SWITCHES AND SENSORS
SOLUTIONS FOR INDUSTRIAL APPLICATIONS

HEAVY-DUTY LIMIT SWITCHES

HDLS

HDLS Fully Potted

HDLS Stainless Steel

GLOBAL LIMIT SWITCHES

GLA

GLC

GLD

GLE

GLL

COMPACT PRECISION LIMIT SWITCHES

BZE6/V6

LS

MINIATURE LIMIT SWITCHES

NGC

14CE/914CE

SZL-VL-S

SAFETY SWITCHES

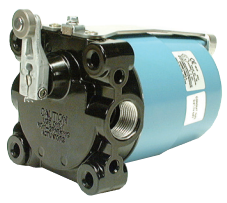
2CCP

1CPS

HAZARDOUS AREA LIMIT SWITCHES

BX/LSX

BX2 Stainless


CX

EX

VPX

GAS SENSORS

4 Series

5 Series

PRESSURE SWITCHES

5000

LE

LP

ME

MH

HE

HP

PRESSURE TRANSDUCERS – HEAVY DUTY

13 mm

19 mm

MIP

MLH

FP5000

TOGGLE SWITCHES

MT

NT

TL

LARGE BASIC SWITCHES

BZ/BA/BM/BE/DT/6AS

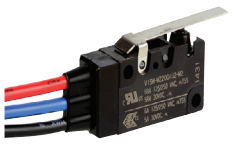
DM

MINIATURE BASIC SWITCHES

V7

V15

V19


V15W/V15W2

SUBMINIATURE BASIC SWITCHES

SM

SX

HD/HD1

ZD

ZM/ZM1

ZW

ZX

MAGNETIC SENSORS

SS360/SS460
SS41K6

SM Series
Nanopower

103SR

LOAD CELLS AND FORCE SENSORS

Model 41

MicroForce FMA

FSA

PRESSURE SENSORS – BOARD MOUNT

TruStability™

ABP/ABP2.0

MicroPressure
MPR

TEMPERATURE SENSORS

Honeywell
HumidIcon™
Humidity/
Temperature
Sensors

500 Series
Packaged
Temperature
Probes

192 Series
Thermistors

194 Series
Thermistors

2455R Series
Thermostats

BARCODE SCAN ENGINES, MODULES AND SOFTWARE

N670X Series
2D Scan Engines

VuQuest
3330g

SwiftDecoder™
Software

Honeywell

MANUFACTURING EQUIPMENT

Robotics

- **Presence:** Limit switches are used to sense presence of welding rods. If the rod is not present or not in the correct position, the switch sends a signal to the computer and the weld process stops
- **Safety:** Cable-pull switches provide long-span emergency stop protection
- **End-Stop:** Limit switches provide end-stop detection, if the equipment reaches end-of-travel, the switch can turn power off or give the controller a signal that end-of-travel has been reached
- **Linear and Angular Position:** Magnetic sensors are used for linear and angular position sensing. Magnetic sensors help maintain a high level of accuracy and precision in factory automation
- **Pressure:** Pressure sensors measure the pressure of the air or fluid in the lines that are used to control, lubricate or provide power to robotic equipment
- **Scanning:** Barcode scan engines and software enable robots to track and trace the manufacturing of subassemblies and goods on manufacturing lines
- **Temperature:** Thermistors are integrated into temperature chambers for product testing. The temperature sensor provides feedback to the chamber controller to ensure temperature is maintained at the proper levels
- **Control:** Basic switches are used for operator control assemblies in the form of pushbuttons and custom-operator interfaces. Various control functions can be accomplished through the input assemblies developed with basic switch components
- **Force:** Force sensors can be used in end effectors/grippers for controlling the gripper force while handling objects

