

PRESSURE TRANSDUCERS AND TRANSMITTERS













More than fifty years of experience, and being an organisation with a strong focus on the customer's needs and constant technological innovation have made Gefran a benchmark in the design and production of sensors, systems and components for industrial process automation and control. Expertise, flexibility and process quality are the factors that distinguish Gefran in the production of integrated tools and systems for specific applications in various fields of industry, with consolidated know-how in the plastics, mobile hydraulics, heating and lift sectors. Technology, innovation and versatility represent the catalogue's added value, in addition to the ability to create specific application solutions in association with the world's leading machine manufacturers.

TP2



A pressure transducer is an electronic device that transforms a physical variable (pressure) into an electrical signal (current or voltage), acquired by various control, measurement and regulation devices such as controllers or PLCs.

Gefran sensors are capable of measuring fluid and gas pressure in all applications required by the industry.

The Gefran Group relies on a unit dedicated exclusively to the design and production of a full range of sensors capable of measuring pressure, displacement, force, humidity and temperature. Based on know-how gained over years of activity in the field of sensors, Gefran guarantees:

• Total control of the production process, from the design of the sensitive element to the production of precision mechanical parts, ensuring high standards of quality, reliability and precision of the finished product.

• The constant updating of technologies and solutions meets the specific needs of the customer. Automated production lines use sophisticated pressure controllers making it possible to work with gas at an absolute pressure of up to 40 bar and oil up to 5000 bar.

• Effective product research and development. Gefran offers a complete range of measurement from 0...50 mbar to 0...5000bar, for relative and absolute pressures.

Gefran is one of the few companies at an international level that has developed the know-how to produce sensitive elements based on the following technologies in its Technological Pole:

- · Thick film on steel;
- · Glued strain gauge;
- · Silicon piezoresistive.

Gefran pressure transducers are the result of years of experience and close collaboration with the best European universities as well as the company's own customers. Each transducer has been designed and manufactured with characteristics aimed at satisfying the requirements of its particular application.



KS, KH, KHC, KM, KMC, KS-I PRESSURE TRANSDUCERS



TPFADA, TPFAS FLUSH DIAPHRAGM PRESSURE TRANSDUCERS



TPHADA HIGH PRESSURE TRANSDUCERS



PLASTIC INJECTION PRESS

APPLICATION SECTORS



STEAM TREATMENT PLANTS



MATERIALS TESTING MACHINES





FARMING AND EARTHMOVING MACHINERY



FOOD INDUSTRY



HEAT EXCHANGE SYSTEMS



MATERIALS PROCESSING



AUTOMOTIVE TEST BENCHES ENGINE TEST ROOMS



EQUIPMENT TEST BENCHES



ATEX: INTRINSIC SAFETY METHANE GAS DISTRIBUTION SYSTEMS METHANE GAS COMPRESSORS



WIDE RANGE OF PRODUCTS FOR EVERY APPLICATION

Gefran offers an extensive range of transducers for pressure measurement in all industrial applications. Models are available for special and high-precision applications, also for use in particularly heavy duty and demanding environments, such as mobile vehicles.

The TPF/TPFADA series adopts a state-of-the-art technical solution with a very sturdy flush steel measuring diaphragm.

This makes the product unique and particularly suitable for pressure measurement in very dense and aggressive fluids and pastes.

In addition, the new TPFAS series introduces new membranes miniaturised up to \emptyset 8.6 mm which are the smallest of their kind on the market.

The TPH/TPHADA series, with its monolithic measuring diaphragm structure, is the ideal product for very high pressure measurements, up to 5000 bar, even with high dynamic push- button pressure.



	KS	KS-I	KH	KHC	КМ	KMC	КΧ	ТК	TKDA	TSA	TPS	TPSA	TPSADA	TPH	TPHADA	TPF	TPFADA	TPFAS
4-20mA	Х		Х		Х		Х	Х	Х	Х		Х	Х		Х		Х	Х
0-10Vdc	Х		Х		Х			Х	Х	Х		Х	Х		Х		Х	Х
RATIOMETRIC mV/V											Х			Х		Х		
CAN OPEN - SAE 1939	Х			Х		Х												
IO-LINK		Х																
SIL2	Х		Х		Х		Х											
cULus	Х																Х	
ATEX							Х											
EAC EX							Х											
PESO							Х											
AUTOZERO		Χ*		Χ*		Χ*			Х				Х		Х		Х	Х

* Autozero via software communication

ANALOGUE OR DIGITAL ELECTRICAL OUTPUT?

GEFRAN manufactures both transmitters and transducers with the following electrical outputs:

ANALOGUE

- Ratiometric
- •4...20mA
- · 0.5...4.5Vdc, 0...5Vdc, 0...10Vdc



- CANopen CiA DP 3.01 rel.4.0 and DS406 with the following special features
- Selectable baud rate from 10KBaud to 1MBaud
- CAN SAE J1939 multi-PDU approach (CiA 602-2)
- 14 bit digital resolution
- IO-Link
 - IO-Link digital output version 1.1
 - COM3 high-speed communication (230.4 kBaud)

MEASUREMENT RANGES

Gefran sensors are capable of measuring fluid and gas pressure in all applications required by the industry.

Gefran offers a complete range for measurement from 0...50 mbar to 0...5000bar, for relative and absolute pressures.

Model	PRESSURE	KS	КН	КНС	КМ	КМС	КХ	KS-I	tk TKDA	TSA	TPS	tpsa Tpsada	TPF	TPH	TPHADA	tpf Tpfada	TPFAS
Campo	BAR	01	04	04	04	04	±l	04	±l	00,05	010	04	010	01000	01000	010	025
min.	PSI	015	060	060	060	060	±15	060	±15	05	0150	060	0150	015000	015000	0150	0350
Campo	BAR	01000	01000	01000	01000	01000	01000	01000	01000	060	01000	01000	01000	05000	05000	01000	0600
max.	PSI	015000	015000	015000	015000	015000	015000	015000	01500	01000	015000	015000	015000	070000	070000	015000	09000

PRESSURES FROM 0...50MBAR TO 0...5000 BAR



ÀNALOGUE



TECHNOLOGY

Gefran uses one of the most widespread and proven existing measurement principles, the so-called "Wheatstone Bridge". There are a number of different technologies for making the sensitive element on the basis of this principle.

