



 **E200**

FULL-ELECTRIC REFRIGERATION UNIT
FOR MEDIUM-SIZE VANS AND TRUCKS

REDEFINING WHAT'S POSSIBLE WITH ALL-ELECTRIC REFRIGERATION



The market leader in innovative technologies, Thermo King has expanded its portfolio of vehicle refrigeration systems with the E-200. It's a direct response to market demands for an all-electric product that supports increased vehicle uptime, power source optimization, and enhanced temperature control.

Designed for both electric and engine-powered vehicles, the E-200 can help ensure your operations remain compliant with a growing array of regional and national regulations concerning the reduction of noise and CO₂ pollution.

By deploying the E-200, your refrigerated transport operation will benefit from:

- Complying with PIEK standards and Urban Access Requirements (UVARs) for sound levels in urban environments
- Gaining access to Low Emission Zones (LEZs)/ Ultra Low Emission Zones (ULEZs), with extreme low noise levels to complete nighttime deliveries
- Providing refrigeration that moves beyond direct drive systems to provide the ideal solution for all-electric trucks
- Helping your customers meet their sustainability targets throughout the cold chain

The E-200 provides a unique mix of control, convenience, utilization, and reliability to inspire your performance across urban settings and last mile deliveries.

**Independent.
Intelligent.
Ready to go.**

ONE AWESOME LOOKING UNIT, AND A TRUCK LOAD OF NEW CAPABILITIES

**Turning the potential of electric into easy-to-use,
intelligent, and precise temperature control:**

CONVENIENCE AS STANDARD

With no road compressor or drive kit, all the E-200's major components are fully integrated – making it a plug and play solution that removes the headaches associated with installation.

A SMARTER FORM OF POWER

With performance that's completely autonomous from the vehicle, and intelligent power source optimization to give you increased uptime and improved maintenance intervals.

CAPACITY YOU CAN ALWAYS RELY ON

Due to the E-200's enhanced controller for single and multi-temperature that delivers constant capacity independent of vehicle RPM.

CONNECTIVITY AT THE SHARP END

The unit's power management capability enables close compatibility with the start-stop features of the vehicle and it is able to increase vehicle RPMS when needed.

LAST MILE NEEDS AND NIGHT DELIVERY

The E-200 offers the perfect fit for last mile needs due to its precise temperature control and quick recovery from door openings. Due to the extreme low noise level, the E-200 is also suitable for night deliveries.

SILENT RUNNING IN THE VEHICLE CABIN

With limited perception of any vibrations to ensure peace of mind for the driver.

