



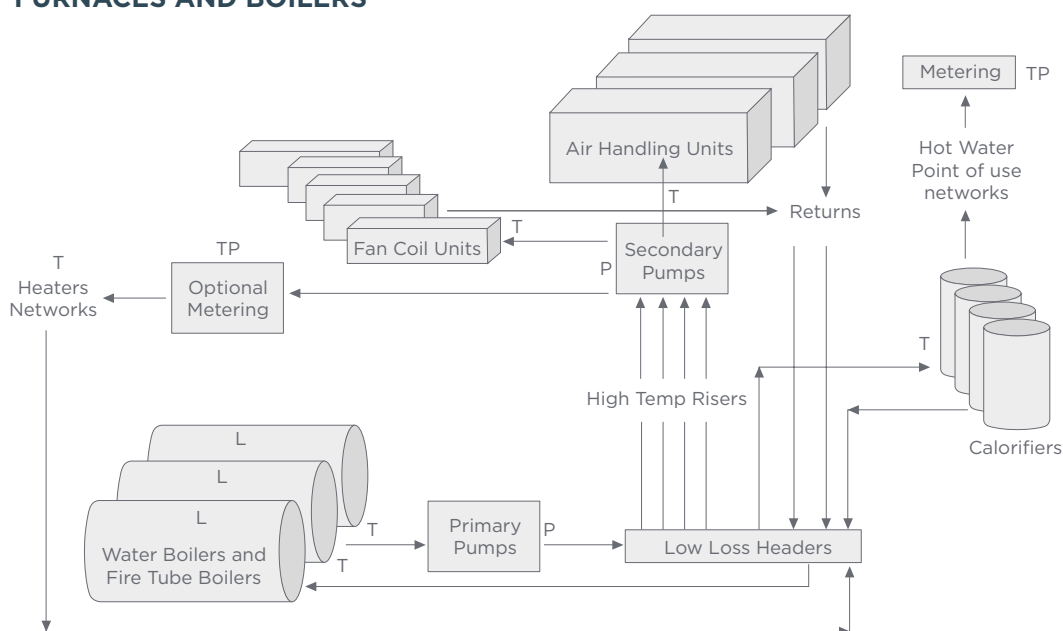
SENSORS FOR FURNACES AND BOILERS

Boilers and furnaces, like other HVAC equipment, continue to evolve and OEMs continue to add features like improved zoning control, self-diagnostics and much more while also improving system efficiencies. While boilers and furnaces have many similarities, they operate in markedly different ways. Water boilers generate hot water which is then distributed throughout a building and in turn used to warm up the air via Fan coil units and Air handling units. Hot water boilers distribute heat through water pipes using pumps and risers to heat baseboard, cast iron radiators, or radiant flooring systems. A range of sensors and controls are key to operate these systems at peak efficiencies as well as improving the overall comfort for occupants.

TE CONNECTIVITY ADVANTAGES




- Portfolio Breadth
- Industrial Technology Leadership
- Manufacturing Scale
- Customization Capability