THICK FILM ON STEEL TECHNOLOGY

Using the "screen printing process" technique, the insulating layers (dielectric), the conductive layer (cermet) and the resistive layer are deposited on the steel membrane to create the "Wheatstone bridge". The thickness of the membrane determines the measurement range, and the step-by-step transition from 200°C to 900°C makes the sensor extremely robust and reliable.





EXTENSIMETRIC TECHNOLOGY

"Glued strain gauge" technology, originally developed by Gefran, is one of the most widely used methods in the construction of pressure sensors for its versatility of application, reliability and precision. The measuring element (resistance) consists of an ultra-thin sheet of metal alloy, chemically etched using the process employed in printed circuit boards. It is glued to the steel diaphragm using sophisticated techniques following careful positioning of the strain gauge to ensure perfect adhesion to the surface and the necessary linearity.

SILICON PIEZORESISTIVE TECHNOLOGY

Silicon piezoresistive technology is characterized by the complex and delicate step of installing the chip (solid state Wheatstone bridge) in the metal substrate and the metal separation membrane, interposing silicone insulation oil (filling) in a vacuum. With this technology, the measurement range of Gefran sensors can also be very low (0-50 mbar), with high precision and overpressure capability.



SIL2: FUNCTIONAL SAFETY

The new KS/KH/KM series represents the best solution for all applications, both hydraulic and pneumatic, requiring a pressure transducer and offering not only competitive price but also high performance and reliability. The KS series is supplied with SIL2 certification according to IEC/EN 62061 in accordance with Machinery Directive 2006/42/EC. The KS/KH/KM series for applications on mobile vehicles and the KX series for potentially explosive areas are also available with the same SIL2 certification.



PFD	PFH	SIL	PL	
(PROBABILITY OF FAILURE ON DEMAND)	(PROBABILITY OF FAILURES FOR HOUR)	EN 61508 En 62061	EN 13849-1	RISK REDUCTION FACTOR
10-2 < PFD < 10-1	10-6 < PFH < 10-5	1	B,C	10 TO 100
10-3 < PFD < 10-2	10-7 < PFH < 10-6	2	D	100 TO 1.000
10-4 < PFD < 10-3	10-8 < PFH < 10-7	3	E	1000 TO 10.000

The concepts Safety Integrity Level (SIL) and Performance Level (PL) describe the ability of the control and command system to reduce the risk factor, in terms of safety.





ATEX: INTRINSICALLY SAFE

Gefran's range of pressure sensors includes pressure transmitters in ATEX versions ideal for applications in potentially explosive atmospheres. ATEX Directive 2014/34/EU refers to electrical and mechanical equipment and protective systems that can be used in potentially explosive atmospheres (flammable gases, vapours and dusts), even under extreme conditions. The KX series is II1G Ex ia IIC T4, T5 and T6 certified and covers measurement ranges of ± 1 bar at 0...1000bar, with operation from -40°C to +80°C. To guarantee maximum safety and reliability, the KX series is also SIL2 (Functional Safety) certified, and is therefore applicable in safety equipment that can be installed in potentially explosive atmospheres.

AUTOZERO & SPAN

The Autozero & Span function permits simple, and effective adjustment of the pressure transducer zero as well as full scale using a magnetic pen. Simply place the pen on the contact point identified by the symbol for a few seconds and the operation is complete, with no need to open or disassemble the transducer. The Digital Autozero & Span function is optional. AUTOZERO





