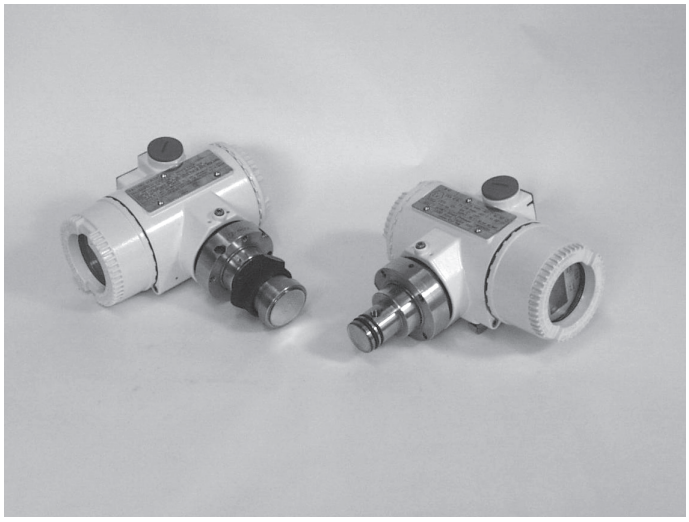
Specification sheet

600T EN Series Pressure Transmitters

Model 624ES gauge/absolute with direct mount seal for pulp & paper application

- **Base accuracy : ± 0.075%**
- **Reliable inductive sensing system coupled with the very latest digital technologies**
  - ensures high performance at all process conditions
- **Standardardized mechanical process interfaces**
  - match precisely the process for pulp and paper industry applications
- **HART 4-20 mA, Profibus PA, FF versions with plug-and-play electronics replacement**
  - provides interchangeability for upgrading transmitter
- **Local snap calibration and full management via hand terminal or PC-running software**
- **HART®, Profibus PA, FF communications**
  - allows integration with standard process bus
- **CoMeter display option**
  - offers HART Configuration capabilities combined with local indication
- **Ecoefficient life cycle**
  - ensures low environmental impact in compliance with LCA assessment to ISO 14040 standard



The all new 600T Series transmitter
The first choice pressure transmitter is now an even bigger choice

GENERAL DESCRIPTION

Model 624ES detailed in this specification sheet integrates a direct mount seal on the positive side, having the negative side reference at atmospheric or vacuum pressure, respectively for gauge or absolute measurements.
The integral seal is available in 1 in and 1 1/2 in diaphragm size specifically designed for pulp and paper industry applications, providing a flush diaphragm to the process; this solution ensures the measure reliability avoiding all problems of crystallization/ polymerization, typical of pulps having high viscosity as in the paper mill.

FUNCTIONAL SPECIFICATIONS

Range and span limits

Sensor code	Upper Range Limit (URL)	Lower Range Limit (LRL) 624ES with direct mount seal	Turndown ratio (TD)		
			Normal	Extended	Maximum
D	160 kPa 1600 mbar 642 inH_2O	0.07 kPa abs 0.7 mbar abs 0.5 mmHg	10	20	60
E	600 kPa 6 bar 87 psi	0.07 kPa abs 0.7 mbar abs 0.5 mmHg	10	20	60
F	2400 kPa 24 bar 348 psi	0.07 kPa abs 0.7 mbar abs 0.5 mmHg	10	20	60

Span limits

Maximum span = URL
Minimum recommended span = URL/TD extended
(can be further turndown to URL/TD maximum at no stated performances)

Zero suppression and elevation

Zero and span can be adjusted to any value within the range limits detailed in the table as long as:
- calibrated span ≥ minimum span

Damping

Selectable time constant : 0, 0.25, 0.5, 1, 2, 4, 8 or 16 sec.

Electromagnetic compatibility (EMC)

Comply with EN 50081-2 for emission and EN 50082-2 for immunity requirements and test; CE marking.

Turn on time

Operation within specification in less than 2 sec. with minimum damping.

Insulation resistance

> 100 MΩ @ 1000 Vdc (terminals to earth)

Temperature limits °C (°F)

- **Process**
  Silicone oil or DC97-9120 filling : -40 and +150°C (-40 and 302°F)
  Lower process limit for Viton gasket: -20°C (-4°F)
- **Ambient**
  Operating limits : -40 and +85 (-40 and +185)
  Lower ambient limit for LCD indicators: -20°C (-4°F)
  Upper ambient limit for CoMeter : +70°C (+158°F)
- **Storage**
  Lower limit: -50°C (-58°F); -40°C (-40°F) for LCD indicators
  Upper limit:+120°C (+248°F);+85°C (+185°F) for LCD indicators

Overpressure limits (without damage to the transmitter)

- Lower : 0.07 kPa abs, 0.7 mbar abs, 0.5 mmHg
- Upper (transmitter sensor limit or flange / fitting rating of the seal, whichever is less)
  - **model 624ES**
    sensor code D, E, F : 14 MPa, 140 bar, 2030 psi
  - **pulp & paper seal (S6D)**
    - 1in size : 3 MPa, 30 bar, 435 psi
    - 1 1/2 in size : 5 MPa, 50 bar, 725 psi

Proof pressure

The transmitter meets SAMA PMC 27.1 requirements and can be exposed without leaking to line pressure of up to 28 MPa, 280 bar, 4000 psi or two times the flange/fitting rating of the seal, whichever is less

