INDUSTRIAL PRESSURE TRANSMITTER

Swiss based Trafag is a leading international supplier of high quality sensors and monitoring instruments for measurement of pressure and temperature. The industrial pressure transmitter NAT 8252 features the extremely robust and stable thin-film-on-steel sensor element from its well-proven predecessor NAT 8251. In combination with the new inhouse developed ASIC TX it offers a wide temperature range up to 125°C and triple overpressure safety which makes it the perfect solution for a wide range of demanding applications.

Applications

- Machine tools
- Hydraulics
- HVAC
- Refrigeration
- Process technology
- Water treatment

Features

- Smallest design
- Completely welded steel sensor system without additional seals
- Excellent long-term stability
- High resistance to over pressure

Technical Data			
Measuring principle	Thin film on steel	Accuracy @ 25°C typ.	± 0.5 % FS typ.
Measuring range	0 ... 2.5 to 0 ... 600 bar	Media temperature	–40 ... +125°C
Output signal	4 ... 20 mA 0 ... 5 VDC 1 ... 6 VDC 0 ... 10 VDC 0.5 ... 4.5 VDC ratiometric	Ambient temperature	–40 ... +125°C (Cable PVC 22: -5 ... +60°C) (Cable PUR 24: -40 ... +70°C)

04/2015
Data sheet H72303h
Subject to change

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Ordering information/type code

8252 . XX XX XX XX XX XX

Measuring range [1]

Pressure measurement range [bar]	Over pressure [bar]	Burst pressure [bar]		Pressure measurement range [psi]	Over pressure [psi]	Burst pressure [psi]	
0 ... 2.5	7.5	50	**75**	0 ... 30	90	700	**G5**
0 ... 4	12	60	**76**	0 ... 50	150	850	**G6**
0 ... 6	18	100	**77**	0 ... 100	300	1450	**G7**
0 ... 10	30	200	**78**	0 ... 150	450	2500	**G8**
0 ... 16	48	200	**79**	0 ... 250	750	2500	**G9**
0 ... 25	75	300	**80**	0 ... 400	1200	4000	**H0**
0 ... 40	120	300	**81**	0 ... 500	1500	4000	**H1**
0 ... 60	180	400	**82**	0 ... 1000	3000	5000	**H2**
0 ... 100	300	500	**83**	0 ... 1500	4500	7000	**H3**
0 ... 160	480	750	**85**	0 ... 2000	6000	10000	**H5**
0 ... 250	750	1000	**74**	0 ... 3000	9000	14500	**G4**
0 ... 400	1000	2000	**84**	0 ... 5000	12500	21750	**H4**
0 ... 600	1500	2500	**86**	0 ... 7500	18750	29000	**H6**
Option 5P:	**Fivefold overpressure**						
0 ... 2.5	12.5	60	**55**				
0 ... 4	20	100	**56**				
0 ... 6	30	200	**57**				
0 ... 10	50	200	**58**				
0 ... 16	80	300	**59**				
0 ... 25	125	300	**60**				
0 ... 40	200	400	**61**				
0 ... 60	300	500	**62**				
0 ... 100	500	750	**63**				
0 ... 160	800	1000	**65**				

Sensor

Relative pressure	**25**

Pressure connection

G1/4" male, seal: DIN 3869 (accessories 61/63/83)	**17**
1/4"NPT male	**30**
7/16"-20UNF female DIN 3866 (Valve opener) [4]	**24**
R1/4" male ISO 7-1 (DIN 2999) [5]	**19**
R1/8" male ISO 7-1 (DIN 2999) [5]	**16**
M10x1 male	**32**

Electrical connection

Male electrical plug, industrial standard, contact distance 9.4 mm, Mat. PA	**01**
Male electrical plug M12x1, 4-pole, Mat. PA	**32**
Male electrical plug M12x1, 5-pole, Mat. PA	**35**
Cable IP67, Mat.: PVC [7]	**22**
Cable IP67, Mat.: PUR [7]	**24**
Cable IP67, Mat.: EPD Raychem FDR25 [7]	**08**