FURNACES AND BOILERS



- T Temperature Sensing
- P Pressure Sensing
- L Water Level Sensing

SENSORS FOR FURNACES AND BOILERS

Sensor Technology	Application	Key Product Features	Benefits
MS5839	 <ul style="list-style-type: none"> Miniature, high performance and precise embedded sensor for HVAC equipment in harsh environments 	<ul style="list-style-type: none"> MEMS based sensor offering advanced resistance and shielding for harsh HVAC environments Low power consumption and digital interconnectivity in an ultra-compact low profile package 	<ul style="list-style-type: none"> Low power consumption to help facilitate IoT applications and condition monitoring practices Highly precise even in harsh industrial environments
SM9000	 <ul style="list-style-type: none"> Monitoring very low pressure properties for ventilation VAV and filter monitoring within HVAC systems 	<ul style="list-style-type: none"> Low pressure MEMS transducer technology and CMOS mixed signal processing technology Pressure and temperature compensated with high accuracy and repeatability 	<ul style="list-style-type: none"> Accurate, reliable and repeatable operation over the life of the part The pressure sensor can be mounted directly onto a standard PCB Compensation and calibration eliminates need for additional circuitry or separate calibration
LMI	 <ul style="list-style-type: none"> Monitors extremely low pressure of VAVs Filter monitoring, burner control and other areas of the HVAC system 	<ul style="list-style-type: none"> Extremely low full scale pressure range Accuracy is a percent of reading not a percent of full scale Provides temperature and humidity data also I²C output only 	<ul style="list-style-type: none"> High immunity to dust Extremely high accuracy at very low pressures Longterm stability Small footprint and low profile for space savings
LHD	 <ul style="list-style-type: none"> Large dynamic range monitoring found in airflow applications within VAVs Filter monitoring Burner control and other areas of the HVAC system 	<ul style="list-style-type: none"> Extremely low full scale pressure range Accuracy is a percent of reading not a percent of full scale Provides temperature and humidity data also I²C output only 	<ul style="list-style-type: none"> High immunity to dust Extremely high accuracy at very low pressures Low profile surface
M3200	 <ul style="list-style-type: none"> Compact industrial pressure transducer suitable for measurement of gas pressure, refrigerants, and media such as contaminated water, steam, and mildly corrosive fluids 	<ul style="list-style-type: none"> Rugged Microfused design Variety of ports Analog or digital output configurations 17-4PH stainless wetted surfaces Low cost 	<ul style="list-style-type: none"> Compact Customizable Weatherproof CE Compliant
M710Q	 <ul style="list-style-type: none"> Compressors Pumps Refrigeration systems 	<ul style="list-style-type: none"> Sealed design Analog and digital outputs High accuracy 	<ul style="list-style-type: none"> Lower cost Reliable Accurate sensing in harsh environments
MODEL 202M / MODEL 202H	 <ul style="list-style-type: none"> Probe sensor utilized for immersion in HVAC processes 	<ul style="list-style-type: none"> Thermocouple probe-plug and jack connector is constructed with a stainless steel case 	<ul style="list-style-type: none"> Ideal for immersion in harsh mediums
KMT	 <ul style="list-style-type: none"> Position sensing for motor motion control within HVAC applications 	<ul style="list-style-type: none"> Magnetic non-contact 360° range Low cost 	<ul style="list-style-type: none"> Ideal for harsh environments Contactless absolute angular measurement
KMP	 <ul style="list-style-type: none"> Contactless linear or angular position measurement in applications like industrial HVAC equipment 	<ul style="list-style-type: none"> Sensor that performs well even when exposed to oil, dirt and dust Provide reliable and accurate measurements in harsh environments including high temperatures 	<ul style="list-style-type: none"> Superior performance even within harsh industrial environments High resolution and high precision with contactless measurement
LVDT	 <ul style="list-style-type: none"> Contactless linear position sensors for both OEM applications and end user requirements 	<ul style="list-style-type: none"> AC-Operated LVDT contactless position sensor with magnetically shielded SS housing 	<ul style="list-style-type: none"> Maximum linearity error for these sensors is ±0.25% High sensitivity with high repeatability
RVDT	 <ul style="list-style-type: none"> Standard and custom packaging options are available for the most demanding HVAC application 	<ul style="list-style-type: none"> Rotary Variable Differential Transformer (RVDT) with precision ball bearings and non-contact inductive magnetic coupling 	<ul style="list-style-type: none"> Extremely long cycle life Virtually infinite resolution
820M1	 <ul style="list-style-type: none"> Accelerometer designed for embedded condition monitoring and predictive maintenance applications 	<ul style="list-style-type: none"> Low cost; board mountable accelerometer Designed and qualified for machine health monitoring and has superior resolution Dynamic range and bandwidth to MEMS devices 	<ul style="list-style-type: none"> Proven track record for offering the reliable and long-term stable output required for condition monitoring applications
830M1	 <ul style="list-style-type: none"> Embedded Piezoelectric (PE) accelerometer offering advanced acceleration sensing for machine health monitoring 	<ul style="list-style-type: none"> Embedded Piezoelectric (PE) accelerometer offering advanced acceleration sensing Wide bandwidth Small size Low power, and robust performance are essential 	<ul style="list-style-type: none"> Optimized for critical machine health monitoring the 830M1 offers an outstanding measurement bandwidth (up to 15 kHz) Superior resolution and is designed with highly stable PE sensing technology, to provide long-term, reliable, stable and accurate performance for condition monitoring applications in harsh environments

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8911		<ul style="list-style-type: none"> • Wireless accelerometer sensor for Proof of concept (POC) is designed for vibration monitoring in applications such as predictive maintenance and condition monitoring 	<ul style="list-style-type: none"> • Compact • LoRaWAN™ • Wireless accelerometer for POC with edge computing for condition monitoring • Corrosion resistant stainless steel case and plastic covering 	<ul style="list-style-type: none"> • Rugged, IP66 rated O-ring seal allows the sensor to perform well in harsh environments • Piezo sensing element which has the advantage of high bandwidth and ultra low power vs MEMS solutions • Longer battery life of up to 10 years and ultra low sleep power usage
8711-01		<ul style="list-style-type: none"> • Shielded rugged IEPE accelerometers designed for industrial condition monitoring 	<ul style="list-style-type: none"> • Available in four standard dynamic ranges from $\pm 5g$ to $\pm 80g$ • Wide bandwidth up to greater than 10kHz • Designed to operate in ambient temperature ranges from $-55^{\circ}C$ to $+125^{\circ}C$ 	<ul style="list-style-type: none"> • Rugged, IP67 rated seal allows the sensor to perform well in harsh environments • Piezo sensing element which has the advantage of high bandwidth and ultra low power vs MEMS solutions