ДАТЧИКИ ДАВЛЕНИЯ

Технические характеристики

STF92F, STF93F, STF924, STF932

ST 3000 Smart Transmitter

Series 900 Flange Mounted Liquid Level Models

STF924	0 to 400 inH_2O	0 to 1000 mbar
STF932	0 to 100 psi	0 to 7 bar
STF92F	0 to 400 inH_2O	0 to 1000 mbar
STF93F	0 to 100 psi	0 to 7 bar

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Specification and Model Selection Guide

Introduction

In 1983, Honeywell introduced the first Smart Pressure Transmitter— the ST 3000®. In 1989, Honeywell launched the first all digital, bi-directional protocol for smart field devices. Today, its ST 3000 Series 900 Flange-mount Pressure Transmitters continue to bring proven "smart" technology to a wide spectrum of pressure measurement applications. Flange-mount transmitters are offered with a variety of tank connections including ANSI flanges. Applications include gauge pressure measurement in pressure vessels in the chemical industry as well as level applications in both the chemical and hydrocarbon processing industries with either wet or dry legs on the low side. Versatility is made possible though compound characterization of the meter body as well as the ability to measure a broad range of differential pressures.

All ST 3000 transmitters can provide a 4-20 mA output, Honeywell Digital Enhanced (DE) output, HART* output, or FOUNDATION™ Fieldbus output. When digitally integrated with Honeywell's Process Knowledge System™, EXPERION PKS™, ST 3000 instruments provide a more accurate process variable as well as advanced diagnostics.

Honeywell's cost-effective ST 3000 S900 transmitters lead the industry in reliability and stability:

- Stability = ±0.01% per year
- Reliability = 470 years MTBF

Figure 1—Series 900 Flange Mounted Pressure Transmitters feature proven piezoresistive sensor technology.

The devices provide comprehensive self-diagnostics to help users maintain high uptime, meet regulatory requirements, and attain high quality standards. S900 transmitters allow smart performance at analog prices. Accurate, reliable and stable, Series 900 transmitters offer greater turndown ratio than conventional transmitters.

"Honeywell transmitters operating in the digital mode using Honeywell's Digitally Enhanced (DE) protocol make diagnostics available right at the control system's human interface. Equally important, transmitter status information is continuously displayed to alert the operator immediately of a fault condition. Because the process variable (PV) status transmission precedes the PV value, we are guaranteed that a bad PV is not used in a control algorithm. In addition, bi-directional communication provides for remote transmitter configuration directly from the human interface, enabling management of the complete loop."

Maureen Atchison, DuPont
Site Electrical & Instrumentation Leader

Description

The ST 3000 transmitter can replace any 4 to 20 mA output transmitter in use today and operates over a standard two-wire system.

The measuring means is a piezoresistive sensor, which actually contains three sensors in one. It contains a differential pressure sensor, a temperature sensor, and a static pressure sensor.

Microprocessor-based electronics provide higher span-turndown ratio, improved temperature and pressure compensation, and improved accuracy.

The transmitter's meter body and electronics housing resist shock, vibration, corrosion, and moisture. The electronics housing contains a compartment for the single-board electronics, which is isolated from an integral junction box. The single-board electronics is replaceable and interchangeable with any other ST 3000 Series 100 or Series 900 model transmitter.

Like other Honeywell transmitters, the ST 3000 features two-way communication and configuration capability between the operator and the transmitter through several Honeywell field-rated portable configuration devices, including the Smart Field Communicator (SFC) and the Multiple Communication Configurator (MC ToolKit). While both are made for in-field use, the MC Toolkit also can be ordered for use in intrinsically safe environments.

The SCT 3000 Smartline® Configuration Toolkit provides an easy way to configure instruments using a personal computer. The toolkit enables configuration of devices before shipping or installation. The SCT 3000 can operate in the offline mode to configure an unlimited number of devices. The database can then be loaded down-line during commissioning.

Features

- Choice of linear or square root output conformity is a simple configuration selection.
- Direct digital integration with Experion PKS and other control systems provides local measurement accuracy to the system level without adding typical A/D and D/A converter inaccuracies.
- Unique piezoresistive sensor automatically compensates input for temperature and static pressure. Added "smart" features include configuring lower and upper range values, simulating accurate analog output, and selecting preprogrammed engineering units for display.
- Smart transmitter capabilities with local or remote interfacing means significant manpower efficiency improvements in commissioning, start-up, and ongoing maintenance functions.

