built-in I/O pull-up resistor

## SERIAL BRIDGE MODULE (SBM)

The SBM bridges its asynchronous serial port (RS-232) and CAN bus interfaces.

SBM's are most often used in pairs to bridge the iSINC® busses of two separate subracks (CAN ↔ RS-232 ↔ CAN). Modems and/or fiberoptic-to-serial media converters may be used to allow operation over extended distances.

### HIGHLIGHTS

- Connect iSINC® subracks (up to 648 I/O per system)
- Bridges CAN bus and RS-232 port bidirectionally
- DTE RS-232 port at data-rates of up to 57.6 kbps

# iSINC® Electronics



iSINC® SSR9U



iSINC® 334



iSINC® Lite

Specifications		Outdoor Cabinet	Operating Temperature -40°F to +150°F	Humidity 20% to 95% (non-condensing)	Compatible with all iSINC modules†	Max iSINC modules	Max I/O panels	Max AC switched sign outputs	AC/DC Supply (120/240VAC, 50/60Hz)	Battery back-up (batteries not inc.)	Solar charger (panels/batteries not inc.)	Screwless I/O termination	Over-voltage I/O protection (gas discharge)	Service GFI duplex outlet (N. Am. only)	Surge protected AC duplex outlet (N. Am. only)	Second AC duplex outlet (N. Am. only)	CE/ RoHS Compliant**
Model	Dimensions* H x W x D (in)																
iSINC Lite	5.9 x 10.4 x 11		✓	✓		10	9		✓	opt	opt	✓	✓				✓
iSINC SSR9U	17.5 x 13.1 x 12.5		✓	✓	✓	10	6	2	✓	✓	opt	✓	✓				✓
iSINC SR12U	23.9 x 21 x 12		✓	✓	✓	20	12	8	✓	opt	opt	✓	✓	opt	opt	✓	✓
iSINC SR20U	38 x 21 x 18		✓	✓	✓	20	12	8	✓	opt	opt	✓	✓	opt	opt	✓	✓
iSINC 336	47 x 24 x 22.8	✓	✓	✓	✓	20	12	8	✓	opt	opt	✓	✓	✓	✓	✓	✓
iSINC 334	67 x 24 x 32.5	✓	✓	✓	✓	20	12	8	✓	opt	opt	✓	✓	✓	✓	✓	✓
iSINC ERK	81 x 22 x 25			✓	✓	20	12	8	✓	opt	opt	✓	✓	✓	✓	✓	✓

\* Contact IRD for other options as needed.

† iSINC Lite enclosures are compatible with the modules described in this brochure, but not compatible with rack-face frame-mounted panel modules.

\*\* Most configurations of these models are CE/ RoHS Compliant