INNOVATION AT EVERY STEP

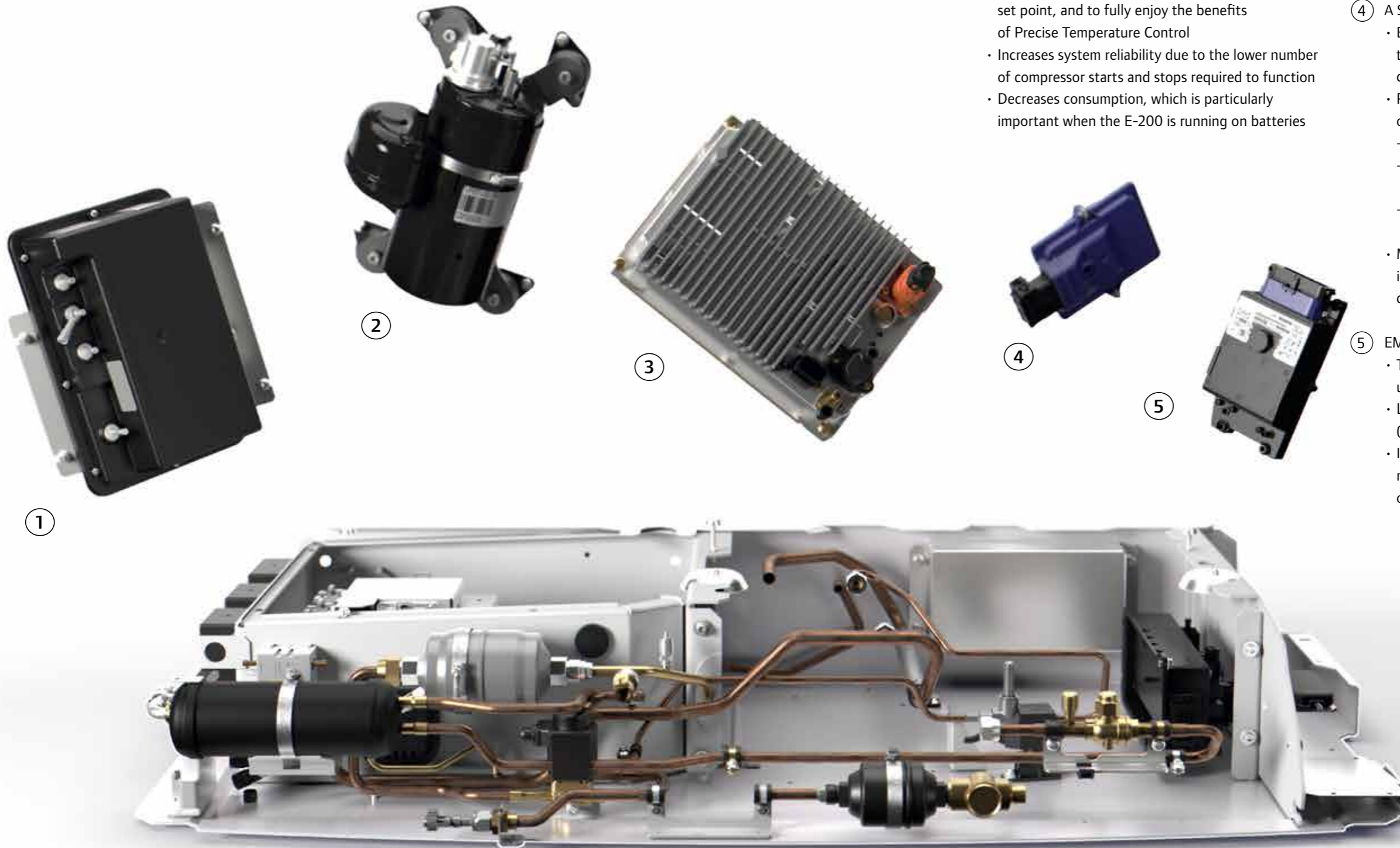
Light and flexible new materials have been employed on the E-200 to create an extremely light condenser to enable increased payloads and a corrosion-free solution for the condenser.

The E-200 can work with both electric and engine-powered vehicles to put exciting new capabilities at your fingertips.
Charge into the era of electric



THE E-200 FEATURES MANY TAILOR-MADE COMPONENTS NEVER BEFORE SEEN IN THE TRANSPORT REFRIGERATION INDUSTRY

- ① **AN EXTRA SMART CHARGER**
 - Ability to intelligently manage different power sources
 - Smart (dis)charging system to use with the additional battery pack
 - Single plug capable of charging the batteries and running the unit on stand-by at the same time
- ② **A VARIABLE SPEED COMPRESSOR**
 - Allows you to decrease the deviation of the set point, and to fully enjoy the benefits of Precise Temperature Control
 - Increases system reliability due to the lower number of compressor starts and stops required to function
 - Decreases consumption, which is particularly important when the E-200 is running on batteries
- ③ **A TAILOR-MADE INVERTER**
 - Provides the constant capacity needed to keep performance independent from the vehicle
 - Delivers exceptional operating efficiency in even the most demanding of environments
 - Avoids the use of a road compressor in the engine compartment, thereby making the unit easier and faster to install
- ④ **A STAND OUT CONTROLLER (DSR IV)**
 - Enables direct communication between the unit and the vehicle to ensure compatibility with the Start & Stop feature
 - Power Management Intelligence to optimize the supply and demand of power:
 - Adapts capacity based on actual need
 - Adapts capacity based on available power
 - Enables the management of different power sources
 - Manages alarms related across all integrated components (inverter, charger, new electronics, battery(ies))
- ⑤ **EMBEDDED TELEMATICS (OPTIONAL)**
 - Tracks the condition of each unit in your transport fleet
 - Let you benefit from remote management (via two-way communication)
 - Identifies smarter routes to manage and maintain your operations. Anytime, anywhere



