S3S701E1-PLET

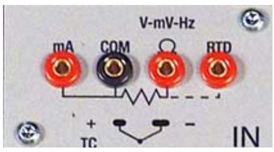
DATASHEET Pascal LAB - ET

Pascal LAB is the most advanced and accurate Scandura equipment for the measurement and simulation of the following parameters:

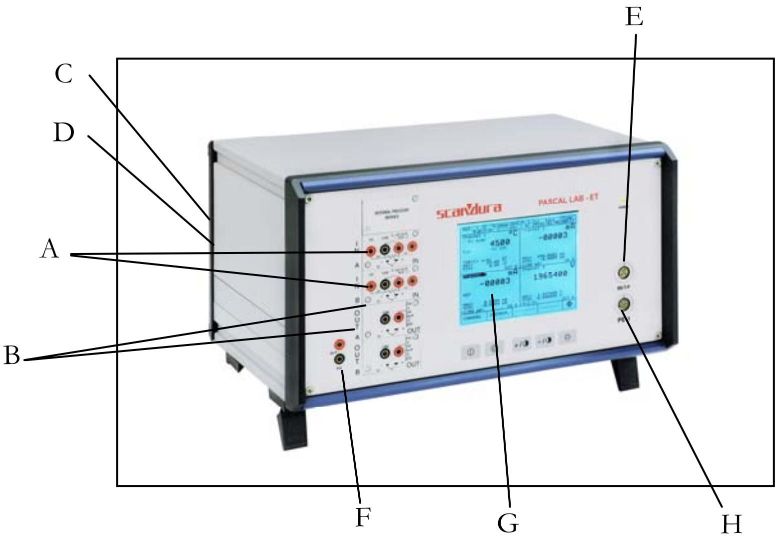
- electrical signals (mA, mV, V, Ω)
- temperature (TC and RTD)
- frequency & pulse
- pressure (with external pressure sensors)

Main Features

- large display with touch screen: user-friendly interface, easy & fast configuration
- up to 4 simultaneous measures
- data storage & calibration reports printing
- bi-directional real-time communication to a PC
- modular configuration: up to 2 input and 2 output modules for the measurement/simulation of the electrical signals/temperature
- environmental parameters module (barometric pressure, ambient temperature, relative humidity)



Example of Input module



A – up to 2 input modules for the measurement of the electrical signals / temperature
B – up to 2 output modules for the simulation of the electrical signals / temperature
C – RS-232 Connector (instrument rear)
D – Power Supply (instrument rear)

E– Connector for the environmental parameters module (RH-T-P)
F - loop supply 24 V dc
G - touch-screen display
H - 1 connector for external pressure sensors

Specifications are subject to change without notice.

Software Functionalities:

- Multilanguage menu-driven user interface
- LCD display with 4 simultaneous measures
- Resolution, filter and scale settings
- Automatic step generation- Functions to perform specific applications
- Large memory to store calibration procedures, data and reports
- Graphical display of calibration results
- Remote control of the instrument through PC
- Datalogging for 4 simultaneous measures
- Multiple engineering unit available

Standard Supply

- PASCAL LAB ET unit (available w or w/o connector for external pressure sensors)
- Power supply cable
- Pascal Link Test Report Software
- Electrical kit (241076)
- Calibration Work Test Report
- Certificate of Conformity
- Operating Manual

Accessories on request

- Environmental parameters sensor
- Calibration certificate issued by accredited lab (SIT *)

* SIT = the Italian accreditation body for calibration labs.

