Sensing and Control

# Pressure























# Pressure, Airflow and Force Sensing at Honeywell

# Honeywell Sensing and Control:

In the 1980's, Honeywell developed a full line of piezoresistive pressure sensors featuring excellent repeatability, high accuracy, and reliability under varying environmental conditions. In addition, they feature highly consistent operating characteristics from one sensor to the next and interchangeability without recalibration.

In 1998, Honeywell acquired Data Instruments and added stainless steel and high purity pressure sensors, as well as the Advanced Silicon Group, or ASG family of pressure sensors. Data Instruments is best known for their sensors' precision and performance in applications that require high accuracy.

In 2002, Honeywell acquired Invensys Sensor Systems, including Sensym ICT, which brought a full line of high pressure, industrial products from the ICT side of the business, and a full line of low pressure plastic products from the SenSym side. SenSym is best known for their Low Pressure Plastic products and their willingness to produce custom sensors and packages. ICT is known for their highly accurate Pressure sensors that are used in Industrial applications. ICT is also known for their willingness to work with customers to create custom pressure sensor solutions to meet challenging customer needs.

In 2003, Honeywell purchased Sensotec. Founded in 1973, Sensotec designs and manufactures one of the broadest and most comprehensive product lines of pressure, load cells and electronic sensor instrumentation. Sensotec products are best known for their quality of engineering and customization.

Honeywell Sensing and Control offers the broadest line of pressure, force, and airflow capabilities in the world. For more information on these, or any of our products, visit our website and interactive catalog at www.honeywell.com/sensing.

# Honeywell

# 1998 Data Instruments:

- 1977 Data Instruments was formed as a result of a leveraged buyout of the Tyco Instruments Division of Tyco Laboratories.
- 1994 NeXt Sensors was founded
- 1995 NeXt Sensors merged with Data Instruments and formed the Advanced Silicon Group (ASG)
- 1998 Honeywell acquires Data Instruments.

# 2002 SenSym ICT:

- 1972 ICT was spun off from Fairchild.
- 1974 The Foxboro Company purchased ICT.
- 1989 Hawker Siddley (later acquired by BTRS) purchased SenSym from National Semiconductor
- 1990 Siebe acquired the **Foxboro** company
- 1999 BTR merged with Siebe to form Invensys.
   Sensym merged with Foxboro ICT to form
   Sensym ICT.
- 2002 Honeywell acquired SenSym ICT as a part of Invensys Sensor Systems.

# You can trust Honeywell Sensing and Control for:

# The right products for your applications

By offering you the broadest switching and sensing portfoilio in the world—and by offering you expert advice through our global sales and distribution channels to make the right choices, we can help to ensure you get the right product for your application.

### Delivered on time

Through extensive work with Six Sigma\* Plus and lean manufacturing programs, Honeywell is able to boast on-time to promise delivery statistics over 95%. Many of our locations operate at 100%. With an average lead time of only five days and distributor stocking programs in place throughout the world, we can meet even the most stringent of deadlines.

# That work right the first time

At Honeywell Sensing and Control, we provide you with quality right out of the box, and quality down the line. Our Six Sigma\* culture ensures that our sensors, switches and control products will work the first time and every time.

# And every time

With over 60 years in the switching and sensing business, we have built a reputation you can rely on. Our robust product designs and extensive testing facilities ensure that the products you order from Honeywell are the quality you have come to depend on.

# Anywhere in the world

Honeywell has a global sales force with application assistance available wherever you are located. See the back page of this brochure for more information on who to contact in your part of the world.

In addition to the sensing and control industry's largest direct salesforce, we have several ways of getting the answers you need:

1. Visit the website and interactive catalog at www.honeywell.com/sensing

2. Contact our Customer Response Center directly at:

**Domestic:** 800.537.6945 **International:** 815.235.6847

Fax: 815.235.6545

Our technical customer service staff is waiting to help you from 7:30am to 4:30pm,

Central Standard Time.