SPECIFICATIONS E-200

Refrigerant System net cooling capacity under ATP conditions, European standard

AIRFLOW

	ES150	ES200	ES100N
ON HIGH SPEED OPERATION	800 m ³ /h	1012 m ³ /h	580 m ³ /h

WEIGHT

CONDENSER	54 kg
EVAPORATOR ES150 (MAX)	14 kg
EVAPORATOR ES200 (MAX)	15 kg
EVAPORATOR 2 X ES1000N MAX	18 kg

HEATING CAPACITY Ambient temperature of -18°C (only available for R-452A models)

RETURN AIR EVAPORATOR	18°C	18°C
CAPACITY ON ENGINE POWER	1300 W	1300 W
CAPACITY ON ELECTRICAL STAND-BY	1300 W	1300 W

COOLING CAPACITY Ambient temperature of +30°C

E-200 20 MODELS (R-134a)		
	ES150	ES200
RETURN AIR EVAPORATOR	0°C	0°C
CAPACITY ON ENGINE POWER	1507 W	1414 W
CAPACITY ON ELECTRICAL STAND-BY	1511 W	1413 W

E-200 MAX 50 MODELS (R-452A)						
	Single Temperature Models				Spectrum	
	ES150		ES200		2 X ES100N ⁽¹⁾	
	0°C	-20°C	0°C	-20°C	0°C	-20°C
RETURN AIR EVAPORATOR	0°C	-20°C	0°C	-20°C	0°C	-20°C
CAPACITY ON ENGINE POWER	1958 W	1071 W	1744 W	932 W	1578 W	820 W
CAPACITY ON ELECTRICAL STAND-BY	1947 W	1074 W	1780 W	921 W	1562 W	825 W

⁽¹⁾ ES100N is interchangeable with ES100.

IMPRESSIVE CONSUMPTION* LEVELS

The E-200 is designed to require the least energy possible to run effectively. For diesel-engine vehicles, a 12V alternator providing a minimum of 220 amps is required. However, a 250 amps alternator is strongly recommended for best unit performance. Always follow the instructions in the conversion manual. For electric vehicles, a 12V output of 130 amps is required:

CONSUMPTION

		MAX POWER		MIN POWER	
		Capacity	Current	Capacity	Current
		R-134a	ES150	1507 W	87 A
	ES200	1404 W	93 A	1061 W	75 A
R-452A	ES150	1958 W	114 A	1259 W	71 A
	ES200	1744 W	120 A	1121 W	75 A
	2X ES100N	1578 W	120 A	1014 W	75 A

* Consumption measurements tested at 14V, and accuracy of consumption (current) is +/- 5 amps.

SUGGESTED BOX VOLUMES

Volumes can differ based on several aspects, such as ambient temperature, number of door opening, duration of each door opening, duration of vehicle engine off per each door opening:

DOOR OPENING 2/H ACC DIN 8959 - SINGLE TEMPERATURE

			HEATING MODE		COOLING MODE		
AMBIENT			-18°C		+30°C		
SET POINT			+18°C	+5°C	Frozen	Fresh	Ambient
K=0,7	R-134a	ES150	n/a	n/a	n/a	9m³	12m³
		ES200	n/a	n/a	n/a	8m³	12m³
K=0,4	R-134a	ES150	n/a	n/a	n/a	11m³	12m³
		ES200	n/a	n/a	n/a	11m³	12m³
K=0,7	R-452A	ES150	4m³	6m³	n/a	10m³	12m³
		ES200	4m³	6m³	n/a	9m³	12m³
K=0,4	R-452A	ES150	6m³	10m³	5m³	11m³	12m³
		ES200	6m³	10m³	4m³	11m³	12m³

