ICITE®
“INTELLIGENT CABINET INTERFACE TO TRAFFIC EQUIPMENT”
DA-DATA AGGREGATOR™
DA-300

EBERLE DESIGN, INC.
MORE THAN 37 YEARS OF TRUSTED TRAFFIC SAFETY MONITORING PRODUCTS
• US-based designer manufacturer of reliable mission-critical safety monitoring products to enhance and augment traffic control systems.
• Products include intersection safety monitors, (MMU/CMU), vehicle detectors, power supplies, flashers, load switches and other vital infrastructure devices for transportation professionals to integrate, automate, measure and better manage highways and signalized intersections.
• Global market leader in design and manufacture of inductive loops and loop amplifiers (per IHS Research, Dec 2014)
• Provides more than 850 different products for safety monitoring of intersections and railways, vehicle detection, parking/access control, Automatic Vehicle Identification (AVI), prefabricated loops for roadway and railway detection
• ISO 9001:2008 registered Engineering and Manufacturing facilities in Phoenix, Arizona and Reno, Nevada USA
• Eberle Design has more than 4 million active devices deployed in traffic cabinets worldwide
• Those devices perform more than 2 billion error-free transactions every 24 hours
• WE HELP TO prevent accidents, injuries and fatalities AT SIGNALIZED INTERSECTIONS

THE EDI VALUE PROPOSITION

>37 YEARS OF SUCCESS

1. JUST-IN-TIME SUPPLY
2. HIGH RELIABILITY
3. EXTREME SERVICE
4. FAIR PRICING
5. PROVIDE CUSTOMIZED SOLUTIONS TO OUR PARTNERS
WHAT IS ICITE® AND THE DATA AGGREGATOR-DA™?

**iCITE® - Intelligent Cabinet Interface to Traffic Equipment**

**DA-Data Aggregator™**
- A hardware platform that is data and communications-rich for multiple applications.
- Can transform any traffic cabinet into a 24/7/365 permanent traffic count station (up to 32 channels of input)
- Can interface with any *iCITE Ready™* Cloud-based provider of Performance Measures data (w/API)
- Real-time traffic data can be obtained from the traffic cabinets, controllers, detectors and/or MMU/CMUs

*Initially limited to Type 130/2070, NEMA TS-1, TS-2, ITS, and ATC cabinets*

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**ICITE® DATA AGGREGATOR DA-300**

- **Detector Interface** provides a way to get accurate detector counts from inductive loops
- **Sync pulse** generated by GPS to provide a way to keep controller time up to date.
- **SDLC Communications** now capable of retrieving valuable information about the cabinet
HOW DOES ICITE® INTERFACE?

ALL TYPES OF TRAFFIC CABINETS, CONTROLLERS & DETECTORS

Cabinet/Controller Types:

• NEMA TS-1, Type 1 & Type 2
• NEMA TS-2
• Type 170 & Type 2070 (CALTRANS Style 33X cabinets)
• ITS Cabinets (Houston style)
• ATC Cabinets
• School Flash Cabinets

Detection Technology Interfaces: (w/ APIs)

• Inductive Loop Detectors
• Video Vehicle Detectors
• Magnetometer Detectors
• Laser Detectors
• Thermal Imaging Detectors
• Infrared Detectors
• Radar & Microwave Detectors
• Hybrid- Video + Radar Detectors
• Piezo Electric Sensors
• Wi-Fi based travel time
• Bluetooth based travel time
ICITE® DA-300 PROVIDES “BIG TRAFFIC DATA”

ICITE® DA-300 SOLUTION DIAGRAM
GET SMART WITH ICITE®
ICITE® DA-300 - Creating a Smart Traffic cabinet

City Traffic Engineer / Traffic Signal Supervisor needs- *
• Real-time traffic data - traffic counts, turning movement counts, split timing, phase interval timing
• Remote traffic cabinet connectivity - isolated intersections not connected to the central ITS system (cellular)
• Traffic data aggregation that is traffic cabinet and detection technology agnostic.
• Provides a GPS-based sync pulse for non-interconnected intersection timing synchronization
• Travel time analytics by route or segment (Wi-Fi or Bluetooth-based)
• Origin-Destination data
• Alarm generation and notification for an intersection in a “Flash” or “Failure” condition
• Alarm generation and notification for intersection loss of primary power or communications (cellular rollover-on-demand available)

• Provided through an iCITE Ready™ data analytics partner using the iCITE DA-300 hardware platform

GET SMART WITH ICITE®
ICITE® DA-300 - Creating a Smart Traffic cabinet

City Traffic Engineer / Traffic Signal Supervisor needs- *
• Passes any IP-based cabinet-generated data to the Cloud-based server (UDP or TCP-IP)**
• Alarm generation and notification for detectors on “recall/fail”, cabinet door “open/closed”, fan & heater status, internal cabinet temperature
• Provide real-time status of an intersection’s battery back-up system (BBS)
• Obtains real-time traffic data from the traffic controller, detectors, and/or MMU/CMU, BIU, SIU via SDLC,
• Provides required traffic count studies at each intersection per US FHWA requirements
• Provides 2015 FAST Act Performances Measures / MOE data per US FHWA requirements
• Provides Purdue Coordination Diagram per phase and/or approach
• 2048-bit encryption to ensure device and network security