3. Email us at info.sc@honeywell.com



# SMT Pressure Products (1.0 psi to 100 psi)









Series	26PC	24PC	SCC	SX
Description	Calibrated	Bare Sensor	Bare Sensor	Bare Sensor
	Silicon Die Elastomeric Technology	Silicon Die Elastomeric Technology	Silicon Die on Ceramic Current Excitation	Silicon Die on Ceramic Voltage Excitation
Pressure Range	1.0 psi to 100 psi	1.0 psi to 100 psi	1.0 psi to 300 psi	1.0 psi to 300 psi
Device Type	Differential, Gage	Absolute*, Differential, Gage	Absolute*, Gage	Absolute*, Gage
Output Signal	mV	mV	mV	mV
Accuracy	Linearity, Hysteresis & Repeatability 0.5% typ.	Linearity, Hysteresis & Repeatability 0.5% typ.	Linearity, Hysteresis & Repeatability 0.2% typ.	Linearity, Hysteresis & Repeatability 0.2% typ.
Temperature Range	Compensated 0 °C to 50 °C [32 °F to 122 °F]	No Temperature Compensation	No Temperature Compensation	No Temperature Compensation

<sup>\*</sup>Absolute only available on 15.0 psi and above.

# **Ultra Low Pressure Products (<10 inches of water)**













Series	ASDXL	DC	SDXL	SCXL	DCXL	DUXL
Description	Amplified	Amplified SureSense™	Calibrated	Calibrated	Calibrated SureSense™	Bare Sensor SureSense™
	Silicon Die with ASIC Output	Dual Silicon Die with ASIC Output	Silicon Die with Thick-film Resistors	Silicon Die with Thick-film Resistors	Silicon Die with Thick-film Resistors	Silicon Die only
Pressure Range	0 in $\rm H_2O$ to 5.0 in $\rm H_2O$ and 10 in $\rm H_2O$	0 in H <sub>2</sub> 0 to 1.0, 2.0, 5.0, 10.0, 20.0, and 30.0 in H <sub>2</sub> 0	0 in $\rm H_2O$ to 5.0 in $\rm H_2O$ and 10.0 in $\rm H_2O$	0 in $\rm H_2O$ to 4.0 in $\rm H_2O$ and 10.0 in $\rm H_2O$	0 in H <sub>2</sub> 0 to 10.0 in H <sub>2</sub> 0	0 in $\rm H_2O$ to 4.0 in $\rm H_2O$ and 10.0 in $\rm H_2O$
Device Type	Differential, Gage	Differential, Gage	Differential, Gage	Differential, Gage	Differential, Gage	Differential, Gage
Output Signal	.5 Vdc to 4.5 Vdc	.5 Vdc to 4.5 Vdc	mV	mV	mV	mV
Accuracy	Total Accuracy 2.0%	Total Accuracy 2.0%	Linearity & Hysteresis 0.2% typ.	Linearity & Hysteresis 0.2% typ.	Linearity & Hysteresis 0.2% typ.	Linearity & Hysteresis 0.5% typ.
Temperature Range	Compensated 0 °C to 85 °C [32 °F to 185 °F]	Compensated -25 °C to 85 ° C [-13 °F to 185 °F]	Compensated 0 °C to 50 ° C [32 °F to 122 °F]	Compensated 0 °C to 50 ° C [32 °F to 122 °F]	Compensated 0 °C to 50 °C [32 °F to 122 °F]	Compensated -25 °C to 85 °C [-13 °F to 185 °F]

# **Airflow Sensors**



Series	AWM1000	AWM2000	AWM3000	AWM40000	AWM5000	AWM700	AWM90000
Signal Conditioning	Un-amplified (mV)	Un-amplified (mV)	Amplified	Amplified & Un-Amplified	Amplified	Amplified	Un-amplified (mV)
Technology	Silicon Die	Silicon Die	Silicon Die	Silicon Die	Silicon Die	Silicon Die	Silicon Die
Flow/Pressure Range	+1000 sccm to -600 sccm, +/- 4" H2O, +/-200 sccm	+/-1000 sccm, +/-4" H20, +/-200sccm, +/-30 sccm	+/-1000 sccm, +/-2" H2O, +1000 sccm, +/-30 sccm	+6 SLPM, +/-1000 sccm, +1000 sccm, +/-25 sccm	0 to 5 SLPM, 0 to 10 SLPM, 0 to 15 SLPM, 0 to 20 SLPM	+200 SLPM	+/-200 sccm, +/-2" H2O
Port Style	Straight	Straight	Straight	Manifold	1/4in - 18 NPT	22mm Tapered	Straight
Media Capability	Dry Gas Only	Dry Gas Only	Dry Gas Only	Dry Gas Only	Dry Gas Only	Dry Gas Only	Dry Gas Only