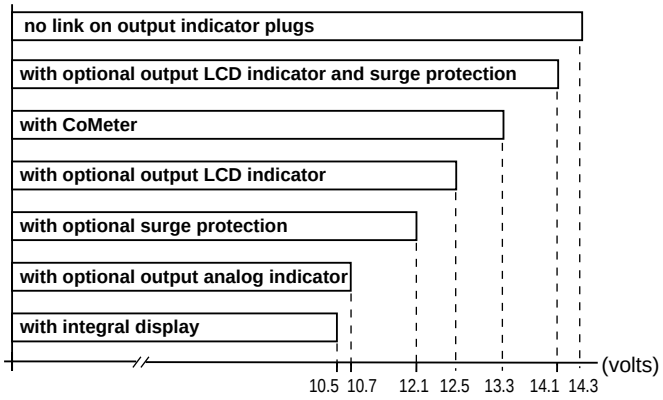
ELECTRICAL CHARACTERISTICS AND OPTIONS

- ***HART digital communication and 4 to 20 mA output***

Power Supply

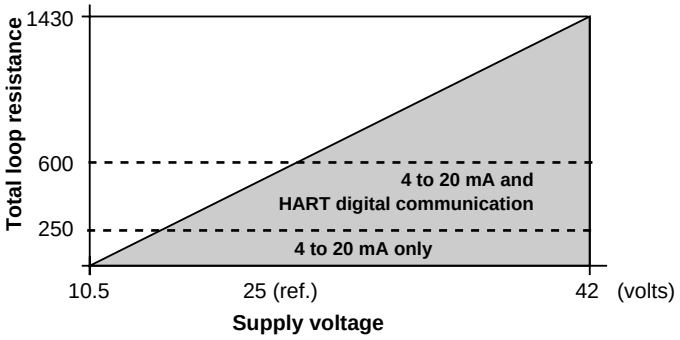
The transmitter operates from 10.5 to 42 Vdc with no load and is protected against reverse polarity connection (additional load allows operations over 42 Vdc).
For EEx ia and intrinsically safe (FM, CSA and SAA) approval power supply must not exceed 30 Vdc.

MINIMUM OPERATING VOLTAGES



Load limitations - 4-20 mA and HART total loop resistance **:**

$$R(k\Omega) = \frac{\text{Supply voltage - min. operating voltage (Vdc)}}{22}$$



Optional indicators

- **Output meter (user adjustable)**
  - LCD : 3 1/2-digit with 10 mm (3/8 in) high, 7-segment characters. Engineering unit labels are provided. LCD output meter may be calibrated within the range -1999 to + 1999 with a span adjustable between 100 and 3998 units. (Display of decimal point, if required, is switch selectable)
  - analog : 36 mm (1.4 in) scale on 90°

- **Integral display**
  - LCD: 4-digit with 8 mm. (5/16 in) high, 9-segment alphanumeric characters.
    User-definable display mode with HART communication :
    - process variable in engineering units, or
    - percent of range, or
    - process variable in engineering units and percent of range alternating every 3 seconds, or
    - process variable in engineering units and digital output (4 to 20 mA) alternating every 3 seconds.

    Factory selectable display mode with 4 to 20 mA output :
    - percent of range
    - percent of range and 4 to 20 mA output alternating every 3 seconds

  Display also indicates diagnostic messages.
- **CoMeter**
  - 5-digit LCD (± 99999 counts programmable) with 7.6 mm. high (3 in), 7-segment numeric characters plus sign and digital point
  - 10-segment LCD bargraph display (10% per segment)
  - 7-digit LCD with 6 mm. high (2.3 in), 14-segment alphanumeric characters.

Optional surge protection
Up to 2.5 kV (5 kA discharge current) of 8 µs rise time/20 µs decay.

Output signal
Two-wire 4 to 20 mA dc, user-selectable for linear or square root output, power of 3/2 or 5/2, 5th order or two 2nd order switching point selectable programmable polynomial output.
HART® communication provides digital process variable (%, mA or engineering units) superimposed on 4 to 20 mA signal, with protocol based on Bell 202 FSK standard.

Output current limits (to NAMUR standard)
Overload condition
- Lower limit : 3.8 mA dc
- Upper limit : 20.8 mA dc

Transmitter failure mode (to NAMUR standard)
The output signal can be user-selected to a value of 3.6 or 21.6 mA on gross transmitter failure condition, detected by self-diagnostics.
In case of CPU failure the output is driven <3.6 mA or >21.6 mA.

Profibus PA output

Power supply
The transmitter operates from 10.5 to 32 Vdc with no polarity. For EEx ia approval power supply must not exceed 15 Vdc. Intrinsic safety installation according to FISCO model.

Current consumption
- operating (quiescent) : 10.5 mA
- communicating : 20.5 mA
- fault current limiting : 16 mA max.

Output signal
Physical layer in compliance to IEC 1158-2/EN 61158-2 with transmission to Manchester II modulation, at 31.25 kbit/sec.

Output interface
Profibus PA communication according to Profibus DP50170 Part 2/DIN 19245 part 1-3 compliant to Profiles 3.0 Class A & B for pressure transmitter; ident. number 052B HEX.

