MODEL 5470
NTCIP Mini-RWIS Remote Processing Unit

- NTCIP 1204 ESS Compliant Architecture
- Supports Full Complement of RWIS Sensors
- Compact 1U Form Factor
- Integral Surge Suppression

PHONE: (800) 275-2080 HIGH SIERRA ELECTRONICS FAX: (530) 273-2089

DESCRIPTION:

The Model 5470 MiniRWIS compact Remote Processing Unit (RPU) is the heart of a standards based, open architecture NTCIP-compliant Road Weather Information System (RWIS) Environmental Sensor Station (ESS), designed for primary deployment within new existing traffic cabinets, dynamic message sign cabinets, etc. This unique approach to NTCIP-compliant RWIS allows for simpler installation at a lower cost than traditional standalone RWIS stations.

The fully self-contained compact form factor of the unit, along with its support for a full suite of commercially available open architecture pavement surface and atmospheric sensors, make it an ideal choice for RWIS applications.

1U rack mount package with removable rack ears makes these units particularly suitable for Traffic Controller, Message Sign, and other traffic cabinets.

Besides providing important road surface and weather information, the unit activates and deactivates isolated outputs based on user settable high and low thresholds, enabling use of locally resolved weather status information to activate local public warning devices such messages signs, flashing beacon signs or other public warning devices. Further, these outputs may be used to activate traffic signal controller preemptions, enabling new and innovative approaches to improving traffic safety.

Communications with the MiniRWIS is NTCIP 1204v3 ESS via Ethernet or RS-232 connection, providing the flexibility needed to poll and collect data over a variety of communications means. As a fully certified NTCIP compliant system, central polling and monitoring can be provided by any number of agency owned or hosted software solutions, including many ATMS systems and stand alone software solutions. Any NTCIP compliant Central Software can interrogate and receive data from the unit.

In order to easily fit in the tight quarters of a traffic cabinet, the entire MiniRWIS, including NTCIP controller, sensor surge protection, power converter and condition status outputs are packaged to fit in a 1U rack mount enclosure. Sensors can be deployed on existing nearby traffic poles, camera poles, sign gantries or luminaries using standard mounting hardware.

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MODEL 5470
Sensors and Functionality

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SENSORS AND FUNCTIONALITY:

All the sensors we supply are industry standard commercially available open architecture sensors. Additional sensors can be incorporated. In support of HSE's commitment to open architecture solutions, we publish the full list of NTCIP Objects used, including Manufacturer Specific Objects necessary to provide data and functionality not included in the 1204v3 ESS standard. This "no secrets" approach simplifies integration with Central Software and interoperability with other manufacturer's equipment.

Surface Sensors

Non-Intrusive Pavement Surface Sensors
- IceSight 2020EW/E (Model 5433-15/16)
- Equip up to 8
- IceSight sensors provide surface status, surface temperature, air temperature and a friction coefficient.
- Separate outputs can be activated for wet road and for icy surface conditions.
- American Made

HSE Passive Surface Sensors
- Model 5721- Passive Surface Sensors
- Equip up to 2
- Cost effective basic passive sensors provide accurate surface temperature and 3 surface status; Dry, Wet, or Ice.
- Separate outputs can be activated for wet road and for icy surface conditions.
- American Made

HSE Sub-Surface Temperature Sensors
- Model 5721-07 adds sub-surface temperature to the HSE Non-Intrusive and In-Road surface sensors above.
- Equip up to 2
- Cost effective basic passive sensors provide accurate sub-surface temperature.
- American Made

Lufft IRS31/ARS31 Intelligent Road Sensor
- Model 5421 Sensor provides surface temperature, surface status, freeze point and film thickness data
- With up to 2 sub-surface probes. Optionally equip ARS31 Active surface sensor with each IRS31.
- Equip up to eight (8)
- Separate outputs can be activated for wet and for icy surface conditions.

Water Depth Sensors
- Model 6600-10 & 6640-00 Pressure Transducers
- Bubbler Sensor, Radar Sensor and other sensor technologies available
- Equip up to Two (2)
- Two high and low level thresholds are provided for each of the 2 sensors, allowing activation of a total of four outputs based on flood conditions.