# **Ultra Low Pressure Products (<10 inches of water)**















CPXL	CPCL	XPCL	XCXL	SLP	170PC	160PC
Bare Sensor	Calibrated	Motorola Drop-In Calibrated	Calibrated	Bare Sensor	Calibrated	Amplified
Silicon Die only	Silicon Die with Thick-film Resistors	Silicon Die with Thick-film Resistors	Silicon Die with Thick-film Resistors	Silicon Die only	Silicon Die with Thick-film Resistors	Silicon Die with Op-Amp Output
0 in $\rm H_2O$ to 4.0 in $\rm H_2O$ and 10.0 in $\rm H_2O$	0 in H <sub>2</sub> 0 to 4 in H <sub>2</sub> 0 and 10.0 in H <sub>2</sub> 0	0 in $\rm H_2O$ to 4.0 in $\rm H_2O$ and 10.0 in $\rm H_2O$	0 in H <sub>2</sub> O to 4.0 in H <sub>2</sub> O and 10.0 in H <sub>2</sub> O	0 in $\rm H_2O$ to 4.0 in $\rm H_2O$ and 10.0 in $\rm H_2O$	0 in H <sub>2</sub> 0 to 28.0 in H <sub>2</sub> 0	0 in H <sub>2</sub> 0 to 28.0 in H <sub>2</sub> 0
Differential, Gage	Differential, Gage	Differential, Gage	Differential, Gage	Differential, Gage	Differential, Gage	Differential, Gage
mV	mV	mV	mV	mV	mV	1.0 Vdc to 6.0 Vdc
Linearity & Hysteresis 0.5% typ.	Linearity & Hysteresis 0.5% typ.	Linearity & Hysteresis 0.5% typ.	Linearity & Hysteresis 0.5% typ.	Linearity & Hysteresis 0.3% typ.	Linearity & Hysteresis 1.0% typ.	Accuracy 2.0% typ.
No Temperature Compensation	Compensated 0 °C to 70 °C [32 °F to 158 °F]	Compensated 0 °C to 70 °C [32 °F to 158 °F]	Compensated 0 °C to 50 °C [32 °F to 122 °F]	No Temperature Compensation	Compensated 0 °C to 50 °C [32 °F to 122 °F]	Compensated -18 °C to 63 °C [0 °F to 145 °F]

# Low Pressure Products (0.5 psi to 250 psi)















Low Pressure Products (0.5 psi to 250 psi)









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Series	ASDX	140PC	XCA	22PC	24PC	26PC	136PC	СРС	СРХ	XCX	SCX
Description	Amplified	Amplified	Amplified	Bare Sensor	Bare Sensor	Calibrated	Calibrated	Calibrated	Bare Sensor	Calibrated	Calibrated
	Silicon Die with ASIC Output	Silicon Die with Op-Amp Output	Silicon Die with Op-Amp Output	Silicon Die Elastomeric Technology	Silicon Die Elastomeric Technology	Silicon Die Elastomeric Technology	Silicon Die/ Thick-film Technology	Silicon Die with Thick-film Resistors	Silicon Die only	Silicon Die with Thick-film Resistors	Silicon Die with Thick-film Resistors
Pressure Range	1.0 psi to 150 psi	1.0 psi to 100 psi	1.0 psi to 300 psi	1.0 psi to 100 psi,	0.5 psi to 250 psi	1.0 psi to 250 psi	1.0 psi to 250 psi	1.0 psi to 300 psi	1.0 psi to 300 psi	1.0 psi to 300 psi	1.0 psi to 150 psi
Device Type	Absolute*, Differential, Gage	Absolute*, Differential, Gage	Absolute*, Differential, Gage	Differential, Gage	Absolute*, Differential, Gage	Differential, Gage	Absolute*, Differential, Gage	Absolute*, Differential, Gage	Absolute*, Differential, Gage	Absolute*, Differential, Gage	Absolute*, Differential, Gage
Output Signal	.5 Vdc to 4.5 Vdc	1.0 Vdc to 5.0 Vdc	1.0 Vdc to 5.0 Vdc	mV	mV	mV	mV	mV	mV	mV	mV
Accuracy	Total Accuracy 2.0% max.	2.0% typ.	Linearity & Hysteresis 0.2% typ.	Linearity & Hysteresis 0.5% typ.	Linearity & Hysteresis 0.5% typ.	Linearity & Hysteresis 0.5% typ.	Linearity & Hysteresis 0.5 % typ.	Linearity & Hysteresis 0.5% typ.	Linearity & Hysteresis 0.5% typ.	Linearity & Hysteresis 0.5% typ.	Linearity & Hysteresis 0.3% typ.
Temperature Range	Compensated 0 °C to 85 °C [32 °F to 185 °F]	Compensated -18 °C to 63 ° C [0 °F to 145 °F]	Compensated 0 °C to 50 ° C [32 °F to 122 °F]	No Temperature Compensation	No Temperature Compensation	Compensated 0 °C to 50 °C [32 °F to 122 °F]	Compensated 0 °C to 50 °C [32 °F to 122 °F]	Compensated 0 °C to 70 °C [32 °F to 158 °F]	Compensated 0 °C to 70 ° C [32 °F to 158 °F]	Compensated 0 °C to 50 ° C [32 °F to 122 °F]	Compensated 0 °C to 70 °C [32 °F to 158 °F]
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<sup>\*</sup>Absolute only available on 15.0 psi and above.

