

Proximity Sensors

Applying Ultrasonic Proximity Sensors

SUNSTAR 传感器控制网 <http://www.sensor-ic.com/> TEL:0755-83376549 FAX:0755-83376182 E-MAIL:szss20@163.com

Before you select or install an ultrasonic sensor, you should be familiar with these terms;

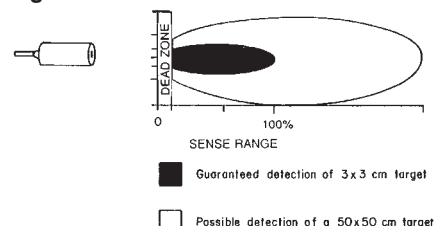
- Dead zone
- Beam angle
- Beam cone diameter
- Maximum sensing range
- Background suppression
- Switching frequency
- Inclination of target
- Environmental considerations.

Understanding these terms will help you apply these sensors for years of trouble-free performance.

DEAD ZONE

Ultrasonic sensors have a "dead" zone in which they cannot accurately detect the target. This is the distance between the sensing face and the minimum sensing range. If the target is too close, the tone burst's leading edge can travel to the target and strike it before the trailing edge has left the transducer. Echo information returning to the sensor is ignored, because the transducer is still transmitting and not yet receiving. The echo generated could also reflect off the face of the sensor and again travel out to the target. These multiple echoes can cause errors when the target is in the dead zone.

Figure 1



MAXIMUM SENSING RANGE

Maximum sensing distance for each target and application is determined experimentally. Figures 3, 4 and 5 show sensitivity characteristics and typical sensing distances.

BEAM ANGLE

The beam cone angle values are the 3 dB points (i.e., points at which the sensor signal is attenuated by at least 3 dB). Outside this cone angle, the ultrasonic signal exists, but is rather weak. Targets **may** still be detected. This can be experimentally determined.

BEAM CONE DIAMETER

The ultrasonic sensor emits a sound beam in a beam angle cone that eliminates side lobes. Target size versus beam spot size is important. Theoretically, the smallest detectable target is one half the wavelength of the ultrasonic signal. At 215 kHz, the signal wavelength is 0.063". Under ideal conditions, these sensors are capable of sensing targets as small as 0.032". Targets usually are larger, and are sensed at various distances. In order to estimate the area covered by the ultrasonic signal at a given distance, use the formula.

$$B_{ox} = 2 \bullet X \bullet \tan(\alpha/2)$$

Where:

- B_{ox} – Beam Cone Diameter at distance X
- X – Distance, target to sensor
- α – Beam Cone Angle (9° for 940 Series)

Example: Determine beam cone diameter at 10".

$$\begin{aligned} B_{ox} &= 2 \bullet 10'' \bullet \tan(9/2) \\ B_{ox} &= 20'' \bullet \tan(4.5) \\ B_{ox} &= 20'' (0.07870) \\ B_{ox} &= 1.57'' \end{aligned}$$

Beam cone angle may be halved using the 942QB beam concentrator.

Figure 2

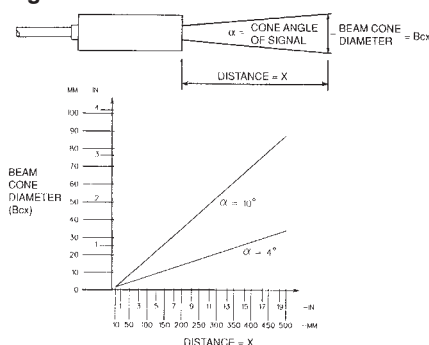


Figure 3
Sensing range with maximum sensitivity

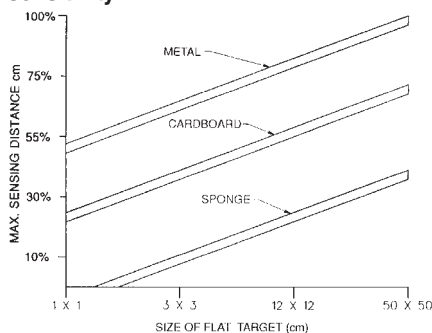


Figure 4

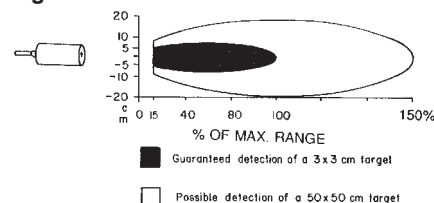
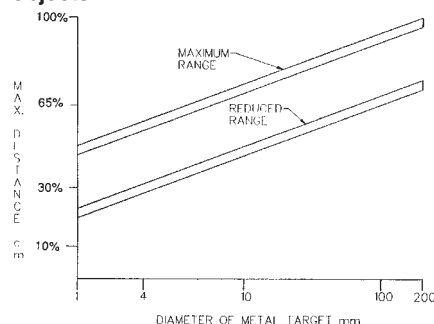


Figure 5
Maximum sensing range for cylindrical objects



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BACKGROUND SUPPRESSION

900 Series ultrasonic sensors sense the intended target without sensing material located just behind the target. Background sensing can be an application problem with other technologies, especially if it is shiny or highly reflective.

Ultrasonic sensors operate on an elapsed time measurement system. When the sensor is adjusted to sense a target at a given distance, a timing window is established. The sensor accepts or acknowledges **only** the echoes received within this window. Signals echoing from background material take longer, and will not be acknowledged.

SWITCHING FREQUENCY

The maximum frequency at which the sensor is capable of turning on and off depends on several variables. The most significant are target size, target material and distance to the target. The smaller the target, the more difficult it is to detect. Thus, maximum frequency for a small target will be lower than for a large target. Materials that absorb high frequency sound (cotton, sponge, etc.) are more difficult to sense than steel, glass, or plastic. Thus, they also have a lower maximum switching frequency.

Target-to-sensor distance is very important in determining maximum switching frequency. The sensor sends an ultrasonic beam through the air. It takes a finite time for the signal to leave the sensor, travel to the target, strike the target, and return to the sensor as an echo. The farther a target is from the sensor, the longer it takes the sound to complete this cycle, and the lower the switching frequency.

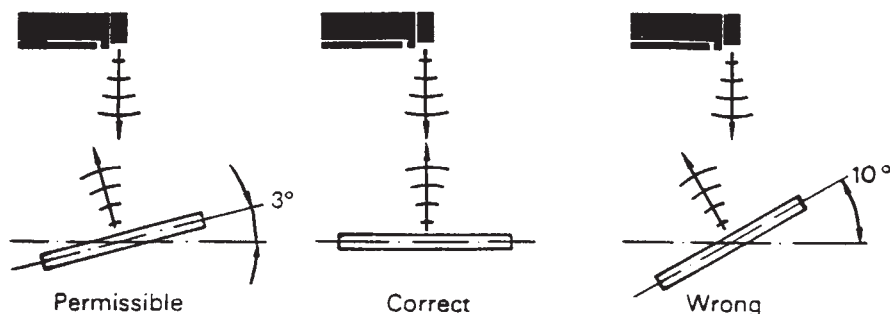
INCLINATION TO ULTRASONIC BEAM, Surface Finish

If a smooth flat target is inclined more than $\pm 3^\circ$ to the normal of the beam axis, part of the signal is deflected away from the sensor and the sensing distance is decreased. However, for small targets located close to the sensor, the deviation from normal may be increased to $\pm 8^\circ$. If the target is inclined more than $\pm 12^\circ$ to the normal of the beam axis, all the signal is deflected away from the sensor and the sensor will not respond.

A beam striking a target with a coarse surface (such as granular material) is diffused and reflected in all directions and some of the energy returns to the sensor as a weakened echo.

Figure 6

Maximum Inclination For Smooth, Flat Targets



ENVIRONMENTAL CONSIDERATIONS

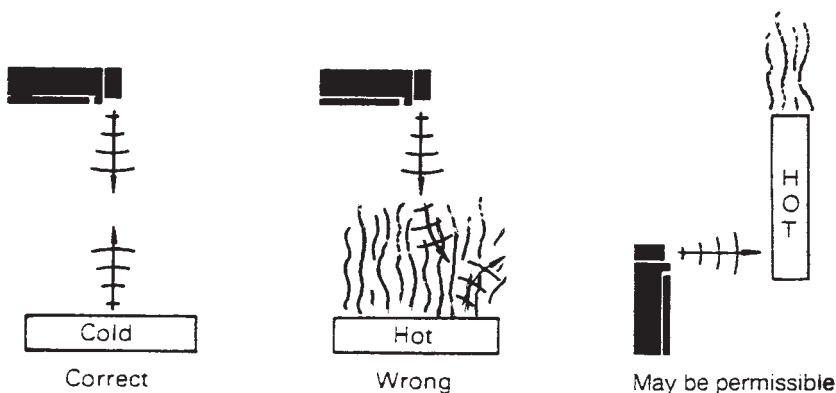
Temperature

The velocity of sound in air is temperature dependent. An internal temperature sensor adapts the clock frequency of the elapsed time counter and carrier frequency to help compensate for variations in air temperature. However, larger temperature fluctuations within the beam path can cause dispersion and refraction of the ultrasonic signal, adversely affecting the measurement accuracy and stability.

If a hot object must be detected, experiment by positioning the sensor and target on a vertical plane and aim at the lower (cooler) portion of the target. In this way, it may be possible to avoid the warm air currents and achieve satisfactory operation.

Figure 7

Sound Dispersion Due To Warm Air Currents



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Air Pressure

Normal atmospheric air pressure changes have no substantial effect on measurement accuracy. Ultrasonic sensors are not intended for use in high or low air pressure changes.

Humidity

The effect of humidity on measurement is virtually negligible, amounting to only 0.07% for a change of relative humidity of 20%. Absorption of sound increases, however, with increasing humidity. Thus, the maximum measurement distance is slightly reduced.

Air Turbulence

Air currents, turbulence and layers of different densities cause refraction of the sound wave. An echo may be produced, and the signal weakened or diverted to the extent that the echo is not received. Maximum sensing range, measurement accuracy and measurement stability can deteriorate under these conditions.

Protective Measures

The sensor is protected with a silicone rubber coating but can be attacked by aggressive acid or alkaline atmospheres. To maintain operating efficiency, care must be taken to prevent solid or liquid deposits of these potentially destructive materials from forming on the sensor face.