Electric Kit Code 241076
N.4 Flying leads, silicone isulated
N.2 Crocodile terminals
N.2 TC mini plugs

General specifications

Power Supply:	In: 100÷240 V ac 50÷60 Hz
Display:	320 x 240 Dots Dot size:0,34 x 0,34 mm (0,013 x 0,013 in) Eff. Area: 122 x 92 mm (4,6 x 3,6 in) Backlight: LED
Keyboard:	Touch-screen + 5 keys
Communication Ports:	RS-232 connector External Pressure module Environmental sensor connector
Dimensions:	approx. 170Hx260Wx300L
Weight:	approx. 3.5 Kg

Operating temperature:	-10 ÷ 50 °C (14 ÷ 122 °F)
Operating Humidity:	10 % ÷ 90 % not cond.
Storage Temperature:	-30 ÷ 80 °C (-22 ÷ 176 °F)
Storage Humidity:	0 % ÷ 90 % not cond.
Standards:	CEI EN 61326-1 (1998) EN 55011(1999) EN 6100-4-2 (1995) EN 6100-4-3 (1996) EN 6100-4-4 (1995)

Order code

PASCAL LAB-ET	**-xx**	**-xx**	**-x**	**-x**
Electrical/temperature				
One input module	**I**			
Two input modules	**II**			
One output module		**O**		
Two output modules		**OO**		
OPTION				
Pressure connector *			**P**	
Environmental parameters Module (RH-T-P)			**A**	

* connector for external pressure sensors, ranges as per table "Pressure Module"

Pascal Link - Test Report Software

It is the most user friendly program on the market. It has an immediate impact on the calibration operations allowing configuration, in A4 format, of the calibration reports and/or certificates according to users standards.
Automatic calibration and set-up data transfer (over RS 232 serial interface) makes Pascal Link the safer software system to support any calibration procedure according to ISO 9000 standards.
Operating platform: MS-Windows '98 or higher

Specifications are subject to change without notice.

Input Electrical/Temperature module

DC voltage measurement

Range	Full scale	Accuracy (% rdg + % fs)	Uncertainty (% rdg + % fs)	Max Resolution	Note
± 100 mV	100 mV	0,008 + 0,003	0,01 + 0,002	0,0001 mV	1,2,3,5
± 2 V	2 V	0,008 + 0,003	0,01 + 0,002	0,000001 V	1,2,3,5
± 80 V	80 V	0,008 + 0,003	0,01 + 0,002	0,00001 V	1,2,4,5

[1] One year specifications
[2] Temperature effect: 0,001 % rdg/ $|t - t_c|$ for t : -10 °C ≤ t ≤ 19 °C and 23 °C ≤ t ≤ 50 °C and t_c = 20 °C
[3] Input Impedance: > 100 MΩ
[4] Input Impedance: 0,5 MΩ
[5] Maximum input voltage: ± 100 V dc

DC current measurement

Range	Full scale	Accuracy (% rdg + % fs)	Uncertainty (% rdg + % fs)	Max Resolution	Note
± 100 mA	100 mA	0,008 + 0,003	0,01 + 0,003	0,0001 mA	1,2,3,4

[1] One year specifications
[2] Temperature effect: 0,001 % rdg/ $|t - t_c|$ for t : -10 °C ≤ t ≤ 19 °C and 23 °C ≤ t ≤ 50 °C and t_c = 20 °C
[3] Input Impedance: < 20 Ω
[4] Maximum input current: ± 120 mA

Resistance measurement

Range	Full scale	Accuracy (% rdg + % fs)	Uncertainty (% rdg + % fs)	Max Resolution	Note
(0 ÷ 400) Ω	400 Ω	0,008 + 0,003	0,01 + 0,002	0,0001 Ω	1,2,3
(0 ÷ 10000) Ω	10000 Ω	0,008 + 0,002	0,01 + 0,001	0,001 Ω	1,2,3

[1] One year specifications
[2] Temperature effect: 0,001 % rdg/ $|t - t_c|$ for t : -10 °C ≤ t ≤ 19 °C and 23 °C ≤ t ≤ 50 °C and t_c = 20 °C
[3] Meas. Current: < 200 µA

Frequency measurement

Range	Full scale	Accuracy	Uncertainty	Max Resolution	Note
(0,5 ÷ 10000) Hz	50000 Hz	0,01 Hz	0,01 Hz	0,001 Hz	1,2,3,4,6
(10000 ÷ 20000) Hz	50000 Hz	0,1 Hz	0,1 Hz	0,001 Hz	1,2,3,4,5
(20000 ÷ 30000) Hz	50000 Hz	1 Hz	1 Hz	0,001 Hz	1,2,3,4,5
(30000 ÷ 50000) Hz	50000 Hz	20 Hz	20 Hz	0,001 Hz	1,2,3,4,6