# Stainless Steel Pressure Products (3 to 40K psi)

















Stainless Steel Pressure Products (3 to 40K psi)







Series	AB	BL	SA	EA	MM	XP	EC	SR	ВХ	ML/MLH	ST
Description	Flush Design	Flush Design	Port Design	Port Design	Port Design	Port Design	Port Design	Flush Design	Flush Design	Port Design	Port Design
Construction	Wetted Parts 15-5 PH/316 SS (Optional - Hastelloy, Titanium, Inconel)	Wetted Parts 15-5 PH/316 SS (Optional - Hastelloy, Titanium, Inconel)	Wetted Parts 304/306 SS Stainless Steel Housing	Wetted Parts 304/306 SS Plastic Housing	Wetted Parts 304/306 SS Stainless Steel Housing	Wetted Parts 304/306 SS Stainless Steel Housing	Wetted Parts 304/306 SS Stainless Steel Housing	Wetted Parts 304/306 SS Stainless Steel Housing	Wetted Parts 304/306 SS Stainless Steel Housing	Wetted Parts 304/306 SS Plastic Housing	Wetted Parts SS & Silicon Plastic Housing
Pressure Range	6.0 psig to 20K psig 6 psia to 50 psia	5.0 psig to 20K psig 15 psia to 50 psia	15.0 psig to 50.0 psig 15.0 psia to 200 psia 500 psis to 5K psis	6.0 psig to 5K psig	15.0 psig to 7K psig	15.0 to 50 psig 100 psis to 5K psis	15.0 to 50 psig 100 psis to 5K psis	15.0 psig to 2K psig	15.0 psig - 300 psig	15.0 psig to 5K psig	5.0 psig to 250 psig
Output Signal	100 mV	4 mA to 20 mA	1 Vdc to 6 Vdc	1 Vdc to 6 Vdc 1 kHz to 6 kHz	50 mV	4 mA to 20 mA	0.5 Vdc to 4.5 Vdc 1.0 Vdc to 6.0 Vdc 4 mA to 20 mA	25 mV/mA at Excitation of 4 mA, 5.0 Vdc	50 mV at Excitation of 4 mA, 5 Vdc	0.5 Vdc to 4.5 Vdc 1.0 Vdc to 6 Vdc 4 mA to 20 mA	0.5 Vdc to 4.5 Vdc 4 mA to 20 mA
Accuracy	0.25%	1.0%	1.0%	1.0%	0.50%	1.0%	0.25%	1.0%	1.0%	0.25% Total Error Band - 2%	1.0% Total Error Band - 2%
Temperature Range	Compensated -1 °C to 54 °C [30 °F to 130 °F]	Compensated -1 °C to 54 °C [30 °F to 130 °F]	Compensated -1 °C to 85 °C [30 °F to 185 °F]	Compensated -1 °C to 85 °C [30 °F to 185 °F]	Compensated -1 °C to 82 °C [30 °F to 180 °F]	Compensated -1 °C to 54 °C [30 °F to 130 °F]	Compensated -40 °C to 105 °C [-40 °F to 221 °F]	Compensated -1 °C to 71 °C [30 °F to 160 °F]	Compensated 10 °C to 54 °C [50 °F to 130 °F]	Compensated -40 °C to 105 °C [-40 °F to 221 °F]	Compensated -40 °C to 100 °C [-40 °F to 212 °F]
Termination/Connector	Cable	Bendix Connector	Cable/Hirschmann	Valox Connector	Hirschmann Connector Spade Pins	Cable/Hirschmann	Cable/Hirschmann DIN/Packard	Pins	Pins	Multiple Connectors	Packard Connector

6

<sup>\*</sup>Absolute only available on 15.0 psi and above.