SETPOINT ADJUSTMENT

900 Series precision ultrasonic sensors offer a high level of flexibility. This allows many optional sensing possibilities for tough applications. The use of the external setpoint or the inhibit line can offer added capabilities.

External Setpoint Adjustment

Digital sensors that are factory preset to switch when the target-to-sensor distance is equal or less than the preset level may use an external resistive circuit to change and adjust these setpoints. The resistive circuit (not supplied) should be connected to the sensor as shown in Typical Wiring Diagram. If you use the factory preset, the External Setpoint wire should be left floating (not connected), as shown in the Standard Wiring Diagram.

For standard operation, Inhibit/Sync and External Setpoint are not connected. The sensor uses the internal setpoint, and cannot be adjusted.

Figure 8, Standard Wiring Diagram, PNP 945 Series

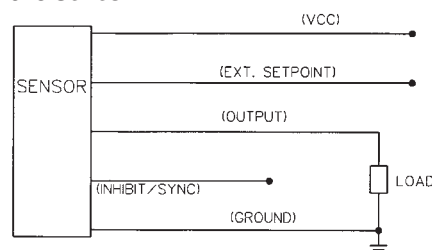
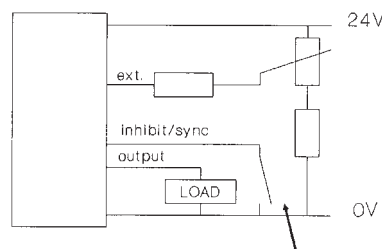


Figure 9, Typical External Setpoint Wiring Diagram, PNP 945 Series



External Switch, Solid State or Contact

For multiple setpoint capabilities within a single sensor, use the External Setpoint Adjustment with a rotary switch for manual control, or a PLC for automatic control of the external resistive circuit. This gives great flexibility while supporting today's automated flexible manufacturing lines, where a "batch" size of 1 can be realized.

One potentiometer in series with a resistor is connected between the 24 volt supply and ground. Connect a resistor between the wiper and the External Setpoint wire.

Connecting Inhibit/Sync to ground disables transmission of the ultrasonic pulse. Inhibit/Sync is also used to multiplex or synchronize the sensors to avoid mutual interference.

Integral Setpoint Adjustment

Sensitivity may be adjusted with a built-in potentiometer. The adjustment screw is located on the cable end of the housing. Counterclockwise decreases sensitivity, while clockwise increases sensitivity.

INHIBIT/SYNC SIGNAL SETTING

This signal controls the sensor's mode of operation. When the Inhibit/Sync wire is connected to ground (0 VDC), the sensor is placed in the inhibit mode (receive only). This disables the transmitter, preventing it from sending out any signals.

Multiplexing/Synchronizing Sensors;

When two or more sensors are mounted close to each other, acoustic interference is possible. Inhibit multiplexes the sensors so that only one transmits the ultrasonic signal at a given time. Also, the inhibit signal wires from all the sensors can be connected together, synchronizing the sensors to transmit at the same time.

NOTE: Inhibit/Sync is not available on 945 Series quick-connect versions. They are 4-pin devices.

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MULTIPLEXING SENSORS

Multiple sensor heads may be connected to a single amplifier. They may be wired in parallel or in series.

Parallel wiring: All sensor heads turn on at the same time. The sensor with the closest target will provide the distance information to the amplifier. Sensor-to-target information from remaining sensors is ignored. A maximum of six sensors may be wired in parallel. Diodes and a pull-up resistor must be added as shown in Figure 10.

Series wiring: Only one sensor turns on at a time, providing the distance measurement. That sensor is then disabled, and the next sensor is enabled. Series multiplexing is performed with user-supplied components external to the amplifier. See Figure 11.

All signals between amplifier and sensors may be connected in parallel, **except** start (STA) and stop (STO). The start pulse is generated by the amplifier and initiates the sensor head cycle. The stop pulse is generated by the sensor head and indicates that an echo has been received. These pulses can be multiplexed from sensor head to sensor head by relays or demultiplexing integrated circuits.

REFLECTIVE APPLICATIONS

The optional Beam Deflector simply deflects the beam 90°, helping to reduce the space required for mounting the sensors. Beam Concentrators reduce the beam diameter approximately one half. This improves accuracy when measuring liquids, while extending the sensing range as much as 125%. Concentrators are also helpful when sensing small parts.

For more Ultrasonic Sensor application assistance, call:

1-800-537-6945

Figure 10 Connecting Sensor Heads in Parallel

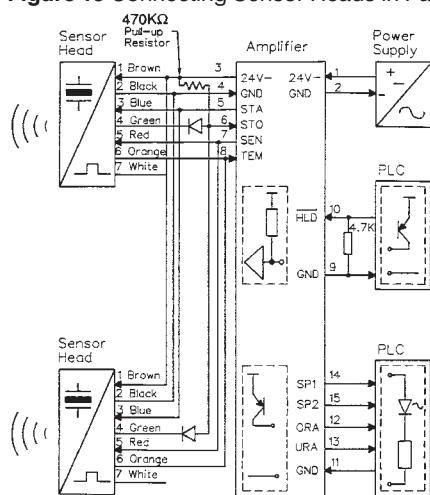
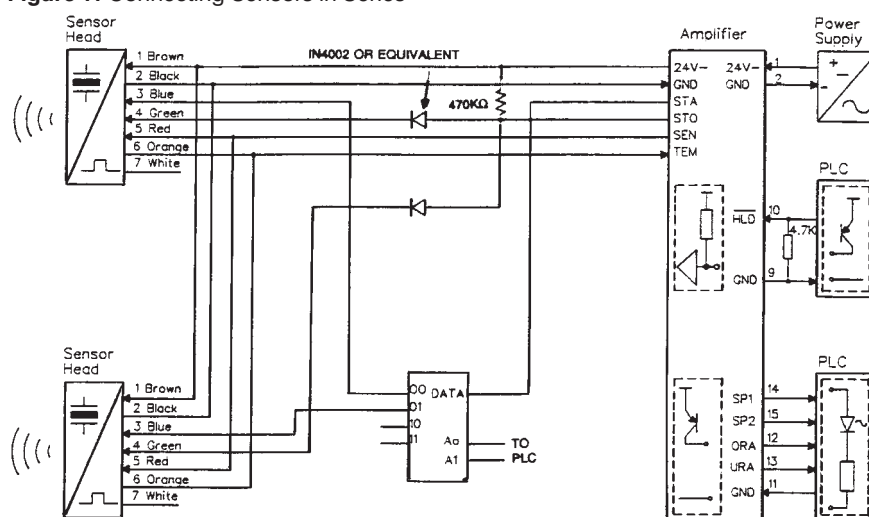


Figure 11 Connecting Sensors in Series



商斯达公司是美国 **Honeywell** 公司中国区一级代理商，长期致力于世界先进的传感和控制技术的推广及应用，专业代理推广世界著名品牌 **Honeywell** 的传感及控制元件，为客户提供最优的技术解决方案。如今，商斯达公司在中国已成为 **Honeywell** 公司最专业的代理公司。我们的客户涵盖了家用电器、医疗设备、马达控制、工业自控、仪器仪表、办公自动化、环境监控、电源保护、金融器具、商业机器等各个领域。我们的目标是帮助客户提高产品质量、降低生产成本、增强市场竞争力，从而达到互利增长！我们奉行双赢的原则，即与我们的客户一起成长；同时，我们致力于了解客户的需求，加强与客户的沟通，降低产品的综合成本，便利客户与我们的合作，从而提高双方的生产率。商斯达公司是以通信、数据网络、有线电视、电力自动化、工业自控、仪器仪表、医疗设备、汽车电子、金融电子、移动终端、信息电子、办公自动化设备、消费电子、军工应用等行业市场为服务对象的专业代理公司，致力于将世界先进传感科技和光通信技术引进到中国，为客户提供包括新产品推介、快速样品提供、及时库存、应用支持、方案设计、售后及物流等方面的专业服务。公司总部位于深圳，并在香港设有分公司。公司具有专业的应用方案技术开发支持中心和 FAE 队伍，以及分布全国各地的销售网络，为客户提供最及时快捷的支持和服务。在传感器与控制领域，商斯达公司和美国 **Honeywell**、芬兰 **VTI**、瑞士 **SENSIRION** 等世界行业先驱公司合作，为用户提供温度、湿度、压力、位置、霍尔、磁阻、磁感、红外、激光、电流、气流、气体、液位、速度、角度、加速度、倾斜、GPS、振动、旋转、扭矩、荷重、超声波、开关、储压器、继电器、安全光幕等多种传感及控制产品，为各行业 OEM 制造厂商，系统集成商提供完善的选型配套方案。



霍尼韦尔(Honeywell)公司创立于 1885 年, 从生产楼宇恒温控制装置开始, 经过 100 余年的发展, 已成为一个拥有 120000 多名员工, 年销售额达 240 亿美元的全球化集团公司。在工业自动化控制、楼宇自控、航空、航天、航海、交通、通讯、卫生、农林、科技、配套厂商等行业提供各种量程、各类输出、满足各种工业标准、满足各类通讯要求的传感器、控制产品和系统。目前在全世界 90 多个国家设有工厂、研究机构、销售和服务中心, 在全球的控制领域中处于领先地位。

