

 **IO-Link**

TURCK

**Industrial
Automation**

**PRESSURE
SENSORS**



Sense it! Connect it! Bus it! Solve it!

Pressure sensors – Reliability and efficiency on a high level

Pressure is most commonly measured and monitored in applications of process control and manufacturing industries. Whether deployed in standard systems or operated under special environmental conditions: Each application requires a perfect solution in every respect. High-quality materials, flexible process connections, easy programming as well as highest accuracy and many display functions are therefore essential standards of electronic pressure measurement.



PS series



Reliable measurement of pressure seems to be easy at first sight, but the vast range of pressure sensors available on the market makes it difficult for the end-user to find the right type for the own application. Pressure sensors have to fulfill many tasks but, above all, they have to be extremely rugged.

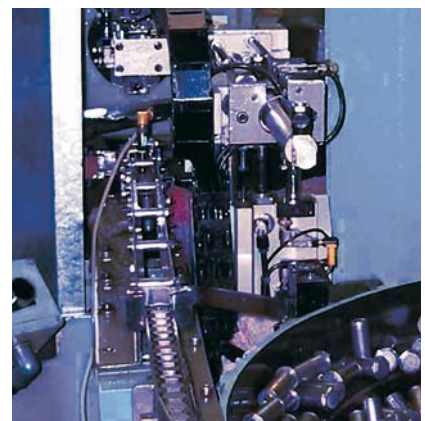
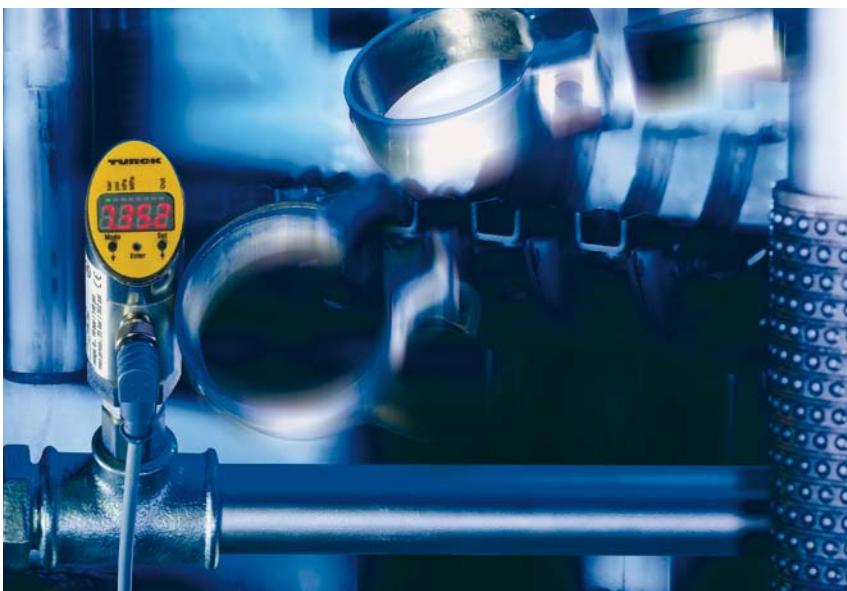
Rugged construction

In general, pressures are measured in a range between -1 and +600 bar, whereby in most cases not static but rather dynamic measurement of pressure is performed. Constant pressure changes impose extreme load on the measuring cells and sealing materials but also on the housing. The right combination of measuring element, sealing and housing is therefore very important to ensure durable and reliable monitoring of pressure. In order to handle pressure loads successfully, the right type of cell technology is essential. A ceramic measuring cell

is the core piece of the TURCK pressure sensor series. This type of cell has proven its worth, as it withstands high excess pressure reliably and also shows a good drift behaviour and fast response time.

