

BTMS 1 (400V) (BTMS-7-6-400-12-1-1)

BATTERY THERMAL MANAGEMENT SYSTEMS



- Up to 6 kW cooling
- Up to 7 kW heating
- Operating voltage 400 VDC Nom
- Passive cooling with separate radiator pack
- Cabin HVAC integration
- Coolant mixture 50% water / 50% glycol
- R1234yf or R134a Refrigerant
- Compact and lightweight design
- Integral water heater
- CAN controlled

A Battery Thermal Management System is a vital subsystem in electric vehicles (EVs), hybrid electric vehicles (HEVs) and fuel cell electric vehicles (FCEVs). Its primary function is to regulate the temperature of the battery pack, keeping it within an optimal operating range, regardless of external conditions or driving demands.

This temperature control is essential for ensuring consistent power delivery and charging efficiency, improving safety by preventing overheating, and extending the overall lifespan of the battery by reducing thermal stress on the cells. Without effective thermal management, batteries are susceptible to extreme temperatures, which can lead to reduced driving range, longer charging times, faster degradation, or, in severe cases, thermal runaway.

Our BTMS also integrates with the vehicle's cabin HVAC system, allowing for coordinated thermal management that optimises both battery performance and passenger comfort.

Calatherm can support with an application specific and vehicle focused BTMS, delivering reliability and safe operation.

BENEFITS

- Optional cabin HVAC connection.
- Maintains battery at optimal temperature during operation and charging periods.
- Optimised thermal regulation enables improved battery performance and efficiency.
- Reduces thermal stress and degradation, helping to extend the battery lifespan.
- Stable battery temperatures maximise usable energy, improving driving range and overall efficiency.
- Reduced failures by preventing thermal runaway and associated battery problems.
- Pre-heats the batteries in cold environments to enable reliable start-up and charging performance.
- Supports reliable operation in extreme temperatures.

TECHNICAL SPECIFICATION

Model No		BTMS-7-6-400-12-1-1
Capacity	Cooling	Up to 6 kW
	Heating	Up to 7 kW
	Water Heater	Integral 7 kW
	Water Heater Coolant Temp	70°C at 7.4 kW / 90°C at 5.5 kW
	Coolant Flow – Battery	20 lpm
	Coolant Flow – HVAC	10 lpm
Operating Voltage	HV Range	250 ~ 455 VDC
	LV Range	9 ~ 16 VDC
Ambient Temperature		-20°C / +46 °C
Fluid	Refrigerant	R1234yf or R134a
	Battery Circuit	50% Water / 50% Glycol
Interfaces	HV Coolant Heater	HVA280
	HV Compressor	Hirschmann 8-way
	LV Connector	HDSCS
	Water Out – Battery	19mm outer diameter (1)
	Water In – Battery	19mm outer diameter (2)
	Water In – HVAC	19mm outer diameter (3)
	Water Out – HVAC	19mm outer diameter (4)
General	Communication	CAN
	Mass	31.5 Kg (dry)
	Dimensions	500.7 x 241.7 x 385 mm

Note: Other systems and designs are available.

OUTLINE DIMENSIONS