Output update time : 25 ms

Function blocks
2 analog input, 1 transducer, 1 physical

Optional indicator
Integral display
- LCD : 4 digit characters, displaying process variable in engineering units or as percentage value.

Display also indicates diagnostic messages.

Transmitter failure mode
On gross transmitter failure condition, detected by self-diagnostics, the output signal can be driven to defined conditions, selectable by the user as safe, last valid or calculated value.

- ***FOUNDATION fieldbus output***

Device type
Link Active Scheduler (LAS) capability implemented

Power supply
The transmitter operates from 9 to 32 Vdc with no polarity. For EEx ia approval power supply must not exceed 24 Vdc. Intrinsic safety installation according to FF application guide

Current consumption
- operating (quiescent) : 10.5 mA
- communicating : 20.5 mA
- fault current limiting : 16 mA max.

Output signal
Physical layer in compliance to IEC 1158-2/EN 61158-2 with transmission to Manchester II modulation, at 31.25 kbit/sec.

Function blocks/execution period
2 standard Analog Input blocks / 25 msec. max (each)
1 standard PID block / 70 msec. max.

Additional blocks
Transducer block, 1 standard Resource block,
1 custom Pressure with calibration block

Number of link objects : 25

Number of VCRs : 24

Output interface
FOUNDATION fieldbus digital communication protocol to standard H1, compliant to specification V. 1.4; FF registration IT011000.

Optional indicator
Integral display
- LCD : 4 digit characters, displaying process variable in engineering units or as percentage value.

Display also indicates diagnostic messages.

Transmitter failure mode
The output signal is "frozen" to the last valid value on gross transmitter failure condition, detected by self-diagnostics which also indicate a BAD conditions. If electronic failure or short circuit occur the transmitter consumption is electronically limited at a defined value (16 mA approx), for safety of the network.

PERFORMANCE SPECIFICATIONS

Stated at ambient temperature of 23°C ± 3K (75°F ± 5), relative humidity of 50% ±20%, atmospheric pressure, mounting position with vertical diaphragm and zero based range for transmitter with isolating diaphragms in AISI 316 L ss or Hastelloy and silicone oil fill and HART digital trim values equal to 4-20 mA span end points, in linear mode.
Unless otherwise specified, errors are quoted as % of span.
Some performance data are affected by the actual turndown (TD) as ratio between Upper Range Limit (URL) and calibrated span.
IT IS RECOMMENDED TO SELECT THE TRANSMITTER SENSOR CODE PROVIDING THE TURNDOWN VALUE AS LOWEST AS POSSIBLE TO OPTIMIZE PERFORMANCE CHARACTERISTICS.

Accuracy rating

% of calibrated span, including combined effects of terminal based linearity, hysteresis and repeatability.
For fieldbus versions SPAN refer to analog input function block outscale range..

- ± 0.075% for TD from 1:1 to 10:1
- $\pm 0.0075\% \times \frac{URL}{Span}$ for TD from 10:1 to 20:1

Optional indicators accuracy

- integral display (microprocessor driven) : no error
- analog output meter : ± 2% full scale deflection
- LCD output meter : ± 0.1% of calibrated span ± 1 unit
- CoMeter
  - digital : ± 0.10% of max span(16 mA) ± 1 digit
  - analog (bargraph) : 10%

Operating influences

Temperature effects

per 20 K (36°F) ambient temperature change on transmitter sensor between the limits of - 20°C to + 65°C (-4 to +150°F)
- 1in pulp & paper seal : ± (0.2% URL + 0.2% span)
- 1 1/2in pulp & paper seal : ± (0.15% URL + 0.15% span)

Multiply by 1.5 the above coefficients for 20K (36°F) change between the limits of -40 to -20°C (-40 to 4°F) and of +65 to +85°C (+150 to 185°F)

per 20 K (36°F) process temperature change on seal diaphragm between the process operating temperature limits of -25 to 120°C (-13 to 248°F)
- 1in pulp & paper seal : 0.6 kPa, 6 mbar, 2.4 inH_2O
- 1 1/2in pulp & paper seal : 0.2 kPa, 2 mbar, 0.8 inH_2O

Multiply by 1.5 the above values for 20K (36°F) change between the limits of -40 to -25°C (-40 to -13°F) and of +120 to +150°C (+248 to 302°F)

The total zero temperature error is the combination of the two above effects, as applicable due to application temperatures.

Optional LCD output meter ambient temperature

per 1 K (1.8°F) change between the limits of -20 and +80°C (-4 and + 176°F)
Total effect : ± (0.0002 x span units + 0.1) of reading.

Optional CoMeter ambient temperature

Total reading error per 20K (36°F) change between the ambient limits of -20 and +70°C (-4 and +158°F):
± 0.15% of max span (16 mA).

Supply voltage

Within voltage/load specified limits the total effect is less than 0.005% of URL per volt.

Load

Within load/voltage specified limits the total effect is negligible.

Radio frequency interference

Total effect : less than 0.10% of span from 20 to 1000 MHz and for field strengths up to 30 V/m when tested with shielded conduit and grounding, with or without meter. Meets IEC 801.

Common mode interference

No effect from 100 V rms @ 50 Hz, or 50 Vdc.

Series mode interference

No effect from 1 V rms @ 50 Hz.