Output

Output	Load resistance	I (supply)	U (supply)	
4 ... 20mA	See graphic		24 (9 ... 32) VDC	**19**
0 ... 5 VDC	≥ 5.0 kΩ to Us-	≤ 20 mA	24 (9 ... 32) VDC	**14**
1 ... 6 VDC	≥ 5.0 kΩ to Us-	≤ 20 mA	24 (9 ... 32) VDC	**16**
0 ... 10 VDC	≥ 5.0 kΩ to Us-	≤ 15 mA	24 (15 ... 32) VDC	**17**
0.5 ... 4.5 VDC ratiometric	≥ 5.0 kΩ to Us-	≤ 10 mA	5 (4.75 ... 5.25)	**23**

		8252 . XX XX XX XX XX XX
Accessories	Female electrical plug M12x1, 5-pole [2]	33
	Female electrical connector industrial standard [3]	34
	Pressure peak damping element ø 1.0 mm [6]	40
	Pressure peak damping element ø 0.4 mm [6]	44
	Seal FPM, -18...+125°C [8]	61
	Seal EPDM, -40...+125°C [8]	63
	Seal NBR, -25...+100°C [8]	83
	Special pin configuration: Pin 2: +, Pin 3: Ground, Pin 4: - (Only for output signal 19 and male electrical plug 01, industrial standard)	90
	Special pin configuration: Pin 1: Out, Pin 2: +, Pin 3: Ground, Pin 4: - (Only for output signals 14, 16, 17, 23 and male electrical plug 01, industrial standard)	91
	Special pin configuration: Pin 1: +, Pin 2: Ground, Pin 3: -, Pin 4: Out (Only for output signals 14, 16, 17, 23 and male electrical plug 32, M12x1, 4-pole)	96
	Special pin configuration: Pin 1: +, Pin 2: -, Pin 4: Ground (Only for output signal 19 and male electrical plug 32, M12x1, 4-pole)	E1
	Special pin configuration: Pin 1: +, Pin 2: -, Pin 3: Out, Pin 4: Ground (Only for output signals 14, 16, 17, 23 and male electrical plug 32, M12x1, 4-pole)	E2
	Cable length 0.5 m	EM
	Cable length 1.0 m	1M
	Cable length 2.0 m	2M

[1] Customized pressure ranges upon request
[2] For electrical connections 32 and 35
[3] For electrical connection 01
[4] Max. allowable overpressure 120 bar
[5] Max. allowable overpressure 500 bar
[6] Only for pressure connections 17, 30, 32
[7] Cable length see accessories
[8] Only with pressure connection 17 (G1/4" m)

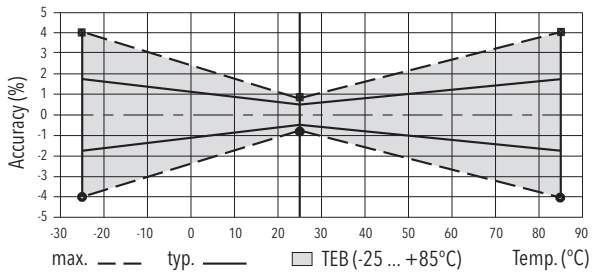
Standard products (extra short lead time)