MAIN TECHNICAL CHARACTERISTICS

			GEFRAN	D			HAN -		6	2	調	-		7	30	p	(Í	(Hill)	
MODEL		К	S			K	ίH			KI	IC			К	М			К	MC	
MEASUREMENT RANGES	01 a 0.	1000 bar	· (015 a ()15000	04 t	0 010	00 bar (060	04 t	o 010	00 bar (000 psi	060	04 to	0100	0 bar (0 00 psi)	60 to	04 to	010	00 bar (0(60 to
ACCURACY		<± 0,5	5% FS			< ± 0.	.5% FS	/		<± 0.!	5% FS	/		<± 0.	5% FS			<± 0	,5% FS	
NON-LINEARITY		⊦- 0,15% F	S (typical)	+-	0,15%	FS (typic	cal)	+-	0,15% F	S (typio	cal)	+-	0,15%	S (typic	al)	+-	0,15%	FS (typical)
OVERPRESSURE		2	x			2	2x			2	x			2	2x				2x	
BURST STRENGTH		4	х			4	1x			4	x		4x (>	=400b	ar : 1500)bar)	4x (:	>=4001	oar : 1500b	ar)
SAMPLING TIME		<1 m	nsec.			<1r	nsec			<11	nsec			< 1 r	nsec			<1	msec.	
MEASURING PRINCIPLE Properties	Thick depo	film of se sited on s	nsitive ele teel mem	ement brane	Thic eleme	ck film nt depo mem	of sensi osited or brane	tive n steel	Thio eleme	k film o nt depo mem	of sensi sited o brane	tive n steel	Thio eleme	ck film nt depo mem	of sensi osited or brane	tive n steel	Thick fi deposi	lm of s ted on	ensitive ele steel mem	ement brane
OPERATING TEMPERATURE (PROCESS) RANGE		-40+ (-40+	⊦125°C ⊦257°F)			-40 (-40	+125°C +257°F)			-40+ (-40+	-125°C -257°F)			-40 (-40	+125°C +257°F)			-40 (-40	.+125°C .+257°F)	
COMPENSATED TEMPERATURE RANGE		-20 (-4+	+85°C 185°F)			-20 (-4+	+85°C -185°F)			-20	+85°C 185°F)			-20	+85°C 185°F)			-20. (-4	+85°C +185°F)	
ZERO DRIFT IN Compensated Field		± 0,01% FS (± 0,02% F	S/°C typica S/°C max.)	±0 (±0	.01% F).02% I	S/°C typ FS/°C ma	ical ax.)	± ((±	0.01%FS 0.02% I	/°C typi S/°C m	cal ax.)	± ((±).01%F3 0.02%	S/°C typic FS/°C ma	cal ax.)	± (±	0.01%F 0.02%	S/°C typica FS/°C max.)
TRANSDUCER BODY CONSTRUCTION MATERIAL		Stainle	ss steel			Stainle	ss steel			Stainle	ss stee	I		Stainle	ss steel			Stainle	ess steel	
PARTS IN CONTACT WITH THE PROCESS	Fluids cc 17	mpatible -4 PH sta	with AISI 4 inless ste	430F and el	Fluids 430F a	compa and 17- st	atible wi 4 PH sta eel	th AISI iinless	Fluids 430F a	compa and 17-4 st	tible wi 4 PH sta eel	th AISI ainless	Fluids 430F a	compa and 17- st	tible wit 4 PH sta eel	th AISI inless	Fluids co and 17	ompati 7-4 PH	ble with AIS stainless s	SI 430F teel
ELECTRICAL CONNECTIONS	4-pin n 4-p 4-pir 2/3 pc	nicroDIN c nin M12x1 c n DIN conr nle shielde	4-pin 3-r 3 p 4-l 3-pin 3-r 3-r	M12x1 pin con 175301 ole shiu conse n AMP S conne pin Meta conne pin Deu conne	connect nector - -803 (E) elded ca i) (F) itsch DT ctor (G) Gupersea ctor (S) ri-Pack I ctor (K) itsch DT ctor (D)	or (Z) EN 04 al 1.5 150 04	5-pin	M12x1 o	connect	cor (A)	4-pin 4- 3-	M12x1 pin Deu conne pin Deu conne	connect tsch DT ctor (G) tsch DT ctor (D)	or (Z) 04 04	5-pir	n M12x1	connector	· (A)		
		Anal	ogue			Ana	logue			Dig	ital			Ana	ogue			Di	gital	
OUTPUT SIGNAL	* SIL2	0.15 0.110 421 05 010 15 16 certificati	i.1 Vdc).1 Vdc O mA Vdc* I Vdc* Vdc Vdc ion not av	ailable	0 4 0.5 * SII	10 Vdc 20mA 4.5 V .2 certi avai	* (3 wire (2 wire) ratiome fication lable	es) s) tric not		CAN CAN SA	open E J1939	I	0,5 01 4 * SII	4,5 Vdc* 0 Vdc* 20mA (15 V 2 certi avai	(3 wires) (3 wires) 2 wires) (dc (P) fication lable	s) (4)) (N) (E) not		CAI CAN S	Nopen AE J1939	
	ba	ar	b	ar	ba	ar	b	ar	ba	ar	b	ar	ba	ar	b	ar	bar		Ьа	r
MEASUREMENT RANGES	B01U B1V6 B02U B2V5 B04U B06U B01D B16U B02D B25U	1* 1,6* 2* 2,5* 4 6 10 16 20 25	B04D B06D B01C B16D B02C B25D B04C B06C B01M	40 60 100 200 250 400 600 1000	B04U B06U B01D B16U B02D B25U B04D	4 6 10 16 20 25 40	806D 801C 816D 802C 825D 804C 806C 801M	60 100 200 250 400 600 1000	B04U B06U B01D B16U B02D B25U B04D B06D	4 6 10 16 20 25 40 60	B01C B16D B02C B25D B04C B06C B01M	100 160 200 250 400 600 1000	B04U B06U B01D B16U B02D B25U B04D	4 6 10 16 20 25 40	804D 806D 801C 816D 802C 825D 804C 806C 801M	40 60 100 200 250 400 600 1000	B04U B06U B01D B16U B02D B25U	4 6 10 16 20 25	B04D B06D B16D B02C B25D B04C B06C B01M	40 60 100 160 200 250 400 600 1000
	* SIL	and UL ce avai	ertificatio lable	n not				1												
229) (WITH FEMALE CONNECTOR MOUNTED)	IP65/IP67					IP65	/IP67			IP67/	IP69K			IP65	/IP67			IP6	5/IP67	
PROCESS CONNECTIONS	G 1/4 gas male (DIN 3852-E) (E) G 1/2 gas male (DIN 3852-E) (3)				G 1/4	gas ma E) 4-18 NP	ile (DIN 3 (E) T male (3852- 7)	G1/4 ş 1/4	gas mal E) -18 NP	e (DIN 3 (E) T male (852- (7)	G 1 9/16 L R	/4 ISO INF SAE 1/4 ISO	1179-2 (J1926-3)7/1 (H4	E1) 2 (W3) 4)	G : 9/16 F	1/4 ISO JNF SA { 1/4 IS	1179-2 (E1 E J1926-2 (O 7/1 (H4)) [W3)
MAIN APPLICATIONS	- - Pl	on its ises s s	- Ag	gricultu - Rai - Munic - Mi - Cons Mobile I	ral vehic lways ipalities ining truction nydrauli	cles cs	- Ag - 1	ricultur - Munic - Mi - Const 1obile h	ral vehid ipalities ning ruction iydrauli	cles cs	- Inc - Hy - Plas - H	lustrial - Comp draulic tic inje lydraul - Boats lydrauli - Pu	automa ressors power u ction pro ic press /Yachts c syster mps	ntion inits esses es ms	- In - Hy - Plas - I - I	dustria - Com draulio stic inje Hydrau - Boat Hydrau - P	l automati pressors power uni ection pres lic presses s/Yachts lic systems umps	on ts ses s		
	ANAL		<u>م</u> د(UL)US ISTED	ÂŇ	IALOGUE			CAI	lope	36 [SAE J1939	ANALOGU) (Ld) (E		CAN	ဝဝေ	≳∩ SA J19	JE 39