DOOR OPENING 2/H ACC DIN 8959 - MULTI TEMPERATURE

			HEATING MODE		COOLING MODE		
AMBIENT			-18°C		+30°C		
SET POINT			+18°C	+5°C	Frozen	Fresh	Ambient
K=0,4	R-452A	2 X ES100N	3m³	5m³	3m³	5m³	8m³

DIMENSIONS

The condenser and evap sections are available in:

- 1 ph / 230V / 50Hz or 60Hz
- 1 ph / 115V / 60Hz



Pharmaceutical manufacturers and logistics providers understand that maintaining the integrity of medical products is vital. When a shipment is compromised, it also compromises the well-being of vulnerable patients.



PHARMA KIT FOR E-SERIES



"Industry statistics indicate that almost 20% of sensitive healthcare products are damaged during transport due to a broken cold chain."

SOURCE:
WORLD HEALTH ORGANIZATION (WHO)

EU guidelines cover the operations and performance in the pharma industry – supported by the Good Distribution Practice (GDP) protocol to ensure a high level of product quality. As industry leader, Thermo King has fostered the GDP guidelines with validation by independent specialists. The Pharma Kit ensures full GDP qualification for small Thermo King refrigerated vehicles – including our E-Series.

E SERIES UPGRADE: SPECIFICATIONS - ATP test available

MODEL	GDP QUALIFIED
E-200 20 - ES150	
E-200 20 - ES200	
E-200 50 MAX - ES150	✓
E-200 50 MAX - ES200	
E-200 50 MAX SPECTRUM - 2XES100N	✓

SAFETY FIRST

Increase the autonomy of your E-200 units with our optional battery pack and keep your cargo in prime condition for longer.

SAFETY FIRST

The E-200 TK Lithium Ion battery will be fully compliant with the testing requirements of the R100 second revision. The battery metal enclosure will reduce the inflammability in case of an accident - ensuring the safety you need in your vehicle.

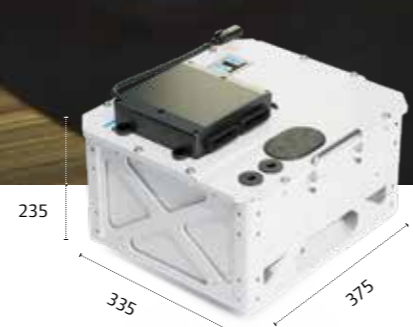


With our optional battery pack, you'll benefit from:

- The safest battery type on the market**
Based on proven Li-ion technology
- Compact battery pack**
with multiple mounting combinations, depending on the customer needs
- A system designed for all vehicles**
Both electric and engine-powered vehicles
- An ideal solution for last-mile deliveries**
A competitive battery hold over package for quick recovery from door openings
- Increased vehicle uptime**
Continuous performance – independent from vehicle engine
- Our Plug & Play Solution**
Easy to install with the Smart Charger placed inside the E-200 condenser
- A smart battery system**
Capable of managing two power sources – engine or battery pack