• Provided through an iCITE Ready™ data analytics partner using the iCITE DA-300 hardware platform

** Requires system-specific integration and interoperability testing.
GET SMART WITH ICITE®

ICITE® DA-300- Creating a Smart Traffic cabinet

Traffic Planner / Traffic Consultant needs: *
- Real-time traffic data- traffic counts, turning movement counts, split timing, phase interval timing
- Traffic data aggregation that is traffic cabinet and detection technology agnostic.
- Travel time analytics by route or segment (Wi-Fi or Bluetooth-based)
- Origin-Destination data
- Obtains traffic data from the traffic controller, detectors, and/or MMU/CMU, BIU, SIU using either SDLC, Ethernet, RS-232, RS-485
- Passes any IP-based cabinet-generated data to the Cloud-based server (UDP or TCP-IP)**
- Provides required traffic count studies at each intersection per US FHWA requirements
- Provides 2015 FAST Act Performances Measures / MOE data per US FHWA requirements
- Provides Purdue Coordination Diagram per phase and/or approach
- Provides 2048-bit encryption to ensure device and network security

* Provided through an iCITE Ready™ data analytics partner using the iCITE DA-300 hardware platform
** Requires system-specific integration and interoperability testing.

ENABLING AUTOMATED TRAFFIC SIGNAL PERFORMANCE MEASURES (ATSPM)

WHAT DATA DO YOU NEED TO DO THE JOB?

<table>
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<tr>
<th>Goal</th>
<th>Context</th>
<th>Objective and Strategy</th>
<th>Performance Measure</th>
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<tbody>
<tr>
<td>Safety</td>
<td>Traffic demand: Light, moderate, heavy, congested</td>
<td>Safety Transfer Right of Way</td>
<td>- Yellow and Red Actuations, - Arrivals on Red - Ped/Bike Delay</td>
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<tr>
<td>Mobility</td>
<td>User mix: peds, bike, transit, vehicle, freight</td>
<td>Smooth flow, Equitable distribution of green time, Queue management, Frequent service of peds and bikes</td>
<td>- Purdue Coordination Diagram, - Split Failure, - Ped/bicycle delay vehicle delay, - Queue length, - Split Monitor</td>
</tr>
<tr>
<td>Quality Customer Service</td>
<td>Organizational capability</td>
<td>Validate &amp; Report Attainment of Objective</td>
<td>- Travel Time, - Turning Movement Counts</td>
</tr>
</tbody>
</table>

www.fhwa.dot.gov/innovation/everydaycounts/edc_4
PURDUE COORDINATION DIAGRAM

Time-Space diagram shows arrivals on Green, Amber and Red indications

GET SMART WITH ICITE®

ICITE® DA-300 - CREATING A SMART TRAFFIC CABINET

Performance Measures / Data Analytics Provider needs - *

- Provides a traffic-hardened hardware platform designed to easily integrate into any Type 170/2070, NEMA TS-2, TS-2, ITS or ATC cabinet
  - NEMA Environmental compliance -40°F to 176°F 0-95% Non-Condensing
  - Device QPL/APL listed with Texas DOT
- Designed by the largest manufacturer of traffic control peripheral electronics - more than 4 million devices operational globally
- Communicates with NEMA TS-2 MMUs manufactured by Eberle Design and Reno A&E (proprietary communications protocols)
  - Connects via SDLC port and receives all NEMA TS-2 SDLC messages
  - Connects via Ethernet and receives all Ethernet transmissions from the MMU
  - Connects via Serial port and receives all information via EDI ECcom or Reno A&E RAEComm software
- Provides the ability to gather necessary traffic data from legacy traffic controllers without SDLC or Ethernet-enabled communications
- Provides raw parsed traffic data to existing central ATMS or data analytics providers with simplified cabinet connectivity*

* Provided through an iCITE Ready™ data analytics partner using the iCITE® DA-300 hardware platform to an API
** Requires system-specific integration and interoperability testing
ICITE® DA-300 - CREATING A SMART TRAFFIC CABINET

Performance Measures / Data Analytics Provider needs - *

- Provides either Wi-Fi or Bluetooth receiver options available on the DA-300 hardware platform
- Obtains traffic data from the traffic controller, detectors, and/or MMU/CMU, BIU, SIU using either SDLC, Ethernet, RS-232, RS-485
- Passes any IP-based cabinet-generated data to the Cloud-based server (UDP or TCP-IP)**
- Facilitates required traffic count studies at each intersection per US FHWA requirements
- Facilitates 2015 FAST Act Performance Measures / MOE data per US FHWA requirements
- Facilitates Purdue Coordination Diagram per phase and/or approach
- Provides 2048-bit encryption to ensure device and network security
- Provides environmentally hardened GSM/GPRS/LTE 3G or 4G PTCRB and carrier certified modems (T-Mobile, AT&T, Verizon, Rogers)
- Provides a 5-Band antenna (Cellular, GPS, Wi-Fi, Bluetooth and DSRC)
- Standard 2-year factory hardware warranty. Extended warranty packages are available
- Custom APIs will be developed for IP-addressable / communications-enabled detection and central ATMS solution providers

* Provided through an iCITE Ready™ data analytics partner using the iCITE® DA-300 hardware platform to an API
** Requires system-specific integration and interoperability testing
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