Data Sheet
SS/LDPA_1

Light Duty Pocket Assemblies (Fabricated)

Resistance Thermometer and Thermocouples
with Welded Protection Tube and Measuring Insert

Essential modules

– insertion lengths can be selected individually
– measuring inserts can be replaced during operation

Technical features

– approvals according to ATEX for Ex i installation with protection tube in Zone 0
– protection tube material and designs adapted to operating conditions
– installation of a transmitter in the connection head obviates the need for multi-wire circuit
– interference-immune standard output signal (4 to 20mA)

Applications

– chemical process engineering
– petroleum/natural gas supply and processing
– power generation and heat distribution
– food and beverage industries
– general machinery and apparatus engineering



Light duty assemblies for general purpose applications

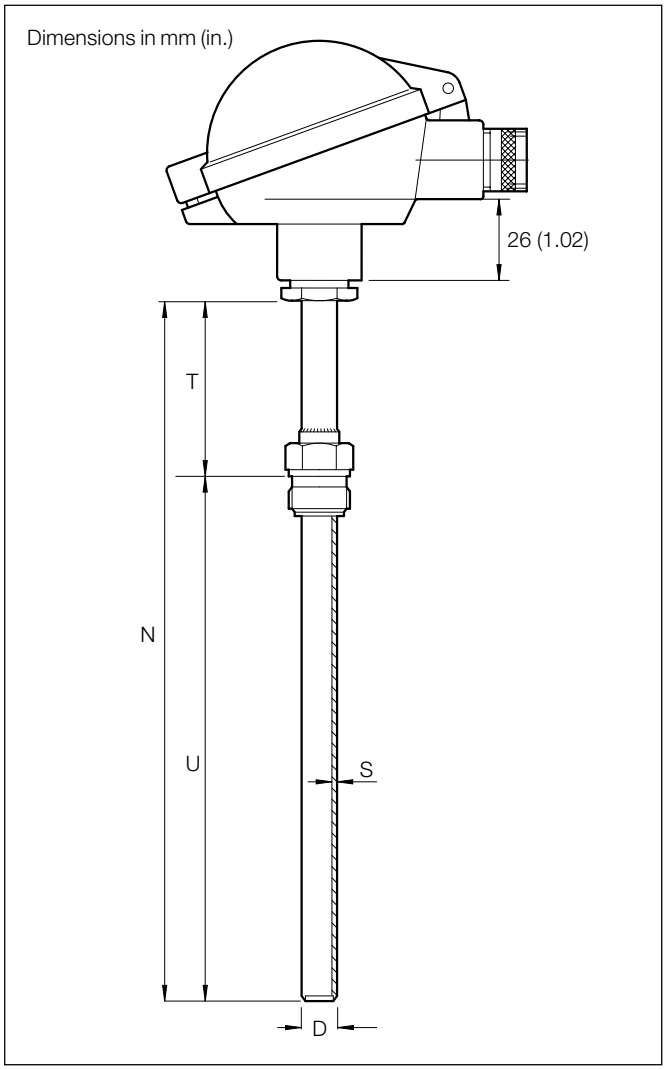
Sensor Design

This design eases the operational checks, since the measuring module:

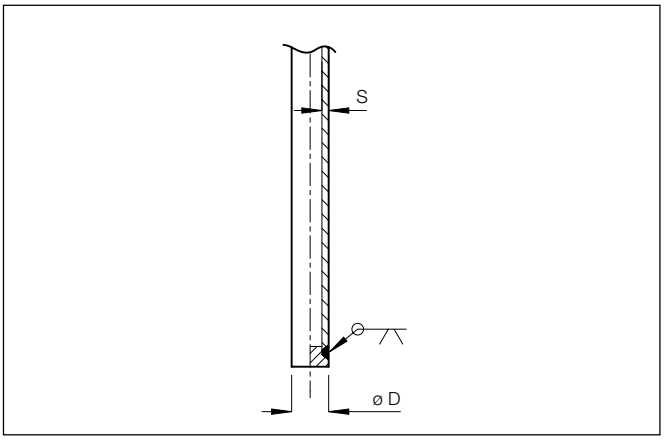
- can be removed while the system is running without dismantling the entire sensor
- can be calibrated in standard test facilities

In most cases, replacement by a new measuring insert is more reliable and less expensive than recalibration.