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Atmospheric Sensors

Combined Weather Sensors

Met One MSO-15, 5 Parameter Weather Station
- 5741-00 5-Parameter Weather Station provides Wind Speed & Direction, Air Temperature, Relative Humidity and Atmospheric Pressure
- SDI-12 Communications
- An output can be activated for high wind conditions (activates when spot wind speed threshold is exceeded, and deactivates when 10 minute wind gust speed is below threshold value).
- American Made

Lufft WS Combined Weather Station Sensors
- Model 5742 sensors are available in a range of configurations that include Wind Speed and Direction, Air Temperature & Relative Humidity, Atmospheric Pressure, Solar Radiation and Precipitation.
- Separate output can be activated for high wind conditions and for precipitation rate.

Discrete Atmospheric Sensors

Tipping Bucket Rain Gauge
- Model 2400 Series 12" or 8" Rain Gauge provides precipitation rate and totals. A settable tip rate count accumulator facilitates Central Software forwarding raw data to weather databases.
- An output can activated based on rain rate.
- American Made

HSE Atmospheric Pressure
- Model 5730-03 provides solar radiation reading.
- American Made

Rotronic HC2-S3 Air Temperature/Relative Humidity Sensor
- Model 5723 provides Air Temperature and Relative Humidity indications.

RM Young 5103 Wind Sensor
- Model 5712 provides solar radiation reading
- Separate outputs can be activated for high wind conditions (activates when spot wind speed threshold is exceeded, and deactivates when 10 minute gust speed is below threshold value.)
- American Made

EnviroTech Sentry SVS-1 Visibility Sensor
- Model 5434-00 provides visibility reading from 10m to 16km
- Separate outputs can be activated for low visibility conditions.
- American Made

Lufft R2S Radar Rain Sensor
- Model 5431 Rain Sensor classifies precipitation and provides rate and accumulation data
- An output can be activated based on rain rate

Licor Pyranometer
- Model 5790 provides solar radiation reading

MODEL 5470
Description and Specifications

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DESCRIPTION (cont'd):

Road Weather Information Systems provide important information about weather and roadway conditions, helping operations and maintenance personnel stay informed so that they can make timely decisions and improve traffic safety. While full RWIS stations typically require new right-of-way space with a dedicated pad, tower, cabinet, fence and utilities work which all contribute to the high price and complex installation for these stations, many road weather related decisions need to be made in locations where existing infrastructure is already in place. High Sierra Electronics compact MiniRWIS allows transportation agencies to implement open architecture RPU based RWIS systems at a fraction of the cost of full stand alone installations.

ORDERING GUIDE:

Model 5470-02	NTCIP MiniRWIS RPU 12VDC
Model 5470-03	NTCIP MiniRWIS RPU 24VDC
Model 5407-00	DIN Rail AC Power Supply


Rear View of 5740

SPECIFICATIONS:

Power Source	24 VDC (18-36VDC) Optional 12 VDC (9-15VDC) Optional 115 VAC (100~240VAC) via External 24VDC Power Supply
Power Consumption	<4 Watts
Dimensions	1U 19" Rack Mount Unit Removable Mounting Ears 1.75"H x 19"W x 11"D (4.5cm H x 48cm W x 28cm D)
Weight	8 Pounds (3.6kg)
Data Connection:	
Ethernet	RJ45-F
RS-232 -RS-485	DB9M
Sensor Inputs	16 Digital Inputs 8 Analog Inputs, 12 bit 3 Serial (RS-485) • IceSight open protocol • Lufft UMB open protocol • SDI-12 standards based open protocol
Isolated Outputs	8 (SPDT Dry Form C)
Sensor Surge Protection	Internal M Block Plug-in Suppressors for sensor data and power. Sensor power individually fused
Operating Temp.	-40° F. to +165 °F. (-40° C. to +74° C.)
Humidity	5-95% Non-Condensing
Protocol Stacks Supported:	
Ethernet	Data Objects>SNMP>UDP/IP>Ethernet>RJ45
Direct Connect (RS-232)	Data Objects>SNMP>Null>PMPP>RS-232>DB9M


KC Scout, MO Installation 2011