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MODEL		ŀ	(S-1			К	X			Т	К			TK	(DA	
MEASUREMENT RANGES	04 to	o O10 015)00 bar (0. 5000 psi)	60 to	(-	-11 a 0	1000 bar 15000 ps	si)		010 015(00bar 100psi			010 015	100bar 000psi	
ACCURACY		<±	0,5% FS			+- 0,15% F	S (typical))		H ± 0,25%	FS (typical)	ŀ	Н±0,25% м+0.5%	FS (typic	al)
NON-LINEARITY	+-	0,15%	% FS (typic	al)						11 ± 0,5 % 1	3 (typical)			H ± 0,3 %	rs (typica	
OVERPRESSURE			2x			2	x			2	x			1	2x	
BURST STRENGTH			4x			4:	ĸ			4	x			4	1x	
SAMPLING TIME		<]	l msec.			<1 m	Sec			<ln< td=""><td>nsec</td><td></td><td></td><td><11</td><td>nsec</td><td></td></ln<>	nsec			<11	nsec	
MEASURING PRINCIPLE PROPERTIES	Thi eleme	ick filn ent de me	n of sensit posited on mbrane	ive steel	Thick	film of ser deposi steel me	isitive ele ted on mbrane	ment	Thick film	of sensitiv o steel me	e element n embrane	deposited	Thick	film of se depos steel m	insitive el ited on embrane	ement
OPERATING TEMPERATURE (PROCESS) Range		-40. (-40.	+125°C +257°F)			-40+ (-40+	125°C 257°F)			-40+ (-40	-105°C ⊦221°F)			-40 (-40	+105°C +221°F)	
COMPENSATED TEMPERATURE RANGE		-20 (-4	+85°C +185°F)			-20+ (-4+]	·85°C .85°F)			-10+ (+14+	-85°C -185°F)			-10 (+14	+85°C +185°F)	
ZERO DRIFT IN COMPENSATED FIELD	± (±	0,01% : 0,02%	FS/°C typic 6 FS/°C ma	cal x.)		± 0,01%	FS/°C		±	0,012% FS	/°C (typica	I)	±	0,012% FS	S/°C (typi	cal)
TRANSDUCER BODY CONSTRUCTION MATERIAL		Stain	less steel			Ste	el			Stainle	ss steel			Stainle	ss steel	
PARTS IN CONTACT WITH THE PROCESS	Fluids 430F	s comj and 17	patible wit 7-4 PH stai steel	h AISI inless	Fluids c	ompatible v 7-4 PH stai	vith AISI 4 nless stee	-30F and el	Fluids c	ompatible 17-4 PH sta	with AISI 4 inless stee	30F and I	Fluids co 1	ompatible 7-4 PH sta	with AISI iinless st	430F and eel
ELECTRICAL CONNECTIONS	5-pin M12x1 connector (A) Digital				7-pi 2 pole 2 4-pin s 4-pin mi 4-	n M16x0.75 6-pin conr x0.25 shiel solenoid va cro-soleno (M pin M12x1 c	connecto nector (V) ded cable ve connec id valve co) connector	or (P) (1m) (F) ctor (E) onnector (Z	2x0. 4-pin 4 4-pin : 4-pin mic	7-pin con 6-pin con 25 shielder x0.25 shiel pin M12x1 c solenoid va ro-solenoid	nector (P) nector (V) d cable (2n ded cable onnector lve connec l valve con	n) (F) (2m) (F) (Z) stor (E) nector (M)	2x0.2 4-pin 4 4- 4-pin s 4-pin mi	7-pin cor 6-pin cor 25 shielde x0.25 shie pin M12x1 solenoid va cro-solen (nector (P inector (V d cable (2 lded cabl connecto alve conn oid valve M)) () 2m) (F) e (2m) (F) r (Z) ector (E) connector
	Digital					Analo	gue			Anal	ogue			Ana	logue	
OUTPUT SIGNAL	Digital IO-Link Version 1.1 COM3 (230.4 kbaud)					4-20	mA			420mA (0,15 0,11(05 01(15 11(two wires) ,1Vdc),1Vdc Vdc Vdc)Vdc Vdc Vdc			420mA 0,11 0,11 01 01 15	(two wire: 5,1Vdc 0,1Vdc 5Vdc 0Vdc 5Vdc 5Vdc 0Vdc	3)
	ba	r	ba	r	t	bar	ba	ar	b	ar	b	ar	b	ar	t	bar
MEASUREMENT RANGES	B04U B06U B01D B16U B02D B25U	4 6 10 16 20 25	B04D B06D B16D B02C B25D B04C B06C B01M	40 60 100 200 250 400 600 1000	N01U N1V6 N2V5 N04U N06U N01D B02U B2V5 B04U B06U B01D	-1+1 -1+1,6 -1+2 -1+2,5 -1+4 -1+6 -1+10 2 2,5 4 6 10	B16U B02D B04D B06D B01C B16D B02C B25D B04C B06C B01M	16 20 25 40 60 100 160 200 250 400 600 1000	N01U N02U N03U N01D B03U B04U B05U B05U B05U B05U B01D B16U B02D B25U	-1+1* -1+2* -1+3* -1+5 -1+10 03 04 05 06 07 010 016 020 025	B03D B04D B05D B06D B01C B16D B02C B25D B35D B04C B05C B04C B05C B07C B01M	030 0.40 0.50 0.100 0.160 0.200 0.250 0.350 0.400 0.500 600 700 1000	N01U N02U N03U N01D B03U B04U B04U B05U B05U B07U B01D B16U B02D	-1+1* -1+2* -1+3* -1+5 -1+10 0.3 0.4 0.5 0.6 07 0.10 0.16 020	B25U B03D B04D B05D B06D B01C B16D B02C B35D B04C B05C B01M	0.25 0.30 0.40 0.50 0.60 0.100 0.200 0.250 0.350 0.400 0.500 01000
PROTECTION CLASS (IEC 529) (IIIITH										*Class	M only					
FEMALE CONNECTOR MOUNTED)		IPE	65/IP67			IP65/	IP67			IP65/IP	66/IP67			IP65	/IP67	
PROCESS CONNECTIONS	G 1/4 gas male (DIN 3852-E) (E) G 1/2 gas male (DIN 3852-E) (3)				G1/4	gas male (I 1⁄4-18 NPT)IN 3852- male (7)	E) (E)	G 1/4 G 1/2	gas male (2 gas male (1/4"-18 NP 1/2"-14 NP	DIN 3852- DIN 3852- T male (7) T male (J)	E) (E) E) (3)	G 1/4 G 1/2	gas male 1/4-18 NP 1/2"-14 NI gas male	(DIN 385: T male (7 PT male ((DIN 385:	2-E) (E)) J) 2-E) (3)
MAIN APPLICATIONS	- In - Hy - Plas - - I	dustri - Com ydrauli stic inj Hydrau Hydrau - F	al automa npressors ic power u jection pre ulic presse ulic system Pumps	tion nits esses es ns		- Compr - Distril - Metha	essors outors ne gas		- - F - Die-c	Hydraulic - Test b Plastic injec casting inje requ	power unit enches ction press ction pres lest	s es ses on	- - P - Die-	Hydraulic - Test t lastic inje -casting ir	power un benches ction pres ijection p	iits sses resses
		9 I	O- Lin	k	ANALOGUE) 💿	x HI Ex	٢			LOGUE			ANALOGUE	AUTOZERO]



