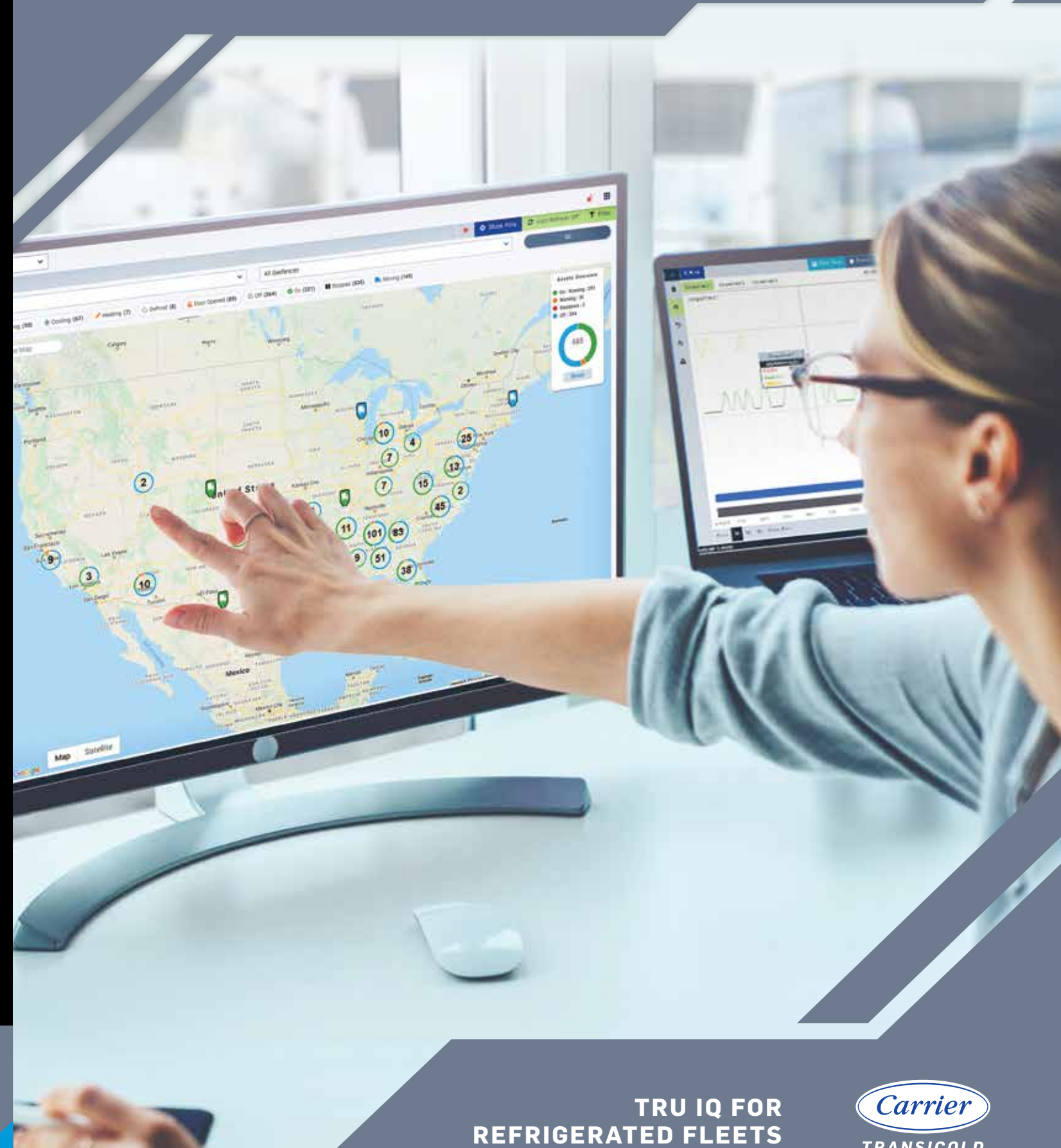


# eSolutions™

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**TRU IQ FOR  
REFRIGERATED FLEETS**





# INTELLIGENCE AND INSIGHT FOR REFRIGERATED OPERATIONS

More than ever, today's refrigerated transporters need to manage operations efficiently while maintaining compliance and accountability for the cold chain as they move perishable food and pharmaceuticals from coast to coast. Carrier Transicold designed the **eSolutions™ system** to not only help fleets achieve these goals today, but to anticipate their future needs tomorrow.