PHYSICAL SPECIFICATIONS

(Refer to ordering information sheets for variant availability related to specific model or versions code)

Materials

Process isolating diaphragms (*)

AISI 316 L ss, Hastelloy C276 ◊;

Process connection (*)

AISI 316 L ss.

Gaskets (*)

Viton ◊ for 1in size
PTFE for 1 1/2in size

Sensor housing : AISI 316 L ss

Sensor fill fluid

Silicone oil (DC200)

Seal fill fluid

Silicone oil (DC200), DC 97-9120 PHARMA B-GRADE

Electronic housing and covers

Barrel version
- Low-copper content aluminium alloy with baked epoxy finish;
- AISI 316 L ss.

Covers O-ring: Buna N.

Local zero and span adjustments:

Glass filled polycarbonate plastic (removable)

Tagging

AISI 316 ss data plate attached to the electronics housing.

Calibration

- Standard: at maximum span, zero based range, ambient temperature and pressure
- Optional: at specified range and ambient conditions; or at operating temperature.

Optional extras

Output indicator:

plug-in rotatable type, LCD or analog.
Standard LCD output meter scale is 0 to 100% linear; special linear scale to specified range and engineering unit is available.Standard analog output meter scale is 0 to 100% linear or 0 to 10 square-root; special graduation is available.

Supplemental customer tag

AISI 316 ss tag screwed/fastened to the transmitter for customer's tag data up to a maximum of 20 characters and spaces on one line for tag number and tag name, and up to a maximum of 3 spaced strings of 10 characters each for calibration details (lower and upper values plus unit).
Special typing evaluated on request for charges.

Surge protection (not available with Profibus PA and FF output)
Material traceability

Environmental protection

Wet and dust-laden atmospheres

The transmitter is dust and sand tight and protected against immersion effects as defined by IEC 529 (1989) to IP 67 (IP 68 on request) or by NEMA to 4X or by JIS to C0920

Hazardous atmospheres

With or without output meter/integral display
INTRINSIC SAFETY/EUROPE:
ATEX/BASEEFA approval
- EC-Type Examination Certificate no. BAS 99ATEX 1180
  - (HART)
    II 1 GD T50°C, EEx ia IIC T6/T5 (-40°C ≤ Ta ≤+40°C)
    T95°C, EEx ia IIC T4 (-40°C ≤ Ta ≤+85°C)
  - (FOUNDATION Fieldbus)
    II 1 GD T70°C, EEx ia IIC T4 (-40°C ≤ Ta ≤+60°C)
- EC-Type Examination Certificate no. BAS 00ATEX 1241
  - (PROFIBUS-PA)
    II 1 GD T70°C, EEx ia IIB T4 (-40°C ≤ Ta ≤+60°C)

TYPE "N"/EUROPE :
ATEX/BASEEFA type examination
- Design compliance by Certificate no. BAS 01ATEX 3380X
  - (HART)
    II 3 GD T50°C, EEx nL IIC T5 (-40°C ≤ Ta ≤+40°C)
    T95°C, EEx nL IIC T4 (-40°C ≤ Ta ≤+85°C)
  - (FOUNDATION Fieldbus)
    II 3 GD T70°C, EEx nL IIC T4 (-40°C ≤ Ta ≤+60°C)
- Design compliance by Certificate no. BAS 01ATEX 3384X
  - (PROFIBUS-PA)
    II 3 GD T70°C, EEx nL IIB T4 (-40°C ≤ Ta ≤+60°C)

FLAMEPROOF/EUROPE:
ATEX/CESI approval;
- EC-Type Examination Certificate no. CESI 00 ATEX 035
  II 1/2 GD T80°C, EEx d IIC T6 (-40°C ≤ Ta ≤ +70°C)
  T95°C, EEx d IIC T5 (-40°C ≤ Ta ≤ +85°C)

CANADIAN STANDARDS ASSOCIATION
and FACTORY MUTUAL :
- Explosionproof: Class I, Div. 1, Groups A, B, C, D
- Dust ignitionproof : Class II, Div. 1, Groups E, F, G
- Suitable for : Class II, Div. 2, Groups F, G; Class III, Div. 1, 2
- Nonincendive: Class I, Div. 2, Groups A, B, C, D
- Intrinsically safe: Class I, II, III, Div. 1, Groups A, B, C,D,E, F, G

STANDARDS AUSTRALIA (SAA)
TS/WCA Approval (HART only)
- Conformity Certificate no. AUS Ex 3117X
  Ex d IIC T5 (T_{amb} +85°C)/T6 (T_{amb} +70°C) Class 1 Zone 1;
  Ex ia IIC T4 (T_{amb} +85°C) /T5 (T_{amb} +55°C) T6 Class 1 Zone 0

Process connections

Pulp & Paper seal (mod. S6D)

- 1in flush diaphragm suitable for weld spud by fixing screw
- 1 1/2in flush diaphragm with M44 x 1.25 threaded connection.

Electrical connections

Two 1/2 NPT or M20x1.5 or PG 13.5 or 1/2 GK threaded conduit entries, direct on housing; straight or angle Harting HAN connector and one plug, on request.