# Low Pressure Products (0.5 psi to 250 psi)









# Low Pressure Products (0.5 psi to 250 psi)













Series	SX	scc	XPX	XPC	XSC	SDX	1800	40PC	180PC	24PC Flow through	26PC Flow Through
Description	Bare Sensor	Bare Sensor	Bare Sensor	Calibrated	Calibrated	Calibrated	Calibrated	Amplified	Amplified	Bare Sensor	Calibrated
	Silicon Die only Constant Voltage Supply	Silicon Die only Constant Current Supply	Silicon Die only	Silicon Die with Thick-film Resistors	Silicon Die with Thick-film Resistors	Silicon Die with Thick-film Resistors	Silicon Die with Thick-film Resistors	Monolithic Silicon Die	Silicon Die with Op-Amp Output	Silicon Die only	Silicon Die with Thick-film Resistors
Pressure Range	1.0 psi to 150 psi	1.0 psi to 150 psi	1.0 psi to 30 psi	1.0 psi to 150 psi	1.0 psi to 150 psi	1.0 psi to 100 psi	3.0 psi to 150 psi	+/- 1.0 psi to 500 psi	1.0 psi to 30 psi	± 1.0 psi, ± 30 psi	± 1.0 psi to ± 100 psi
Device Type	Absolute*, Differential, Gage	Absolute*, Differential, Gage	Absolute*, Differential, Gage	Absolute*, Differential, Gage	Absolute*, Differential, Gage	Absolute*, Differential, Gage	Absolute*, Differential, Gage	Gage	Differential, Gage	Gage	Gage
Output Signal	mV (Voltage Excitation)	mV (Current Excitation)	mV	mV	mV	mV	mV	0.5 Vdc to 4.5 Vdc	1.0 Vdc to 6.0 Vdc	mV	mV
Accuracy	Linearity & Hysteresis 0.2% typ.	Linearity & Hysteresis 0.2% typ.	Linearity & Hysteresis 1.0% typ.	Linearity & Hysteresis 1.0% typ.	Linearity & Hysteresis 1.0% typ.	Linearity & Hysteresis 0.25% max.	Linearity & Hysteresis .15% max.	Linearity & Hysteresis 0.25% typ.	2.0%	Linearity & Hysteresis 0.75% typ.	Linearity & Hysteresis 0.35% typ.
Temperature Range	No Temperature Compensation	No Temperature Compensation	No Temperature Compensation	Compensated 0 °C to 70 ° C [32 °F to 158 °F]	Compensated 0 °C to 70 ° C [32 °F to 158 °F]	Compensated 0 °C to 50 °C [32 °F to 122 °F]	Compensated -1 °C to 54 °C [30 °F to 129 °F]	Compensated -45 °C to 125 ° C [-49 °F to 257 °F]	Compensated -18 °C to 63 ° C [0 °F to 145 °F]	No Temperature Compensation	Compensated 0 °C to 50 °C [32 °F to 122 °F]

<sup>\*</sup>Absolute only available on 15.0 psi and above.

# Stainless Steel Pressure Products (3 to 40K psi)









Series	13U	13C	19U	19C
Description	Non-calibrated Bare Sensor Media Isolated	Calibrated Media Isolated	Non-calibrated Bare Sensor Media Isolated	Calibrated Media Isolated
Construction	Wetted Parts 316 L SS	Wetted Parts 316 L SS	Wetted Parts 316 L SS	Wetted Parts 316 L SS
Pressure Range	500 psi to 5K psi	0 psia to 500 psia and 5K psia	3.0 psi to 500 psi	3.0 psi to 500 psi
Device Type	Absolute*	Absolute*, Sealed Gage	Absolute*, Gage, Vacuum Gage	Absolute*, Gage, Vacuum Gage
Output Signal	100 mV	100 mV	100 mV	100 mV
Accuracy	Linearity & Hysteresis 0.2% typ.	Linearity & Hysteresis 0.2% typ.	Linearity & Hysteresis +/-0.2% max.	Linearity & Hysteresis +/-0.2% max.
Temperature Range	No Temperature Compensation	Compensated -25 °C to 85 °C [-13 °F to 185 °F]	No Temperature Compensation	Compensated -25 °C to 85 °C [-13 °F to 185 °F]
Termination/Connector	Pins	Ribbon Cable	Ribbon Cable	Ribbon Cable

