The iSINC® electronics form the core of IRD’s traffic and truck Weigh-In-Motion (WIM) systems. Out of the box, 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 vastly 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
- Bridge Monitoring
- Border Crossing
- Real-time ITS Applications
iSINC® Electronics Modules

**WIM CONTROL UNIT (W3)**

The W3 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.

IRD’s Open CVO protocol provides unprecedented integration capability, allowing real-time interaction between iSINC® and customized processes running on external equipment.

**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
- Interfaces with overview snapshot cameras, license plate readers (LPR) and USDOT number readers
- Provides network and serial based user interfaces

**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 W3 (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

**VIRTUAL WEIGH STATION MODULE (VWS)**

The VWS module delivers a web browser user interface to the iSINC®, making real-time data remotely accessible.

**HIGHLIGHTS**

- Monitors up to 16 lanes simultaneously
- Can enable/disable up to 4 cameras per lane
- User settings allow filtering by class, lane, camera and violations
- User-set report and bypass parameters
- Vehicle record data includes: lane, vehicle number, class, length, speed, GVW, time and date
- Will produce a printable pdf report displaying detailed information for any vehicle

**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 W3 (iSINC® WIM Control Unit) for use in temperature compensation. The sophisticated signal processing of the PSM ensures accurate weighing at speeds of 10 kph up to 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
QLAQTZ SENSOR MODULE (KSM)
The KSM connects iSINC® systems to Quartz WIM sensors. The KSM monitors, measures, and reports wheel or axle weight from multiple quartz sensors. It forwards road temperature data to the W3 (iSINC® WIM Control Unit) for use in temperature compensation. The sophisticated signal processing of the KSM ensures accurate weighing at speeds of 10 kph up to 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

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. The module allows connection of protocol-compatible RS-232 connected equipment to the iSINC® system.

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
- Bridges CAN bus and RS-232 port bidirectionally
- DTE RS-232 port at data-rates of up to 57.6 kbps

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
  - Static Scale Heads
  - Variable Message Signs
  - PrePass data format devices
  - DTE RS-232 port at data-rates of up to 57.6 kbps

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 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
# iSINC® Models Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimensions HxWxD (mm)</th>
<th>Outdoor cabinet</th>
<th>Operating temperature -40°C to +65°C</th>
<th>Humidity 0% to 90% (non-condensing)</th>
<th>Compatible with all iSINC modules</th>
<th>Max AC switched sign outputs</th>
<th>Max Dynax inputs</th>
<th>36V AC/DC supply (120V/240VAC, 50/60Hz)</th>
<th>90W AC/DC supply (120V/240VAC, 50/60Hz)</th>
<th>Battery back-up (batteries not inc.)</th>
<th>Solar charger (panels/batteries not inc.)</th>
<th>Screwless I/O termination</th>
<th>Service GFI duplex outlet</th>
<th>Surge protected AC duplex outlet</th>
<th>Over-voltage I/O protection (gas discharge)</th>
<th>CE (IEC/EN 61326-1) / RoHS Compliant</th>
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