Terminal block

- HART version
  Three terminals for signal/external meter wiring up to 2.5 mm^2 (14 AWG) and three connection points for test and communication purposes.
- Fieldbus versions
  Two terminals for signal wiring (bus connection) up to 2.5 mm^2 (14 AWG)

Grounding

Internal and external 6 mm^2 (10 AWG) ground termination points are provided.

Mounting position

Transmitter can be mounted in any position.
Electronics housing may be rotated to any position. A positive stop prevents over travel.

Mass (without options)

2.5 to 3 kg approx (5 to 6 lb) according to specified seal(s) options; add 1.5 kg (3.4 lb) for AISI housing.
Add 650 g (1.5 lb) for packing.

Packing

Carton

◊ Hastelloy is a Cabot Corporation trademark
◊ Viton is a Dupont de Nemour trademark

(*) Wetted parts of the transmitter.

CONFIGURATION

- ***Transmitter with HART communication and 4 to 20 mA***

Standard configuration

Transmitters are factory calibrated to customer's specified range. Calibrated range and tag number are stamped on the tag plate. If a calibration range and tag data are not specified, the transmitter will be supplied with the plate left blank and configured as follows:

- Engineering Unit: Specify code option
- 4 mA: Zero
- 20 mA: Upper Range Limit (URL)
- Output : Linear
- Damping: 1 sec.
- Transmitter failure mode: Upscale
- Software tag characters: Blank
- Optional LCD output indicator : 0 to 100.0% linear

Any or all the above configurable parameters, including Lower range-value and Upper range-value which must be the same unit of measure, can be easily changed using the HART hand-held communicator. The transmitter database is customized with specified flange type and material, O-ring and drain/vent materials and meter code option.

Custom configuration (option)

The following data may be specified in addition to the standard configuration parameters:

- Descriptor : 16 alphanumeric characters
- Message: 32 alphanumeric characters
- Date: Day, month, year
- Damping: Seconds

- ***Transmitter with Profibus PA communication***

Transmitters are factory calibrated to customer's specified range. Calibrated range and tag number are stamped on the tag plate. If a calibration range and tag data are not specified, the transmitter will be supplied with the plate left blank and configured as follows:

- Measure Profile: Pressure
- Engineering Unit: kPa
- Output scale 0%: Lower Range Limit (LRL)
- Output scale 100%: Upper Range Limit (URL)
- Output : Linear
- Hi-Hi Limit : Upper Range Limit (URL)
- Hi Limit : Upper Range Limit (URL)
- Low Limit : Lower Range Limit (LRL)
- Low-Low Limit : Lower Range Limit (LRL)
- Limits hysteresis: 0.5% of output scale
- PV filter: 0 sec.
- Address (settable by local key): 126
- Tag : 32 alphanumeric characters

Any or all the above configurable parameters, including Lower range-value and Upper range-value which must be the same unit of measure, can be easily changed by a PC running the configuration software Smart Vision with DTM for 600T or 600T template for Siemens Simatic PDM System. The transmitter database is customized with specified flange type and material, O-ring and drain/vent materials and meter code option.

Custom configuration (option)

The following data may be specified in addition to the standard configuration parameters:

- Descriptor : 32 alphanumeric characters
- Message: 32 alphanumeric characters
- Date: Day, month, year
- PV filter: Seconds

- ***Transmitter with FOUNDATION fieldbus communication***

Transmitters are factory calibrated to customer's specified range. Calibrated range and tag number are stamped on the tag plate. If a calibration range and tag data are not specified, the transmitter will be supplied with the plate left blank and configured as follows:

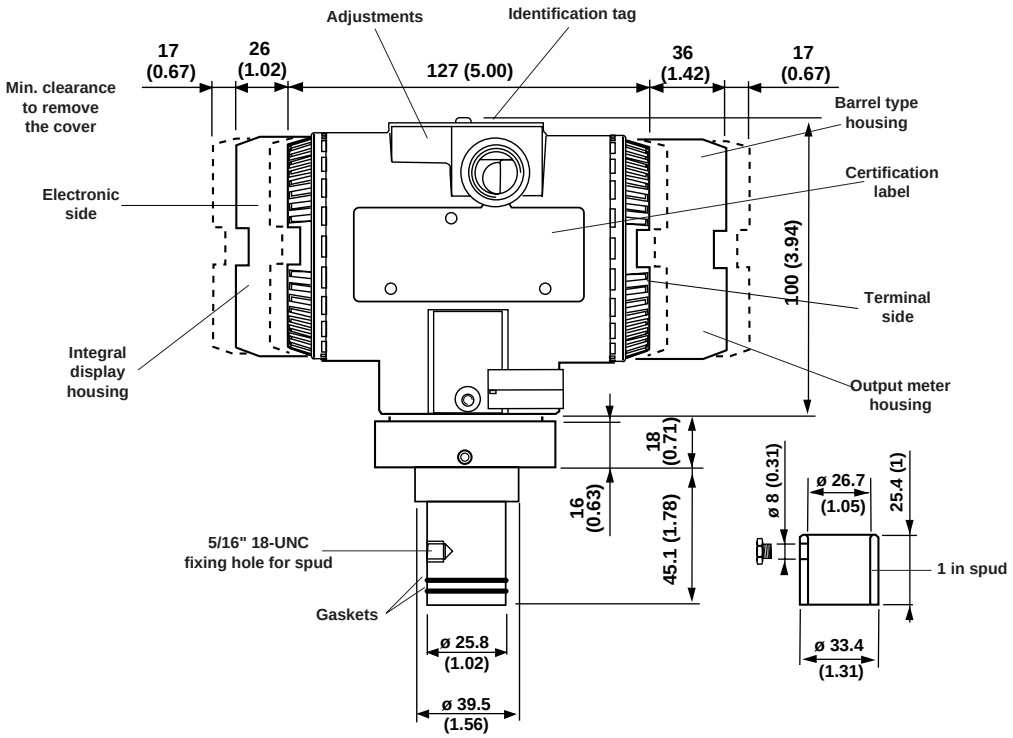
- Measure Profile: Pressure
- Engineering Unit: kPa
- Output scale 0%: Lower Range Limit (LRL)
- Output scale 100%: Upper Range Limit (URL)
- Output : Linear
- Hi-Hi Limit : Upper Range Limit (URL)
- Hi Limit : Upper Range Limit (URL)
- Low Limit : Lower Range Limit (LRL)
- Low-Low Limit : Lower Range Limit (LRL)
- Limits hysteresis: 0.5% of output scale
- PV filter time: 0 sec.
- Tag : 32 alphanumeric characters