IP68/IP69K rated

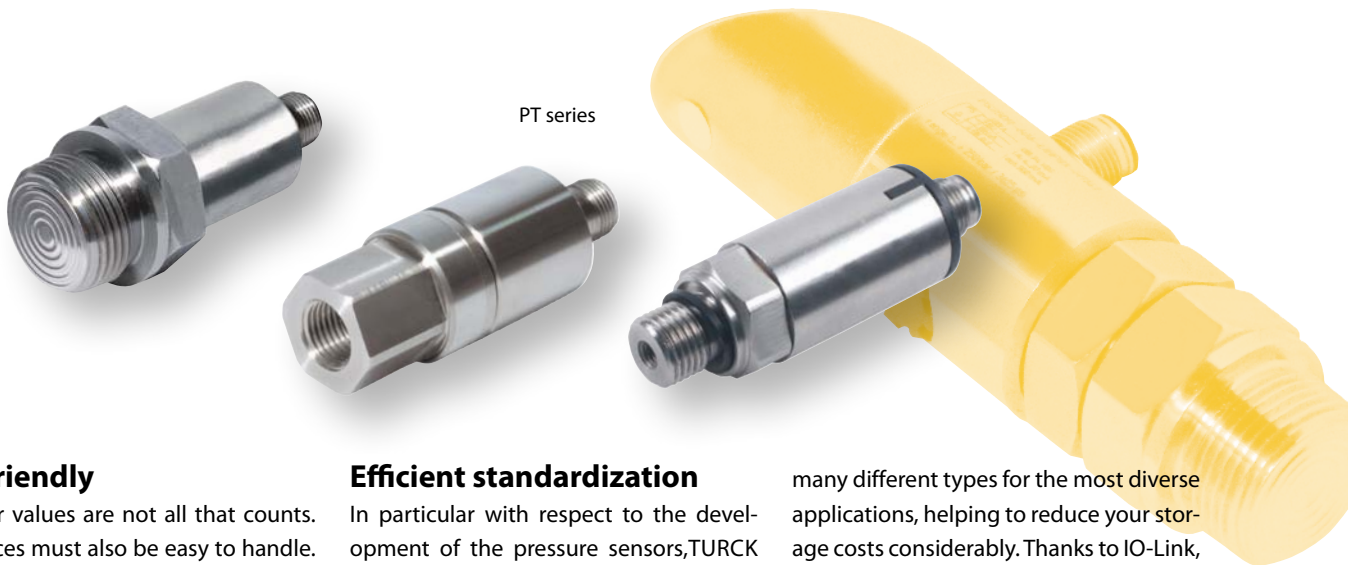
However, it is not only the loads on the measuring side that impose stress on the pressure sensors, but also external influences such as oil spray or EMC emissions. In this respect, TURCK pressure sensors set new standards with protection ratings up to IP69K.



Smart design

The repeatability of devices is often underestimated. Features such as the indication of accuracy and errors are focused on first. It is the correct interpretation of the repeatability, that puts accuracy in the right perspective.

The right choice of material and electronic components is essential for repeatability to be indicated reliably under constant pressure and temperature changes. TURCK has taken this aspect into account and presents a newly designed measuring cell. In order to provide a high degree of repeatability, the measured signals are directly processed on the cell.



PT series

User-friendly

The inner values are not all that counts. The devices must also be easy to handle. Thanks to the generous surfaces, they provide more freedom for mounting and with the right process connection, they can be mounted without adapter. Moreover, the electrical contacts are easily accessible and the different sensor series can be programmed according to the individual requirements. TURCK didn't make compromises in this respect either. The PS series is equipped with a display and programmed via pushbuttons. Both, the PS as well as the PC200 series are IO-Link programmable.

Efficient standardization

In particular with respect to the development of the pressure sensors, TURCK mainly focused on the quality and durability of the devices. This series can be installed in many applications, thanks to a wide measuring range. A 100 bar sensor can be installed in a 10 bar application without problems. Whether used as a pressure switch with two switchpoints or as a measuring device with analog output: All series offer

many different types for the most diverse applications, helping to reduce your storage costs considerably. Thanks to IO-Link, they can be adapted quickly to any application.



PK series

IO-Link communication

IO-Link communication is built on a point-to-point connection between sensor and an interface module. Until now, only switching signals could be transferred via the binary connection. IO-Link instead, enables a combined transfer of switching signals and data - typically 2 bytes per 2 ms cycle. In addition to the process values, also parameters or diagnostic messages can be interchanged.

This way, the entire process down to the sensors is covered to enable integrated communication. IO-Link doesn't need any special wiring. You can continue using the proven, well-priced and unshielded industrial cables. You can also choose between the standard switching or communication mode.

IO-Link solutions



IO-Link

Your advantages with IO-Link:

- Parameters and configurations are safely stored in the system and always retrievable.