微型开关公司创立于 1935 年, 后加入霍尼韦尔公司成为霍尼韦尔传感与控制战略单元。目前共有 20 多个系列、近六万种产品。

● 特别推荐 ●

■ 压力传感器		>>详细资料
40PC 系列表压带放大, 带补偿 压力传感器是霍尼韦尔最新推出的经济型最小体积放大压力传感器, 完全校正和温度补偿。是霍尼韦尔压力产品中最坚固、适用温度最宽的传感器。另外, 40PC 可与很大范围的介质兼容, 从干燥空气和水到冷却液和机油。40PC 提供模拟放大信号输出, 传感器利用了独创的单硅片设计, 把所有温度补偿、输出零点/满量程校正, 放大功能集中在一块硅片中。40PC 工作在 5V 电压下, 输出变化幅度 4V, 从 0.5 到 4.5V。室温下精度为 0.2%	Model ST 系列压力传感器结合了霍尼韦尔最先进的硅压阻传感和 ASIC 技术, 并具有坚固的工业封装, 卓越的品质及优越的性能, 使之成为工业控制应用的最理想传感器; 如空气压缩和气动设备。ST 压力传感器带温度补偿。校准和放大, 量程范围从 0 至 1 PSI 到 0 至 250PSI Model ML 系列压力传感器结合了最先进的 ASIC 技术和不锈钢结构设计而成。这个用数字算法补偿的压力传感器提供了优越的性能价格比, 使它成为符合汽车及工业应用的理想的压力传感器。全温区补偿, 校准和放大输出, 量程范围从 100 至 5000PSIS	22PC 系列表压无放大无补偿压力传感器 1. 价格最低的压力传感器 2. 与 24PC 相同的结构, 介质兼容性强 3. 可以测量负压和正压 24PC 差压表压和绝压/无放大无补偿和 26PC 差压表压无放大带补偿压力传感器 1. 专利的导电密封弹性连接系统消除了传统的导线粘接或带状连接, 增强了介质的测量兼容性 2. 专利的 Snap-together 结构使测量孔形式多样化
176PC 系列微压, 带补偿, 无放大压力传感器的特点: 1. 微压 (可至 7"水柱, 约为 1.7KPa) 2. 小型封装 3. 差压和表压 4. 激光刻蚀, 保证极好的一致性 5. 0 至 50° C 温度补偿, 零点及量程校整	140PC 系列差压、表压、绝压, 负压/带放大、带补偿压力传感器的特点: 1. PCB 引脚在测量孔的反面, 2. 温度补偿范围: -18 至 63° C, 零点及满量程校正。 3. 满量程 1 至 5 伏输出 4. 可以测量差压、表压、绝压、真空压 5. 全量程温度补偿 0 至 50° C、零点及量程校整。	其他系列产品: 4000PC 系列表压带放大带补偿压力变送器 CPX/XPX/XSX 系列微型压力传感器 CPC/XPC/XSC 系列带补偿压力传感器 CPCL/XPCL/XSCL 系列高灵敏度低压传感器 XCX 系列精确标定压力传感器 XCXL 系列精确标定低压压力传感器 XCA4/XCA5 系列带放大输出精确传感器 不锈钢系列压力传感器 高精度智能系列压力传感器

		触力传感器 压力开关 流量开关等
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■ 超低压压力传感器

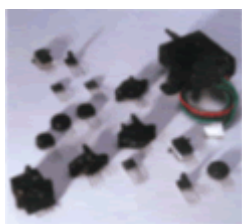
>>详细资料

SURSENSE 系列传感器提供了高精度的低压传感器.其应用了一种名为"动态自补偿"的技术,可以充分地减少测量过程中由于温度的变化及长期运行所带来的偏移量误差.由于测量位置的变化对"动态自补偿"技术不会产生任何影响,这种技术可以广泛地应用于便携式设备上.SURSENSE 突破了传统的低压测量技术的瓶颈,提供了无可比拟的可测至 0.5 IN H₂O 压力的优越性能.SURSENSE 产品已成为 HONEYWELL 传感器与控制元件部众多产品中的一种,其主要的 OEM 用户为医疗及工业产品行业.



其他系列产品:

- CPX 系列微型压力传感器
- CPC 系列带补偿压力传感器
- XPCL 系列高灵敏度低压压力传感器
- XSXL 系列精确标定低压压力传感器



特点:

- 压力范围:1,5,10,20,30 英寸水柱
- 温度补偿超过 0 至 50 度
- 有表压和差压量程可选
- 线性和迟滞性误差之和 < ± 器 0.25%FS
- 长时期稳定性(1 年):±0.100mV
- 可根据客户要求标定

产品系列:

- DUXL 系列微型超低压传感器
- DCXL 系列精确标定的超低压传感器
- DC 系列放大输出的精确压力传感器

■ 质量流量传感器

>>详细资料

基于最新的微结构技术,传感器内含一块独特的硅芯片-它包含薄膜电路,发热及热敏感元件的热隔离桥电路,桥电路对流过芯片的气流快速,灵敏的响应.发热体两侧的敏感元件还能指示出气流流过的方向.激光校整的厚膜电路

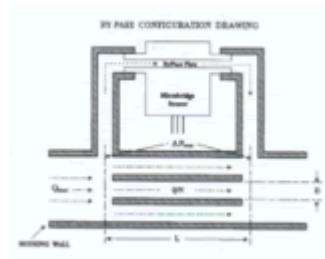


及薄膜电阻保证了每个元器件一致的性能。

典型应用:

产品系列:

- | | |
|----------------|------------|
| • HVAC 的风门挡板控制 | • AWM1000 |
| • 气体分析仪 | • AWM2000 |
| • 低真空控制 | • AWM3000 |
| • 过程控制 | • AWM40000 |
| • 医疗设备 | • AWM5000 |
| • 大气污染检测 | • AWM7201P |



■ 液位开关

>>详细资料

- ☐ 全固态、提高可靠性和响应速度
- ☐ 可适应多种液体
- ☐ 塑料外壳和金属外壳可选



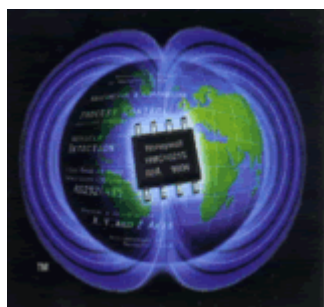
■ 混浊度传感器

>>详细资料

- ☐ 低成本红外混浊度测量原理
- ☐ 多个传感器集合于单一封装内——易于集成
- ☐ 内含微处理器用于信号集成和通信



■ 磁阻传感器



HONEYWELL 的磁阻敏感元件,由长而薄的玻莫合金(一种铁镍合金)薄膜制成.利用标准的半导体工艺,将薄膜附着硅片上.四个磁阻组成惠斯通电桥.同时在硅平面上制作了两个电流带,一个用来置位或复位输出的极性,另一个用来产生一个偏置磁场以补偿环境磁场.

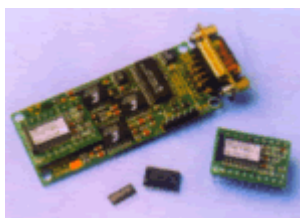
HONEYWELL 提供了在地磁场范围内非常灵敏的磁阻传感器.可测量几十微高斯的磁场,这是霍尔元件所不能做到的.由于它的体积小,全固态,在某些场合下可以取代磁通门传感器.



HMC1052 新一代二轴磁阻传感器

产品系列:

- HMC1001/2--一轴或两轴基本传感器芯片,用于低成本场合
- HMC10021/2/3,1052--一轴,两轴或三轴基本传感器芯片
- HMC1501/12--基本线位移/角位移和旋转位移传感器
- HMC2003--三轴磁传感器模块,放大的模拟输出
- HMR2300,2300R--智能数字磁场计,高性能,便于使用
- HMR3000/3200/3300--数字罗盘模块



HMR2300/HMC2003

典型应用:

>>应用演示

海洋应用 钻井设备
姿态参照 实际航向
与 GPS 集成 线位移测量
角位移测量 阀门位置



HMR3000/3200/3300

■ 固态传感器

>>详细资料

典型应用

无刷直流电机

数字电流传感器

中控刹车传感器

液压缸活塞位置检测

阀门位置感应

凸轮、杆、轴位置感应

转速表、收款机

按键传感器

磁盘盘速度、磁带速度、流速感应

速度感应

遥控读数传感器

磁卡检测器

产品系列

○数字型霍尔位置传感器

SS400 系列

SS100 系列

SS5 表面贴装系列

2SS52M 系列

SS40 系列

○内置磁铁霍尔传感器

VS 系列

2AV 系列

GT1 系列

○RP 系列旋转位置传感器

○模拟型霍尔位置传感器

SS49/19 系列

SS94 系列

SS495 系列

SS13/15/16/17 系列



■ 电流传感器

>>详细资料

特点:

典型应用:

产品系列:

- 最大测量电流 1200 安培
- 可测量交流,直流和脉冲电流
- 最高的性能价格比
- 快速响应,无击穿现象
- 高过载能力
- 初级与次级电路高等级隔离
- 外形小巧



- 不间断电源(UPS)
- 马达过载保护
- 监测
- 动作验证
- 变频调整
- 通讯电源模块

- CSD 系列
- CSN 系列
- CSNE 系列
- CSL 系列

■ 微动开关 手动开关



产品系列

- US/UX/UM 系列微型开关
- SX/SM 系列微型开关
- V5/V7 系列小型开关
- AC/WW 门开关
- DM 快速响应镶嵌式开关

应用范围

- 电源开关
- 门内互锁
- 位置感应检测
- 按键
- 安全门互锁

典型应用

- 办公用设备
- 测试仪器
- 医疗设备
- 计算机/商用设备
- 暖通空调
- 自动售货设备
- 通讯设备

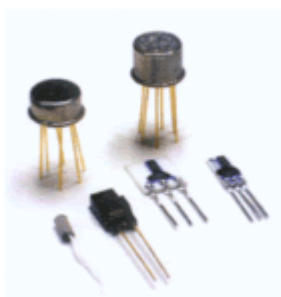


>>详细资料

■ 湿度传感器

产品系列:

- H1H3605 系列
- H1H3610 系列
- H1H3602 系列



>>详细资料 典型应用:

- 冷藏
- 烘干
- 气象学
- OEM 设计
- 电池电源系
统

H1H 系列:

- 低成本、大批量 OEM 设计
- 放大线性输出
- 精度 2%、激光修正互换性至 5%
- 低功耗设计: 200uA 驱动电流
- 稳定性好、低漂移、抗化学腐蚀性
能



○ Monolithic IC

■ 温度传感器

TD4A/5A 系列:

- 硅原理的 RTD'S
- 20℃ 时电阻值 2000 Ohm
- 温度范围-40 度至 150 度
- 铝螺纹结构或微型封装



HEL & HRTS 系列:

- 铂电阻
- 100 Ohm 或 1000 Ohm
- 温度范围-200 度至 540 度
- 多种封装形式

典型应用:

- 暖通空调
- 房间、管道和制冷设备
- 马达
- 过载保护
- 电子电路
- 半导体器件保护
- 电子装配
- 热量控制、温度补偿
- 过程控制
- 温度调节