MAIN TECHNICAL CHARACTERISTICS

		F	3		(PLANTA A		(RAM B	
MODEL		TS	SA			TF	۶			TP	SA	
MEASUREMENT RANGES	Ab	00,05 a (01 a 0 solute ranges	060bar 1000psi) s >= 1 bar / 15	ōpsi		010 bar a (0150psi a	01000 bar 015000psi)		04 bar a (060psi a	01000 bar 015000psij	1
ACCURACY	(±(± 0.15% F 0.5% FS for a	S (typical) bsolute rang	(es)	± 0,15° ± 0,25	% FS (typical % FS (typical) >200bar/3) ≤200bar/3	000psi 000psi	± 0,19 ± 0,15	% FS (typical) % FS (typical) ≥ 100bar/15) < 100bar/1	00psi 500psi
OVERPRESSURE		4x.	2x			2	x			Зх.	2x	
BURST STRENGTH		6х.	3x			4x	2,5x			5x	.2,5x	
RESPONSE TIME		< 4 r	nsec			<0,1 r	nsec.			< l n	nsec.	
MEASURING PRINCIPLE PROPERTIES		Silicon pie	zoresistive			Extens	imeter		Thick film	of sensitive steel m	element der embrane	oosited on
OPERATING TEMPERATURE (PROCESS) Range		-20+85°C	(-4+185°F)		-	40+120°C (-40+248°	F)		-40+105°C	(-40+221°F)
COMPENSATED TEMPERATURE RANGE		-10+85°C (+14+185°F)		-20+85°C	(-4+185°F)			-10+85°C	(14+185°F)	
ZERO DRIFT IN COMPENSATED FIELD	(± C ± 0.0	± 0.01% FS/ 0.02% FS/°C m 4%FS/°C (typ	/°C (typical) hax) ranges > ical) ranges s	lbar ≤lbar		± 0.01% FS/ (± 0.02% F	/°C (typical) S/°C max.)			± 0.008% FS (± 0.015%	S/°C (typical) FS/°C max.)	
TRANSDUCER BODY CONSTRUCTION MATERIAL		AISI 304 sta	inless steel			AISI 304 sta	iinless steel			AISI 304 sta	ainless steel	
PARTS IN CONTACT WITH THE PROCESS		AISI 316L sta	ainless steel			17-4PH stai	inless steel			17-4PH sta	inless steel	
ELECTRICAL CONNECTIONS	EN 17 EN 17	4-pin M12x1 c 75301-801 typ 5301-801 typ 2/3 pole shie	connector (Z be A connect be C connect Ided cable (F) :or (E) or (M) :)	6-piı 4-pi 4-pin m	7-pin con 6-pin con n x0.25 shiel 4-pin M12x1 c n solenoid va icro-solenoid	nector (P) nector (V) ded cable (1) connector (Z lve connect d valve connect	m) (F)) or (E) ector (M)	4-pi 2/4-p 4-pin m	n solenoid va in x0.25 shie 4-pin M12x1 d icro solenoid 7-pin con 6-pin con	alve connecto Ided cable (2 connector (Z d valve conne nector (P) nector (V)	or (E) 2m) (F)) ector (M)
		Anal	ogue			Ratior	netric			Anal	ogue	
OUTPUT SIGNAL		4 2 0 10 0,1 10 0 5	0 mA D Vdc D,1 Vdc 5 Vdc			m)	//V			Stan 0.1 10.1 Vdc 010 0 n re 0.1 5.1 Vdc 1 5 Vdc - 1 6	dard C - 4 20 mA O Vdc quest C - 0 5 Vdc 1 10 Vdc S Vdc	
	b	ar	b	ar	b	ar	b	ar	b	ar	b	ar
MEASUREMENT RANGES	BV05* BV10* BV25* BV50* B01U B1V2 B02U B2V5 B04U B05U	00.05 00.1 00.25 00.5 01 0.81.2 02 02.5 04 05	806U 807U 801D 816U 802D 825U 803D 804D 805D 806D	06 07 010 020 025 030 040 050 060	B01D B16U B02D B25U B03D B35U B04D B05D B06D	010 016 020 025 030 035 040 050 060	B01C B16D B02C B25D B35D B04C B05C B06C B07C B01M	0100 0.160 0.200 0.250 0.350 0.400 0.500 0.600 0.700 0.1000	B04U B05U B06U B07U B01D B16U B02D B25U B03D B04D	04 05 06 07 010 016 020 025 030 040	BUSD B01C B16D B02C B25D B35D B04C B05C B06C B07C B01M	050 0.100 0.200 0.250 0.350 0.400 0.500 0.600 0.700 0.1000
		*related f	ields only									
PROTECTION CLASS (IEC 529) (WITH FEMALE CONNECTOR MOUNTED)		IP65	/IP67			IP65/IP	66/IP67			IP65/IP	66/IP67	
PROCESS CONNECTIONS	G 1	/4 gas male G 1/2A (DIN	(DIN 3852-E) 1 16288) (3)	(E)	7/16-20 UN	Stan G 1/4 gas On re F-2A male (S 1/2A (DIN 3 G 1/4 gas	dard s male (1) quest AE 4 for AS4 16288) (3) female (4)	395-E) (2) G	7/16-20 UM	Stan G 1/4 gas On re IF-2A maschic G 1/2A (DIN G 1/4 gas	dard s male (1) quest (SAE 4 per AS I 16288) (3) female (4)	4395-E) (2)
MAIN APPLICATIONS		- Food i - Pacl - Air f	ndustri kaging filters		-	- Test b Material test	enches ting machine	38		- Test b	penches	
		(III)	00111			V ₁₀ R ₁	L 2 Vout			(1)	0010	