Stainless Steel Pressure Products (3 to 40K psi)



Series	SPT	BE
Pressure Connection	1/8-27 NPT, 1/4-18 NPT 7/16-20 UNF, 1/4-19 BSP	Multiple Port Designs
Construction	Wetted Parts 316 L SS Stainless Steel Housing	Wetted Parts 17-4PH Stainless Plastic Housing
Pressure Range	3.0 psi to 5K psi	125 psi to 42K psi
Device Type	Absolute*, Gage, Sealed Gage, Vacuum Gage	Gage
Output Signal	4-20 mA, 100 mV, 1 Vdc to 5 Vdc	0.5 Vdc to 4.5 Vdc ratiometric
Accuracy	0.25% max.	1.50% Total Error Band
Temperature Range	Compensated -10 °C to 85 °C [14 °F to 185 °F]	Compensated -20 °C to 85 °C [-4 °F to 185 °F] Operating -40 °C to 125 °C [-40 °F to 257 °F]
Termination/Connector	Cable/8 Bayonet	Multiple Electrical Terminations

<sup>\*</sup>Absolute only available on 15.0 psi and above.



Calibrated Pressure Gauge  Wetted Parts 316 series SS  3 to 5,000 psi
316 series SS
3 to 5,000 psi
100 mV output
0.25%
Compensated 0 °C to 82 °C [32 °F to 180°F]
Battery Operated

\*Absolute only available on 15.0 psi and above.

<sup>\*</sup>Absolute only available on 15.0 psi and above.