Any or all the above configurable parameters, including the range values, can be changed using any host compliant to FOUNDATION fieldbus. The transmitter database is customized with specified flange type and material, O-ring and drain/vent materials and meter code option.

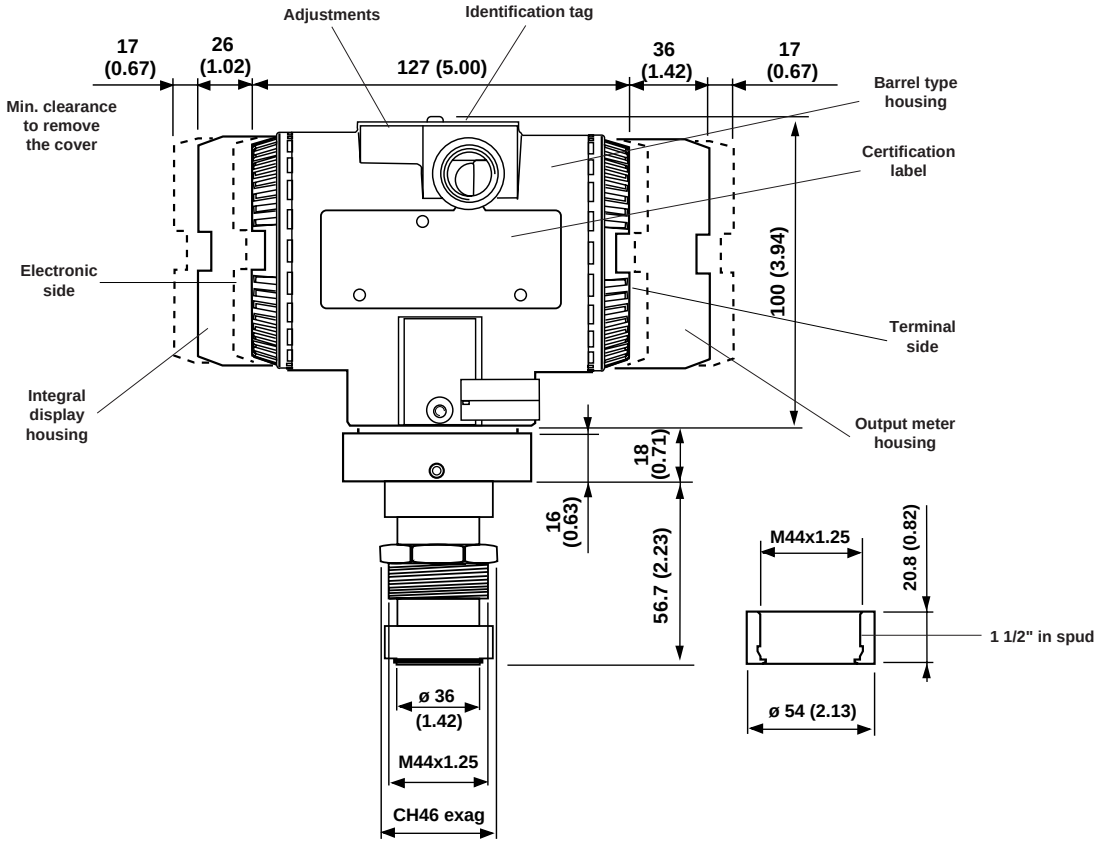
Available engineering units of pressure measure are :
Pa, kPa, MPa
inH2O@4°C, mmH2O@4°C, psi
inH2O@20°C, ftH2O@20°C, mmH2O@20°C
inHg, mmHg, Torr
g/cm^2, kg/cm^2, atm
mbar, bar

MOUNTING DIMENSIONS
(not for construction unless certified)