>>详细资料

■ 红外产品介绍

>>详细资料

霍尼韦尔的红外发光元件为固态元件.加正向偏置时发射近红外光,通常使用直流电压工作,提供高效单色光源.该类器件也适用于脉冲工作条件下,如数据传输（红外遥控）;或者用于为延长控制距离或抑制环境可见光和红外线干扰而需要 AC 耦合的场合

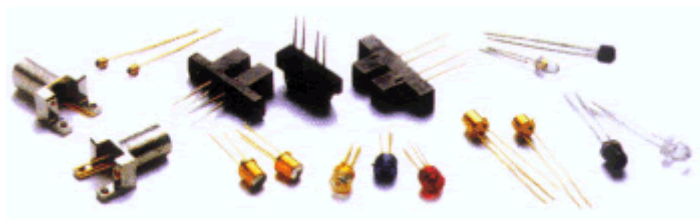
- GaAS, 935nm 波长
- ALGaAs, 800nm 波长

产品系列:

- 红外发光二极管
- 光电二极管
- 光电三极管
- 光电达林顿管
- 光电史密特器件

应用领域:

- 物体感应
- 移动感应
- 位置编码
- 行程检测
- 移动物体计数



- 透射红外传感器
- 红外史密特传感器
- 反射式红外线传感器
- 红外编码器
- 垂直腔体表面发射器
- 遥控遥测

VCSEL(垂直腔体表面发射器)

- 低驱动电(5-15mA)
- 高耦合功率 (>1mW 典型)
- 波长 850nm (其它波长即将推出)
- 多种封装形式可选
- 带宽范围宽
- 1.25Gbps,2.5Gbps

典型应用:

- 数据通讯
- 激光打印机
- 手持条形码扫描设备
- 海量存储设备
- 光内存
- 医疗设备



HONEYWELL VCSEL 的先进性能

- 10Gb/s serial VCSEL 的解决方案
- 质子和氧化物灌输的 VCSEL 器件
- 850nm,780nm 并正在开发波长可调的 VCSEL 系列
- 封装形式:表面贴装,TO 封装,SC,LC,MTRJ,ARRAYS 塑料
- 结构:Chip-On-Board,Chip-On-Chip,塑料器件

公司由传感器销售部、仪表销售部、工程部和总部四个部组成。我公司是美国霍尼韦尔（HONEYWELL）公司中国区指定的专业代理商,传感器部 2000 年成为美国 HONEYWELL 中国区指定代理商。专业销售 HONEYWELL 传感与控制部产品（Sensing and Control）我们不仅销售给客户最合适的产品同时也积极的为客户的开发工作提供帮助及解决客户在应用中所遇到的困难。为了更加方便用户，我们长期备有大量现货。传感器的应用十分广泛。通过我们几年来的努力，我们已经在 HAVE，医疗，马达控制，航空航天，财务设备，汽车仪表，阀门控制，车辆导航，气象仪器，色谱分析，水电煤气表等行业有了较好的业绩。这些都源于我们有一个优秀的团队，传感部目前有 10 多名销售工程师，90%都是大专以上学历，且长期服务于自动化行业第一线。有着丰富的经验。我司还代理美国 ICSSENSORS, MSI 的传感器,变送器。我部门专业从事传感器的销售,有专业人员为您提供售后服务。HONEYWELL, MSI, ICSSENSORS, MOTOROLA 的 24PC, 26PC, SCC, SX, ASDX, XPCL, XSXL, XSCL, SLP, CPC, SDX, SCX, HPX, 40PC, 4040PC, SDXL, SCXL, DCXL, DUXL, DC, PPT, MLH, ST, EC; MSP300, MSP310, MSP320, MSP400, MSP600, US300, US600; 1451 型, 1471 型, 1210A 型, 1220A 型, 1230A 型, 1240A 型, 13 型, 23 型, 33 型, 43 型, 17 型, 27 型, 37 型, 47 型, 84 型, 85 型, 154N 型, MPX 全系列系列正被广泛的应用到医疗器械, 环保, 水处理工程, HVAC, 仪器仪表, 航空航天, 自动控制系统。

产品或服务：（HONEYWELL, MSI, ICSensors, MOTOROLA）压力传感器，霍尔传感器，弱磁传感器，流量传感器，电流传感器，温度传感器，液位传感器，湿度传感器，红外传感器，齿轮传感器，触力传感器，及工业开关类产品。

主要价格优势产品：HONEYWELL 传感器，变送器；MSI, ICSensors 传感器,变送器, MOTOROLA 传感器。

AWM40000 系列气体质量流量传感器

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AWM40000 系列放大输出气体质量流量传感器, 多个集中安装 / 0 形密封圈, 陶瓷流量管（无引气管），0-1000sccm, 塑料流量管（无引气管），0-6SLPM, 高共模压力（150psi）, 工作温度可至 125℃, 零点和满量程高稳定性

MLH 系列压力传感器 (Honeywell)

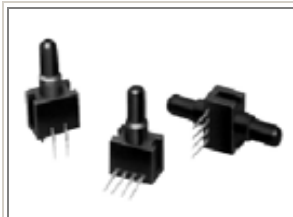
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MLH 型压力传感器结合了应用特殊集成电路（ASIC）技术中的最新技术以及证明可靠的隔离介质的金属隔膜设计。MLH 型压力传感器全部进行补偿，校准和放大，MLH 可适用于 50psi-8000psi 的压力范围。

24PC 系列差压，表压和绝压传感器(进口)

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24PC 系列差压，表压和绝压/无放大，无补偿，2mA 恒流供电可以显著的改善灵敏度温飘，可以测量负压，正压，绝压。

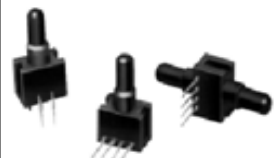
40PC 系列 压力传感器

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	最新经济型 40PC 产品是由 Honeywell/MicroSwitch 分部推出的最小体积放大压力传感器。完全校整和温度补偿,是霍尼韦尔压力产品中最坚固、适用温度最宽的传感器。另外, 40PC 可与很大范围的介质兼容,从干燥空气和水到冷却液和机油。40PC 提供模拟放大信号输出,传感器利用了独创的单硅片的设计,把所有温度补偿、输出零点、满量程校整、放大功能集中在一块硅片中。
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26PC 系列 差压,表压传感器

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	专利的导电密封弹性连接系统消除了传统的导线粘结和带状连接,增加了介质的测量兼容性,专利的结构导致了多样化的测量孔形式,最低价格的带温度补偿和校整的小型封装压力传感器,不同的引脚可选 (1X4 或 2X2),可以测量负压、正压,激光刻蚀电阻保证极好的器件一致性
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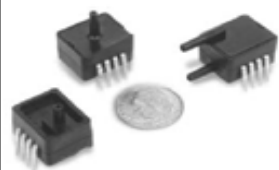
HPX 系列压力传感器

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	微型封装尺寸,可供表压型和绝压型,不带补偿和校准,压力范围自 0psi 至 100psi,响应时间一般为 1mS,两种封装形式: DIP 和 SOIC (双列式封装和小型集成电路),工作温度范围宽,表面贴装和通孔安装
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ASDX 压力传感器

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	传感器可以用来测量绝压差压和表压,范围从 1psi (ASDX01DN) 到 100psi (ASDX100)。绝压传感器具有一个内部的真空标准,其输出电压与绝对压力成正比。差压传感器允许将压力施加在检测膜片的两边,可以用在表压和差压的测量中。
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HONEYWELL 传感器型号大全

详细资料:

我公司长期提供以下型号的传感器。

开关量霍尔

103SR11A-1, 103SR12A-1, 103SR13A-1, 103SR14A-1, 103SR17A-1,
103SR18A-1, 2SS52M, 2SS52M-S, SR13C-A1, SR13D-A1, SR13F-A1, SR13R-A1,
SR15C-A3, SR16C-J6, SRC17C-J6, SR3F-A1, SR3B-A1, SR3G-A1, SR3C-A1,
SR4P2-A1, SS11, SS11T, SS111A, SS113A, SS141A, SS143A, SS149A, SS161A,
SS166A, SS41, SS411A, SS413A, SS441A, SS443A, SS449A, SS461A, SS466A,
SS51T, SS500, SS526DT。

模拟量霍尔

103SR3F-5, SS49, SS19, SS19T, SS495A, SS495A1, SS495A2, SS94A1,
SS94A1B, SS94A1E, SS94A1F, SS94A2, SS94A2C, SS94A2D, SS94B1。

内置磁铁霍尔传感器

2AV54, 1GT101DC, GTN1A111, GTN1A112, GTN1A113, GTN1A114, GTN1A115,
GTN1A116, GTN1A117, GTN1A211, GTN1A131, VX10, VX80, VX10-A1, VX80-A1,
VX10-A2, VX80-A2, VX10-A3, VX80-A3, VX10-B1, VX80-B1, VX10-C1, VX80-C1,
RPN1A112。

带放大压力传感器

142PC01D, 142PC02D, 142PC03D, 142PC05D, 142PC15D, 142PC30D, 142PC15A,
142PC30A, 142PC30G, 141PC01D, 141PC02D, 141PC03D, 141PC05D, 141PC15D,
141PC30D, 143PC01D, 143PC02D, 143PC03D, 143PC05D, 143PC15D, 143PC30D,
141PC01G, 141PC02G, 141PC05G, 142PC01G, 142PC02G, 142PC03G, 142PC05G,
142PC15G, 163PC01D36, 163PC01D48, 163PC01D75, 164PC01D76, 163PC01D37,
163PC01D76, 161PC01D36, 162PC01D36, 164PC01D36, 189PC15GM,
189PC100GM, 189PC150GM, ASCX01DN, ASCX05DN, ASCX15AN, ASCX15DN,
ASCX30AN, ASCX30DN, ASCX100AN, ASCX100DN, ASCX150DN, ASCX150AN,
ASDX015A24R, ASDX030A24R, ASDX100A24R, ASDX001G24R, ASDX005G24R,
ASDX015G24R, ASDX020G24R, ASDX100G44R, ASDX001D44R, ASDX005D44R,
ASDX015D44R, ASDX030D44R, ASDX100D44R, 40PC001G2A, 40PC015G2A,
40PC100G2A, 40PC150G2A, 40PC250G2A, 40PC500G2A, 4040PC001G5D,
4040PC015G5D, 4040PC100G5D, 4040PC150G5D, 4040PC250G5D,
4040PC500G5D。