With the eSolutions system, connected fleets receive a centralized data stream characterizing fleet asset movements and cargo/trailer temperatures. No other telematics solution provides as much insight about

Carrier Transicold units, because the eSolutions system was developed and qualified specifically for Carrier Transicold equipment. It provides the "TRU IQ" fleet managers require to make information-driven decisions that help optimize efficiencies and hold down operating costs.

With thousands of systems already installed on hundreds of fleets, the eSolutions system offers an expanding array of capabilities based on real-world needs. It is fully supported throughout North America by the Carrier Transicold factory-authorized dealer network.



## BENEFITS THAT GENERATE ROI

Whether factory installed in new units, or field installed on existing equipment, the eSolutions system can generate ROI for fleets of every size. Just a few examples include:



**Fuel Cost Control:** By keeping a watchful eye on the TRU operating modes being used throughout a fleet, managers can optimize efficiency by identifying opportunities for greater use of stop-start versus continuous run mode, or by fine-tuning refrigeration performance through use of IntelliSet™ profiles. Tracking a fleet's use of electric standby through eSolutions can help a fleet to realize its bottom-line fuel cost savings. Also, centralized records generated on fuel consumption can be used to recoup direct costs through customer invoicing.



**More Efficient Asset Utilization:** Dwell time reporting helps dispatchers quickly locate and place into service refrigerated trailers that are idle, optimizing equipment usage.



**Preventive Maintenance Management:** Optimizing utilization results in more balanced TRU usage and wear, helping to manage overall maintenance costs and potentially extend replacement lifecycle by reducing annual run-hours. Centralized tracking of engine hours helps to identify units in need of preventive maintenance.



**TRU Analytics:** To help reduce unplanned and costly callouts, the eSolutions system can provide alerts when service needs are anticipated. Battery health status monitoring can help to avoid costly no-start situations.



**Claims Avoidance:** Centralized oversight of temperature compliance can help in mitigating risk to refrigerated loads. Recorded data can easily validate temperature compliance from point to point, providing documentation to help to avoid costly loss claims.



**Labor Saving:** Wireless data transfer can reduce the need for technicians to walk the yard to manage equipment. Efficiencies are gained through remote unit activation and setpoint management, automated pre-trip inspections, hands-free trailer precooling, remote software updates and wireless data downloads.





# FROM A BIRD'S EYE VIEW TO THE MICROSCOPIC – YOUR REFRIGERATED ASSETS AS YOU'VE NEVER SEEN THEM

Carrier Transicold's robust eSolutions website provides three easy ways to get a comprehensive overview of a fleet, and each one is customizable to a fleet's unique needs. All information is available through desktop computers and mobile devices, so you never lose touch with your cold chain assets. Additionally, information collected by eSolutions can be integrated into the fleet's transportation management system.<sup>1</sup>

## 1 EXCLUSIVE ESOLUTIONS DASHBOARD

The new dashboard provides an expanding array of "widgets" that provide an at-a-glance overview of the fleet, based on key parameters such as critical fuel levels, movement, refrigeration system operating mode and whether parked assets are running on diesel, which will be helpful for fleets subject to idling restrictions. When clicked, widgets can provide more detailed information sets.

- Pie charts indicate number of refrigeration units running versus off and units moving versus stationary.
- TRU low-fuel indicator.
- Cumulative operating hours, including breakdown of engine hours and standby hours.

## 2 ENHANCED LIVE MAP VIEW

Fleet managers can quickly see precisely where their refrigerated assets are located, whether they are moving or stationary, what operating mode they are in, temperature setpoints, fuel status, alarm status and so much more. Using familiar Google Maps<sup>®2</sup> satellite and map views, users can see individual assets and asset clusters that can be zoomed in on for details.

- Smart filters can be used to isolate units meeting one or more criteria (moving/stationary, cooling, door opened, etc.).
- Specific TRU location by address, indicating unit running or off, direction if moving and temperature.
- Total asset overview showing unit status, including alarm mode.
- Carrier Transicold dealer locations, including routing information if needed for service.
- Clusters of units in close proximity, including operating status.
- GPS tracking information can overlay routes traversed by specific eSolutions-equipped units over the course of the day.

## 3 COMPREHENSIVE ASSET VIEW

A tabular data presentation, the eSolutions Asset View can be your starting point for configuring fleet data and managing settings. It provides an incredibly flexible window that can show dozens of details about every unit. Or it can be filtered and sorted to prioritize the information that is most essential to the fleet manager.