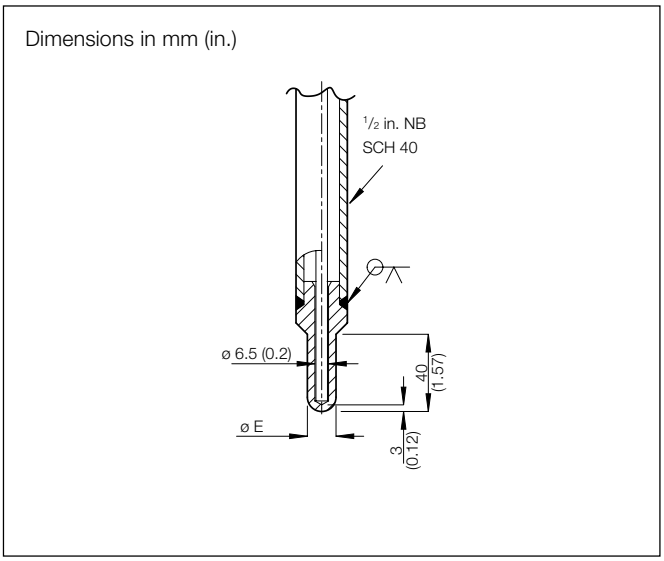
Example



Protection Tubes



Tube 11mm O/D x 7mm I/D



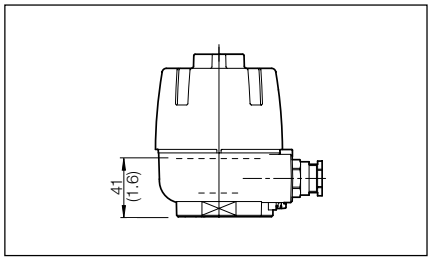
Type C

Annotations

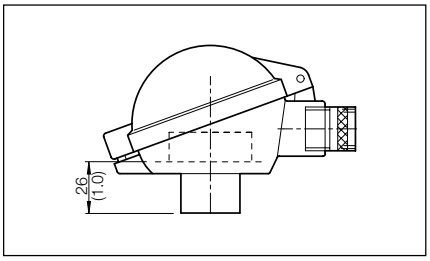
N = Nominal lengths
T = Extension tube length
U = Insertion length
D = Protection tube diameter
E = Diameter of the protection tube tip
S = Wall thickness

Connection heads

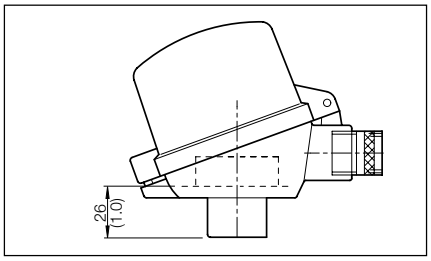
Dimensions in mm (in.)



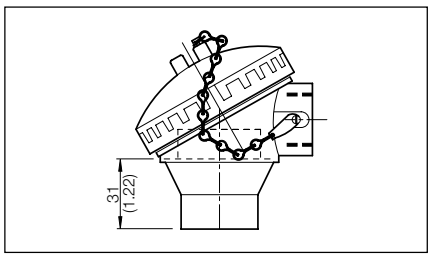
AGL *Aluminium, Epoxy Coating, 70µm*
AGS *Stainless Steel*



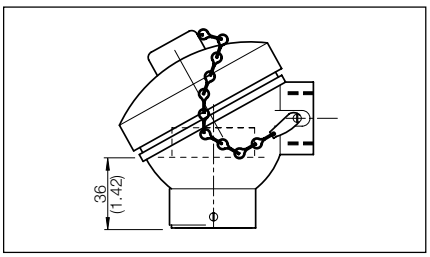
BUZ *Aluminium Alloy*



BUZH *Aluminium Alloy*



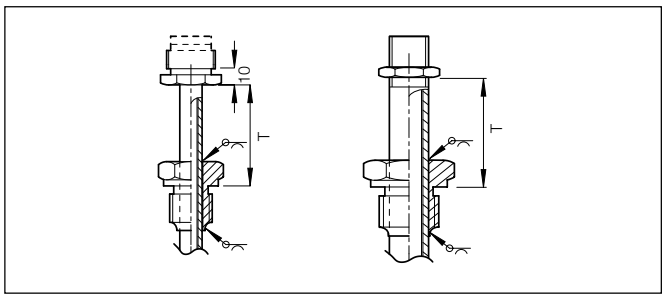
KNE *Aluminium Alloy*
HYP *Polypropylene*



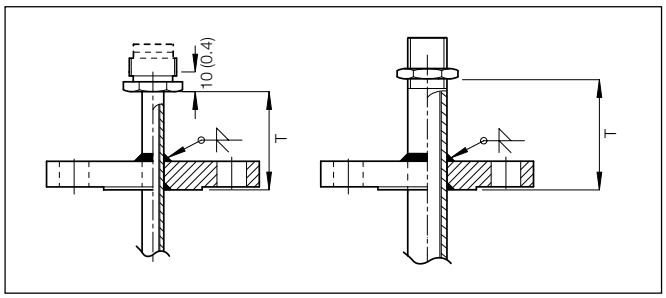
KI *Cast Iron*

Process Connections

Dimensions in mm (in.)