Product No.	Type Code	Pressure range [bar]	Over pressure max. [bar]	Supply [VDC]	Accuracy @ 25°C typ. [%]
NAT2.5A	8252 75 2517 01 0000 0000 19 34 44 61	0 ... 2.5	7.5	9 ... 32	±0.5
NAT4.0A	8252 76 2517 01 0000 0000 19 34 44 61	0 ... 4	12	9 ... 32	±0.5
NAT6.0A	8252 77 2517 01 0000 0000 19 34 44 61	0 ... 6	18	9 ... 32	±0.5
NAT10.0A	8252 78 2517 01 0000 0000 19 34 44 61	0 ... 10	30	9 ... 32	±0.5
NAT16.0A	8252 79 2517 01 0000 0000 19 34 44 61	0 ... 16	48	9 ... 32	±0.5
NAT25.0A	8252 80 2517 01 0000 0000 19 34 44 61	0 ... 25	75	9 ... 32	±0.5
NAT40.0A	8252 81 2517 01 0000 0000 19 34 44 61	0 ... 40	120	9 ... 32	±0.5
NAT100.0A	8252 83 2517 01 0000 0000 19 34 44 61	0 ... 100	300	9 ... 32	±0.5
NAT250.0A	8252 74 2517 01 0000 0000 19 34 44 61	0 ... 250	750	9 ... 32	±0.5
NAT400.0A	8252 84 2517 01 0000 0000 19 34 44 61	0 ... 400	1000	9 ... 32	±0.5
NAT600.0A	8252 86 2517 01 0000 0000 19 34 44 61	0 ... 600	1500	9 ... 32	±0.5
NAT2.5V	8252 75 2517 01 0000 0000 17 34 44 61	0 ... 2.5	7.5	15 ... 32	±0.5
NAT4.0V	8252 76 2517 01 0000 0000 17 34 44 61	0 ... 4	12	15 ... 32	±0.5
NAT6.0V	8252 77 2517 01 0000 0000 17 34 44 61	0 ... 6	18	15 ... 32	±0.5
NAT10.0V	8252 78 2517 01 0000 0000 17 34 44 61	0 ... 10	30	15 ... 32	±0.5
NAT16.0V	8252 79 2517 01 0000 0000 17 34 44 61	0 ... 16	48	15 ... 32	±0.5
NAT25.0V	8252 80 2517 01 0000 0000 17 34 44 61	0 ... 25	75	15 ... 32	±0.5
NAT40.0V	8252 81 2517 01 0000 0000 17 34 44 61	0 ... 40	120	15 ... 32	±0.5
NAT100.0V	8252 83 2517 01 0000 0000 17 34 44 61	0 ... 100	300	15 ... 32	±0.5
NAT250.0V	8252 74 2517 01 0000 0000 17 34 44 61	0 ... 250	750	15 ... 32	±0.5
NAT400.0V	8252 84 2517 01 0000 0000 17 34 44 61	0 ... 400	1000	15 ... 32	±0.5
NAT600.0V	8252 86 2517 01 0000 0000 17 34 44 61	0 ... 600	1500	15 ... 32	±0.5

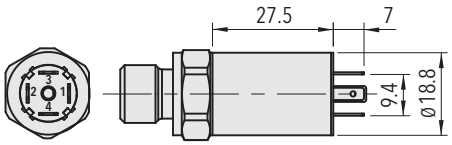
Specifications		
Accuracy	TEB typ. @ -25 ... +85°C	± 1.75 % FS typ.
	Accuracy @ 25°C typ.	± 0.5 % FS typ.
	NLH @ 25°C (BSL) typ.	± 0.2 % FS typ.
	TC zero point and span typ.	± 0.03 % .FS/K typ.
	Long term stability 1 year typ.	< ± 0.2 % FS typ.
Electrical Data	Output / supply voltage	4 ... 20 mA: 24 (9...32) VDC 0 ... 5 VDC: 24 (9...32) VDC 1 ... 6 VDC: 24 (9...32) VDC 0 ... 10 VDC: 24 (15...32) VDC 0.5 ... 4.5 VDC ratiom., 10 ... 90% U_{supply}: 5 ± 0.25 VDC
	Rise time	typ. 1 ms/10...90 % nominal pressure
	Switch-on-delay	100 ms
Environmental conditions	Media temperature	–40 ... +125°C
	Ambient temperature	–40 ... +125°C (Cable PVC 22: -5 ... +60°C) (Cable PUR 24: -40 ... +70°C)
	Protection [1)]	Min. IP65
	Humidity	Max. 95 % relative
	Vibration	15 g RMS (20...2000 Hz) 25 g sin (80...2000 Hz), 1 Okt./min, (1x @ 25°C)
	Shock	50 g / 11 ms
EMC Protection	Emission	EN/IEC 61000-6-3
	Immunity	EN/IEC 61000-6-2
Mechanical Data	Sensor	1.4542 (AISI630)
	Housing / Pressure connection	1.4301 (AISI304)
	Sealing	FPM/EPDM/NBR
	Male electrical plug	see ordering information
	Weight	appr. 50 g
	Mounting torque	25 Nm

[1)] Provided female connector is mounted according to instructions

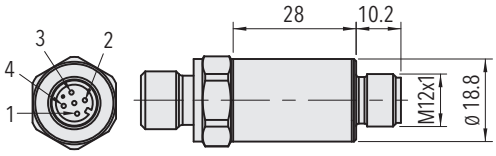
Measuring accuracy



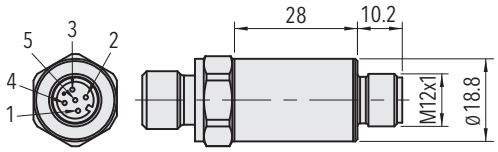
Dimensions



8252.XX.XXXX.**01**.XX.XX



8252.XX.XXXX.**32**.XX.XX



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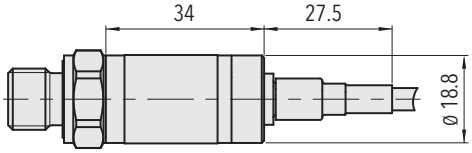
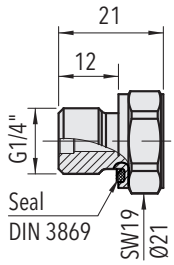
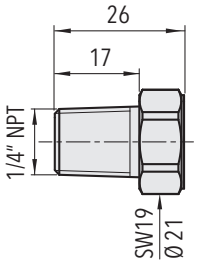