- False parametrization is excluded.
- Complex local parametrization no longer applies.
- Interferences on analog lines belong to the past.

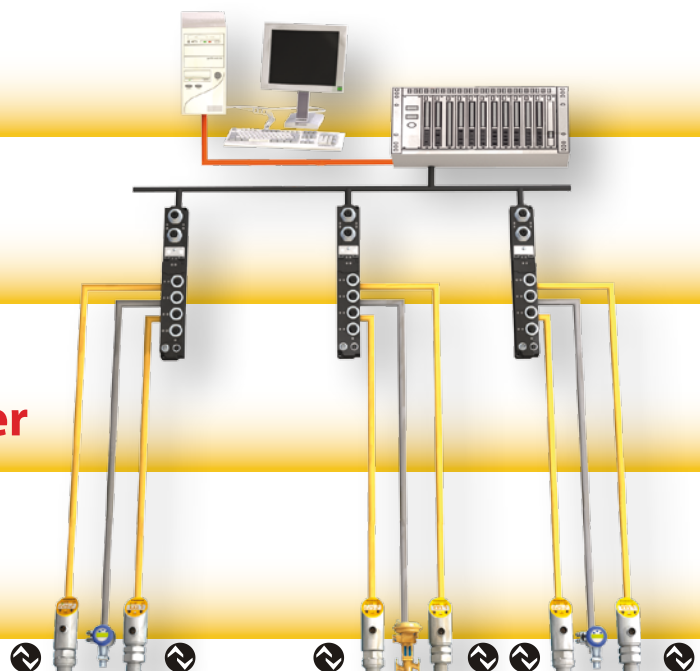
- Comfortable engineering and easy maintenance through FDT/DTM

Control Layer

I/O Layer

Connectivity Layer

Sensor Layer



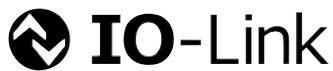


- Ideally suited for demanding hydraulic and pneumatic systems are the pressure sensors of the **PS series**. The devices are incorporated in a stainless steel housing and feature a user-friendly 4-digit 7-segment display. Open standards such as VDMA menu guide and IO-Link are also supported.
- The **PK series** is especially designed for pneumatic and vacuum applications. Rugged, compact and at the same time lightweight designed, they are made for handling and automation systems.
- The **PT series** features pressure transmitters in robust cylindrical housings made of stainless steel. These sensors were developed to resist media temperatures of up to 125 °C without problems. They are available either with a linear voltage or current output.



- The **PC series** comprises types that are fully encapsulated in a stainless steel housing. They are freely programmable and can be installed in hydraulic and pneumatic applications. IO-Link communication is also supported.

PS-300/PS-500 series



- Accuracy 0.5 % f.s.
- IP69K
- High overload capability
- Fully potted housing
- Measuring range -1...+600 bar relative pressure
- Menu guide acc. to VDMA standard sheet 24574-1 (optional)
- Stainless steel 1.4305 (AISI 303)
- PS-500/PS-600 series with rotatable stainless steel body

The sensors of the PS series are rugged and IP69K rated. Thanks to the broad measuring range of -1...+600 bar, they can be applied in numerous hydraulic applications and even in the harshest environments. The measured signals are processed on a ceramic thick-film pressure measuring cell and transferred as a digitized value to the fully potted processor electronics.



PS300

PS500

PS 010V - 3 01 - LI2UPN 8 X - H1 1 4 1

PS 010 V Pressure sensor - **3 01** Type/Pressure connection - **LI2UPN 8 X** Electrical version -

Measuring range

01VR	-1...0 bar g ¹⁾
001R	0...1 bar g ¹⁾
001 V	-1...1 bar g ¹⁾
003 V	-1...2.5 bar g ¹⁾
010 V	-1...10 bar g
016 V	-1...16 bar g
025 V	-1...25 bar g
040 V	-1...40 bar g
100R	1...100 bar g
250R	1...250 bar g
400R	1...400 bar g
600R	1...600 bar g ²⁾