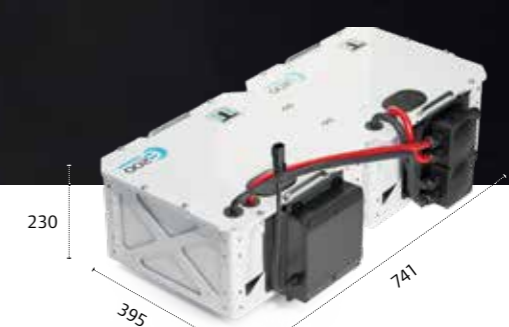
SINGLE VERTICAL



SINGLE HORIZONTAL



DUAL VERTICAL



DUAL HORIZONTAL

SPECIFICATIONS BATTERY PACK

GENERAL SPECIFICATIONS

R100 COMPLIANT	Yes
NOMINAL BATTERY VOLTAGE	12V
NOMINAL BATTERY ENERGY CAPACITY	1.8 KWh [1 bat] 3.6 KWh [2 bat]
BATTERY CAPACITY	144 Ah
LIFECYCLE	>2000 cycles
FULL CAPACITY ON VEHICLE IDLE	Yes
MOUNTING POSITION	Laying under the passenger seat if allowed by the vehicle. If not, behind the seat
MOUNTING COMBINATIONS	Horizontal (single; dual) as standard Vertical (single; dual) as option; optional mount kit required
BATTERY CHARGER FROM GRID OR ALTERNATOR	40 Adc
CONTINUOUS COMPRESSOR RUNNING TIME (LOW SPEED)	1.5 kWh up to 1h45min 3.6 kWh up to 3h30min
CONTINUOUS COMPRESSOR RUNNING TIME (HIGH SPEED)	1.8 kWh up to 1h - 3.6 kWh up to 2h
MAXIMUM CHARGE CURRENT	40 Amps
BATTERY REMOTE MONITORING	battery state of charge, number of hours, battery estimated autonomy, equivalent cycles
BATTERY MONITORING	Single HMI for battery and refrigeration unit
BATTERY INFORMATION IN TK TRACKING/ 3RD PARTY TELEMATICS	Yes
VEHICLE ALTERNATOR RECHARGE	Yes
STANDBY RECHARGE	Single Plug
SIMULTANEOUS COOLING + BATTERY CHARGE ON STANDBY	Yes
WEIGHT (INCL. METAL COVER + STANDBY RECHARGE)	40.5 kg [1 bat]
WEIGHT (INCL. METAL COVER + STANDBY RECHARGE)	77.5 kg [2 bat]

TECHNICAL SPECIFICATIONS

BATTERY CHEMISTRY	Lithium Iron Phosphate
PROTECTION DEGREE	IP56 (cover)
PARALLEL CONNECTION	Max. 2 batteries in parallel
PROTECTIONS	BMS controls over voltage, under voltage, over & under temperature, over current

Note: TK Lithium-ion battery cell charging temperature shall be in the ranges from 0° C to +45° C and discharging temperature from -20° C to +50° C. As TK battery cells are packaged in a plastic housing and protected in a metal enclosure inside the vehicle cabin, it is highly recommended that if the temperature inside the vehicle cabin can go lower than 0°C, customers plug the batteries to shore power as soon as the vehicle is parked in order to ensure continuity through shore power recharge for a full top-up for next use. During vehicle operation, cells are self-heated during driving (alternator recharge) so temperature is always in the optimum temperature range.

TRACK YOUR SMART BATTERY PACK ANYWHERE, ANYTIME

A fully connected battery system that will provide both battery remote monitoring info through its next generation HMI and a two-way communication with the unit thanks to TK TrackKing™ & 3rd party telematics.



Our remote temperature control solutions introduce greater visibility, remote monitoring, and proactive control into your day-to-day operations:

- **24/7 CONNECTIVITY**
track vehicle and cargo regardless of location
- **COMPLIANCE AS STANDARD**
demonstrate the condition of any load in transit
- **TWO-WAY COMMUNICATION**
gives you the power to react to any new challenge

STAY IN TOUCH

Monitor critical data:

- Set point and return air temperature
- Unit status
- Hours of operation
- Alarm codes
- Door status
- Geolocation



Ask your dealer to install Connected Solutions ... and start reaping the benefits of telematics.



THERMO KING

Thermo King – by Trane Technologies (NYSE: TT), a global climate innovator – is a worldwide leader in sustainable transport temperature control solutions. Thermo King has been providing transport temperature control solutions for a variety of applications, including trailers, truck bodies, buses, air, shipboard containers and railway cars since 1938.

For further information
www.europe.thermoking.com

Find your nearest dealer on
dealers.thermoking.com

TRANE
TECHNOLOGIES