# **High-Purity Pressure Transducers**







# Automotive







F1	<b>S1</b>	TLD	PT4	PT1	PTT
Flow through VCR port	Single VCR port	Single and Flow Through VCR port	Automotive Grade Sensor	Automotive Grade Sensor	Diesel-Heating Applications
SEMI specs	SEMI specs	SEMI specs Integral digital display	LIN Bus Output	ASIC Output	ASIC Output
25.0 psi to 3K psi	25.0 psi to 3K psi	25.0 psi to 3K psi	0 Bars to 38.0 Bars	2.0 Bars to 4.0 Bars	4.0 Bars to 8.0 Bars
Absolute*, Compound & Gage	Absolute*, Compound & Gage	Absolute*, Compound & Gage	Absolute*	Absolute*	Absolute*
4 mA to 20 mA 0 Vdc to 5.0 Vdc	4 mA to 20 mA 0 Vdc to 5.0 Vdc	4 mA to 20 mA 0 Vdc to 5.0 Vdc	12.0 Vdc Bus	0.25 Vdc to 4.5 Vdc	+/- 2 mAmp
Linearity & Hysteresis 0.5% FSO	Linearity & Hysteresis 0.5% FSO	Linearity & Hysteresis 0.5% FSO	<1% FS/LP Range	<1% FS	+/- 100 mBars
Compensated 0 °C to 70 °C [32 °F to 158 °F] Operating -40 °C to 85 °C [-40 °F to 185 °F]	Compensated 0 °C to 70 °C [32 °F to 158 °F] Operating -40 °C to 85 °C [-40 °F to 185 °F]	Compensated 0 °C to 70 °C [32 °F to 158 °F] Operating -40 °C to 85 °C [-40 °F to 185 °F]	-20 °C to 130 °C [-4 °F to 366 °F]	-40 °C to 135 °C [-40 °F to 275 °F]	-40 °C to 130 °C [-40 °F to 266 °F]
Cable & Bendix	Cable & Bendix	Cable	Connector	Connector	Connector
	Flow through VCR port  SEMI specs  25.0 psi to 3K psi  Absolute*, Compound & Gage  4 mA to 20 mA 0 Vdc to 5.0 Vdc  Linearity & Hysteresis 0.5% FSO  Compensated 0 °C to 70 °C [32 °F to 158 °F] Operating -40 °C to 85 °C [-40 °F to 185 °F]	Flow through VCR port  SEMI specs  SEMI specs  SEMI specs  25.0 psi to 3K psi  Absolute*, Compound & Gage  4 mA to 20 mA 0 Vdc to 5.0 Vdc  Linearity & Hysteresis 0.5% FS0  Compensated 0 °C to 70 °C [32 °F to 158 °F] Operating -40 °C to 85 °C [-40 °F to 185 °F]  SEMI specs  SEMI specs  SEMI specs  4 mA to 20 mA 0 Vdc to 3K psi  4 mA to 20 mA 0 Vdc to 5.0 Vdc  Compound & Gage  4 mA to 20 mA 0 Vdc to 5.0 Vdc  Compound & Hysteresis 0.5% FS0  Compensated 0 °C to 70 °C [32 °F to 158 °F] Operating -40 °C to 85 °C [-40 °F to 185 °F]	Flow through VCR port  Single VCR port  VCR port  SEMI specs  SEMI specs  SEMI specs  SEMI specs  SEMI specs  SEMI specs  Integral digital display  25.0 psi to 3K psi  25.0 psi to 3K psi  25.0 psi to 3K psi  Absolute*, Compound & Gage  4 mA to 20 mA 0 Vdc to 5.0 Vdc  Compound & Gage  4 mA to 20 mA 0 Vdc to 5.0 Vdc  Linearity & Linearity & Linearity & Hysteresis 0.5% FSO  Compensated 0 °C to 70 °C 132 °F to 158 °F] 0 Operating -40 °C to 85 °C -40 °C to 85 °C -40 °F to 185 °F]  Single and Flow Through VCR port  Semi specs Integral digital display  25.0 psi to 3K psi  25.0 psi to 3K psi  4 mA to 20 mA 0 Vdc to 5.0 Vdc  Under the Ama to 20 mA 0 Vdc to 5.0 Vdc  Compound & Gage  Compound & Gage  Compound & Gage  Compound & Gage  Compound & Through VCR port  Through Thro	Flow through VCR port  Single VCR port  Single vCR port  Single vCR port  Single and Flow Through VCR port  SEMI specs  SEMI specs  SEMI specs  Integral digital display  25.0 psi to 3K psi  Absolute*, Compound & Gage  Compound & Gage  4 mA to 20 mA 0 Vdc to 5.0 Vdc  Vdc to 5.0 Vdc  Linearity & Linearity & Linearity & Hysteresis 0.5% FS0  Compensated 0 °C to 70 °C 0 °C to 70	Flow through VCR port  Single and Flow Through VCR port  SEMI specs  SEMI specs  SEMI specs  SEMI specs  Integral digital display  25.0 psi to 3K psi  25.0 psi to 3K psi  25.0 psi to 3K psi  Absolute*, Compound & Gage  Compound & Gage  4 mA to 20 mA 0 Vdc to 5.0 Vdc  O Vdc to 5.0 Vdc  Linearity & Hysteresis 0.5% FSO  Compensated 0 °C to 70 °C [32 °F to 158 °F] Operating -40 °C to 85 °C [-40 °F to 185 °F]  O Farse Assistance  SEMI specs  SEMI specs Integral digital digital display  LIN Bus Output  ASIC Output  ASIC Output  Absolute*  Absolute*  Compound & Gage  Absolute*  Compound & Gage  12.0 Vdc Bus  0.25 Vdc to 4.5 Vdc  12.0 Vdc Bus  0.25 Vdc to 4.5 Vdc  12.0 °C to 130 °C  -40 °C to 135 °C  [-40 °F to 158 °F] Operating -40 °C to 85 °C  [-40 °F to 185 °F]  Operating -40 °C to 85 °C  [-40 °F to 185 °F]  Operating -40 °C to 85 °C  [-40 °F to 185 °F]

<sup>\*</sup>Absolute only available on 15.0 psi and above.