Functional principle

PS Pressure sensor

Pressure connection

01	G1/4" female thread
02	1/4" 18NPT female thread
03	1/4" 18NPT male thread
04	G1/4" male thread
05	7/16" UNF male thread (only for type 5)
06	G3/4" male thread front-flush (only for type 6)
07	1 1/2" Tri-Clamp (only for type 6)
08	G1/2" male thread manometer connection (only for type 5)
09	G1/2" male thread front-flush (only for type 6)
10	R1/4" male thread
11	R1/4" female thread

Design

3	adjustable, with display, non-rotatable sensor body
5	adjustable, with display, rotatable sensor body
6	adjustable, with display, rotatable sensor body, with front-flush membrane

LED display

Operating voltage
8 15 (18)...30 VDC

Output type

2UPN	2 switching outputs/IO-Link
LUUPN	voltage and switching output/IO-Link
LI2UPN	current and switching output/IO-Link

H1 1 4 1 Electrical connection

Assignment

1 standard assignment

Number of contacts

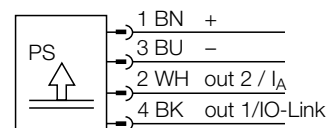
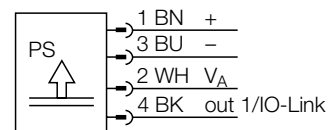
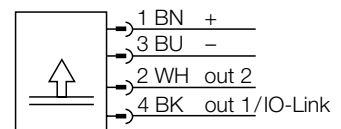
4 4-pin

Connector type

1 straight

Connector type

H1 M12 x 1 male



1) not available for PS...600

2) not available for design 6

PK-N/PK-P series

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Industrial
Automation

- Accuracy 1 % f.s.
- Protection class IP65
- Lightweight design
- 0...50 °C media temperature or window function
- Plastic or aluminium

The PK series is especially designed for pneumatic applications. The sensors are compact, rugged but at the same time

lightweight and thus perfectly suited for handling and automation systems. They feature two switching outputs and are NO/NC programmable in hysteresis mode.

- For pick-and-place applications
- Labelling machines
- Hoists



PK-N



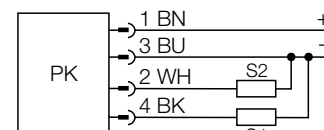
PK-P

PK 01VR - N 12 AL - 2UP 8 X - V1 1 4 1

PK	01VR	Functional principle	-	N	12	AL	Mechanical version	-	2UP	8	X	Electrical version	-
		Measuring range					Housing material					Indication	
	01VR	-1...0 bar g					bare plastic					X... LED display	
	010R	0...10 bar g					AL aluminium					Voltage range	
		Functional principle					Pressure connection					8 15 (18)...30 VDC	
	PK	pressure sensor, compact					12 G1/8" female thread					Output type	
							13 G1/8" male thread					2UP 2 switching outputs PNP	
							14 NPT1/8" male thread						
							Design						
				N			cylinder, axial display						
				P			cylinder, radial display						

V1 1 4 1 Electrical connection

V1	1	4	1	Electrical connection
				Assignment
	1			standard assignment
				Number of contacts
	4			4-pin
				Connector type
	1			straight
				Connector type
V1				M8 male



PT-1 series

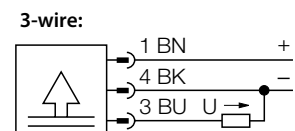
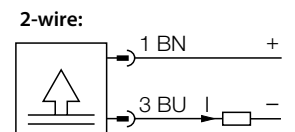
- Accuracy 0.6 % f.s.
- Stainless steel 1.4305 (AISI 303)
- Protection class IP67
- Compact and rugged design
- Excellent EMC properties
- -1...600 bar relative pressure
- 0...25 bar absolute pressure
- -40...+125 °C media temperature
- 4...20 mA or 0...10 V

Equipped with a ceramic measuring cell, a stainless steel body and FPM O-ring, the PT-1 pressure transmitters resist temperatures of up to 125 °C without any problems. The devices fulfill industrial standards and guarantee a long-term stable performance. The patented medium-stop system prevents the discharge of liquids when burst pressure exceeds 40 bar. In normal operating mode they work as a peak pressure aperture.