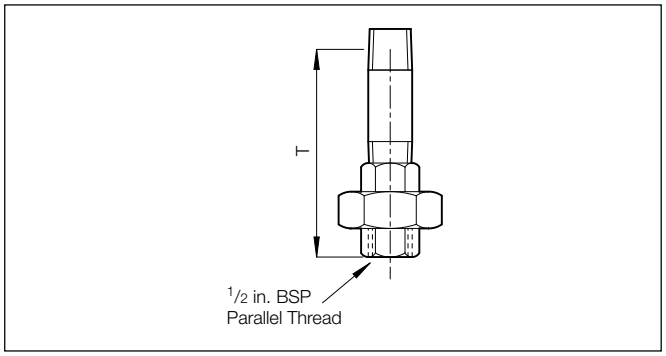


Welded Mounting Thread

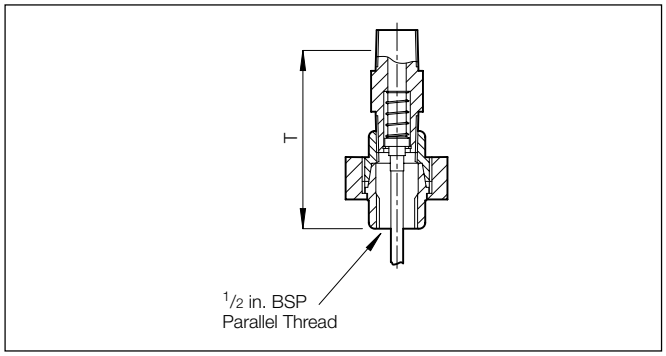


Welded Mounting

Extension – Stainless Steel



E1S Nipple & Union – 2 x 1/2 in. NPT



E1S Nipple/Union Spring – 2 x 1/2 in. NPT

Head-mounted Temperature Transmitters

These are the more common ranges of transmitter, other ranges are available details of which can be obtained on application.

	Analog Fixed Range	Digital Programmable	Digital HART™	Digital Fieldbus PROFIBUS PA	Digital Fieldbus FOUNDATION Fieldbus
					
	TR04-Eco/TRO4	TS02/TS02-Ex	TH02/TH02-Ex	TF12/TF12-Ex	TF02/TF02-Ex

Input (Sensor Type)

RTD type (2-, 3- and 4-wire)/ minimum span	Pt100/40K	Pt100 to 1000/20K Ni100, Ni500/20K	Pt50 to Pt100 to Pt1000/20k Ni100/20k	Pt50 to Pt100 to Pt1000 Ni50 to Ni100 to Ni1000	Pt10 to Pt100 to Pt1000 Ni50 to Ni100 to Ni1000 Cu10, Cu100
THC type (internal CJC)	—	B, E, J, K, L, N, R, S, T, U		B, E, J, K, R, S, T, N, C, D, L, U	B, C, D, E, J, ,K L, N, R, S, T ,U
Voltage	—	–125 to 1200mV		–15 to 115mV	–100 to 1200mV
Resistance	—	0 to 5000Ω		0 to 400Ω or 0 to 4000Ω	0 to 500Ω or 0 to 4000Ω
Electrical Isolation (Input/Output)	—	Yes		Yes	Yes
Supply Voltage	10.5 to 30V DC Ex 10.5 to 29.4V DC	11.5 to 30V DC Ex 11.5 to 29.4V DC	8.5 to 30V DC Ex 8.5 to 29.4V DC	9 to 32V Ex 9 to 17.5V	9 to 32V Ex 9 to 24V
Output	4 to 20mA	4 to 20mA + digital signal	4 to 20mA + HART signal	Up to 3 digital values + status	Up to 2 digital values + status

