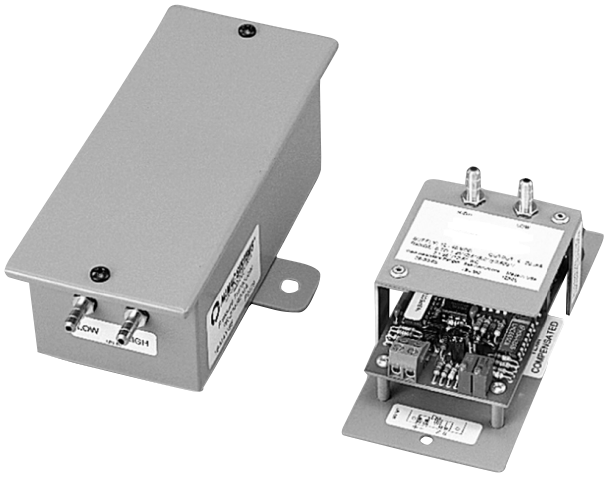
RUSKIN®

3900 Dr. Greaves Rd. • Kansas City, MO 64030 • (816) 761-7476 • FAX (816) 765-8955

LOW PRESSURE TRANSDUCER

Model RU-274/275



- **100% solid state, micro-machined, glass-on-silicon, ultra-stable capacitance sensor**
- **Can resolve less than 0.00001" w.c. (0.00025 pa)**
- **Up to 10 PSID overpressure without zero shift**
- **Up to 6 field selectable ranges in one unit**
- **Wide 12-35 VAC and 12-40 VDC unregulated supply voltage**
- **Non-interacting zero and span trimmers**
- **NIST traceable calibration**
- **Two rugged steel enclosure types NEMA 4 (IP-65) or panel mount for ease of installation**
- **Short circuit and reverse polarity protected**
- **Conforms to EMC standards EN 50082-1/ EN55014/ EN60730-1**

The RU-274/275 incorporates a new micro-machined glass-on-silicon (GI-Si) capacitance sensor. This technology revolutionizes very low pressure measurement. Temperature related zero drift, calibration shift due to overpressure, non-repeatability, non-linearity, and extremely low pressure sensitivity have been some of the problems which have plagued the controls industry. The RU-274/275 with the new GI-Si technology not only addresses all of the above shortcomings, but for the first time offers a reliable, accurate means to measure and control building/room pressure, air flow, duct pressure, filter pressure drop, or any other extremely low pressure application. Up to six field selectable direct or compound ranges, two enclosure types, field selectable outputs, fully temperature compensated NIST traceable accuracy, non-interacting zero and span adjustments, short circuit and reverse polarity protected output are some of the features which make the RU-274/275 the industry's highest performance, ultra-stable, low pressure transducer.

SPECIFICATIONS

Accuracy: ± 1% full scale (includes non-linearity, hysteresis and non-repeatability)

Overpressure: 10 PSID

Supply Voltage: 12-40 VDC or 12-35 VAC

Supply Current: 10 mA max.

Enclosure: 18 gauge cold rolled steel NEMA 4 (IP-65) or panel mount chassis

Finish: Baked on enamel-PMS2GR88B

Compensated Temp Range: 25ºF-150ºF (-4ºC-65ºC)

T. C. Error: ±0.0125%/ºF (.02%/ºC)

Operating Temp Range: 0ºF-175ºF (-18ºC-80ºC)

Media Compatibility: Clean dry air or any inert gas

Environmental: 10-90%RH non-condensing

Termination: Unpluggable screw terminal block

Wire Size: 12 gauge maximum

Load Impedance: 1K ohms min.

Weight: Enclosure 1.0 lbs. (.45 kg),

Panel Mount: 0.5lbs. (.25 kg)

The RU-274/275 incorporates sophisticated integrated circuits to not only provide a high level, fully conditioned and temperature compensated output, but also to offer field selectable flexibility. The RU-274/275 offers up to six field selectable pressure ranges in one unit. The exact pressure range does not need to be known prior to selection. By merely knowing the application, a unit may be selected and then later field configured for the desired pressure range. With fixed range units, numerous units have to be kept in stock as spares to cover all ranges in case of field failure. The RU-274/275 with the field selectable pressure range feature, eliminates costly inefficiencies. A single unit can be configured to cover all the pressure ranges in a particular application thereby eliminating any possibility of incorrect range selection. Additionally, one unit can be kept in stock and can be field configured thereby eliminating the need to stock numerous fixed range units. (For a complete listing of all the ranges available, please see the ordering information section on page three.)

