



## CALYS 80P

Field pressure calibrator with high accuracy 0.01%

CALYS 80P is a field pressure calibrator within CALYS range with high accuracy of 0.01%.

## Description

CALYS 80P is a field pressure calibrator within CALYS range with high accuracy of 0.01%. CALYS are the perfect tools for advanced process maintenance and use on test bench in non-hazardous areas. Suitable for all field and lab measurements, CALYS 80P is dedicated to simultaneous measurement and generation over two isolated channels of pressure and process signals. It can also measure resistance signals and resistive probes.

Providing extended functionalities (temperature simulation, scaling, steps, synthesizer, statistical functions...) and audit trails, CALYS series makes advanced data exploitation and full data traceability easier. CALYS can store and recall up to 10 complete instrument configurations with manual or automatic recall for easy and quick work in the field and more than 1,500 measurements with date and time.

The dual channel display allows a simultaneous indication of the measured and the simulated values. The graphic mode allows the trend to be displayed.

### Pressure calibration:

Single or dual range internal pressure modules can be configured in CALYS 80P to provide gauge, absolute and differential pressure measurements. External interchangeable pressure module can be connected to any model in order to extend the pressure range up to 700 bar.



Using this user-friendly instrument, calibration tasks can be quickly carried out over the whole process chain. Take the 1.4 kg documenting process calibrator to the field with you during the whole week with **10 calibration procedures stored** in the device. Run the procedure after connecting the probes to the instrument and save the results for onsite easy and quick calibration. Back to the office, you can then upload the data on a computer in order to **issue customized calibration certificates** with dedicated calibration software DATACAL.



## Key features:

- Switch test, leak test

# Specifications

## Specifications and performances in temperature @23°C ±5°C

Uncertainty is given in % of reading (CALYS 80P display) + fixed value.

### Resistive probes: Measurement and simulation

Sensor	Range (Input and Output)	Resolution	Accuracy / 1 year
Pt100 (α = IEC)	-200°C to +850°C	0.01°C	0.01% RDG + 0.05°C
Pt100 (α = OIML)	-200°C to +850°C	0.01°C	0.01% RDG + 0.05°C
Pt100 (α = 3926)	-200°C to +850°C	0.01°C	0.01% RDG + 0.05°C
Pt100 (α = 3902)	-200°C to +650°C	0.01°C	0.01% RDG + 0.05°C
Pt100 (α = JIS SAMA)	-200°C to +600°C	0.01°C	0.01% RDG + 0.05°C
Pt200 (α = 3851)	-200°C to +850°C	0.1°C	0.01% RDG + 0.15°C
Pt500 (α = 3851)	-200°C to +850°C	0.1°C	0.01% RDG + 0.1°C
Pt1000 (α = IEC)	-200°C to +850°C	0.1°C	0.01% RDG + 0.1°C
Pt1000 (α = OIML)	-200°C to +850°C	0.1°C	0.01% RDG + 0.1°C
Cu10 (α = 427)	-70°C to +150°C	0.1°C	0.01% RDG + 0.4°C
Cu100 (α = 428)	-180°C to +150°C	0.1°C	0.01% RDG + 0.05°C
Ni100 (α = 618)	-60°C to +180°C	0.1°C	0.01% RDG + 0.05°C
Ni120 (α = 672)	0°C to +150°C	0.1°C	0.01% RDG + 0.05°C

Connections: 2, 3 and 4 wires

Rtd measurement excitation current: 0.2 mA

Rtd cable compensation: up to 100 mΩ (for each wire)

Rtd cable compensation error (Pt100): ±0.005°C/ of total wire

Maximum load resistance: 600 Ω @ 20 mA

## Specifications and performances in pressure @23°C ±5°C

### Pressure

Pressure media: AISI 316 SS compatible fluids (water, gas, and oil)

Temperature compensation: Automatic with built-in calibration matrix

Engineering units: mbar, bar, hPa, kPa, Mpa, kg/cm<sup>2</sup>, kg/m<sup>2</sup>, psi, mmH<sub>2</sub>O, cmH<sub>2</sub>O, mH<sub>2</sub>O, Torr, atm, lb/ft<sup>2</sup>, inH<sub>2</sub>O, FTH<sub>2</sub>O, mmHg, cmHg, mHg, inHg

Accuracy: accuracies given for 1 year, include non linearity, hysteresis, and repeatability.