# **Force Sensors**













Series	FSG15N1A	FSS15NST	1865	FS
Signal Conditioning	Un-Amplified	Un-Amplified	Calibrated	Amplified
Technology	Silicon Die (Piezoresistive)	Silicon Die (Piezoresistive)	Silicon Die (Piezoresistive)	Silicon Die (Piezoresistive)
Force Range	0 g to 1500 g	0 g to 1500 g	0 psi to 5 psi, 0 to 10, 0 to 15, 0 to 25, 0 to 30 psi	0 lbs to 1.5 lbs, 0 lbs to 3 lbs
Output	360 mV	180 mV	Voltage excitation = 40 mV Typ., Current excitation = 100 mV Typ.	3 Vdc
Operating Temperature Range	-40 °C to 85 °C [-40 °F to 185 °F]	-40 °C to 85 °C [-40 °F to 185 °F]	-28 °C to 54 °C [-18 °F to 129 °F]	0 °C to 70 °C [32 °F to 158 °F]
Temperature Range	No Temperature Compensation	No Temperature Compensation	Compensated -1 °C to 54 °C [30 °F to 129 °F]	Compensated 5 °C to 50 °C [41 °F to 122 °F]

# Switching and Sensing Technology at Honeywell

From basic switching to on-chip, signal conditioned sensors, Honeywell Sensing and Control offers a wide variety of system critical switching and sensing solutions for all of your application needs. For more information, visit our website and interactive catalog at www.honeywell.com/sensing.

### **Humidity Sensors**

Humidity sensors from Honeywell are configured with integrated circuitry to provide on-chip signal conditioning. These sensors contain a capacitive sensing die set in thermoset polymers that interacts with platinum electrodes. Absorption based humidity sensors provide both temperature and %RH (Relative Humidity) outputs. On-chip signal processing ensures linear voltage output versus %RH. Sensor laser

trimming offers +5%RH accuracy, and achieves 2%RH accuracy with calibration. Packages are chemically resistant and operate in ranges of -40 °C to 85 °C (-40 °F to 185 °F) to accommodate harsh environments.

# Temperature Sensors and Thermal Products

Temperature sensors provide a change in a physical parameter such as resistance or output voltage that corresponds to a temperature change. These sensors are suitable for applications that require small package size, accuracy, and linear outputs. Honeywell also offers a full line of heaters, thermistors, and thermostats.

### **Infrared Sensors**

Optoelectronic sensors from Honeywell integrate optical principles and semi-conductor electronics. These sensors are reliable, cost effective sensors for applications which require object presence sensing, motion sensing, position encoding, limit sensing, movement detection and counting.

# **Basic Switches**

Honeywell's basic switch product families include standard size basics, miniature, subminiature,

hermetically sealed, and high temperature
switches. The precision snap-action
mechanisms are offered with a wide variety of
actuators and operating characteristics. MICRO
SWITCH basic switches are ideal for applications requiring compactness, light weight,

accurate repeatability and long life. Honeywell basic

switches, provide a very cost effective solution for applications that require presence/absence detection where physical contact with object is permissible.

# Magnetic Position Sensors

The Honeywell Magnetic Position Sensor family includes digital and analog Hall-effect position sensors, magnetoresistive digital sensors, Hall-effect vane sensors, gear tooth sensors, Hall-effect basic switch, and magnets. Magnetic Position Sensors are reliable, high speed, long life, sensors and are directly compatible with other electronic circuits.

These sensors respond to the presence or the interruption of a magnetic field by producing either a digital or an analog output proportional to the magnetic field strength. Digital and analog "sensor-only" devices are operated by the magnetic field from a permanent magnet or electromagnet. Position sensors from Honeywell are used in applications that require accurate, reliable outputs.

### **Position Transducers**

The Honeywell Sensing and Control transducer products use potentiometric technology originally developed for military applications and more recently applied to industrial markets. The proprietary MystR®

conductive plastic has extensive temperature and power capabilities along with infinite resolution in very small stroke units (5 mm [0.2 in]) without any intermediate signal conditioning. In a world where miniaturization drives sensor development, potentiometers have shrunk to the point where their weight is measured in grams and their stroke in millimeters. This amazing technology can still be utilized for measurements in tens of feet with repeatability in thousandths of an inch.

# **Current Sensing**

being done by a machine.

Current sensors monitor AC or DC current. Honeywell offers a broad line of adjustable linear, null balance, digital, and linear current sensors. Digital current sensors can sound an alarm, start a motor, open a valve or shut down a pump. The linear signal duplicates the waveform of the current being sensed, and can be used as a feedback element to control a motor or regulate the amount of work

# Warranty/Remedy

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local sales office for warranty information. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace without charge those items it finds defective. The foregoing is Buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose.

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

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INTERNET: www.honeywell.com/sensing

Contact our Customer Response Center directly at:

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Honeywell

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### **ПОСТАВКА** ЭЛЕКТРОННЫХ КОМПОНЕНТОВ

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