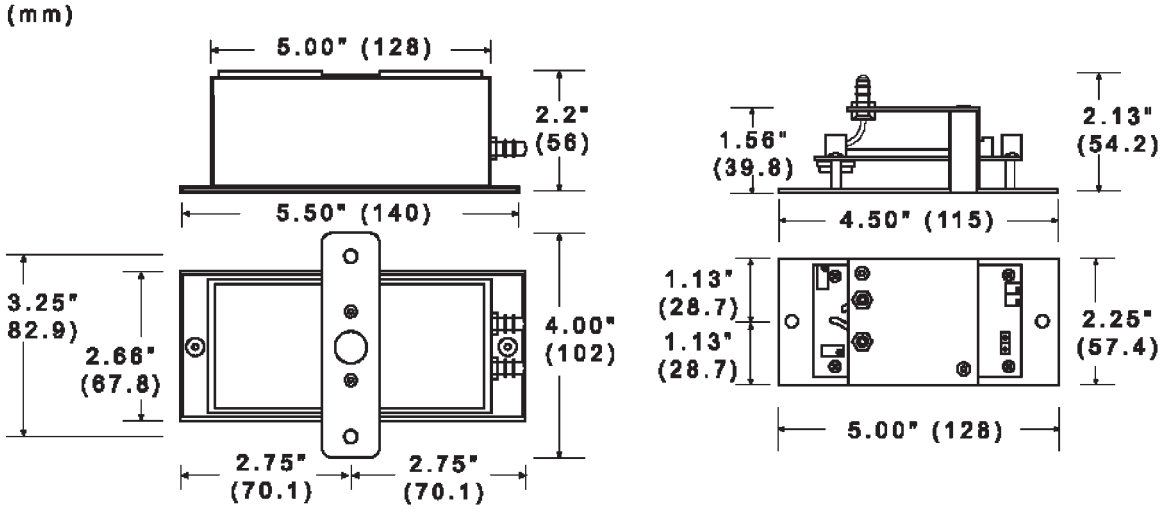
On VDC output units, two field selectable options are available: dual outputs 0-5 or 0-10 VDC, and dual unregulated supply voltages 12-35 VAC or 12-40 VDC. By merely moving a dip switch, one can select the desired output for the specific application. As far as supply voltage is concerned, the unit automatically configures for AC or DC and no field selection is necessary. Another feature is that the output is fully protected from short circuit to ground, or if the supply voltage is applied by mistake to the output. Past experience demonstrates that field related wiring problems do occur. Instead of denying this fact, the protection circuit is designed in to ensure trouble-free start-up. The VDC output unit is also designed to handle low impedance circuits. In fact, the unit can drive up to 1K ohms minimum. In this way, multiple controllers, indicators, or other devices can be paralleled to the output without performance degradation.

Automated NIST traceable pressure controllers and precision Barocel® pressure sensors are utilized to calibrate and certify the RU-274/275 transducers. Calibration data on each unit is archived digitally for SPC and QC purposes. All automated calibration systems are networked and data is available on-line to numerous individuals at the same time. In this way, extremely high standards of quality and calibration integrity are maintained. Each unit is individually temperature compensated in an environmental chamber. The temperature compensation data is also digitized and archived for future reference purposes. Compensating each unit individually ensures that published specifications are adhered to.

Due to the low mass of the micro-machined capacitance GI-Si sensor, the mounting orientation error for ranges higher than 1.0"wc (250 pa) is negligible. For extremely low ranges, the unit should be installed as indicated on the label, to avoid orientation error. However, due to space limitation, if the unit cannot be installed in the indicated position, the error can be easily removed by merely adjusting the zero trimmer. Since the zero and span trimmers are non-interactive, adjustment to the zero should under no circumstance affect the calibration integrity of the unit including linearity and repeatability specifications across the range.