Explosion Protection

Ex-N	**PTB: ATEX** II 3G EEX N A IIC T6			—	**DMT:ATEX** (in preparation) II 3G EEx n A II T6
Non-incendive	—	—	**FM**, **CSA** Class I Div. 2 Groups A, B, C, D	—	**FM, CSA** (applied) Class I: Div. 2 Group A, B, C, D
Intrinsically Safe	**PTB**: **ATEX** II 2(1) G EEx ia IIC T6	**PTB**: **ATEX** II 2(1) G EEx [ia] ib IIC T6	**PTB**: **ATEX** II 291)G EEx [ia] ib IIC T6	**Zelm**: **ATEX** II 2 G EEx ia IIC T6	**DMT: ATEX** II 1 G EEx ia IIC T6
	FM, **CSA**: Class 1, Div. 1, Groups A, B, C, D; T6; IS and Zone 1 or 0	—	—	—	**FM, CSA** (applied for)
Special Features	—	Diagnostics, arithmetic functions (mean, difference) Custom linearization 64 capabilities	Custom linearization 32 capabilities	Dual channel, diagnostics, redundancy, arithmetic functions, custom linearization	One or dual channel parametry, diagnostics, custom linearization
Indicator/ Local Configurator	Yes [1]/–	Yes [1]/–	Yes [1]/Yes [1]	No /Yes	Planned
Configuration – Software Tools	— —	SMART VISION Parasoft	SMART VISION AMS, DTM for FDT 0.98-1	DTM for HDT 0.98-1 and SMART VISION SIEMENS Simatic PDM-driver	Configuration with DD and CFF file
Configuration – Handheld	—	STT04	691HT, STT04. HHT275	—	—

1) Displays and meters are available in conjunction with complete sensor assemblies only.

Ordering Information

Light Duty Pocket Assemblies (Fabricated)		Model No. V10683/	Main Code X	XX	XX	XXX	X	Additional Code Pt. 1 X X X X X X	Pt. 2 X X XX
Material									
No thermowell			1						
304 stainless steel			H						
316 stainless steel (standard)			L						
321 stainless steel			M						
Hastelloy C276*			P						
Hastelloy B2*			B						
Monel alloy 600*			U						
Inconel alloy 400*			A						
Incoloy alloy 800*			C						
Other materials			X						
Process Connection 'P'	**Size**	**Rating (lb)**	**Facing**						
Flange fillet and seal weld	1 in.	150	RF	F1					
Flange fillet and seal weld	1 in.	300	RF	F2					
Flange fillet and seal weld	1 1/2 in.	150	RF	F3					
Flange fillet and seal weld	1 1/2 in.	300	RF	F4					
Flange fillet and seal weld	1 1/2 in.	600	RF	F5					
Flange fillet and seal weld	2 in.	150	RF	F7					
Flange fillet and seal weld	2 in.	300	RF	F8					
Flange fillet and seal weld	2 in.	600	RF	F9					
Screwed bush	1/2 in. BSP (not Type C)			S1					
Screwed bush	1/2 in. NPT (not type C)			S2					
Screwed bush	3/4 in. BSP			S3					
Screwed bush	3/4 in. NPT			S4					
Screwed bush	1 in. BSP			S5					
Screwed bush	1 in. NPT			S6					
No thermowell				11					
Stem Design	**Head Connection**								
11mm OD x 7mm ID (stainless steel only)	M24 x 1.5 gland nut & ring				C2				
Type 'C' 1/2 in. NB with Quick Response Tip	1/2 in. BSP male thread				K3				
No thermowell					11				
Special design					XX				
Immersion Length (mm) 'U' to be stated in 10mm increments									
Length 100 (example 100 = 100mm) ↓						100 ↓			
Length 990 (example 990 = 990mm)						990			
Lagging Length T (mm)									
0							0		
10							1		
20							2		
30 (minimum when gland nut and ring fitted)							3		
40							4		
50 (standard for Flanged thermowells)							5		
60							6		
70							7		
80							8		
90							9		