无带放大压力传感器

26PCCFG5G, 26PC01SMT, 26PC05SMT, 26PC15SMT, 24PCAFA6G, 24PCBFA6G,
24PCCFA6G, 24PCDFA6G, 24PCEFA6G, 24PCFFA6G, 24PCGFA6G, 24PCAFA6D,
24PCBFA6D, 24PCCFA6D, 24PCDFA6D, 24PCEFA6D, 24PCFFA6D, 24PCGFA6D,
24PCCFD6A, 24PCGFH6G, 26PCAFA6G, 26PCBFA6G, 26PCCFA6G, 26PCDFA6G,
26PCFFA6G, 26PCAFA6D, 26PCBFA6D, 26PCCFA6D, 26PCDFA6D, 26PCFFA6D,
1865-01G-KDN, 1865-02G-KDN, 1865-03G-KDN, 1865-05G-KDN,
1865-07G-KDN, 1865-01G-LDN, 1865-02G-LDN, 1865-03G-LDN,

1865-05G-LDN, 1865-07G-LDN, 1800-00G-KOL-B, 1800-01G-KOL-B,
1800-02G-KOL-B, 1800-03G-KOL-B, 1800-07G-KOL-B, 1800-08G-KOL-B,
1800-09G-KOL-B, 1800-10G-KOL-B, 1800-00D-K4L-B, 1800-01D-K4L-B,
1800-02D-K4L-B, 1800-03D-K4L-B, 1800-04D-K4L-B, 1800-00D-K4L-C,
1800-08D-K4L-B, 1800-08D-K4L-C, SCC15ASMT, SCC30ASMT, SCC100ASMT,
SCC300ASMT, SCC05GSMT, SCC15GSMT, SCC30GSMT, SCC100GSMT, SCC300GSMT,
SCC15ASMT, SCC30ASMT, SCC15GSMT, SCC05GSMT, SCC30GSMT, SCC05D,
SCC15D, SCC30D, SCC100D, SCC15A, SCC30A, SCC100A, SCC05DN, SCC15DN,
SCC30DN, SCC100DN, SCC05AN, SCC15AN, SCC30AN, SCC100AN, SCC05GS0,
SCC15GS0, SCC30GS0, SCC100GS0, SCC15AH0, SCC30AH0, SCC100AH0,
SCC300AH0, SCC05DP1, SCC15DP1, SCC30DP1, SCC15AP1, SCC30AP1, SCC05GD2,
SCC15GD2, SCC30GD2, SCC100GD2, SCC15AD2, SCC30AD2, SCC100AD2,
SCC05DD4, SCC15DD4, SCC30DD4, SCC100DD4, SCX01DN90, SCX05DN90,
SCX15DN90, SCX30DN90, SCX100DN90, SCX150DN90, SCX01DNC90, SCX05DNC90,
SCX15DNC90, SCX30DNC90, SCX100DNC90, SCX150DNC90, SCX01ANC90,
SCX05ANC90, SCX15ANC90, SCX30ANC90, SCX100ANC90, SCX150ANC90,
SCX01AN90, SCX05AN90, SCX15AN90, SCX30AN90, SCX100AN90, SCX150AN90,
SDX15A2, SDX15A4, SDX30A2, SDX30A4, SDX100A2, SDX100A4, SDX01G2,
SDX05G2, SDX15G2, SDX30G2, SDX100G2, SDX01D4, SDX05D4, SDX15D4,
SDX30D4, SDX100D4, SDX01D4-A, SDX05D4-A, SDX15D4-A, SDX30D4-A,
SDX100D4-A, SDX01G2-A, SDX05G2-A, SDX15G2-A, SDX30G2-A, SDX100G2-A,
SDX15A2-A, SDX15A4-A, SDX30A2-A, SDX30A4-A, SDX100A2-A, SDX100A4-A,
SX7001D, SX7005D, SX7015D, SX7030D, SX7100D, SX7150D, SX7300D, SX01D,
SX05D, SX15D, SX30D, SX100D, SX150D, SX15A, SX30A, SX100A, SX150A,
SX01DP1, SX05DP1, SX15DP1, SX30DP1, SX15AP1, SX30AP1, SX01DN, SX05DN,
SX15DN, SX30DN, SX100DN, SX15AN, SX30AN, SX100AN, SX150AN, SX01GS0,
SX05GS0, SX15GS0, SX30GS0, SX100GS0, SX150GS0, SX15AH0, SX30AH0,
SX100AH0, SX150AH0, SX01GD2, SX05GD2, SX15GD2, SX30GD2, SX100GD2,
SX01DD4, SX05DD4, SX15DD4, SX30DD4, SX100DD4, SX15AD4, SX30AD4,
SX100AD4, SX15AD2, SX30AD2, SX100AD2。

微压传感器

CPCL04DC, CPCL10DC, CPCL04DFC, CPCL10DFC, CPXL04DFC, CPXL10DFC,
CPXL01DC, CPXL10DC, XPCL04DC, XPCL10DC, XPCL04DTC, XPCL10DTC, XPX50D,
XPXL04DC, XPXL10DC, XPXL04DTC, XPXL10DTC, XSL04D, XSL10D, XSCL04DC,
XSCL10DC, SDXL005D4, SDXL010D, SLP004D, SLP010D, DCXL01DN, DCXL05DN,
DCXL10DN, DCXL20DN, DCXL30DN, DC001NDC4, DC002NDC4, DC005NDC4,
DC010NDC4, DC020NDC4, DC030NDC4, DC001NDR4, DC002NDR4, DC005NDR4,
DC010NDR4, DC020NDR4, DC030NDR4, DC001NDR5, DC002NDR5, DC005NDR5,
DC010NDR5, DC020NDR5, DC030NDR5, DC2R5BDC4, DC005BDC4, DC075BDC4,
DUXL01D, DUXL05D, DUXL10D, DUXL20D, DUXL30D。

高精度智能压力传感器

HPB100, HPB200, HPA100, HPA200, PPT-R, PPT0015AWN2VA-A, RDD100。

闭环线性电流

CSNA111, CSNB121, CSNB131, CSNC241, CSNE151, CSNE151-100, CSNF163,
CSNF173, CSNP661, CSNP661-002, CSNT651, CSNT651-001, CSNF161,
CSNF161-002, CSNF151, CSNF151-001, CSNR161, CSNR161-002, CSNR151,
CSNJ481, CSNJ481-001, CSNJ481-002, CSNJ481-003, CSNK591, CSNK591-001,
CSNK591-002, CSNK591-003, CSNE151-100, CSNX25DTS,

开关型电流

CSDA1BA, CSDA1BC, CSDC1BA, CSDC1BC, CSDA1AA, CSDA1AC, CSDC1AA, CSDC1AC,
CSDC1DA, CSDA1DA, CSDC1DC, CSDD1EC, CSDD1EE, CSDD1EF, CSDD1EG, CSDD1EH,
CSLH3A45。

开环线性电流

CSLA1CD, CSLA1CE, CSLA1DE, CSLA1CF, CSLA1DG, CSLA1CH, CSLA1DJ, CSLA1EJ,
CSLA1DK, CSLA1EK, CSLA1EL, CSLA2CD, CSLA2CE, CSLA2DE, CSLA2CF, CSLA2DG,
CSLA2DJ, CSLA2DH, CSLA2EJ, CSLA2DK, CSLA2EL, CSLA2EM, CSLA2EN, CSLA1GD,
CSLA1GE, CSLA1GF, CSLA2GD, CSLA2GE, CSLA2GF, CSLA2GG。

气体流量质量传感器

AWM2100V, AWM2150V, AWM2200V, AWM2300V, AWM720P1, AWM3100V, AWM3200V,
AWM3150V, AWM3300V, AWM42150VH, AWM42300V, AWM43300V, AWM43600V,
AWM5101VN, AWM5102VN, AWM5103VN, AWM5104VN, FRN11112, FRN21112,
FRN12212, FRN22212。

磁阻传感器

HMC1001, HMC1002, HMC1021, HMC1021Z, HMC1021S, HMC1023, HMC1052,
HMC1501, HMC1512, HMC2003, HMR2300, HMR2300R, HMR3000, HMR3100,
HMR3200, HMR3300。

温度传感器

HEL-700-U-O-A, HEL-700-U-O-B, HEL-700-U-O-C, HEL-700-T-O-A,
HEL-700-T-O-B, HEL-700-T-O-C, HEL-700-U-1-A, HEL-700-U-1-B,
HEL-700-U-1-C, HEL-700-T-1-A, HEL-700-T-1-B, HEL-700-T-1-C,
HEL-775-A-U-0, HEL-775-A-U-1, HEL-775-A-T-0, HEL-775-A-T-1,
HEL-775-B-U-0, HEL-775-B-U-1, HEL-775-B-T-0, HEL-775-B-T-1,
HEL-776-A-U-0, HEL-776-A-U-1, HEL-776-A-T-0, HEL-776-A-T-1,
HEL-777-A-U-0, HEL-777-A-U-1, HEL-777-A-T-0, HEL-777-A-T-1, TD4A,
TD5A。

湿度传感器

HIH3610-003, HIH3602-L-CP, HIH3602-A, HIH3602-C,

液位传感器

LLE102000, LLE105000, LL101000, LL102000, LL103000, LL104000,
LL105000, LL101101, LL102101, LL103101, LL10401, LL105100, LL20500-1,
LL205102-1, LL305002-1, LRNH31S42, LRNH51S42。