Temperature coefficient inside the temperature compensated range: ±0.002% RDG /°C

Compensation range: 0°C to 45°C

### Measurement by internal pressure module

Reference	Range	Resolution
IPM000100G	-100 / 100 mbar Gauge	0.001 mbar
IPM000500G	-500 / 500 mbar Gauge	0.01 mbar
IPM002000G	-0.95 / 2 bar Gauge	0.01 mbar
IPM007000G	-0.95 / 7 bar Gauge	0.1 mbar
IPM020000G	-0.95 / 20 bar Gauge	0.1 mbar
IPM002000A	2 bar Absolute	0.01 mbar
IPM020000A	20 bar Absolute	0.1 mbar

Accuracy:  $\pm 0.025\%$  F.S.  
Overpressure: 125% F.S.  
Port: female, 1/8" BSP

### Measurement by external pressure module

Reference	Range	Resolution
EPM000100G	-100 / 100 mbar Gauge	0.001 mbar
EPM000500G	-500 / 500 mbar Gauge	0.01 mbar
EPM001000G	-0.95 / 1 bar Gauge	0.01 mbar
EPM002000G	-0.95 / 2 bar Gauge	0.01 mbar
EPM007000G	-0.95 / 7 bar Gauge	0.1 mbar
EPM200000G	-0.95 / 20 bar Gauge	0.1 mbar
EPM035000G	0.95 / 35 bar Gauge	1 mbar
EPM070000G	0 / 70 bar Gauge	1 mbar
EPM150000G	0 / 150 bar Gauge	1 mbar
EPM350000G	0 / 350 bar Gauge	10 mbar
EPM700000G	0 / 700 bar Gauge	1 mbar
EPM002000A	2 bar Absolute	0.01 mbar
EPM020000A	20 bar Absolute	0.1 mbar

Accuracy:  $\pm 0.025\%$  F.S.  
Overpressure: 125% F.S.  
Port: male, 1/4" BSP  
Connection wire length: 2 m

## Specifications and performances in process @23°C $\pm 5^\circ\text{C}$

### DC voltage: Measurement and simulation

Type	Range	Resolution	Accuracy / 1 an
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Measurement	-20 mV to +200 mV	1 $\mu$ V	0.01% RDG + 3 $\mu$ V
	-0,2 V to +2 V	10 $\mu$ V	0.01% RDG + 10 $\mu$ V
	-2 V to +29 V	100 $\mu$ V	0.01% RDG + 100 $\mu$ V
Emission	-20 mV to +200 mV	1 $\mu$ V	0.01% RDG + 3 $\mu$ V
	-0,2 V to +2 V	10 $\mu$ V	0.01% RDG + 10 $\mu$ V
	-2 V to +20 V	100 $\mu$ V	0.01% RDG + 100 $\mu$ V

Input impedance:

< 10 M $\Omega$  for ranges up to 2 V

> 500 k $\Omega$  for ranges up to 29 V

Output impedance (emf output): < 0.5  $\Omega$  with a maximum current of 0.5 mA

Output noise (at 300 Hz):

< 2  $\mu$ V pp for ranges up to 200 mV

< 10  $\mu$ V pp for ranges up to 2 V

< 80  $\mu$ V pp for ranges up to 20 V

## DC current: Measurement and simulation

With or without loop supply

Type	Range	Resolution	Accuracy / 1 an
Measurement	-5 mA to 50 mA	0.1 $\mu$ A	0.01% RDG + 0.4 $\mu$ A
Emission	0 mA to 50 mA	0.1 $\mu$ A	0.01% RDG + 0.4 $\mu$ A

Input impedance: < 20  $\Omega$  at 1 mA

Emission limited to 21 mA max on passive current loop

Loop supply: 24 V  $\pm$ 5%

## Resistance: Measurement

Range	Resolution	Accuracy / 1 an
0 to 500 $\Omega$	1 m $\Omega$	0.01% RDG + 12 m $\Omega$
0 to 5000 $\Omega$	10 m $\Omega$	0.01% RDG + 120 m $\Omega$

Connections: 2, 3 and 4 wires

Measurement excitation current: 0.2 mA

Maximum load resistance: 1000  $\Omega$  @ 20 mA

## Further features

Scaling in measurement and simulation modes	Setup of zero and span programmable within -399999 and +999999 Scaling allows process signals to be displayed in % of FS or in all other units. This function also allows sensors to be corrected after a calibration.
Square root	In combination with scaling function
Statistical functions	hold, max, min, offset, zero, average

Transmitters tests	<p>The feature enables any pressure or temperature transmitter to be controlled and calibrated with simultaneous display of input and output values in % F.S. or in actual unit.</p> <p>The measuring circuit is also able to power the loop for a direct connection to the transmitter under test.</p>
Transmitter function	<p>CALYS 80P can be used as a transmitter. Any input signal (electric or pressure) can be converted into a 4-20 mA output.</p> <p>The galvanic insulation between the input and output channels allows this function to be used on the process directly.</p>
Switch test	<p>Temperature, signal and pressure switches can be tested using this advanced procedure. The calibrator will hold the display reading when the contact changes status.</p>
Leak test	<p>CALYS 80P can detect pressure leakage through a test procedure carrying out 4 pressure fall measurements in a programmable time interval.</p>