Machinery

- **Position:** Limit switches are used for sensing the position of the various moving parts of a CNC machine, such as drilling and milling tools
- **Interlocks:** Limit and basic switches are used as access panel interlocks. If an access panel is open, the switch can prevent the machine from operating
- **Speed:** Magnetic sensors are used as position and speed sensors
- **Pressure:** Pressure switches and sensors are used to monitor lubricating oil lines to ensure they are full and at the right pressure
- **Scanning and Calibration:** Barcode scan engines and software can be used to identify and track the processed parts, and can also be used to support the automatic calibration of the tools
- **Temperature:** Thermistors provide temperature measurement to ensure operating conditions are at adequate levels
- **Control:** Toggle switches are used for operator controls where momentary or maintained switching action is needed for precise control of the system

Packaging & Pallet Equipment

- **Weight:** Limit switches can be used to detect if packages are filled to their desired weight. When the package reaches the desire weight, the limit switch will activate and signal to the controller that the package is full
- **Counting:** Basic and limit switches can be used to count packages as they the pass on conveyors
- **Pressure:** Pressure switches and sensors are used to monitor pneumatic pressures to ensure the system is at specified operating level
- **Scanning:** Barcode scan engines read labels to ensure that packaging process is operating as desired

3D Printing

- **End-Stop:** Basic switches provide end-stop detection; if the equipment reaches end-of-travel, the switch can turn power off or give the controller a signal that end-of-travel has been reached
- **Linear and Angular Position:** Magnetic sensors are used for linear and angular position sensing. Magnetic sensors help maintain a high level of accuracy and precision
- **Temperature:** Thermistors can be used to monitor extrusion nozzles to ensure they are within operating condition and requirements
- **Speed:** Back-biased hall sensors can be used to detect the speed of a ferrous gear-tooth target wheel or a ferrous disk with a hole pattern
- **Position and Fan Control:** Magnetic position sensors are non-contact sensing products used for motor/fan control, position sensing, linear and angular displacement and speed sensing for moving parts

Motors and Drives

- **Motor Control:** Basic switches function as motor start switches, indicating when a user wishes to power the motor for the process in which the motor is used. Magnetic sensors are used for commutation control in brushless DC motors
- **Temperature:** Thermistors provide motor overtemperature indication. When the motor works to a level that could potentially damage the motor or create an unsafe situation for any operators nearby, the thermistor provides feedback to ensure that the motor ramps down to a safe level
- **Speed:** Back-biased hall sensors can be used to detect the speed of a ferrous gear-tooth target wheel or a ferrous disk with a hole pattern
- **Position and Fan Control:** Magnetic position sensors are non-contact sensing products used for motor/fan control, position sensing, linear and angular displacement and speed sensing for moving parts

CONVEYOR BELTS

- **Position:** Limit switches/hazardous location switches reliably indicate position for system controls. These signals can be used to control the belts on/off status. They can also be used for counting of items passing by on the conveyor
- **Safety:** Cable-pull switches are used to provide required emergency stop signaling along the conveyor line for personal safety protection. They can provide e-stop functionality for long spans of equipment
- **Scanning:** Barcode scan engines and software automatically identify, read and transmit the barcode information of goods on the conveyor

CONTROL VALVES AND ACTUATORS

- **Position and Control:** Hazardous location switches are used to monitor the mechanical position of valves by sending an electrical signal to the control system to indicate the valve open or closed position
- **Pressure:** Pressure switches and sensors monitor and indicate pressure in pipes and boilers; detecting failures such as open circuits, cut wires, etc. and shutting down the system due to overpressure
- **End-Of-Travel:** Basic switches indicate end-of-travel for the hydraulic and pneumatic actuators. The switches send a signal to the actuator control system when the actuator reaches the end of its usable stroke to prevent damage due to the actuator reaching its mechanical stop. As an alternative, magnetic sensors can be used to indicate end of travel for actuation cylinders