混浊度传感器

APMS-10GRCF, APMS-10GRCF-50, APMS-10GRCF-18, APMS-10GRCF-KIT。

触力传感器 FSG-15N1A, FSL05N2C

MOTOROLA 压力传感器

MPX10D MPX10DP MPX10GP MPX10GS MPXV10GC6U MPXV10GC7U MPX12D MPX12DP
MPX12GP MPX2010D MPX2010DP MPX2010GP MPXT2010G7U MPX2050D MPX2050DP
MPX2050GP MPX2050GVP MPX2050GS MPX2050GSX MPX2050GVSX MPX2053D
MPX2053DP MPX2053GP MPX2100A MPX2100DP MPX2100AP MPX2100AS
MPX2100ASX MPX2102A MPX2102D MPX2102DP MPX2102AP MPX2102GP
MPX2102GVP MPX2200A MPX2200D MPX2200DP MPX2200AP MPX2200GP MPX2200A
MPX2200D MPX2200DP MP2200AP MPX2200GP MPX21002A MPX2102D MPX2102DP
MPX2102AP MPX2102GP MPX2102GVP MPX2200A MPX2200D MPX2200DP
MPX2200AP MPX2200GP MPX2201GP MPX2300DT1 MPX4080D MPX4100A
MPXA4100A6U MPX4100AP MPXA4100A6U MPX4100AS MPX4101A MPXA4101AC6U
MPX4105A MPX4115A MPXA4115A6U MPX4115AP MPXA4115AC6U MPX4115AS
MPX4200A MPX4200AP MPX4200SA MPX4200ASX MPX4250A MPX4250AP
MPX4250A6U MPXA4250A6T1 MPXA4250AC6U MPXA4250AC6T1 MPX4250D
MPX4250GP MPX4250DP MPX5010D MPX5010DP MPX5010GP MPX5010GS
MPX5010GSX MPXV5010G6U MPXV5010G7U MPXV5010GC6U/T1 MPXV5010GC7U
MPX5050D MPX5050DP MPX5050GP MPX5100A MPX5100D MPX5100DP MPX5100AP
MPX5100GP MPX5100GVP MPX5100AS MPX5100GS MPX5100GVS MPX5100ASX
MPX5100GSX MPX5100GVSX MPX53D MPX53GP MPX5500D MPX5500DP MPX5700D
MPX5700A MPX5700DP MPX5700GP MPX5700AP MPX5700GS MPX5700AS MPX5999D
MPXA6115A6U MPXA6115AC6U MPXA6115A MPXA6115A6T1 MPXA6115AC6T1
MPXAZ4100A6U MPXAZ4100A MPXAZ4100A6T1 MPXAZ4100AC6U MPXAZ4100AC6T1
MPXAZ4115A6U MPXZ4115A MPXAZ4115A6T1 MPXAX4115AC6U MPXAZ4115AC6T1
MPXC2011DT1 MPXM2010D MPXM2010DT1 MPXM2010GS MPXM2010GST1 MPXM2053D
MPXM2053DT1 MPXM2053GS MPXM2053GST1 MPXV4006GC6U MPXV4006G6U
MPXV4115V6U MPXV4115V6T1 MPXV4115VC6U MPXV5004GC6U/T1
MPXV5004G6U/T1 MPXV5004G7U MPXV5004G7U MPXY8010 MPXY8020 MPXY8030
MPXY8040

供应 Honeywell 常用型号 EC/RM7832 EC/RM7890A EC/RM7890B EC/详细说明
我公司现特优供应以下 Honeywell 配件, 价格优惠, 如有需求者请与聂小姐, 彭先生联系。
供应 Honeywell 燃烧程序控制器 EC7800/RM7800 (220V/110V)。
供应 Honeywell 常用型号 EC/RM7832 EC/RM7890A EC/RM7890B EC/RM
7810A EC/RM7850A RM7800L/RM7850L RM7885 燃烧程序控制器。
供应 Honeywell 通用接线座 Q7800A1005 Q7800B1003。
供应 Honeywell 吹扫时间定卡 ST7800A1013 ST7800A1021 ST7800A1039 ST7800A1047
ST7800A1054 ST7800A1062 ST7800A1070。
供应 Honeywell 工作状态通讯显示板 S7800A1001。
供应 Honeywell 数据通讯板 S7810A1009 及远端复位板 S7820A1007。
供应 Honeywell 火焰信号放大器 R7847A1025 R7847A1033 R7847A1074 R7847B1031
R7847C1005 R7849A1015 R7849A1023 R7849B1021 R7848A1008 R7861A1026 R7861A1034
R7886A1001
供应火焰开关控制器 R4343D1017 R434E104 C7012A/C 及离子探针型火焰探测器
供应基本型燃烧安全控制器 RA890F1304 RA890G1245。
供应离子探针型火焰探测器 C7008A1174 C7008A1182 C7009A1009 C7009A1025 C7009A1058
供应红外线滤波火焰探测器 C7015A1076 C7015A1092 C7015A1126

供应一体化紫外线型火焰探测器 C7027A1023 C7027A1031 C7027A1049 C7027A1064 C7027A1072 C7027A1080。

供应紫外线火焰探测器 C7035A1023 C7035A1031 C7035A1056 C7035A1080

供应紫外线火焰探测器 C7012A1145 C7012A1152 C7012A1160 C7012A1186 C7012A1194 C7012C1042 C7012E1104 C7012E1112 C7012E1120 C7012E1146 C7012E1153 C7012E1161 C7012E1278 C7012F1052

供应数字微处理型燃油燃烧程序控制器 DKO 970 DKO 972 DKO 976

供应数字微处理型燃气燃烧程序控制器 DKG 972 DMG 970 DMG 971 DMG 972 DMG 973

供应模拟型燃油燃烧程序控制器 TF830.3 TF832.3 TF834.3 MMO 872

供应点火变压器: ZT870 ZT930 ZT931。

供应火焰探测器: MZ 770 IRD 1010 IRD 1020 UVD 970 UVD 971 UVZ 780

供应油加热器 SOVE 930 SOVU 930

供应风门执行器 MT4000A MT4000B MT4001A MT4001B MT4001C MT4002B MT4003C

LKS 118 LKS 131 LKS 160 LKS 170 LKS 310

供应风门执行器 M6264A1048 M6284A1055 M6284C1010 M7284A1004 M7284A1012 M7284C1000 M7284Q1009 M7294Q1007 M9184A1035

供应风门执行器 MODUTROL IV 198162GA 7616BR 7617ADW 220738A

供应锅炉压力控制开关 L404A1354 L404A1370 L404A1396 L404A1404 L404A1636 L404B1304 L404B1320 L404B1346 L404B1353 L404B1577 L404C1139 L404C1147 L404C1162 L404D1088 L404D1092 L404F1060 L404F10787 L404F1094 L404F1102

供应锅炉蒸汽压力控制开关 L91B1019 L91B1035 L91B1043 L91B1050 L91B1068 L91B1241 P78010C1000 P7810C1018 P7810C1026 P7810D1008 P7810D1016 P7810D1024 高压限位。

供应燃气,空气压力开关 C6097A2110 C6097A2210 C6097A2310 C6097A2410 C6097A2200 C6097A2300 C6097A2400

供应燃气电磁阀 VE408AA1008,VE4000A1002,VE4000B1043,VE4000B3004 VE4010C1094 VE4015C1000

供应电液执行器型及电磁阀 V4055A1114 VE5080A3004 VE5100A3000

VQ420 VQ425 VQ440 VR415AA1000 VR425MB1001 KTCOMS VQ465 VQ480

KTPL33 VG415AA VG420SA VG4032A VG4040S VG4080 BT-BC 66810

供应燃气调节蝶阀 VF5025A3007 VF5032A3003 VF5040A3006 VF5050A3005 VF5065A3003 VF5080A3002 VF5100A3008 VF5125A3005 VF5150A3003

供应调压器及过滤器 HUPE 015 B 150 HUPE 080 B 350 HUFF 100 B 350

大量供应 S 铂铑 350 400 450 500 550 600 650 700 750 800 热电偶

大量供应 K 型不锈钢 350 400 450 500 550 600 650 700 热电偶

大量供应台湾智能表 P909-701 P909-301 T990-701 T990-301 温控仪表

大量供应 XMZ-101C S K 单显表。

XL50 控制器

XL50 DDC 22I/O W/O TERM

XL50-MMI DDC 22I/O INCL. MMI W/O TERM

XS50 XL50 TERMINAL SET

XD50-E XL50 EPROM module

XD50-FC Excel 50 Communication Card for C-Bus

XD50-FL Excel 50 Communication Card for C-Bus

XD50B-FCL LON/C-BUS APPL. MOD. FREE PROGR.
XL50-ACC3 MOUNT ACC. FRONT DOOR
XL50-FP XL50 package with terminals XS50 and application module XD50-FC,
without MMI
XL50-MMI-EP XL50 package with terminals XS50 and application module XD50-FC, with MMI
XL50-MMI-FP XL50 package with terminals XS50 and application module XD50-FC, with MMI
XL50UMMIPCCBLON XL50 FREE PROGR. +XS50+XD50B-FCL
XL50UMMIPCLON XL50-MMI FREE PROGR. +XS50+XD50FL
XL50UPCCBLON XL50 FREE PROGR. +XS50+XD50B-FCL
XL50UPCLON XL50 FREE PROGR. +XS50+XD50-FL
XM500-EU TCP/IP MODEM
MCD3 AO CONVERTER 1*3POS 1*ON/OFF
MCE3 Relay Module, Two Spdt Outputs, One Spst Output

XL1000 Web 控制器

XL1000B50 Controller Excel Web(R) BACnet DDC
XL1000B100 Controller Excel Web(R) BACnet DDC
XL1000B500 EXCEL WEB(R) BACNET CONTROLLER
XL1000B1000 EXCEL WEB(R) BACNET DDC CONTROLLER

XL500 系列 XC 5010C 控制器系列 (2008 年 03 月 20 号停产)

XC5010C Excel 500 16-bit CPU module
XC5210C EXCEL500 CPU WITH HIGH MEMORY
XP502 POWER SUPPLY
XD505A C-Bus Interface Submodule Retrofit Kit, 9600 Baud
XD508 C-Bus High Speed Interface Submodule Retrofit Kit, 1MBaud speed
XDL505 APPLICATION MOD. FOR XL500SMART
XDM506 XL600, 500, 100, 80 Modem Communication Submodule -Provides Dial-In/Dial-Out for single controllers
XF521A ANALOG INPUT MODULE
XF522A ANALOG OUTPUT MODULE
XF523A DIGITAL INPUT MODULE
XF524A DIGITAL OUTPUT MODULE
XF525A Three Position Output Module
XF526 ANALOGUE INPUT MODULE PT-SENS.
XF527 ANALOG OUTPUT MOD. W/O SWITCH
XF529 Digital Output Module
XF599 Blank Module Slot Cover
XH561 Excel 500 or 600 Universal Input/Output Module Housing
XH562H Universal Input/Output Blank Housing Cover
XHSACC Service package containing 1200 socket coding plugs, 200 covers for internal bus and 100 service keys