The RU-274/275 is available with two packaging options: a NEMA 4 (IP-65) fully gasketed, dust proof and splash proof enclosure, or a lightweight but rugged panel mount chassis for ease of installation with minimum space requirement in a control panel. The NEMA 4 (IP-65) enclosure has an external mounting bracket to facilitate field installation. A 1/2" (.875"/ 22.25mm dia.) knock-out for conduit connection is also provided. A liquid tight cable connector is also supplied if the unit is not being hard wired. Once installed, the enclosure maintains its environmental rating and protects the electronics and the sensing element from condensation, corrosive contaminants and other environmental pollutants. Both packaging options also have additional features for ease of installation, including unpluggable terminal blocks, rugged brass hose barbs, easily accessible zero and span trimmers, and conveniently located dip switches for field selection.

DIMENSIONAL DATA



ENCLOSURE MOUNT **PANEL MOUNT**

WARRANTY/LIABILITY

WARRANTY: Ruskin Company warrants its products to be free of defects in material and workmanship for a period of one (1) year from date of shipment. If a unit is malfunctioning, it must be returned to the factory for evaluation. A return authorization number (RGA) will be issued by the customer service department and this number must be written or prominently displayed on the shipping boxes and all related documents. The defective part should be shipped freight pre-paid to the factory. Upon examination by Ruskin, if the unit is found to be defective, it will be repaired or replaced at no charge to the customer. However, this warranty is void if the unit shows evidence of being tampered with, damaged during installation, misapplied, misused, or used in any other operating condition outside of the unit's published specifications.

Ruskin Company makes no other warranties or representations of any kind whatsoever, expressed or implied, except that of title. All implied warranties including any warranty of merchantability and fitness for a particular purpose are hereby disclaimed. User is responsible to determine suitability for intended use.

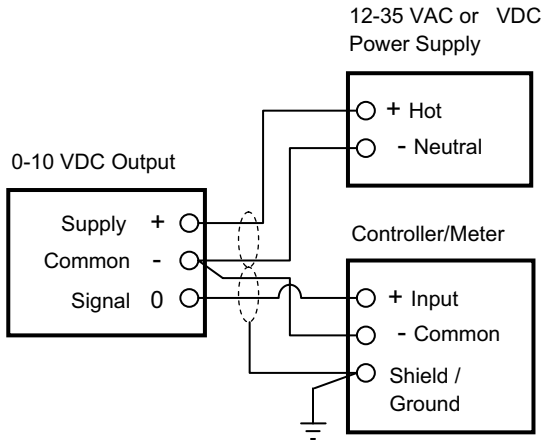
LIMITATIONS OF LIABILITY: The remedies of buyer set forth herein are exclusive and the total liability of Ruskin with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the product upon which liability is based. In no event shall Ruskin be liable for consequential, incidental or special damages. Ruskin reserves the right to change any specifications without notice to improve performance, reliability, or function of our products.

Every precaution for accuracy has been taken in the preparation of this information, however, Ruskin neither assumes responsibility for any omissions or errors that may appear nor assumes liability for any damages that result from the use of the product in accordance with the information.

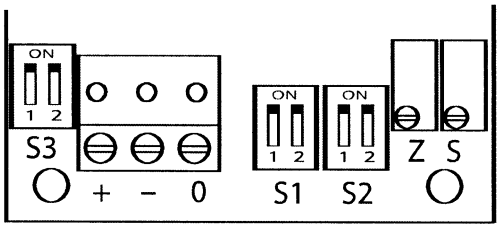
ORDERING INFORMATION

PACKAGING	RANGE		OUTPUT	
274 (NEMA 4 Enclosure) **275** (Panel Mount Chassis)	**R2 (" w.c.)**	[0.0 to 1.0] [0.0 to 0.5] [0.0 to 0.25] [-0.5 to +0.5] [-0.25 to +0.25] [-0.125 to +0.125] Field Selectable	**VDC**	[0-5 VDC] [0-10 VDC] Field Selectable

WIRING DETAIL



Dip Switch settings for field selecting pressure range



Range Configuration - Uni-directional Switch - S1		
R2	0-1.0” wc/250 pa (default)	
	0-0.5” wc/125 pa	
	0-0.25” wc/62.5 pa	

Range Configuration - Bi-directional Switch - S1		
R2	+/-0.5” wc/125 pa (default)	
	+/-0.25” wc/62.5 pa	
	+/-0.125” wc/31.25 pa	

Dip Switch settings for field selecting output

Output Configuration Switch - S2	
Uni-directional (default)	
Bi-directional	

Output Value Switch - S3	
0-10 VDC (default)	
0-5 VDC	

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