REFRIGERATION

- **Interlocks:** Basic switches are installed for door closure indication, ice maker on/off indication and position of the icemaker's fin in ice dispensing processes
- **Temperature:** Thermistors ensure system temperature control in refrigeration use cases. The thermistor provides feedback such that precise control of the temperature can be maintained throughout the refrigeration cycle
- **Position:** Magnetic sensors provide non-contact door closure indication, ice maker on/off indication, position of icemaker's fin for dispensing ice and pitcher fill level
- **Pressure:** Pressure sensors and switches can sense and monitor environmental conditions and ensure the equipment is working properly
- **Humidity:** Humidity sensors monitor the amount of moisture in the air so that the system controllers can adjust as necessary to ensure the equipment is running optimally

HVAC

- **Airflow:** Basic switches are useful for air-proving switching assemblies or as a float switch for indicating pipe flow backup
- **Pressure:** Pressure switches are used for system overpressure indication and system low-pressure indication. The pressure switch will either cut power to the system in the case of overpressure or allow power to a pump or compressor to increase pressure in the case of a low-pressure indication
- **Temperature:** Thermistors provide system temperature control such that the desired temperature for the heating or cooling cycle is achieved and precisely maintained
- **Gas Sensing:** Gas sensors can be used for occupancy detection to reduce energy cost. CO_2 gas is exhaled by humans during breathing. Once occupancy is detected, a feedback is provided to the HVAC system for room cooling. This is called demand controlled ventilation
- **Position:** Magnetic sensors are used to enable efficient control of electric motors that drive fans, blowers and pumps in HVAC systems.
- **Fan Control and Monitoring:** Magnetic sensors are rugged non-contact sensing products used for motor/fan control, position sensing, linear and angular displacement and speed sensing for moving parts

HIGH END CONSUMER ELECTRONICS

Coffee Machine

- **Temperature:** Thermistors provide temperature control of automated heating cycle, ensuring precise temperature is maintained throughout the cycle
- **Position:** Magnetic sensors provide position and grinder brushless DC motor control
- **Force:** Force sensors provide feedback and presence detection for fluids, coffee beans and grounds
- **Scanning:** Barcode scan engines and software read the watermark or barcodes onto coffee doses to identify and caliber the coffee machine correctly (e.g. water pressure level and quantity)

Beverage Dispenser

- **Position and Control:** Basic switches are used for dispenser start switch assemblies. The user engages the switch by pressing a cup or container against a dispensing lever and the switch indicates to the controller to initiate the dispensing process
- **Flow Rate:** Magnetic sensors are used for liquid flow rate sensing when paired with a rotating magnet
- **Temperature:** Thermistors provide temperature control of automated cooling cycle; ensuring precise temperature is maintained throughout the cycle
- **Pressure:** Pressure sensors monitor and sense the level of pressure in fluid lines and dispensing nozzles. Both packaged and board-mount versions of pressure sensors can be used depending on packaging requirements
- **Force:** Force sensors can provide non-contact presence and pressure detection by detecting the small changes in the diameter of tubing and piping as a result of increase force from pressure within them
- **Scanning:** Barcode scan engines and software read and transmit customer coupons and loyalty cards for beverage dispensers, either on smart phone screens or paper

Large and Small Appliances

- **Position and Control:** Basic switches provide lock indication in door interlock assemblies. When the lock is engaged, the switch indicates to the appliance controller that the wash cycle can begin. Magnetic sensors provide non-contact door or lid closure detection
- **Position and Control:** Basic switches and magnetic sensors are also integrated in float switch assemblies for liquid indication in dishwasher/washer, off-balance switch for washer and belt-fail switch for dryer
- **Temperature:** Thermistors ensure that system temperature is precisely controlled for the drying cycle of a dryer or dishwasher
- **Scanning:** Appliances can be equipped with barcode scan engines and software either for calibration purposes or for service and repair management
- **Force:** Force sensors can be used for throttle control in hand blenders to control the speed of the blender based on the throttle input

For more information

Honeywell Sensing and Internet of Things services its customers through a worldwide network of sales offices and distributors. For application assistance, current specifications, pricing or the nearest Authorized Distributor, visit sps.honeywell.com/ast or call:

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