XW568 BUS CABLE 90 MM
XW569 BUS CABLE 350 MM

XL500 Smart XCL5010 控制器系列 (2008 年 03 月 20 号停产)
XCL5010 Freely Programmable DDC controller
XFL521B Distributed I/O, Analog Input Module, 12 resolution
XFL522B Distributed I/O, Analog Output Module, 8 resolution
XFL523B Distributed I/O, Analog Output Module, 18 Vdcauxiliaryvoltage supply
XFL524B Distributed I/O, Analog Output Module, Cycle time 1secwithCPU
XFLR522B AO MODULE + MANUAL OVERRIDE
XFLR524B DO MODULE + MANUAL OVERRIDE
XFR522A Manual Override Module For XFL522B
XFR524A Manual Override Module For XFL524B
XSL511 CONNECTOR MODULE
XSL512 DISCONNECTOR MODULE
XSL513 TERMINAL BLOCK AI, AO, DI
XSL514 TERMINAL BLOCK DO

BNA 建筑网络适配器 / XW582 手持终端
Q7055A1007 BNA-1C
Q7055A1015 BNA-2CS 2-BUS DIRECT CONNECT
Q7055A1023 BNA-2DN 2DIRECT CONNECT DELTA
XI581AH For controllers XC5010C and XC6010; mounting on EXCEL5000housing XH561
XI581CH For controllers XC5010C and XC6010; mounting on EXCEL5000housing XH561, mounts directly on the front of a controller
XI581TW For controllers XC5010C and XC6010; mounting on EXCEL5000housing XH561
XI582AH For all EXCEL 5000 controllers, desktop model, alsosuitablefor wallmounting
XI582CH For controllers XC5010C and XC6010; mounting on EXCEL5000housing XH561, mout away from a controller
XI582-CY For all EXCEL 5000 controllers, desktop model, alsosuitable for wallmounting
XI582TW For all EXCEL 5000 controllers, desktop model, alsosuitablefor wallmounting

专用控制器 VAV/FCU/CAV 系列
Q7750A1005 Excel 10 Zone Manager
Q7750A2003 Excel 10 Zone Manager
W7704D1016 XL12 WITH 230 VAC
W7704D1024 XL12 WITH 100VAC

W7750B2011 Excel 10 for constant volume air handling units with triac outputs
W7750C2001 Excel 10 for constant volume air handling units with triac and analog outputs
W7751D2008 EXCEL10 VAV INTERNAL WIRING
W7751F2003 EXCEL10 VAV EXTERNAL WIRING
W7751H2009 XL10 SMART VAV CONTROLLER FTT
W7751H2025 Excel 10 smart VAV controller with a premounted ML6161 Actuator
W7752D2007 XL10 FANCOIL CONTROLLER 230V FTT
W7752F2002 XL10 FANCOIL CONTROLLER 115V FTT
W7752G2000 XL10 FANCOIL CONTROLLER 3 REL.
W7754K1001 XL10 FANCOIL CONTR. NEW HARDW
W7754P1000 XL10 FANCOIL CONTR. NEW HARDW
W7754Q1008 XL 10 Fancoil contr.new hardware 24V (Drawing 50007908)
W7762B1019 Controller for hydronic installations, Excel 10
W7763C1016 XL10-CHC CONTROLLER SETPOINT F
W7763C1024 XL10-CHC HYDRONIC CONTROLLER
W7763C1032 XL10-CHC HYDRONIC CONTROLLER
W7763C1081 XL10-CHC CONTROLLER SETPOINT F
W7763D1030 XL10-CHC CONTROLLER SETP. +/-
W7763E1003 XL10-CHC HYDRONIC CONTROLLER

XL800 控制器 XCL8010A

XCL8010A Excel 800 plant controller

Panel I/O

XF821A 8 analog input module (Panel)

XF822A 8 analog output module (Panel)

XFR822A 8 analog output module with override (Panel)

XF823A 12 binary input module (Panel)

XF824A 6 relay output module (Panel)

XFR824A 6 relay output module with override (Panel)

XFR825A Actuator output module with override (Panel)

Lon I/O

XFL821A 8 analog input module (LON)

XFL822A 8 analog output module (LON)

XFLR822A 8 analog output module with override (LON)

XFL823A 12 binary input module (LON)

XFL824A 6 relay output module (LON)

XFLR824A 6 relay output module with override (LON)

Terminal socket Model

XS821-22 Terminal socket for analog input and output modules. The package includes 1 terminal socket, 1 connector bridge and 1 swivel label.

XS823 Terminal socket binary input modules. The package includes 1 terminal socket, 1 connector bride and 1 swivel label.

XS824-25 Terminal socket relay output and floating output modules. The package includes 1 terminal socket, 1 connector bride, 1 cross connector and 1 swivel label.

Accessory (Optional)

XS812 Manual disconnecter module for analog input, analog output and binary input. The manual disconnecter is plugged between the terminal socket and the electronic module. It allows manual disconnection of individual signals. This is useful during start-up.

XS812R0 Manual disconnecter module for relay output. The manual disconnecter is plugged between the terminal socket and the electronic module. It allows manual disconnection of individual signals. This is useful during start-up.

XS814 10 auxiliary terminal blocks. The auxiliary terminal block is used for distribution of signals. It includes 2 blocks with 7 terminals which are connected to each other.

XS815 20 cross connectors (red in below figure) for connection of 6 relay commons. One cross connector is included in the terminal socket package.

XS817 40 cross connectors (red in below figure) for connection of 3 relay commons (used if voltage on relay 1...3 is different to voltage on relay 4...5)

XS816 10 bus bridges. One bus bridge is included in the terminal socket package.

XAL10 10 swivel labels. The swivel label is used to attach the application specific label printed with CARE. One swivel label is included in the terminal socket package.

XW882 XI582 cable for Excel 800 (a combination of XW586 and XW582 can be also used).

XW885 Download cable for Excel 800 (a combination of XW586 and XW585 can be also used).

XW884 Adapter cable to use XW882 and XW885 with an XL500 controller

XL100C 控制器

XL100C XL100C WITH INTERFACE F.C-BUS

XL100C-MMI XL100C+XI582AH+XW582+INTERFACE

XL100CU CONTROLLER W. INTEGR. COMM. UL916

XL100CUUKL CONTR. W. INTEGR. COMMUNICATION

SymmetrE 基本软件及数据库扩展包

SYMSTARTER-CD310 Includes a 250 point database

SYM-DB2-5-EXP Expansion Pack - 250 to 500 pnt DB
SYM-DB5-10-EXP Expansion Pack - 500 to 1000 pnt DB
SYM-DB10-20-EXP Expansion Pack - 1000 to 2000 pnt DB
SYM-DB20-35-EXP Expansion Pack - 2001 to 3500 pnt DB
SYM-DB35-50-EXP Expansion Pack - 3501 to 5000 pnt DB
SYM-DB50-75-EXP Expansion Pack - 5001 to 7500 pnt DB
SYM-DB75-10K-EXP Expansion Pack - 7501 to 10000 pnt DB
SYM-DB10K-15K-EXP Expansion Pack - 10001 to 15000 pnt DB
SYM-DB15K-20K-EXP Expansion Pack - 15001 to 20000 pnt DB
SymmetrE 接口选项
SYM-IF-XL5DIRDIAL SymmetrE Excel 5000 Direct Dial-up Interface
SYM-IF-ADVDDDECL AdvancedDDE
SYM-IF-BACNET BACnet Client
SYM-IF-MOVBUS Modbus
SYM-IF-OPCCL OPC Client
SYM-STB-UP-STN Upgrade Browser Client to Full Station Client
SYM-OP-LNS LNS Server
SYM-OP-BACSERV BACnet Server
SYM-NW-OPCSERV OPC Server
SYM-OP-DTXL OPC Data Transfer - Local
SYM-OP-ALMPAG Alarm Pager software license
SYM-OP-IMM Inegrated Maintenance Manager
SYM-OP-WEBPCTL Web Point Control

SymmetrE 升级包

SYM-OP-LNSUPG Upgrade to LNS 3.2 from LNS 3.0
SYM-DB0500-UPG SYMMETRE SOFTWARE VERSION UPGRADE WITH 500 POINTDB
SYM-DB1000-UPG SYMMETRE SOFTWARE VERSION UPGRADE WITH 1000 POINTDB
SYM-DB2000-UPG SYMMETRE SOFTWARE VERSION UPGRADE WITH 2000 POINTDB
SYM-DB3500-UPG SYMMETRE SOFTWARE VERSION UPGRADE WITH 3500 POINTDB
SYM-DB5000-UPG SYMMETRE SOFTWARE VERSION UPGRADE WITH 5000 POINTDB
SYM-DB7500-UPG SYMMETRE SOFTWARE VERSION UPGRADE WITH 7500 POINTDB
SYM-DB10K-UPG SYMMETRE SOFTWARE VERSION UPGRADE WITH 10000 POINTDB
SYM-DB15K-UPG SYMMETRE SOFTWARE VERSION UPGRADE WITH 15000 POINTDB
SYM-DB20K-UPG SYMMETRE SOFTWARE VERSION UPGRADE WITH 20000POINTDB

CARE 软件及升级授权

CARE-70-BASIC Software license for CARE, Open Link PointServer, EPROM Burn Tool and XL-Online without RACL and ASPECDEditor, CARE-KEY replacement+LON Engineering
CARE-70-FULL Software license for CARE, Open Link PointServer, EPROM Burn Tool and XL-Online without RACL and ASPECDEditor+LonEngineering+L

NS License+RACL+ASPECD Editor, CARE-FULL-KEYreplacement
CARE-70-LNS Software license for CARE, Open Link Point Server, EPROMBurn Tool and XL-Online without RACL and ASPECDEditor+LonEngineering+LNS License
CARE-FU-LNS Upgrade to LNS
CARE-FU-LON Upgrade to Lon functionality
CARE-FU-WEB Upgrade to XL-WEB
EXCELON EXCELon LonWork Network Management Tool. SoftwareLicenseRequired
XL-ONLINE Excel Online, Commissioning tool for EXCEL5000Controllers