[1] Maximum Input Voltage: ± 100 V
[2] Input Impedance: > 100 MΩ
[3] Minimum amplitude of squarewave: 1,5 V p-p @ 50 kHz, 0,7 V p-p @ 5 Hz
[4] Configurable Duty Cycle from 10 % up to 90 % with minimum amplitude of 5 V p-p
[5] for only one frequency input (IN A or IN B) in the same time
[6] for both frequency inputs simultaneously (IN A + IN B)

Specifications are subject to change without notice.

Temperature measurement

RTDs

Type	Range/°C	Accuracy °C	Uncertainty °C	Typical Resolution/°C	Note
Pt100 (385)	-200 ÷ 0	0,05	0,06	0,01	1,10,11,12 13
	0 ÷ 300	0,07	0,09	0,01	
	300 ÷ 850	0,15	0,17	0,01	
Pt100 (3916)	-200 ÷ 0	0,05	0,06	0,01	2,10,11,12 13
	0 ÷ 300	0,07	0,09	0,01	
	300 ÷ 850	0,15	0,17	0,01	
Pt100 (3902)	-200 ÷ 0	0,05	0,06	0,01	3,10,11,12 13
	0 ÷ 300	0,07	0,09	0,01	
	300 ÷ 850	0,15	0,17	0,01	
Pt100 (3926)	-200 ÷ 0	0,05	0,06	0,01	4,10,11,12 13
	0 ÷ 300	0,07	0,09	0,01	
	300 ÷ 850	0,15	0,17	0,01	
Pt100 (3923)	-200 ÷ 0	0,05	0,06	0,01	5,10,11,12 13
	0 ÷ 300	0,07	0,09	0,01	
	300 ÷ 850	0,15	0,17	0,01	
Pt200 (385)	-200 ÷ 0	0,05	0,06	0,01	1,10,11,12 13
	0 ÷ 300	0,09	0,1	0,01	
	300 ÷ 850	0,18	0,21	0,01	
Pt500 (385)	-200 ÷ 0	0,05	0,06	0,01	1,10,11,12 13
	0 ÷ 300	0,09	0,1	0,01	
	300 ÷ 850	0,18	0,21	0,01	
Pt1000 (385)	-200 ÷ 0	0,05	0,06	0,01	1,10,11,12 13
	0 ÷ 300	0,09	0,1	0,01	
	300 ÷ 850	0,18	0,21	0,01	
Pt1000 (3916)	-200 ÷ 0	0,05	0,06	0,01	2,10,11,12 13
	0 ÷ 300	0,09	0,1	0,01	
	300 ÷ 850	0,18	0,21	0,01	
Ni100 (617)	-60 ÷ 0	0,04	0,05	0,01	6,10,11,12 13
	0 ÷ 100	0,05	0,06	0,01	
	100 ÷ 180	0,05	0,06	0,01	
Ni120 (672)	0 ÷ 100	0,04	0,05	0,01	7,10,11,12 13
	100 ÷ 150	0,05	0,05	0,01	
Cu10 (42)	-70 ÷ 0	0,23	0,28	0,1	8,10,11,12 13
	0 ÷ 40	0,24	0,29	0,1	
	40 ÷ 150	0,27	0,3	0,1	
Cu100	-180 ÷ 0	0,06	0,07	0,01	9,10,11,12 13
	0 ÷ 80	0,07	0,08	0,01	
	80 ÷ 150	0,08	0,09	0,01	