- **624ES with pulp and paper seal S6D - 1in size to spud with screw fixing**

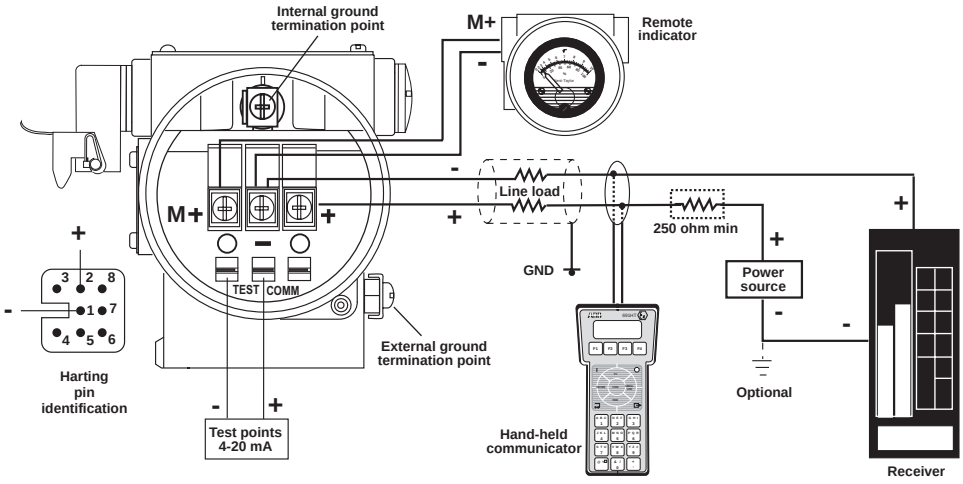


- **624ES with pulp and paper seal S6D - 1 1/2in size to screwed spud**



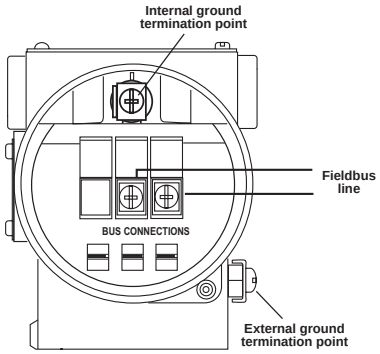
ELECTRICAL CONNECTIONS

- **HART Version**



HART hand-held communicator may be connected at any wiring termination point in the loop, providing the minimum resistance is 250 ohm. If this is less than 250 ohm, additional resistance should be added to allow communications.

- **FIELDBUS Versions**



ORDERING INFORMATION model S6D direct mount seal for pulp and paper application

Select one character or set of characters from each category and specify complete catalog number, in addition to the 624ES transmitter code

PRODUCT CODE

abc d ef g h i j kl m no

- **BASE NUMBER**
- **NUMBER OF REMOTE SEALS**
- **MOUNTING CONNECTION MATERIAL/TYPE**
- **OTHER WETTED MATERIAL**
- **DIAPHRAGM MATERIAL**
- **EXTENSION LENGTH**
- **CAPILLARY**
- **SYSTEM LENGTH**
- **PROCESS 'O' RING**
- **OPTIONS**

		Code
abc	**BASE NUMBER -** 1st to 3rd characters	
	Pulp and paper application seal	**S6D**
d	**NUMBER OF REMOTE SEALS -** 4th character	
	One for direct mount	**0**
ef	**MOUNTING CONNECTION MATERIAL/TYPE -** 5th and 6th characters	
	AISI 316 L ss 1 1/2 in ANSI / M44 x 1.25 threaded for fixing to spud	**5V**
	AISI 316 L ss 1 in ANSI / screw fixing to spud	**5U**
g	**OTHER WETTED MATERIAL -** 7th character	
	Same as diaphragm material	**0**
h	**DIAPHRAGM MATERIAL -** 8th character	
	AISI 316 L ss	**2**
	Hastelloy C276 ◊	**3**
i	**EXTENSION LENGTH -** 9th character	
	None	**0**
j	**CAPILLARY -** 10th character **Fill fluid**	
	Silicone oil (DC 200)	**A**
	DC 97 - 9120 PHARMA B-GRADE	**Q**
kl	**SYSTEM LENGTH m (feet) -** 11th and 12th characters	
	0 (direct mount)	**00**
m	**PROCESS 'O' RING -** 13th character	
	Viton for 1 in size - PTFE for 1 1/2 in size	**0**
no	**OPTIONS -** 14th and 15th characters	
	None	**00**
	Spud for 1 1/2 in version connection (available only for version 5V on "ef" position)	**N2**
	Spud/screw for 1 in version connection (available only for version 5U on "ef" position)	**N1**

◊ Hastelloy is a Cabot Corporation trademark
◊ Viton is a Dupont de Nemour trademark

ORDERING INFORMATION model 624ES Transmitter with direct mount seal S6D

Select one character or set of characters from each category and specify complete catalog number.
Refer to supplementary code and specify another number for each transmitter if additional options are required.