	e					F		•		0	- armaw	6))
MODEL		TPS	ADA			TF	РΗ			TPH	ADA	
MEASUREMENT RANGES	((04 bar a (060psi a ()1000 bar 015000psi)	(01000 a 0 015000 a 0	15000 bar)75000 ps	i)	(01000 a 0 015000 a 0	5000 bar 175000 psi)
ACCURACY		± 0,1% FS ± 0,15% F	S (typical) S (typical)			± 0,1% FS ± 0,15% F	(typical) S (typical)			± 0,1% FS	(typical)	
OVERPRESSURE		Зх.	2x		2 x	Fondo Scala	(max 6000 t	oar)	2 x	Fondo Scala	(max 6000 b	ar)
BURST STRENGTH		5x	.2,5x		З х	Fondo Scala	(max 7500 t	oar)	3 x	Fondo Scala	(max 7500 b	ar)
RESPONSE TIME		< 1 m	isec.			<0,1 r	nsec.			<1 m	ISEC.	
MEASURING PRINCIPLE PROPERTIES	Thick film o	of sensitive steel me	element de _l embrane	posited on	Strai	n gauge exte	nsometer on	steel	Strair	n gauge exter	nsometer on	steel
OPERATING TEMPERATURE (PROCESS) Range	-4	40+105°C	(-40+221°F	=)	-	-30+120°C	-22+248°F	:)	-	-30+120°C (-22+248°F)
COMPENSATED TEMPERATURE RANGE		-10+85°C	(14+185°F)			-10+85°C	(14+185°F)			-10+85°C((14+185°F)	
ZERO DRIFT IN COMPENSATED FIELD	:	± 0,008% FS (± 0.015% F	SO/°C typical SO/°C max.)			± 0,008% FS (± 0.015% F	0/°C typical S0/°C max.)			±0,01% FS0 (±0.020% F)/°C typical SO/°C max.)	
TRANSDUCER BODY CONSTRUCTION MATERIAL	ļ	AISI 304 sta	inless steel			AISI 304 sta	inless steel			AISI 304 sta	inless steel	
PARTS IN CONTACT WITH THE PROCESS		17-4PH stai	inless steel		15-5PH sta	inless steel	/ 17-4PH stai	inless steel	15-5PH sta	inless steel /	/ 17-4PH stai	nless steel
ELECTRICAL CONNECTIONS	4-pin 2/4-pin 4 4-pin mic	solenoid va n x0.25 shie pin M12x1 c cro solenoid 7-pin con 6-pin con	llve connect Ided cable (2 connector (Z I valve conne nector (P) nector (V)	or (E) 2m) (F)) ector (M)	4/6 Z MicroDin 4	6-pin con 7-pin con 4-pin M12x1 c -pin x0.25 shie 1-pin Type A DII -pin Type C-inc	nector (V) nector (P) connector (Z) Ided cable (1r V connector (I I D 9.4 mm co	n) (F) E) nnector (M)	4/6-p 4- MicroDin 4-	6-pin con 7-pin con 4-pin M12x1 c in x0.25 shie pin Type A DII pin Type C-ind	nector (V) nector (P) connector (Z) Ided cable (1 V connector I D 9.4 mm co	m) (F) (E) nnector (M)
		Anal	ogue			Ratior	netric			Anal	ogue	
OUTPUT SIGNAL	0	Stan 0.1 10.1 Vdd 010 0n re 0.1 5.1 Vdc 1 5 Vdc - 1 6	dard - 4 20 m/) Vdc quest - 0 5 Vdc 1 10 Vdc S Vdc	A		m'	1/N		1	Stan 4.20 mA - On re 0.15.1 Vdc 5 Vdc - 110 0.110	dard • 0.10 Vdc quest • - 05 Vdc D Vdc 16 Vdc).1 Vdc	2
	bar	r	born	ar o co	b	ar			bi	ar		
MEASUREMENT RANGES	804U 805U 806U 807U 801D 816U 802D 825U 803D 804D	04 05 06 07 010 016 020 025 030 040	BUSD B01C B16D B02C B25D B35D B04C B05C B06C B07C B01M	U50 0100 0200 0250 0350 0400 0500 0600 0700 01000	B01M B15C B02M B35C B04M B05M	01000 01500 02000 03500 04000 05000			B01M B15C B02M B35C B04M B05M	01000 01500 02000 03500 04000 05000		
PROTECTION CLASS (IEC 529) (WITH		IP65/ID	66/1267			1065/10	66/IP67			1065/10	S6/IP67	

PROTECTION CLASS (IEC 529) (WITH FEMALE CONNECTOR MOUNTED)	IP65/IP66/IP67	IP65/IP66/IP67	IP65/IP66/IP67
PROCESS CONNECTIONS	Standard G 1/4 gas male (1) On request 7/16-20 UNF-2A male (SAE 4 for AS4395-E) (2) G 1/2A (DIN 16288) (3) G 1/4 gas female (4)	F-250-C (9/16-18UNF female) (D) M16 x 1.5 female (E)	F-250-C (9/16-18UNF female) (D) M16 x 1.5 female (E)
MAIN APPLICATIONS	- Production test benches	- Waterjet - High pressure pumps - High pressure test benches	- Waterjet - High pressure pumps - High pressure test benches
		Var Rata &d-Vout	ANALOCHIE