[1] IEC 751 (α = 0,00385 °C^{-1})
[2] JIS C1604 (α = 0,003916 °C^{-1})
[3] U.S. Standard (α = 0,003902 °C^{-1})
[4] Old U.S. Standard (α = 0,003926 °C^{-1})
[5] SAMA (α = 0,003923 °C^{-1})
[6] DIN 43760 (α = 0,00617 °C^{-1})
[7] (α = 0,00672 °C^{-1})
[8] (α = 0,0042 °C^{-1})
[9] (α = 0,0042 °C^{-1})
[10] Spec. for 4-wire measurements with $I_{meas.}$< 0,2 mA
[11] One year specifications
[12] Temperature effect: (see resistance measurement)
[13] Meas. Current: < 200 µA

Thermocouples

Type	Range/°C	Accuracy (% rdg + % fs)	Uncertainty (% rdg + % fs)	Lin. Error / °C	Typical Resolution/°C	Note
J						
	-190 ÷ 0	0,008 + 0,003	0,01 + 0,002	0,05	0,01	1,2,3,4,5,6
	0 ÷ 1200	0,008 + 0,003	0,01 + 0,002	0,04	0,01	
K						
	-160 ÷ 0	0,008 + 0,003	0,01 + 0,002	0,06	0,01	1,2,3,4,5,6
	0 ÷ 1260	0,008 + 0,003	0,01 + 0,002	0,04	0,01	
T						
	-130 ÷ 0	0,008 + 0,003	0,01 + 0,002	0,05	0,01	1,2,3,4,5,6
	-0 ÷ 400	0,008 + 0,003	0,01 + 0,002	0,04	0,01	
F						
	0 ÷ 400	0,008 + 0,003	0,01 + 0,002	0,05	0,1	1,2,3,4,5,6
R						
	150 ÷ 1760	0,008 + 0,003	0,01 + 0,002	0,04	0,1	
S						
	170 ÷ 1768	0,008 + 0,003	0,01 + 0,002	0,04	0,1	
B						
	920 ÷ 1820	0,008 + 0,003	0,01 + 0,002	0,1	0,1	1,2,3,4,5,6
U						
	-160 ÷ 0	0,008 + 0,003	0,01 + 0,002	0,04	0,01	1,2,3,4,5,6
	0 ÷ 400	0,008 + 0,003	0,01 + 0,002	0,04	0,01	
L						
	-200 ÷ 0	0,008 + 0,003	0,01 + 0,002	0,03	0,01	1,2,3,4,5,6
	-0 ÷ 760	0,008 + 0,003	0,01 + 0,002	0,04	0,01	
N						
	0 ÷ 1300	0,008 + 0,003	0,01 + 0,002	0,04	0,01	
E						
	-200 ÷ 0	0,008 + 0,003	0,01 + 0,002	0,03	0,01	
	0 ÷ 1000	0,008 + 0,003	0,01 + 0,002	0,04	0,01	
C						
	0 ÷ 2000	0,008 + 0,003	0,01 + 0,002	0,05	0,1	1,2,3,4,5,6

[1] Accuracy and Uncertainty of the e.m.f. values
[2] for measurements with internal C.J. compensation: C.J. error = 0,15 °C
[3] Maximum input voltage: ± 100 V dc
[4] Input Impedance: > 100 MΩ
[5] Temperature effect: 0,001 % rdg/ $|t - t_c|$ for t : -10 °C ≤ t ≤ 19 °C and 23 °C ≤ t ≤ 50 °C and t_c = 20 °C
[6] One year specifications

Output Electrical/Temperature module

DC voltage Output

Range	Full scale	Accuracy (% rdg + % fs)	Uncertainty (% rdg + % fs)	Max Resolution	Note
(0 ÷ 100) mV	100 mV	0,01 + 0,003	0,015 + 0,003	0,0001 mV	1,2,3
(0 ÷ 2) V	2 V	0,01 + 0,003	0,015 + 0,002	0,000001 V	1,2,4
(0 ÷ 20) V	20 V	0,015 + 0,003	0,02 + 0,003	0,00001 V	1,2,4

[1] One year specifications
[2] Temperature effect: 0,001 % Output/|t – t_c| for t : -10 °C ≤ t ≤ 19 °C and 23 °C ≤ t ≤ 50 °C and t_c = 20 °C
[3] Output Impedance = 10 Ω - Rlmin > 1 kΩ
[4] Output Impedance < 30 mΩ - Rlmin > 1 kΩ