PT 010V - 1 1 - LI3 - H1 1 3 1

PT 010V	Functional principle	-	1 1	Mechanical version	-	LI3	Electrical version	-
	Measuring range 01VR -1...0 bar g 001R 0...1 bar g 002R 0...1.6 bar g 003R 0...2.5 bar g 004R 0...4 bar g 006R 0...6 bar g 010R 0...10 bar g 016R 0...16 bar g 025R 0...25 bar g 040R 0...40 bar g 100R 0...100 bar g 160R 0...160 bar g 250R 0...250 bar g 400R 0...400 bar g 600R 0...600 bar g 001A 0...1 bar a 002A 0...1.6 bar a 003A 0...2.5 bar a 004A 0...4 bar a 006A 0...6 bar a 010A 0...10 bar a 016A 0...16 bar a 025A 0...25 bar a			Pressure connection 1 G $\frac{1}{4}$ " female thread 2 $\frac{1}{4}$ " 18 NPT female thread 3 $\frac{1}{4}$ " 18 NPT female thread 4 G $\frac{1}{4}$ " male thread 8 G $\frac{1}{2}$ " manometer Design 1 cylinder without display			Electrical version LI3 4...20 mA 2-wire LU2 0...10 V 3-wire	
				Electrical connection H1 1 3 1 Assignment 1 standard assignment Number of contacts 3 3-pin Connector type 1 straight Connector type H1 M12 x 1 male			2-wire: 3-wire: 	
	Functional principle PT pressure transmitter							



PT-2 series

TURCK

Industrial
Automation

- Accuracy 0.5 % f.s.
- Stainless steel 1.4435 (AISI 1.4542)
- Protection class IP67
- Compact and rugged design
- Excellent EMC properties
- 10...400 bar relative pressure
- -40...+85 °C media temperature
- -40...20 mA 2-wire

The PT-2 series offers pressure transmitters with a thin-film measuring cell and a front-flush diaphragm.

They are suited for liquid and gaseous media and are robustly built. The measuring element as well as the housing are directly welded to the pressure connection. This makes the device very insensitive to dirt and therefore especially suitable for the most adverse application conditions. Thanks to the rugged design, they can be applied in harsh environments, at test stands, process engineering, in the industry and research sectors. The pressure transmitters are temperature-compensated and deliver a calibrated output signal



PT 010R - 2 6 - LI3 - H1 1 4 1

PT 010R Functional principle - **2 6** Mechanical version - **LI3** Electrical version -

Measuring range

010R 0...10 bar g
016R 0...16 bar g
025R 0...25 bar g
040R 0...40 bar g
060R 0...60 bar g
100R 0...100 bar g
160R 0...160 bar g
250R 0...250 bar g
400R 0...400 bar g

Functional principle

PT diaphragm

Pressure connection

6 G $\frac{3}{4}$ " male thread, front-flush
9 G $\frac{1}{2}$ " male thread, front-flush

Design

2 front-flush diaphragm, cylinder without display

Electrical version

LI3 4...20 mA 2-wire

H1 1 4 1 Electrical connection

Assignment

1 standard assignment

Number of contacts

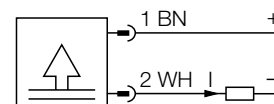
4 4-pin

Connector type

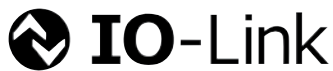
1 straight

Connector type

H1 M12 x 1 male



PC-200 series



- Accuracy 0.5 % f.s.
- IO-Link capable
- stainless steel 1.4305
- Protection class IP69K
- Compact and rugged design
- Excellent EMC properties
- -1...+600 bar relative pressure
- -40...+85 °C media temperature
- 2 switching outputs or communication via IO-Link

The PC-200 series comprises compactly designed pressure switches equipped with a ceramic measuring cell. Pressure sensors in hydraulic systems are exposed to the most diverse application demands and must therefore be extremely rugged. In general, the measured pressures range between 6 and 600 bar, whereby in most cases not static but rather dynamic measurement of pressure is performed. Constant pressure changes impose extreme load on the measuring cells and sealing materials but also on



the housing. Incorporated in a fully encapsulated stainless steel housing, the PC-200 sensors are extremely resilient. The switching status and IO-Link communication are indicated via LED at the M12 connector. The right combination of measuring cell technology, sealing and housing is essential to ensure durable and reliable monitoring of pressure.