***Notes.** Wetted parts only – stainless steel backing flange.

...Ordering Information

Light Duty Pocket Assemblies (Fabricated)	Model No. V10683/XXXXXXXXX	Main Code	Additional Code Pt. 1						Pt. 2		
			X	X	X	X	X	X	X	X	XX
Extension Type	**Threads Head**	**Thermowell**									
ES – 1 nipple & 1 union (Type C only)	1/2 in. NPT	1/2 in. BSP	D								
ES – 1 spring version with union (Type C only)	1/2 in. NPT	1/2 in. BSP	H								
No extension			0								
Sensor	**Sheath Material**										
1 x Pt100, 2-wire	321 stainless steel			1							
1 x Pt100, 3-wire	321 stainless steel			2							
1 x Pt100, 4-wire	321 stainless steel			3							
2 x Pt100, 2-wire	321 stainless steel			4							
2 x Pt100, 3-wire	321 stainless steel			5							
1 x Type K (insulated hot junction)	310 stainless steel			A							
2 x Type K (insulated hot junction)	310 stainless steel			B							
1 x Type K (insulated hot junction)	Inconel			C							
2 x Type K (insulated hot junction)	Inconel			D							
1 x Type J (insulated hot junction)	321 stainless steel			E							
2 x Type J (insulated hot junction)	321 stainless steel			F							
1 x Type T (insulated hot junction)	321 stainless steel			G							
1 x Type T (insulated hot junction)	321 stainless steel			H							
Accuracy	**Pt 100Ω IEC 60.751**				B						
Class 'B'	Standard				A						
Class 'A'	Specify range				C						
1/3 DIN	Specify range				D						
1/10 DIN	Specify range										
Accuracy	**Thermocouple**										
Class 1	(Specify range)				1						
Class 2	Standard				2						
Connection Head	**Material**	**Cable Entry**	**I/P Rating**								
BUZ	Aluminium	M20 single	IP65			A					
BUZ'H'	Aluminium	M20 single	IP65			B					
KNE	Aluminium	Single	IP65			C					
HYP	Polypropylene	Single	IP65			E					
KI	Cast Iron	Single	IP65			D					
AGL	Aluminium	Single	IP65			G					
AGS	Stainless steel	Single	IP65			L					
Special						X					
Cable Entry Thread											
M20 x 1.5	Standard						0				
2 x M20 x 1.5 (only on AG versions)							1				
1/2 in. NPT							2				
2 x 1/2 in. NPT (only on AG versions)							3				
Certification											
EEx 'd'								D			
EEx 'N'								N			
EEx 'ia'								A			
Safe								S			

Light Duty Pocket Assemblies (Fabricated)		Model No.	Main Code + Additional Code Pt. 1 V10683/XXXXXXXXX XXXXXX	Pt. 2 X	X	XX
Head-mounted Transmitter						
Without (terminal block fitted)				0		
			Measurement Range			
			Zero / **Span** / **C/F**			
TR-04-Eco	Fixed range Pt 100Ω only		N/A / N/A / N/A	1		
TR-04-Ex	Fixed range Pt 100Ω only		N/A / N/A / N/A	A		
TS-02	Programmable		? / ? / ?	6		
TS-02-Ex	Programmable		? / ? / ?	F		
TH-02	Programmable Hart Protocol		? / ? / ?	9		
TH-02-Ex	Programmable Hart Protocol		? / ? / ?	J		
TF-12	Profibus PA (no indication)		? / ? / ?	K		
TF-12-Ex	Profibus PA (no indication)		? / ? / ?	L		
TF-02	Foundation Fieldbus (no indication)		? / ? / ?	M		
TF-02-Ex	Foundation Fieldbus (no indication)		? / ? / ?	N		
Others	Specify		? / ? / ?	X		
Fixed Transmitter Ranges TR 04						
Fixed range –30 to 60°C	Standard				A	
Fixed range –20 to 40°C	Standard				B	
Fixed range 0 to 40°C	Standard				C	
Fixed range 0 to 60°C	Standard				D	
Fixed range 0 to 100°C	Standard				E	
Fixed range 0 to 120°C	Standard				F	
Fixed range 0 to 150°C	Standard				G	
Fixed range 0 to 200°C	Standard				H	
Fixed range 0 to 250°C	Standard				J	
Fixed range 0 to 300°C	Standard				K	
Fixed range 0 to 400°C	Standard				L	
Fixed range 0 to 600°C	Standard				M	
Non-standard range (fixed)					X	
Programmed Range						
Default factory settings (Pt 100Ω, 0 to 100°C, 4-wire)					O	
Defined range … to …					P	
Options						
Bonded hot junction (single only)						33
Tag number on stainless steel tag						SL
Internal pressure test of thermowell						IP
Extenal pressure test of thermowell						EP
Chain for lid of connection head (AGL & AGS only)						CL
Heat treatment (NACE NR 10-90)						NA
Dye penetrant test						DP
Clean for oxygen service						OC
Clean for chlorine service						CC
Frequency calculation						VC
Transmitter calibration @ 2 points						TC
Polish finish on stem						4F
Positive metal identification						PM
Other (please specify)						XX
Operating and maintenance instructions						OM

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Printed in UK (04.04)

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