DC current Output

Range	Full scale	Accuracy (% rdg + % fs)	Uncertainty (% rdg + % fs)	Max Resolution	Note
(0 ÷ 20) mA	20 mA	0,02 + 0,003	0,025 + 0,003	0,0001 mA	1,2,3

[1] One year specifications
[2] Temperature effect: 0,002 % Output/|t – t_c| for t : -10 °C ≤ t ≤ 19 °C and 23 °C ≤ t ≤ 50 °C and t_c = 20 °C
[3] Output Impedance > 100 MΩ - Rlmax < 750 Ω

Resistance sourcing

Range	Full scale	Accuracy (% rdg + % fs)	Uncertainty (% rdg + % fs)	Max Resolution	Note
(0 ÷ 400) Ω	400 Ω	0,008 + 0,003	0,01 + 0,002	0,0001 Ω	1,2
(0 ÷ 10000) Ω	10000 Ω	0,008 + 0,002	0,01 + 0,001	0,001 Ω	1,2

[1] One year specifications
[2] Temperature effect: 0,002 % Output/|t – t_c| for t : -10 °C ≤ t ≤ 19 °C and 23 °C ≤ t ≤ 50 °C and t_c = 20 °C

Frequency sourcing

Range	Full scale	Accuracy	Uncertainty	Max Resolution	Note
(0,5 ÷ 20000) Hz	20000 Hz	0,1 Hz	0,1 Hz	0,004 Hz	

Temperature simulation

RTDs

Type	Range/°C	Accuracy °C	Uncertainty °C	Typical Resolution/°C	Note
Pt100 (385)	-200 ÷ 0	0,05	0,06	0,01	1,10,11
	0 ÷ 300	0,07	0,09	0,01	
	300 ÷ 850	0,15	0,17	0,01	
Pt100 (3916)	-200 ÷ 0	0,05	0,06	0,01	2,10,11
	0 ÷ 300	0,07	0,09	0,01	
	300 ÷ 850	0,15	0,17	0,01	
Pt100 (3902)	-200 ÷ 0	0,05	0,06	0,01	3,10,11
	0 ÷ 300	0,07	0,09	0,01	
	300 ÷ 850	0,15	0,17	0,01	
Pt100 (3926)	-200 ÷ 0	0,05	0,06	0,01	4,10,11
	0 ÷ 300	0,07	0,09	0,01	
	300 ÷ 850	0,15	0,17	0,01	
Pt100 (3923)	-200 ÷ 0	0,05	0,06	0,01	5,10,11
	0 ÷ 300	0,07	0,09	0,01	
	300 ÷ 850	0,15	0,17	0,01	
Pt200 (385)	-200 ÷ 0	0,05	0,06	0,01	1,10,11
	0 ÷ 300	0,09	0,1	0,01	
	300 ÷ 850	0,18	0,21	0,01	
Pt500 (385)	-200 ÷ 0	0,05	0,06	0,01	1,10,11
	0 ÷ 300	0,09	0,1	0,01	
	300 ÷ 850	0,18	0,21	0,01	
Pt1000 (385)	-200 ÷ 0	0,05	0,06	0,01	1,10,11
	0 ÷ 300	0,09	0,1	0,01	
	300 ÷ 850	0,18	0,21	0,01	
Pt1000 (3916)	-200 ÷ 0	0,05	0,06	0,01	2,10,11
	0 ÷ 300	0,09	0,1	0,01	
	300 ÷ 850	0,18	0,21	0,01	
Ni100 (617)	-60 ÷ 0	0,04	0,05	0,01	6,10,11
	0 ÷ 100	0,05	0,06	0,01	
	100 ÷ 180	0,05	0,06	0,01	
Ni120 (672)	0 ÷ 100	0,04	0,05	0,01	7,10,11
	100 ÷ 150	0,05	0,05	0,01	
Cu10 (42)	-70 ÷ 0	0,23	0,28	0,1	8,10,11
	0 ÷ 40	0,24	0,29	0,1	
	40 ÷ 150	0,27	0,3	0,1	
Cu100	-180 ÷ 0	0,06	0,07	0,01	9,10,11
	0 ÷ 80	0,07	0,08	0,01	
	80 ÷ 150	0,08	0,09	0,01	