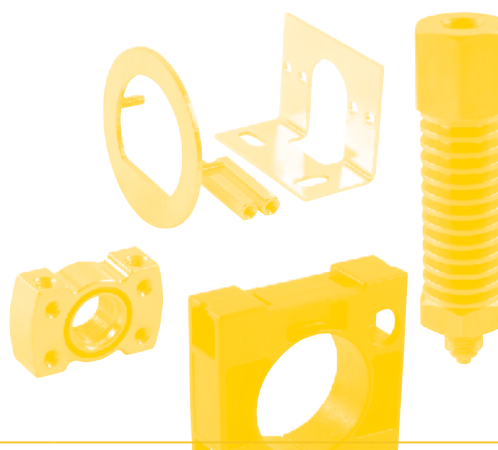
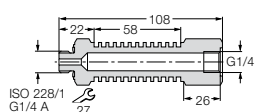
PC 250R - 2 01 - 2UPN 8 X - H1 1 4 1

PC 250R	Functional principle	-	2 01	Mechanical version	-	2UPN 8 X	Electrical version	-
	Measuring range 01VR -1...0 bar g 001R 0...1 bar g 001V -1...1 bar g 003V -1...2.5 bar g 010V -1...10 bar g 016V -1...16 bar g 025V -1...25 bar g 040V -1...40 bar g 100R 1...100 bar g 250R 1...250 bar g 400R 1...400 bar g 600R 1...600 bar g			Pressure connection 01 G $\frac{1}{4}$ " female thread 02 $\frac{1}{4}$ " 18 NPT female thread 03 $\frac{1}{4}$ " 18 NPT male thread 04 G $\frac{1}{4}$ " male thread 10 R $\frac{1}{4}$ " male thread 11 R $\frac{1}{4}$ " female thread Design 2 cylinder without display			Electrical version X LED display Operating voltage 8 15...30 VDC Output type 2UPN 2 switching outputs	
	Functional principle PC Pressure switch							

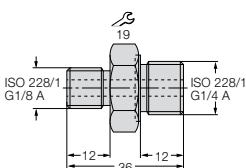
H1 1 4 1	Electrical connection
	Assignment 1 standard assignment Number of contacts 4 4-pin Connector type 1 straight Connector type H1 M12 x 1 male

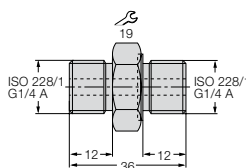


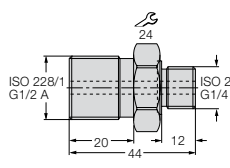
With the available product-specific accessories, the sensors can be mounted almost anywhere. We offer accessories for operating, mounting and protection of the PS and PK series. A cooling section for the PS and PT types helps to cool down high medium temperatures.

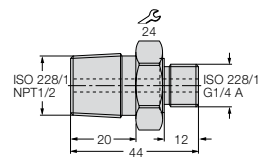

PTs-Cover


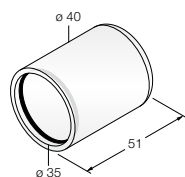
cooling section


PCV-G1/8A4

 threaded tip
G1/4" on G1/8"

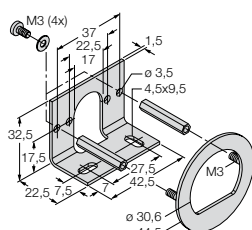
PCV-G1/4A4

 threaded tip
G1/4" on G1/4"

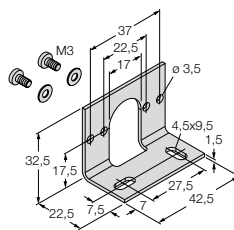
PCV-G1/2A4

 threaded tip
G1/4" on G1/2"

PCV-N1/2A4

 threaded tip
G1/4" on N1/2"

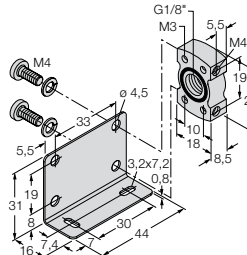
PCS-G1/4A4


closure cap for PS series

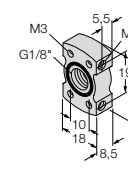

PK-N-MZ-001

 complete mounting kit
PK-N

PK-N-MZ-002


mounting bracket PK-N


PK-P-MZ-001


mounting kit PK-P


PK-P-MZ-002


flange connection PK-P

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D101929 2013/11