GRIPBAN (

MAIN TECHNICAL CHARACTERISTICS





		-			(-				and the second	
MODEL		T	PF			TPF	ADA			TP	FAS	
MEASUREMENT RANGES		010 a 0. (0150 a 0.	1000bar 15000psi)			010 a 0. (0150 a 0	1000bar 15000psi)			025 a 0 (0375 a 0	600 bar)9000 psi)	
ACCURACY		H ± 0,2% F M ± 0,5% F	S (typical) S (typical)			H ± 0,2% F M ± 0,5% F	S (typical) S (typical)			±0.5	% FS	
OVERPRESSURE	3	x Full scale (max 2000 b	ar)	3	x Full scale (max 2000 b	ar)		3 x Fu	ll scale	
BURST STRENGTH	4	x Full scale (max 2000 b	ar)	4	x Full scale (max 2000 b	ar)	4	x Full scale (max 2000 ba	ar)
RESPONSE TIME		<0,1 r	msec.			<1 m	nsec.			<ln< td=""><td>nsec.</td><td></td></ln<>	nsec.	
MEASURING PRINCIPLE PROPERTIES	Strai	n gauge exte	nsometer or	n steel	Strai	n gauge exte	nsometer or	n steel	Strai	n gauge exte	nsometer or	ı steel
OPERATING TEMPERATURE (PROCESS) Range	-	-40+120°C ((-40+248°)	F)	-	40+120°C	(-40+248°	F)		-40+120°C	(-40+248°l	F)
COMPENSATED TEMPERATURE RANGE		-20+85°C	(-4+185°F)			-10+85°C ((-14+185°F)		-10+85°C ((-14+185°F))
ZERO DRIFT IN COMPENSATED FIELD		± 0,01% FS/ ± 0,02% FS/	/°C (typical) /°C (typical)			± 0,01% FS.	/°C (typical)			± 0,01% FS	/°C (typical)	
TRANSDUCER BODY CONSTRUCTION Material		AISI 304 sta	ainless steel			AISI 304 sta	ainless steel			AISI 305 sta	ainless steel	
PARTS IN CONTACT WITH THE PROCESS		17-4PH sta	inless steel			17-4PH sta	inless steel			17-4PH sta	inless steel	
ELECTRICAL CONNECTIONS	6-pi 4-pi 4-pin m	6-pin con 7-pin con 4-pin M12x1 c n x0.25 shiel n solenoid va icro-solenoid	nector (V) nector (P) connector (Z ded cable (1) ilve connect d valve conn	.) m) (F) or (E) ector (M)	4/6-p 4-pi 4-pin m	6-pin con 7-pin con 4-pin M12x1 o in x0.25 shie n solenoid va icro-solenoid	nector (V) nector (P) connector (Z elded cable (alve connect d valve conn	') 1m) (F) or (E) ector (M)	4/6-ı 4-pi 4-pin m	6-pin con 7-pin con 4-pin M12x1 o pin x0.25 shie in solenoid va gicro-solenoid	nector (V) nector (P) connector (Z elded cable (elve connect d valve connect) 1m) (F) or (E) ector (M)
		Ratio	metric		r	Anal	ogue			Anal	ogue	
OUTPUT SIGNAL		m)	V/V			Stan 420 mA 0.15 On re 05 Vdc 110 Vdc 0.110	dard 010 Vdc 5.1 Vdc quest - 15 Vdc - 16 Vdc D.1 Vdc			420 mA 0,15,1 Vdc 15 Vdc - 16 Vdc - 0	- 010 Vdc c - 05 Vdc 110 Vdc),110,1 Vdc	
	b	ar	t	ar	b	ar	t	ar	t	ar	b	ar
MEASUREMENT RANGES	801D 816U 802D 825U 803D 835U 804D 805D 806D 801C	010 016 020 025 030 035 040 050 060 0100	B16D B02C B25D B35D B04C B05C B06C B07C B01M	0160 0200 0250 0350 0400 0500 0600 0700 01000	B01D B16U B02D B25U B03D B35U B04D B05D B06D	010 016 020 025 030 035 040 050 060	801C 816D 802C 825D 835D 804C 805C 806C 807C 801M	0100 0160 0200 0250 0350 0400 0500 0600 0700 01000	825U 803D 835U 804D 805D 806D 801C	025 030 035 040 050 060 0100	B16D B02C B25D B35D B04C B05C B06C	0160 0200 0250 0350 0400 0500 0600
PROTECTION CLASS (IEC 529) (WITH FEMALE CONNECTOR MOUNTED)		IP65/IP	66/IP67			IP65/IP	66/IP67			IP65/IP	66/IP67	
PROCESS CONNECTIONS	٨	Stan 118x1,5 (G) - 1 On re 3/4-16	dard /2" G male (I quest UNF (L)	M)	٨	Stan 118x1,5 (G) - 1 On re 3/4-16	i dard 1/2" G male (1 quest UNF (L)	M)		G ¼ B fro G ¼ M10x	nt seal (Y) E (E) 1 E (T)	
MAIN APPLICATIONS		- Mixing do: - Food i	sing pumps ndustry			- Rubber p - Mixing do - Concre	processing sing pumps te pumps			- Mixing do - Concre	sing pumps te pumps	







PROCESS CONNECTIONS

	(0-			-	<u>د</u>		9		* A	A.	s.	A	DA *	Ξ_	ADA	14	NDA	AS
	X	KS	Ŷ	Υ.Υ.	KH	K	KN	É	TKD	TS	E.	TPS	TPSA	₽	TPHA	₽	TPFA	TPF
G 1/4 GAS MALE (DIN 3852-E)	(E)	(E)	(E)	(E)	(E)	(E1)	(E)	(E)*	(E)*	(E)	(E)*	(E)*	(E)*					(E)
G 1/4 GAS MALE (DIN 3852-A)								(1)	(1)	(1)	(1)	(1)	(1)					
7/16-20 UNF-2A MALE (SAE 4 PER AS4395-E)								(2)	(2)		(2)*	(2)*	(2)*					
G 1/2A (DIN 16288)	(3)	(3)	(3)					(3)	(3)	(3)	(3)*	(3)*	(3)*					
G 1/4 GAS FEMALE								(4)*	(4)*		(4)*	(4)*	(4)*					
G 1/8 ISO 1179-2						(X1)												
1/8-27 NPT FEMALE								(5)*	(5)*		(5)*	(5)*	(5)*					
1/4 - 18 NPT FEMALE								(6)*	(6)*		(6)*	(6)*	(6)*					
1/4 - 18 NPT MALE			(7)	(7)	(7)	(74)	(7)	(7)*	(7)*		(7)*	(7)*	(7)*					
1/2 -14 NPT MALE			(J)															
M14 X 1,5 ISO 9974-2						(81)												
M14 X 1,5 MALE						(83)		(8)*	(8)*		(8)(*)	(8)(*)	(8)(*)					
1/8 - 27 NPT MALE						(94)		(9)*	(9)*		(9)(*)	(9)(*)	(9)(*)					
M12 X 1,5 IS09974-2 MALE						(R1)												
M12 X 1,5 ISO 6149-2 Male						(R3)		(R)	(R)		(R)*	(R)*	(R)*					
7/16-20 UNF-2A MALE (SAE 4 PER J1926-2)						(K3)		(K)* **	(K)* **		(K)* **	(K)* **	(K)* **					
7/16-20 UNF-2A FEMALE (SAE 4)								(F)*	(F)*		(F)*	(F)*	(F)*					
F-250-C (9/16-18UNF FEMALE)														(D)	(D)			
3/8 UNF SAE J1926-2						(03)												
9/16 UNF SAE J1926-2						(W3)												
M16 X 1.5 FEMALE														(E)	(E)			
G ¼ B FRONT SEAL																		(Y)
M18X1,5																(G)	(G)	
1/2" G MALE																(M)	(M)	
3/4-16 UNF																(L)*	(L)*	
R 1/4 ISO 7/1						(H4)												
M10 X 1 ISO 9974-2						(T1)												
M10 X 1 ISO6149-2						(T3)												(T)

* Process connection on request

** Max. working pressure: 630 bar (9137 psi)

In the PROCESS CONNECTIONS table, the letter or number between () is the option that identifies the type of mechanical installation connection of the pressure probe to the process port.



