## Electronic Switch

## ES2000



## Description:

This Electronic Pressure Switch offers the accuracy of an electronic pressure switch in an economical package. It is available in two different configurations: as a dual pressure switch or as a single switch with integrated 4-20 mA analog output. Setpoints and deadband are easily adjusted by using the keypad and user-friendly menu. Analog transducer outputs are scalable from $25 \%$ to $100 \%$ of the full adjustable range. A 10-bit microprocessor provides built-in self diagnostics and allows for switch time delays and pressure cycling up to 100 times per second. For applications requiring precision pressure monitoring and control at an affordable price, this pressure switch is the ideal solution.

| SKU | Description |
| :--- | :--- |
| F0428-017 | 2 Switching Outputs, 0 to 10 bar |
| F0428-018 | 2 Switching Outputs, 0 to 50 bar |
| F0428-019 | 2 Switching Outputs, 0 to 100 bar |
| F0428-020 | 2 Switching Outputs, 0 to 200 bar |
| F0428-021 | 2 Switching Outputs, 0 to 400 bar |
| F0428-022 | 2 Switching Outputs, 0 to 600 bar |
| F0428-127 | 1 Analogue Output 4-20mA, 0 to 10 bar |
| F0428-128 | 1 Analogue Output 4-20mA, 0 to 50 bar |
| F0428-129 | 1 Analogue Output 4-20mA, 0 to 100 bar |
| F0428-130 | 1 Analogue Output 4-20mA, 0 to 200 bar |
| F0428-131 | 1 Analogue Output 4-20mA, 0 to 400 bar |
| F0428-132 | 1 Analogue Output 4-20mA, 0 to 600 bar |



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| Linearity Error: | $\pm 0.5 \%$ f. s. at $77^{\circ} \mathrm{F}\left(25^{\circ} \mathrm{C}\right)$ |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Repeatability: | $\pm 0.1 \%$ f. s. |  |  |  |  |  |
| Sensor Element: | Piezoresistive silicone measuring sensor |  |  |  |  |  |
| Material <br> Wetted Parts: <br> Seals: <br> Housing: | 304 stainless steel Viton ${ }^{\circledR}$ (FKM fluorelastomer) <br> Aluminum die-cast |  |  |  |  |  |
| Measuring Ranges (psi): | 150 | 750 | 1500 | 3000 | 6000 | 9000 |
| Proof Pressure (psi): | 220 | 1100 | 2175 | 4400 | 9000 | 11,600 |
| Process Connection (male): | 1/4-18 NPT, 7/16-20 $37^{\circ} \mathrm{JIC}, \mathrm{G} 1 / 4,7 / 16-20$ UNF SAE-4 |  |  |  |  |  |
| Electrical Connection: | Plug M $12 \times 1 ; 4$-pin |  |  |  |  |  |
| Power Supply: | 15 to 32 VDC reverse polarity protected |  |  |  |  |  |
| Power Consumption: | approx. 50 mA (without load) |  |  |  |  |  |
| A/D-Converter Resolution: Scanning Rate: | 10 bit (1,024 steps per measure span) 200/s (for peak value memory) |  |  |  |  |  |
| Analog Output Current Output: Load: <br> Load Influence: <br> Scanning Rate: <br> Voltage Output: <br> Rating: <br> Adjustment Range: | 4-20 mA <br> max. $\mathrm{RI}=(\mathrm{Ub}-12 \mathrm{~V}) / 20 \mathrm{~mA}$ <br> $\mathrm{RI}=600$ ohm at 24 VDC <br> 0.3\% / 100 ohm <br> 5 ms <br> 0 to 10 VDC (optional) <br> max. 10 mA , short circuit-proof <br> $25 \%$ to $100 \%$ f. s. |  |  |  |  |  |

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| Transistor Switching Output(s) |  |
| :---: | :---: |
| PNP: | Normally open / normally closed, standard-/window-mode |
| Switching Function: | $0 \%$ to $125 \%$ f. s. |
| Adjustment Range and | max. 100 Hz |
| Hysteresis: | Switching current 400 mA , short-circuit-proof |
| Switching Frequency: | 0.0 to 9.9 s adjustable |
| Contact Rating: | Green LED(s) |
| Delay: |  |
| Status Display(s): |  |
| Digital Display | 3-digit 7-segment LED display, height 10 mm , (0.39 inches), red |
| Display Range: | -1 to 999 |
| Display Rate: | 20/s |
| Error Display: | Orange LED (alarm) |
| Local Operating Interface: | 3 push buttons |
| Temperature Range |  |
| Media: | $-13^{\circ} \mathrm{F}$ to $212^{\circ} \mathrm{F}\left(-25^{\circ} \mathrm{C}\right.$ to $\left.+100^{\circ} \mathrm{C}\right)$ |
| Ambient: | $14^{\circ} \mathrm{F}$ to $158^{\circ} \mathrm{F}\left(-10^{\circ} \mathrm{C}\right.$ to $\left.+70^{\circ} \mathrm{C}\right)$ |
| Storage: | $-22^{\circ} \mathrm{F}$ to $176^{\circ} \mathrm{F}\left(-30^{\circ} \mathrm{C}\right.$ to $\left.+80^{\circ} \mathrm{C}\right)$ |
| Temperature Influence: | $\pm 0.2 \%$ f.s. /10K |
| Compensation Range: | $14^{\circ} \mathrm{F}$ to $158^{\circ} \mathrm{F}\left(-10^{\circ} \mathrm{C}\right.$ to $\left.+70^{\circ} \mathrm{C}\right)$ |
| Enclosure Rating: | Type 4, for indoor use only, (NEMA 4 / IP65) |
| Dimensions (Housing): | 1-7/16" $\times 5-1 / 8$ " ( $36 \mathrm{~mm} \times 130 \mathrm{~mm}$ ) (without electrical plug) |
| Additional Features: | Microprocessor, self-monitoring with error code display; all parameters are configured by keypad. <br> Keypad lock, rugged construction, vibration and shockproof, long term stability. |
| Weight: | Approx. 0.4 lb (200g) |
| Approvals: | c/ULus: file No. E42816 |