[1] IEC 751 (α = 0,00385 °C^{-1})
[2] JIS C1604 (α = 0,003916 °C^{-1})
[3] U.S. Standard (α = 0,003902 °C^{-1})
[4] Old U.S. Standard (α = 0,003926 °C^{-1})
[5] SAMA (α = 0,003923 °C^{-1})
[6] DIN 43760 (α = 0,00617 °C^{-1})
[7] (α = 0,00672 °C^{-1})
[8] (α = 0,0042 °C^{-1})
[9] (α = 0,0042 °C^{-1})
[10] One year specifications
[11] Temperature effect: (see resistance sourcing)

Thermocouples

Type	Range/°C	Accuracy (% rdg + % fs)	Uncertainty (% rdg + % fs)	Lin. Error / °C	Typical Resolution/°C	Note
J						
	-190 ÷ 0	0,01 + 0,003	0,015 + 0,003	0,05	0,01	1,2
	0 ÷ 1200	0,01 + 0,003	0,015 + 0,003	0,04	0,01	
K						
	-160 ÷ 0	0,01 + 0,003	0,015 + 0,003	0,06	0,01	1,2
	0 ÷ 1260	0,01 + 0,003	0,015 + 0,003	0,04	0,01	
T						
	-130 ÷ 0	0,01 + 0,003	0,015 + 0,003	0,05	0,01	1,2
	-0 ÷ 400	0,01 + 0,003	0,015 + 0,003	0,04	0,01	
F						
	0 ÷ 400	0,01 + 0,003	0,015 + 0,003	0,05	0,1	1,2
R						
	150 ÷ 1760	0,01 + 0,003	0,015 + 0,003	0,04	0,1	
S						
	170 ÷ 1760	0,01 + 0,003	0,015 + 0,003	0,04	0,1	
B						
	920 ÷ 1820	0,01 + 0,003	0,015 + 0,003	0,1	0,1	1,2
U						
	-160 ÷ 0	0,01 + 0,003	0,015 + 0,003	0,04	0,01	1,2
	0 ÷ 400	0,01 + 0,003	0,015 + 0,003	0,04	0,01	
L						
	-200 ÷ 0	0,01 + 0,003	0,015 + 0,003	0,03	0,01	1,2
	-0 ÷ 760	0,01 + 0,003	0,015 + 0,003	0,04	0,01	
N						
	0 ÷ 1300	0,01 + 0,003	0,015 + 0,003	0,04	0,01	
E						
	-200 ÷ 0	0,01 + 0,003	0,015 + 0,003	0,03	0,01	
	0 ÷ 1000	0,01 + 0,003	0,015 + 0,003	0,04	0,01	
C						
	0 ÷ 2000	0,01 + 0,003	0,015 + 0,003	0,05	0,1	1,2

[1] Accuracy and Uncertainty of the e.m.f. generation
[2] for temperature simulation with internal C.J. compensation: C.J. error = 0,15 °C

Pressure module*

External transducers

Type	Range	Accuracy (% fs)	Uncertainty (% fs)	Typical Resolution	Note
Gauge					
PSP-1/1.5	-900 ÷ 1500 mbar	0,015	0,015	0,01 mbar	1,2,3
PSP-1/8	-1 ÷ 7 bar	0,015	0,015	0,1 mbar	1,2,3
PSP-1/22	-1 ÷ 21 bar	0,015	0,015	0,1 mbar	1,2,3
PSP-1/50	0 ÷ 50 bar	0,015	0,015	1 mbar	1,2,3
PSP-1/100	0 ÷ 100 bar	0,015	0,015	1 mbar	1,2,3
PSP-1/200	0 ÷ 200 bar	0,07	0,09	10 mbar	1,2,3
PSP-1/400	0 ÷ 400 bar	0,07	0,09	100 mbar	1,2,3
PSP-1/700	0 ÷ 700 bar	0,07	0,09	100 mbar	1,2,3
Absolute					
PSP-1/1.5A	0 ÷ 1500 mbar Abs.	0,015	0,015	0,01 mbar	1,2,3
PSP-1/2.5A	0 ÷ 2500 mbar Abs.	0,015	0,015	0,01 mbar	1,2,3
PSP-1/81A	0 ÷ 80 bar abs	0,015	0,015	1 mbar	1,2,3