- Convenient smart filters.
- Customizable list of all units in a fleet, or only units of interest.
- Can show information such as whether the unit is stationary or moving, setpoint and temperatures, engine run hours and more.
- At-a-glance identification of dwell time.



# SERVICE PLANS TO SUIT ANY FLEET

The eSolutions system requires a monthly service plan. Carrier Transicold offers three plan tiers so fleets can choose based on needs and budget and even upgrade as requirements change over time.

	MONITOR	MONITOR & CONTROL	MONITOR & ENHANCED CONTROL
EVENTS AS THEY OCCUR	✓	✓	✓
1-WAY DATA, 15-MIN. INTERVALS	✓	✓	✓
2-WAY CONTROL		✓	✓
DATA RECORDER DOWNLOADS			✓
INTELLISET UPLOADS			✓
REMOTE SOFTWARE UPDATES			✓

# PLAN DETAILS

## MONITOR

Provides essential monitoring capabilities with full visibility of comprehensive operational data. Examples include:

- GPS location and geofence information
- Setpoint data
- Sensor temperatures
- Fuel level
- Battery voltage
- Operating mode
- Hour meters
- Alarms

## MONITOR & CONTROL

Adds 2-way control with the ability to manage events remotely. Event examples include:

- Setpoint changes
- Change operating mode
- Initiate pre-trip
- Trailer pre-cooling
- Switch IntelliSet controller profiles
- Clear alarms
- Remote power on/off
- Initiate defrost

## MONITOR & ENHANCED CONTROL

Adds the ability to perform the following remotely:

- Data downloads of information recorded by TRU controllers, including temperatures, unit runtime and other diagnostic information
- IntelliSet profile uploads to fleet TRUs, synchronizing every unit in the fleet with the same temperature configurations
- Software updates for the TRU controller, eliminating the need for each unit to be manually updated to the latest software







## WHAT YOU NEED TO KNOW, WHEN YOU NEED TO KNOW IT

When you combine refrigeration system monitoring with GPS and notification capabilities, highly useful things can happen in terms of refrigerated fleet operations management. Here are just a few basic examples:



**Arrival/Departure Notifications:** Users can be alerted when units arrive at or depart from customer locations or distribution centers. This results in better utilization, greater accuracy for scheduling and improved customer service.



**Real-Time Alerts:** Fleets can be notified automatically when events happen to an asset, such as significant temperature deviation from setpoints, low battery and fuel warnings, unexpected changes in operating mode and power settings. If an equipment alarm is critical, the system can smartly locate the Carrier Transicold dealer that is nearest to the driver, helping to minimize disruptions.



**Theft Avoidance:** Alerts about sudden fuel loss or unanticipated door openings can quickly identify potential theft situations.



**Maintenance Cycles:** The system adds a comprehensive reporting capability to monitor and document engine hours, operation of compressors, evaporators, temperature probes and other vital parts of each asset. This helps to ensure full operating functionality and to provide guidance when it is time for preventive maintenance.



**Utilization Strategies:** With utilization information showing the location of assets and when they were last used, the eSolutions system is like a partner helping fleets to smartly manage deployment of each asset in any given geographical region or territory.



**Streamlined Cold Chain Compliance:** Centralized monitoring saves time in supporting recordkeeping needed for Food Safety Modernization Act compliance. The eSolutions system can also provide documentation of idling avoidance in keeping with California Air Resources Board requirements.

The possibilities for enhancing operations and efficiencies are unprecedented. Carrier Transicold has specialists dedicated to working with fleets and their supporting dealers to help them harness all the potential that the eSolutions system has to offer.

## PLAYS WELL WITH OTHERS

The eSolutions web interface is just one way to view and utilize data collected from a fleet's Carrier Transicold refrigeration units. The information can also be easily shared with most major transportation management systems (TMS) for both one-way monitoring and two-way control.

For fleets that have developed their own custom data platforms, Carrier Transicold offers an application programming interface (API), a toolkit that enables integration and display of data collected by the eSolutions system.

When fleets have a mix of eSolutions-enabled Carrier Transicold refrigeration units and telematics-equipped units from other providers, integrating inbound unit data through a common TMS provides the advantage of a complete overview of all refrigerated assets, regardless of make.