CONNECTORS



CON042 8 PIN M12 90°



CON023 6 PIN MI6 90°

CAVO2I CAVO MI2 5 PIN 90°



PCAV700 CAVO M8 4 PIN









CONNECTORS

			KS	KS-I	ΥX	Ĥ	KHC	KM	KMC	TK	TKDA	TSA	TPS	TPSA	TPSADA	TPH	TPHADA	TPF	TPFADA	TPFAS
CON 006	3 POLE + EARTH FEMALE CONNECTOR (EN 175301-803A); CULUS -40+65°C	IP65			Х					х	х	х	х	Х	х	х	х	х	Х	х
CON008	FEM. FEMALE 3 POLE + EARTH CONNECTOR (EN 175301- 803C); P9.4	IP65			Х					х	Х		х	х	Х	х	х	х	Х	х
CON031	M12 5-POLE FEMALE CONNECTOR;	IP67		Х			Х		Х											
CON041	M12 5-POLE FEMALE CONNECTOR; 90°	IP67		х			х		х											
CON045	FEM. CONN. 3-POLE + EARTH FEMALE CONN. (EN 175301-803A);H=28; CULUS -40+65°C	IP65	Х																Х	
CON047	FEMALE 3 POLE + EARTH Connector (en 175301- 803C); P8	IP65	Х									х								
CON 050	4-POLE 90° M12X1 FEMALE CONNECTOR	IP67	Х										Х			Х	Х	Х	Х	Х
CON064	3-POLE + EARTH FEMALE CONNECTOR (EN 175301-803A); CULUS -40+65°C (KH/KS SERIES)	IP65	Х			х		Х												
CON 087	4-POLE M12X1 FEMALE CONNECTOR; CULUS -25+90°C	IP67	Х																Х	
CON088	4-POLE, 90°, M12X1 FEMALE Connector; Culus -25+90°C	IP67	Х																Х	
CON110	7-POLE 90° M16 FEMALE Connector; culus -40+100°C	IP40																	Х	
CON111	7-POLE M16 FEMALE CONNECTOR; CULUS -40+100°C	IP67																	Х	
CON112	7-POLE M16 FEMALE CONNECTOR; CULUS -40+100°C	IP40																	Х	
CON113	3 POLE +EARTH FEMALE CONNECTOR (EN 175301- 803A); CULUS -40+90°C	IP65	Х																Х	
CON114	3-POLE + EARTH FEMALE CONNECTOR (EN 175301-803A);H=28; CULUS -40+90°C	IP65	Х																Х	
CON115	3-POLE + EARTH FEMALE CONNECTOR (EN 175301- 803C); P9.4 1P65, CULUS -40+90°C	IP65	Х																Х	
CON116	3-POLE + EARTH FEMALE CONNECTOR (EN 175301-EN 803C); P8, CULUS -40+90°C	IP65	Х																	
CON293	4-POLE M12X1 FEMALE CONNECTOR	IP67	Х		Х	Х		Х		Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
CON 300	6-POLE FEMALE CONNECTOR, BAYONET	IP66			Х					Х	Х		Х	Х	Х	Х	Х	Х	Х	Х
CON320	7-POLE MI6 FEMALE CONNECTOR	IP40			Х								Х			Х	Х	Х	Х	Х
CON321	7-POLE M16 FEMALE CONNECTOR	IP67			Х					Х	Х		Х	Х	Х	Х	Х	Х	Х	Х
CON322	7-POLE 90° M16 FEMALE CONNECTOR	IP40											Х			Х	Х	Х	Х	Х
C02W	6-PIN FEMALE CONNECTOR (CON300) + 2M CABLE	IP65											Х					Х		
CO2WLS	6-POLE FEMALE CONNECTOR (CON300) + 2M CABLE (6X0.25)	IP66														Х	Х		Х	Х
CAV011	FEMALE CONNECTOR WITH 2 METRES OF CABLE	IP67					Х		Х											
CAV220	M12X1 FEMALE CONNECTOR WITH 2 METRES OF CABLE, VENTED (CULUS -30+80°C)	IP67	Х		Х	Х	Х	Х	Х			Х							Х	
CAV501	2 CONNECTORS (M/F) M12 5 PIN CABLE 2M.	IP67		Х																
CAV502	2 CONNECTORS (M/F) M12 5 PIN CABLE 5M.	IP67		Х																
CAV503	2 CONNECTORS (M/F) M12 5 PIN CABLE 10M.	IP67		Х																



ACCESSORIES

DISPLAY

The TDP-1001 plug-in display is a universal local display device suitable for use with all Gefran pressure transmitters with 4-20 mA output and an EN 175301-803 A solenoid valve type connector.

It requires no doesn't require power supply, plugs directly into the connector and provides a 4-digit digital local indication in a programmable engineering unit. It is also equipped with a PNP type open collector alarm threshold that can be set by the user for independent management of security systems, if present. An intrinsically safe Atex certified version is also available for use in hazardous areas at risk of explosion, called TDP-2000.



ADAPTERS AND SEALS

A vast selection of native threaded connections is available for Gefran pressure transducers, from metric to gas, from NPT to UNF threads. A wide range of stainless steel adapters is also available, both male/ male and male/female, with the corresponding seals, named PKITxxx, in order to meet all possible process connection requirements.



CONNECTORS AND EXTENSION CABLES

Gefran pressure transducers are available with various types of electrical connectors (EN175301803, M12x1, etc.), and each of these may be supplied with the corresponding female solder cable (named CONxxx) or an extension cable already assembled with the female connector (named CAVxxx), up to 30 metres in length.



MATCHING PRODUCTS

CONTROLLERS

- universal inputs for amplified and non-amplified probes - very high acquisition speed

- high accuracy
- mathematical calculations, pressure delta
- 4 configurable outputs
- Modbus and Profibus communication



PRESSURE GAUGES

- universal inputs for amplified probes
- very high acquisition speed
- high accuracy
- mathematical calculations, pressure delta 4 configurable outputs
- Modbus and Profibus communication

- input from non-amplified pressure probes - 4 configurable outputs

- Modbus communication
- input from amplified pressure probes
- 4 configurable outputs
- Modbus communication









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