[1] One year specifications
[2] Temperature effect: 0,002 % rdg/ $|t - t_c|$ for t : 0 °C ≤ t ≤ 18 °C and 28 °C ≤ t ≤ 50 °C and t_c = 20 °C
[3] pneumatic connection: depend on the Pascal 100 model

***OTHER PRESSURE RANGES AVAILABLE ON REQUEST**

Environmental parameters module

Parameter	Range	Accuracy	Uncertainty	Max Resolution	Note
Temperature	(-10 ÷ 50) °C	1,5 °C	1,8 °C	0,1 °C	
Barometric Pressure	(650 ÷ 1150) mbar	4 % fs	5 % fs	1 mbar	
Relative Humidity	10 % ÷ 90 %	4 %	5 %	1 %	

Specifications are subject to change without notice.

How to compare specifications

Accuracy or Uncertainty

Usually the SCANDURA declarations concerning the metrological aspects involve the uncertainty approach.
Since some ambits seem to prefer a declaration that involves the word "Accuracy" instead of the "Uncertainty", we have decided to report this value into our specifications also, giving to the customer the possibility to understand the difference.
Actually, in a different way from what it happens for the "Uncertainty", that it is well defined, the "Accuracy" it is not: in details, referring to the international rules, the term " accuracy" is just a qualitative term (e.g. you can say that a measurement is "accurate" or "not accurate") instead the "Uncertainty" is a quantitative term. Accordingly when a "plus or minus" figure is quoted, it should be only an "Uncertainty", not an "Accuracy": in spite of this fact, many technical datasheets report the term "Accuracy" followed by a number. In general it's possible to read that the "Accuracy" includes: non-linearity, hysteresis and non-repeatability. so, under the name "Accuracy", we have reported the contribution of these components to the Total Extended Uncertainty. In the same way, under the name "Uncertainty" the Total Extended Uncertainty has been reported: this value includes all the components of the Uncertainty and has been given with a confidence level of around 95 %. Only to give an idea on how these values have been carried out we report here below the components of the "Accuracy" and those of the "Uncertainty" taken into consideration.

Accuracy:

- hysteresis
- non-repeatability
- non-linearity

Uncertainty:

- hysteresis
- non-repeatability
- non-linearity
- instrument resolution
- indication error
- uncertainty of the reference instrument used to measure the components above-mentioned

The methods to calculate the contribution of these components are in accordance to the international rules: ISO GUM "Guide to Expression of Uncertainty in Measurement", ISO ENV 13005.
For the declaration of the "Accuracy" see: ISA 51.1

Temperature compensation

As the instrument can be used in different environmental conditions, the correction of the indication error due to the temperature effect has be done separately.

For the pressure parameters:
temperature effect: 0,002 % rdg/ $|t - t_c|$ from 0 °C to 50 °C
where:

- t_c is the calibration temperature equal 20 °C;
- t is the ambient temperature;
- % rdg means that the value is reported in percent of the measuring point reading (eg.: 10 bar).

E.g.: if the instrument will be used at a temperature t equal to 20 °C this temperature error contribution will be equal zero.

Percent of reading or full scale

The "Accuracy" such as the "Uncertainty" can be declared in percentage of the reading (% rdg) or in percentage of the full scale (% fs).
For the pressure parameters (e.g.: for strain gauge pressure sensors) we declare in percent of the full scale. Why? In this case, in fact, the hysteresis contribution, that is an important value in the calculation process, strictly depends on the maximum pressure point and, to be conservative, we assume for this value the full scale.