Honeywell红外传感器常用型号主要包括: SE2470, SD2440, SE1450, SD1440, SE5470, SD5443, HOA080, SEP-4216, SDP-4206, SEP-4208, SDP-0323, SDP-3208, SEP-0322, SDP-0301, SME-2480, SMD-2441, HOA-0872, HOA-0301, HOA-0306, HOA-1550, HOA-15D11, HOA-15D21, HOA-30DC1, HOA6480 Honeywell 红外传感器-光电接收三极管SD1440-001, SD1440-002, SD1440-003, SD1440-004, SD1440-001L, SD1440-002L, SD1440-003L, SD1440-004L, SD2440-001, SD2440-002, SD2440-003, SD2440-004, SD3443-001, SD3443-002, SD3443-003, SD5443-001, SD5443-002, SD5443-003, SD5443-004, SD5491-001, SD5491-002, SD5491-003, SD5491-004, SD5491-005, SD5491-006, SDP8405-001, SDP8405-002, SDP8405-003, SDP8405-011, SDP8405-012, SDP8405-013, SDP8405-014, SDP8405-015, SDP8406-001, SDP8406-002, SDP8406-003, SDP8406-004 Honeywell 红外传感器-光电接收二极管SD1420-002, SD1420-002L, SD2420-002, SD3421-002, SD5421-002, SDP8276-001 Honeywell红外传感器-光电接收达林顿管SD1410-001, SD1410-002, SD1410-003, SD1410-004, SD1410-001L, SD1410-002L, SD1410-003L, SD1410-004L, SD2410-001, SD2410-002, SD2410-003, SD3410-001, SD3410-002, SD3410-003, SD3410-004, SD5410-001, SD5410-002, SD5410-003, SDP8105-001, SDP8106-001 Honeywell红外传感器-阻挡弱光的光电三极管SDP8475-201, SDP8476-201 适用于要求抵制环境光线的干扰的应用中, 以及在对射的应用中, 当阻断物为半透明的物体时。在反射的应用中, 当可能出现背景反射时, 这种器件可以提高对比度。Honeywell红外传感器-塑料封装红外LED SEP8505-001, SEP8505-002, SEP8505-003, SEP8705-001, SEP8705-002, SEP8705-003, SEP8506-001, SEP8506-002, SEP8506-003, SEP8706-001, SEP8706-002, SEP8706-003 Honeywell红外传感器-金属外壳气密封装红外LED SE1450-001, SE1450-002, SE1450-003, SE1450-004, SE1470-001, SE1470-002, SE1470-003, SE1470-004, SE1450-001L, SE1450-002L, SE1450-003L, SE1450-004L, SE1470-001L, SE1470-002L, SE1470-003L, SE1470-004L, SE2460-001, SE2460-002, SE2460-003, SE2470-001, SE2470-002, SE3450-011, SE3450-012, SE3450-013, SE3450-014, SE3455-001, SE3455-002, SE3455-003, SE3455-004, SE3470-001, SE3470-002, SE3470-003, SE5450-011, SE5450-012, SE5450-013, SE5450-014, SE5455-001, SE5455-002, SE5455-003, SE5455-004, SE5470-001, SE5470-002, SE5470-003, SE5470-004 Honeywell红外传感器-光电施密特接收管SD5600-001, SD5610-001, SD5620-001, SD5620-002, SD5630-001, SD5630-002, SDP8004-301, SDP8014-301, SDP8304-301, SDP8014-301, SDP8604-301, SDP8614-301, SDP8371-001, SDP8600-001, SDP8601-001, SDP8602-001, SDP8610-011, SDP8611-011, SDP8612-011, SDP8600-002, SDP8601-002, SDP8602-002, SDP8610-002, SDP8611-002, SDP8612-002, SDP8600-003, SDP8601-003, SDP8602-003, SDP8610-003, SDP8611-003, SDP8612-003 Honeywell红外传感器-光电施密特对射组件(高迟滞) HOA696_0-L51, HOA696_1-L51, HOA696_2-L51, HOA696_3-L51, HOA696_4-L51, HOA696_5-L51, HOA696_0-L55, HOA696_1-L55, HOA696_2-L55, HOA696_3-L55, HOA696_4-L55, HOA696_5-L55, HOA697_0-L51, HOA697_1-L51, HOA697_2-L51, HOA697_3-L51, HOA697_4-L51, HOA697_5-L51, HOA697_0-L55, HOA697_1-L55, HOA697_2-L55,

HOA697_3-L55, HOA697_4-L55, HOA697_5-L55, HOA696_0-N51, HOA696_1-N51, HOA696_2-N51, HOA696_3-N51, HOA696_4-N51, HOA696_5-N51, HOA696_0-N55, HOA696_1-N55, HOA696_2-N55, HOA696_3-N55, HOA696_4-N55, HOA696_5-N55,
HOA697_0-N51, HOA697_1-N51, HOA697_2-N51, HOA697_3-N51, HOA697_4-N51, HOA697_5-N51, HOA697_0-N55, HOA697_1-N55, HOA697_2-N55, HOA697_3-N55, HOA697_4-N55, HOA697_5-N55, HOA696_0-P51, HOA696_1-P51, HOA696_2-P51, HOA696_3-P51, HOA696_4-P51, HOA696_5-P51, HOA696_0-P55, HOA696_1-P55, HOA696_2-P55, HOA696_3-P55, HOA696_4-P55, HOA696_5-P55, HOA697_0-P51, HOA697_1-P51, HOA697_2-P51, HOA697_3-P51, HOA697_4-P51, HOA697_5-P51, HOA697_0-P55, HOA697_1-P55, HOA697_2-P55, HOA697_3-P55, HOA697_4-P55, HOA697_5-P55, HOA696_0-T51, HOA696_1-T51, HOA696_2-T51, HOA696_3-T51, HOA696_4-T51, HOA696_5-T51, HOA696_0-T55, HOA696_1-T55, HOA696_2-T55, HOA696_3-T55, HOA696_4-T55, HOA696_5-T55, HOA697_0-T51, HOA697_1-T51, HOA697_2-T51, HOA697_3-T51, HOA697_4-T51, HOA697_5-T51, HOA697_0-T55, HOA697_1-T55, HOA697_2-T55, HOA697_3-T55, HOA697_4-T55, HOA697_5-T55, HOA7720-M22, HOA7730-M22 Honeywell 红外传感器-光电施密特对射组件(低迟滞) HOA0961-L51, HOA0961-L55, HOA0963-L51, HOA0963-L55, HOA0971-L51, HOA0971-L55, HOA0973-L51, HOA0973-L55, HOA0961-N51, HOA0961-N55, HOA0963-N51, HOA0963-N55, HOA0971-N51, HOA0971-N55, HOA0973-N51, HOA0973-N55, HOA0961-P51, HOA0961-P55, HOA0963-P51, HOA0963-P55, HOA0971-P51, HOA0971-P55, HOA0973-P51, HOA0973-P55, HOA0961-T51, HOA0961-T55, HOA0963-T51, HOA0963-T55, HOA0971-T51, HOA0971-T55, HOA0973-T51, HOA0973-T55, HOA2001-001, HOA2003-001, HOA2004-001, HOA2006-001 Honeywell 红外传感器-反射式光电组件 HOA0149-001, HOA0708-001, HOA0708-011*, HOA0709-001, HOA0709-011*, HLC1395-001, HLC1395-002, HOA1397-001, HOA1397-002, HOA1397-031, HOA1397-032, HOA1404-001, HOA1404-002, HOA1404-003, HOA1405-001*, HOA1405-002*, HOA2498-001, HOA2498-002, HOA2498-003 Honeywell 红外传感器-对射式光电组件 HOA0825-001, HOA0825-002, HOA0825-003, HOA0825-004, HOA0860-L51, HOA0860-L55, HOA0861-L55, HOA0862-L55, HOA0865-L51, HOA0865-L55, HOA0866-L55, HOA0867-L55, HOA0870-L51, HOA0870-L55, HOA0871-L55, HOA0872-L55, HOA0875-L51, HOA0875-L55, HOA0876-L55, HOA0877-L55, HOA0860-N51, HOA0860-N55, HOA0861-N55, HOA0862-N55, HOA0865-N51, HOA0865-N55, HOA0866-N55, HOA0867-N55, HOA0870-N51, HOA0870-N55, HOA0871-N55, HOA0872-N55, HOA0875-N51, HOA0875-N55, HOA0876-N55, HOA0877-N55, HOA0860-P51, HOA0860-P55, HOA0861-P55, HOA0862-P55, HOA0865-P51, HOA0865-P55, HOA0866-P55, HOA0867-P55, HOA0870-P51, HOA0870-P55, HOA0871-P55, HOA0872-P55, HOA0875-P51, HOA0875-P55, HOA0876-P55, HOA0877-P55, HOA0860-T51, HOA0860-T55, HOA0861-T55, HOA0862-T55, HOA0865-T51, HOA0865-T55, HOA0866-T55, HOA0867-T55, HOA0870-T51, HOA0870-T55, HOA0871-T55, HOA0872-T55, HOA0875-T51, HOA0875-T55, HOA0876-T55, HOA0877-T55, HOA1872-001, HOA1872-002, HOA1872-003, HOA1872-011, HOA1872-012, HOA1872-013, HOA1873-001, HOA1873-002, HOA1873-003, HOA1873-011, HOA1873-012, HOA1873-013, HOA1874-001, HOA1874-002, HOA1874-003, HOA1874-011, HOA1874-012, HOA1874-013, HOA1875-001, HOA1875-002, HOA1875-003, HOA1876-001, HOA1876-002, HOA1876-003, HOA1877-001, HOA1877-002, HOA1877-003, HOA1879-011, HOA1879-012, HOA1879-013, HOA1882-011, HOA1882-012, HOA1882-013, HOA1883-011, HOA1883-012, HOA1883-013, HOA1884-011, HOA1884-012, HOA1884-013, HOA1885-011, HOA1885-012, HOA1885-013, HOA1886-011, HOA1886-012, HOA1886-013, HOA1888-011, HOA1888-013, HOA2862-001, HOA2862-002, HOA2862-003, HOA1889-011, HOA1889-013

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