PRODUCT CODE

abcde fg h i j k l m n op

1 0

- **BASE MODEL**
- **SENSOR**
- **PROCESS CONNECTION**
- **REFERENCE CHAMBER**
- **OUTPUT**
- **ELECTRICAL CERTIFICATION**
- **TOP WORKS**
- **ELECTRICAL OPTIONS**

abcde **BASE MODEL -** 1st to 5th characters

	Code
Pressure transmitter with integral direct mount seal	**624ES**

SENSOR

f **Span limits -** 6th character

8 and 160 kPa	80 and 1600 mbar	32 and 642 inH_2O	**D**
30 and 600 kPa	0.3 and 6 bar	4.35 and 87 psi	**E**
120 and 2400 kPa	1.2 and 24 bar	17.4 and 348 psi	**F**

g 7th character

Diaphragm material	**Fill fluid**	
AISI 316 L ss	Silicone oil	**0**

h **PROCESS CONNECTION -** 8th character

All-welded direct mount seal, Pulp & Paper (to be coded separately as S6D)	**P**

i **REFERENCE CHAMBER (negative) -** 9th character

At atmospheric pressure for gauge measurement	**B**
At vacuum for absolute measurement	**W**

j 10th character

Use code	**1**

k 11th character

Use code	**0**

l 12th character

OUTPUT

HART digital communication and 4 to 20 mA	**G**
Profibus PA communication	**P**
FOUNDATION Fieldbus Communication	**F**

m **ELECTRICAL CERTIFICATION -** 13th character

General Purpose	**1**
ATEX Group II Category 1/2 GD - Flameproof EEx d CESI approval	**F**
ATEX Group II Category 1 GD - Intrinsic Safety EEx ia BASEEFA approval	**L**
ATEX Group II Category 3 GD - Type of protection "N" EEx nL design compliance	**N**
Factory Mutual (FM) and Canadian Standard Association (CSA) approvals (only with 1/2" NPT and M20 electrical connection)	**8**
Intrinsic Safety and Flameproof to Standards Australia SAA approval Ex ia IIC T6/T5/T4 + Ex d IIC T6/T5 (Note)	**W**

Note : not available with output code P and F at position "l"

■ Compliance to NACE class II bolting, according to specification MR0175, latest revision

ORDERING INFORMATION model 624ES Transmitter with direct mount seal S6D

TOP WORKS - 14th character

n	**Housing material**	**Electrical connection**		
	Aluminium alloy (Barrel version)	1/2" NPT		1
		M20 x 1.5 (CM 20)		2
		Pg 13.5		3
		1/2" GK		4
		Harting HAN connector - straight entry	(Note 1, 2)	5
		Harting HAN connector - angle entry	(Note 1, 2)	6
	AISI 316 L ss (Barrel version)	1/2" NPT		A
		M20 x 1.5 (CM 20)		C
		Pg 13.5		D
		1/2" GK		F

Note 1 : requires certification code 1 at position "m"
Note 2 : not available with output code P and F at position "l"

ELECTRICAL OPTIONS - 15th character

o	**Internal meter type**		
	None		1
	Digital LCD output indicator linear 0-100%, user scalable	(Note)	3
	Digital LCD output indicator linear scale (specify range and engineering units)	(Note)	5
	Analog output indicator linear 0-100% scale	(Note)	7
	Analog output indicator, special graduation (to be specified for linear scale)	(Note)	9
	Digital LCD integral display		A
	Digital LCD integral display and digital LCD output indicator linear 4-20 mA	(Note)	C
	Digital LCD integral display and analog output indicator linear 0-100% scale	(Note)	E
	Programmable signal meter and HART configurator (CoMeter)	(Note)	P
	Programmable signal meter and HART configurator (CoMeter) and digital LCD integral display	(Note)	R

Note : not available with output code P and F at position "l"

16th character

p	**Electrical options**	**Labels language**	
	Standard terminal block	English	1
		German	2
		Italian	7
	Surge protector (Note)	English	3
		German	4
		Italian	8
	Terminal block for external meter (Note)	English	5
		German	6
		Italian	9

Note : not available with output code P and F at position "l"

ORDERING INFORMATION

Select one character or set of characters from each category and specify complete catalog number in addition to each transmitter code, if required.

PRODUCT CODE

ab c d e f

BASE MODEL
CONFIGURATION
CALIBRATION
PROCEDURE
INTEGRAL MOUNTING OF ASSOCIATED INSTRUMENTATION

ab **BASE MODEL** - 1st to 2nd characters

	Code
Supplementary code	**SC**

c **CONFIGURATION -** 3rd character

Standard - Pressure = kPa; Temperature = deg. C	**1**
Standard - Pressure = inH2O/psi (@ 20°C); Temperature = deg. F	**2**
Standard - Pressure = inH2O/psi (@ 4°C); Temperature = deg. F	**3**
Standard - Pressure = inH2O/psi (@ 20°C); Temperature = deg. C	**4**
Standard - Pressure = inH2O/psi (@ 4°C); Temperature =- deg. C	**5**
Custom	**C**

d **CALIBRATION -** 4th character

Calibration range	**Calibration**	**Certificate**	
Standard (max span = 0 to URL)	Reference temperature	None	**1**
		Yes (3 copies)	**2**
	Operating temperature	None	**3**
		Yes (3 copies)	**4**
At specified range	Reference temperature	None	**5**
		Yes (3 copies)	**6**
	Operating temperature	None	**7**
		Yes (3 copies)	**8**

e 5th character

PROCEDURE	**Material traceability**	
None	None	**0**
	To EN10204 - 3.1.B (certificates for flanges, adapters, diaphragms)	**A**
	To EN10204 - 2.1 (declaration for instrument)	**B**

f **INTEGRAL MOUNTING OF ASSOCIATED INSTRUMENTATION -** 6th character

None	**0**

SS/624ES-PP Rev. 2

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