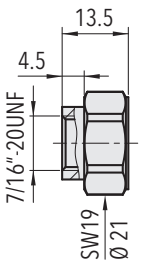
8252.XX.XXXX.**22/24/08**.XX.XX



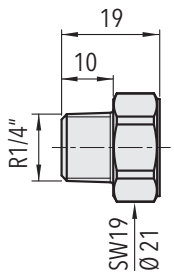
8252.XX.XX**17**.XX.XX.XX



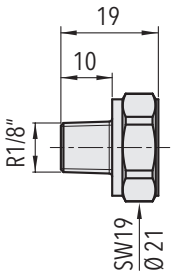
8252.XX.XX**30**.XX.XX.XX



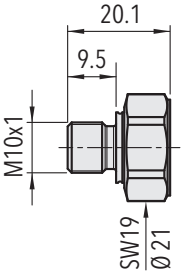
8252.XX.XX**24**.XX.XX.XX



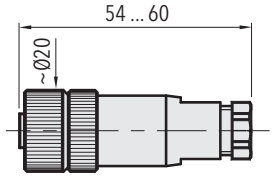
8252.XX.XX**19**.XX.XX.XX



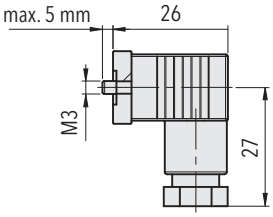
8252.XX.XX**16**.XX.XX.XX



8252.XX.XX**32**.XX.XX.XX

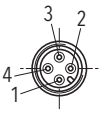
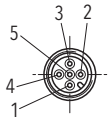
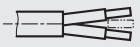
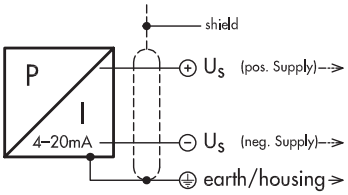
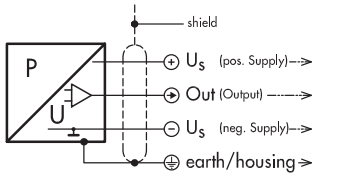


8252.XX.XXXX.XX.XX.**33**



8252.XX.XXXX.XX.XX.**34**

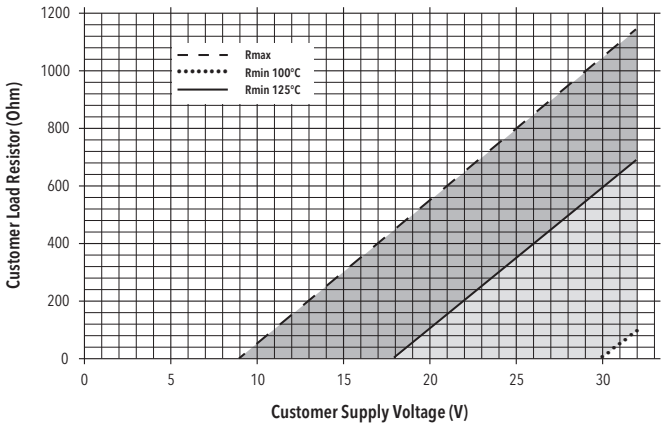
Electrical Connection

		Protection / electrical connection						
		IP65 *)**)	IP67 *)**)				IP67**)	IP67**)
		Industrial standard Contact distance 9.4 mm	M12x1				Cable	Cable
			4-pole			5-pole		
		01	**32**			**35**	**22/24**	**08**
								
Output signal	 **8252**.xx.xxxx.xx.**19**		**90**			**E1**		
		2	2	1		1	4	white	red
		1	4	3		2	1	brown	black
		4	3	4		4	5	yellow	green
	 **8252**.xx.xxxx.xx.**14/16/17/23**		**91**		**96**	**E2**		
		1	2	1	1	1	2	white	red
		2	1	2	4	3	4	green	white
		3	4	3	3	2	3	brown	black
		4	3	4	2	4	5	yellow	green