## SAFE AND SECURE

Fleets have peace of mind knowing that with the eSolutions platform, information security is paramount. Data is safely maintained in multiple data centers that provide redundant protection, fast access and robust security.






Access to the platform requires password-protected login protocols, and two-factor authentication adds another layer of security when two-way controls will be implemented to change settings and interact with refrigeration units.





# A NETWORK THAT HAS YOUR BACK

Technology is only as good as the team that stands behind it. Carrier Transcold offers a critical difference over third-party telematics providers – the exceptional support that comes from a customer-focused dealer network with locations throughout North America.

-  180 locations
-  24/7 service access
-  Rigorous factory training for technicians
-  Comprehensive critical parts stocking
-  Expert refrigeration maintenance and repairs, bumper to bumper, coast to coast



## Your Partner in Service

When it comes to service, the eSolutions system itself is a remarkable partner because of the equipment intelligence and insight it provides. With some service arrangements, TRU performance can be monitored collaboratively with Carrier Transcold dealers for a more seamless handling of service matters.

The ability to effectively manage refrigeration equipment in transit is also dramatically enhanced with eSolutions. Before a driver is even aware of a potential service issue, a dispatcher can receive an alert and determine whether or not the issue is critical. If it is, the dispatcher can direct the driver to the nearest service center. If it's not critical, the

driver can be instructed to address the problem after the delivery is made. Either way, productivity is enhanced, and load loss is averted.



## Get the Edge

Carrier's BluEdge program provides superior protection for your TRU investments through extended warranty support, comprehensive repair and maintenance agreements, and emergency call-out and after-hours protection. BluEdge service offerings enhance operations for fleets using the eSolutions system by providing automatic maintenance reminders and service scheduling assistance.



## Ensure Continuous Performance With Solar Charging Power Management Options

Carrier Transcold's high-efficiency solar charging options for refrigeration unit batteries help to ensure that the eSolutions telematics system is always on and monitoring, even when the refrigeration unit is off. Carrier's exclusive TRU-Mount Solar Panel fits conveniently along the top edge of Carrier Transcold trailer refrigeration units. Carrier also offers roof-mounted solar panels for refrigerated trucks and a trailer door-mount panel for rail/intermodal applications.

## A Complete Telematics Package

Each eSolutions-enabled TRU is equipped with a telematics module with backup battery, antenna and wiring harness. Cellular operation or cellular plus satellite operation, as specified by the customer, includes a satellite radio and antenna elements in a single hardware package. All user data is securely maintained and accessed through a Carrier-approved data center, providing redundant data protection, fast access and robust security of fleet information.

### Specifications

#### Transceiver Dimensions

7.54 in. x 3.07 in. x 1.43 in.  
(191.5 x 78.1 x 36.4 mm)

#### Inputs

1 door, 1 fuel, 3 temperatures

#### LED Status/Warning Indicators

Green, Red/blinking, Orange/blinking

#### Coverage

4G LTE Cellular + GPS  
Satellite (Optional)

#### Operating Temperature

-40°F to 185°F (-40°C to 85°C)

#### Humidity

0 to 100% RH

#### Power Draw

Sleep 5 mA  
Standby 10-20 mA  
Active 100 mA

#### Backup Battery

Lithium-ion rechargeable

### Ordering Information

**Note:** Monthly service plan must be activated separately from hardware purchase.

#### Factory Installation

The system can be factory installed on X4™, Vector™ and Supra® series model truck and trailer refrigeration units and Solara™ heating units.

#### Field Installation

X4 and X2 series  
Vector 8500, 8600MT, 8611MT, 8100, 1550 and HE 19; and Vector 6500, 6600MT and 5100  
Supra 6, 7, 8 and 9; Supra 560, 660, 760, 860 and 960; and Supra 950MT

### eSolutions System Options

**Note:** Option kits can be included in factory orders but will be installed in the field.

eSolutions remote power control switch kit  
eSolutions temperature sensor kit, 100 ft. cable  
eSolutions fuel sensor kit, 22 in. tank

### Other Compatible Options

Carrier door switch kit  
Carrier temperature sensor kit, 75 ft. cable  
Carrier temperature sensor kit, 100 ft. cable  
Carrier ultrasonic fuel sensor kit, 18 in. tank  
Carrier ultrasonic fuel sensor kit, 22 in. tank  
Carrier ultrasonic fuel sensor kit, 36 in. tank