## General specifications

Size	290 x 98 x 57 mm
Weight	<p>Nett: 1.4 kg</p> <p>Gross: 2.5 kg</p>
Display	<p>240 x 320 pixel liquid crystal graphical display with backlite and contrast control</p> <p>Display of result as table of values or trend curve</p>
Temperature stability	<p>Span: <math>\pm 8</math> ppm /<math>^{\circ}</math>C</p> <p>Zero: <math>\pm 0.2</math> <math>\mu</math>V /<math>^{\circ}</math>C</p>
Measurement sampling time	250 ms
Temperature coefficient	$\pm 0.002\%$ RDG / $^{\circ}$ C
Power supply	100 - 120 - 230 VAC $\pm 10\%$ , 50/60 Hz
Battery	<p>Type: Rechargeable Ni-Mh</p> <p>Charging time: 8 h at 90% and 10 h at 99%, if instrument switched off</p> <p>Life time: 8 h (Tc and V), 4 h at 20 mA</p>
Communication ports	RS 232, full bidirectional TTL
Storage capacity	<p>&gt; 1,500 measured values</p> <p>20 data with manual or automatic recall</p>

## Environmental specifications

Reference range	23 $^{\circ}$ C $\pm 5^{\circ}$ C (RH: 45 to 75 % condensing)
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Operating reference range	-10 to 55°C (RH: 95 % non condensing)
Storage temperature limits	0°C to +60°C (without battery)
Maximum height	0 to 2000 m
IP protection	IP54 according to EN60529

## Safety specifications

Protections	<ul style="list-style-type: none"><li>• Thermal fuse</li><li>• High voltage suppressor</li><li>• Resistor-diode voltage limiter</li></ul>
Class	class II 1G Ex ia IIC T4 (-20°C from T Ambient to +50°C)



## Models and accessories

### Instrument:

CALYS80P      On-site documenting pressure calibrator with high accuracy 0.01%

#### Delivered in standard with:

- Internal pressure module to select from the list below
- Battery charger
- Protection rubber holster
- Factory test report

### Internal pressure sensors - AISI316SS - $\pm 0.025\%$ FS: (2 maximum)

IPM000100G	-100 / 100 mbar (gauge) - Res. 0.001 mbar
IPM000500G	-500 / 500 mbar (gauge) - Res. 0.01 mbar
IPM002000G	-0.95 / 2 bar (gauge) - Res. 0.01 mbar
IPM007000G	-0.95 / 7 bar (gauge) - Res. 0.1 mbar
IPM020000G	-0.95 / 20 bar (gauge) - Res. 0.1 mbar
IPM002000A	2 bar (absolute) - Res. 0.01 mbar
IPM020000A	20 bar (absolute) - Res. 0.1 mbar

### External pressure sensors - AISI316SS - $\pm 0.025\%$ FS:

EPM000100G	-100 / 100 mbar (gauge) - Res. 0.001 mbar
EPM000500G	-500 / 500 mbar (gauge) - Res. 0.01 mbar
EPM001000G	-0.95 / 1 bar (gauge) - Res. 0.01 mbar
EPM002000G	-0.95 / 2 bar (gauge) - Res. 0,01 mbar
EPM007000G	-0.95 / 7 bar (gauge) - Res. 0.1 mbar
EPM020000G	-0.95 / 20 bar (gauge) - Res. 0.1 mbar
EPM035000G	-0.95 / 35 bar (gauge) - Res. 0.1 mbar
EPM070000G	-0.95 / 70 bar (gauge) - Res. 0.1 mbar
EPM150000G	-0.95 / 150 bar (gauge) - Res. 1 mbar
EPM700000G	-0.95 / 700 bar (gauge) - Res. 1 mbar
EPM002000A	2 bar (absolute) - Res. 0.01 mbar
EPM020000A	20 bar (absolute) - Res. 0.1 mbar

## External hand pump:

F3280013	From -0.8 to 2 bar pressure pump
F3280019	From -0.95 to 40 bar pressure pump
F3280018	From 0 to 350 bar oil / water pump
F3280015	External 700 bar oil / water pump
F3280015	External 700 bar oil / water pump with high pressure hose + EE372008
F3280016	External 1000 bar oil/water pump with high pressure hose + EE372008
F3280022	700 bar oil/water compact bench
EE480053	1/4" BSPM / NPT F kit (1/8"; 1/4"; 3/8"; 1/2")
EE480054	1/4" BSPM / BSP kit (1/2" M; 1/2" F, 3/8" F, 1/8" F)

## Further accessories:

EE300040	Electrical signal test leads
BB880043	Vinyl carrying case with accessories folder
BB530212	USB Cable
BB530203	RS232 PC Cable
EE300122	Compensated TC cables J; K; T; R, S
EE300204	MiniDin Connectors Kit Tc J, K, T, S Female connector
EE300205	MiniDin Connectors Kit Tc J, K, T, S Male connector

## Software:

DATA CAL MC	Calibration software for CALYS 60 IS / 80 IS / 120 IS / 80P / 80P IS Supplied with USB cable
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## Certification:

QMA11EN	COFRAC certificate of calibration With all relevant data points where the device has been tested
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## Packing information:

Size	290 mm x 98 mm x 57 mm
Weight (nett)	1.4 kg



Weight (gross) 2.5 kg