*) Provided female connector is mounted according to instructions

**) Ventilation via male electric plug/cable end

4...20mA: min./max resistor vs. supply voltage @ Pmax = 100%



Additional information

Documents	Data sheet	www.trafag.com/H72303
	Instructions	www.trafag.com/H73303
	Flyer	www.trafag.com/H70666

Additional specifications		
Accuracy	TEB max. @ -25 ... +85°C	± 4.0 % FS max.
	Accuracy @ 25°C max.	± 0.75 % FS max.
	NLH @ 25°C (BSL) max.	± 0.35 % FS max.
	NLH @ 25°C (BSL through 0) typ.	± 0.3 % FS typ.
	NLH @ 25°C (BSL through 0) max.	± 0.5 % FS max.
	Repeatability	± 0.05 % FS typ.
	TC zero point and span max.	± 0.05 % FS/K max.
	Long term stability 1000h @ 85°C	± 0.1 % FS typ.
	Temperature hysteresis	± 0.2 % FS typ. ± 0.35 % FS max.
	Deviation of zero signal and final value typ.	± 0.5 % FS typ.
	Deviation of zero signal and final value max.	± 0.75 % FS max.
Electrical Data	Resistance of insulation	>10 MΩ, 50 VDC
	Dielectric strength	50 VAC, 50 Hz
	Output signal	24 mA (Overload)
Environmental conditions	Storage temperature	–40 ... +125°C (Cable PVC 22: -5 ... +60°C) (Cable PUR 24: -40 ... +70°C)

Modifications

Index	Date	Description
1	09/2012	New data sheet
a	07/2013	Index a
b	08/2013	Page 2,4: Execution 01 male electrical plug „Industrial standard" with contact distance 9.4mm added Page 2,4: Female electrical connector „Industrial standard" (Code **34**) added
c	02/2014	Page 2: Pressure ranges: psi specifications corrected Page 2: Accessory 61 sealing FPM: temperature details -18...125°C added, accessory 83 sealing NBR: temperature details -25...100°C added Page 3: Vibration: modified from 15g (20...2000Hz) to 15g RMS (20... 2000Hz) and 25g sin (80...2000Hz), 1 Okt./min, 1x @ 25°C)
d	05/2014	New layout NLH @ 25°C (BSL) as main specification and NLH @ 25°C (BSL through 0) as additional specification Switch-on delay 100 ms
e	07/2014	New pressure connections: M10x1 male (Code 32), 1/4"NPT male (Code 30), 7/16"UNF female (Code 24), R1/4" male Code 19), R1/8" male (Code 16) New pressure ranges with 5P: Codes 55, 56, 57, 58, 59, 60, 61, 62, 63, 65 New output signal 0 ... 10 V (Code 17)
f	11/2014	Electrical connection: New cable versions code 08, 22 and 24 added Output: New output signals 0...5 VDC (Code 14) and 1...6 VDC (Code 16) added Page 3 'Accessories': Code 90: Pin configuration corrected (Pin 1:Out removed) Page 3 'Accessories': Special Pin configurations added: Pin 1: Out, Pin 2: +, Pin 3: Ground, Pin 4:- (Code 91) Pin 1: +, Pin 2: -, Pin 4: Ground (Code E1) / Pin 1: +, Pin 2: -, Pin 3: Out, Pin 4: Ground (Code E2) Page 3 'Accessories': New cable lengths 0.5m (Code EM), 1.0m (Code 1M) and 2.0m (Code 2M) added Page 3: Footnote 4): max. allowable pressure range corrected to 60 bar at 120 bar overpressure Page 4/7: Ambient and storage temperature cable versions 22 & 24 specified
g	12/2014	Cable length 1,5 m (Code 1M) corrected to 1,0 m
h	04/2015	Footnotes 4) and 5) changed to indication of overpressure instead of pressure range; Output signal: 0.5...4.5 VDC ratiometric code 23 added; Accessories: Pressure peak damping element Ø 1.0 mm code 40 added Accessories: O-Ring EPDM code 63 added; EMV protection: Emission changed to EN/IEC 61000-6-3, all indications on the spec sheet removed; Electrical connector code 01 changed from EN 175301-803A to "Contact distance 9.4 mm"