Specifications

Operating Conditions – All Models

Parameter	Reference Condition (at zero static)		Rated Condition		Operative Limits		Transportation and Storage	
	°C	°F	°C	°F	°C	°F	°C	°F
Ambient Temperature	25 ±1	77 ±2	-40 to 8	-40 to 15	-40 to 8	-40 to 18	-55 to 125	-67 to 257
Meter Body Temperature	25 ±1	77 ±2	-40 to 110	-40 to 230*	-40 to 12	-40 to 25	-55 to 125	-67 to 257
Process Interface Temp. STF924, STF932 only	25 ±1	77 ±2	-40 to 110**	-40 to 230**	-40 to 175†	-40 to 350	-55 to 125	-67 to 257
Humidity %RH	10 to 55		0 to 100		0 to 100		0 to 100	
Minimum Pressure **mmHg absolute** **inH$_2$O absolute**	 atmospheric atmospheric		 25 13		 2 (short term ††) 1 (short term ††)			
Supply Voltage, Current, and Load Resistance	**Voltage Range:** 10.8 to 42.4 Vdc at terminals **Current Range:** 3.0 to 21.8 mA **Load Resistance:** 0 to 1440 ohms (as shown in Figure 2)							

* For model STF932 ith CTFE fill fluid, the rating is –15 to 110°C (5 to 230°F); for models STF92F and STF93F with CTFE fill fluid, the rating is –15 to 70°C (5 to 158°F).
** For model STF932 with CTFE fill fluid, the rating is –15 to 110°C (5 to 230°F).
† For CTFE fill fluid, the maximum temperature rating is 150°C (300°F).
†† Short term equals 2 hours at 70°C (158°F)

Maximum Allowable Working Pressure (MAWP)

STF 924, STF 932	Flange Material	Ambient Temperature **-29 to 38 [-20 to 100 F]**	Maximum Meterbody Temperature **125 C [257 F]**	Process Interface Temperature **175 C [350 F]**
ANSI Class 150 **psi [bar]**	Carbon Steel 304 S.S. 316 S.S.	285 [19.6] 275 [19.0] 275 [19.0]	245 [16.9] 218 [15.0] 225 [15.5]	215 [14.8] 198 [13.7] 205 [14.1]
ANSI Class 300 **psi [bar]**	Carbon Steel 304 S.S. 316 S.S.	740 [51.0] 720 [49.6] 720 [49.6]	668 [46.0] 570 [39.3] 590 [40.7]	645 [44.5] 518 [35.7] 538 [37.1]
DN PN40 **psi [bar]**	Carbon Steel 304 S.S. 316 S.S.	580 [40.0] **(1)** 534 [36.8] **(1)** 534 [36.8] **(1)**	574 [39.6] 419 [28.9] 434 [29.9]	559 [38.5] 385 [26.5] 399 [27.5]
STF92F, STF93F ANSI Class 150 **psi [bar]**	316L Stainless Steel	230 [15.9]	185 [12.8]	No rating at this temp

(1) Ambient Temperature for DN PN40 is –10 to 50 C [14 to 122

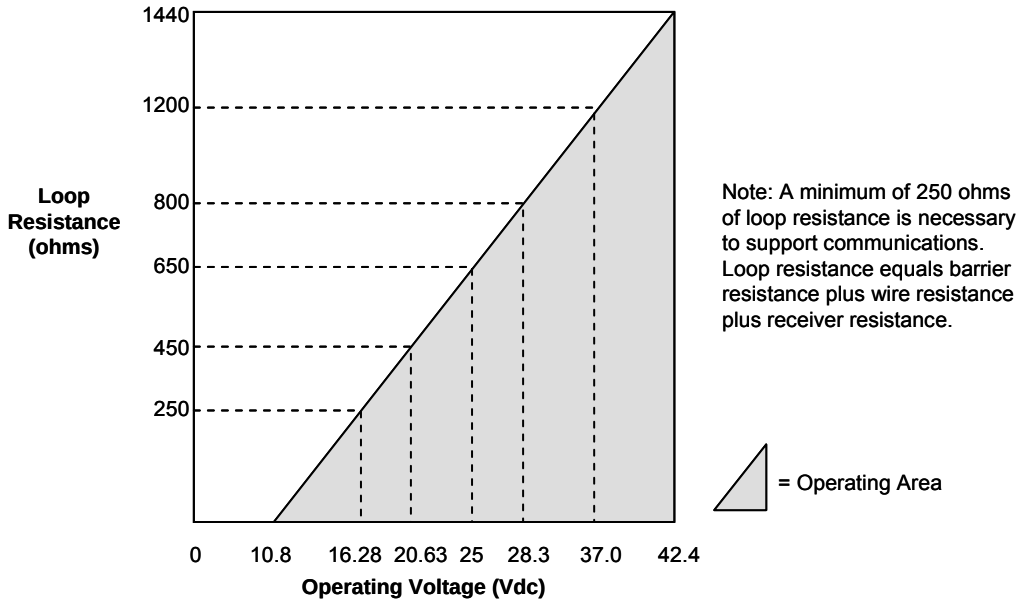

Figure 2 - Supply voltage and loop resistance chart.

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