



*General Catalogue DP*

**2015**

# Differential pressure and air velocity measurement instruments

*for*



***Clean rooms***

***Micro environments***

***Laminar flow systems***

***Filter monitoring***

***HVAC applications***



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## Table of contents

<b>Pascal mass flow product line</b> .....	<b>3</b>
PascalSwitch 20 / 100 .....	4
PascalDat 20 / 100 .....	4
PascalVision 20 / 100 .....	4
PascalSwitch-C 20 / 100 .....	5
Accessories .....	5
<b>Pascal-ST/Z membrane product line</b> .....	<b>8</b>
Pascal-STS 50 / 200 Z .....	9
Pascal-STVS 50 / 200 Z .....	9
Pascal-STD 50 / 200 Z .....	9
Pascal-STV 50 / 200 Z .....	10
Accessories .....	10
<b>PascalMaxx membrane product line</b> .....	<b>12</b>
PascalMaxx 50 / 500 / 2000 Z .....	13
Accessories .....	13
<b>CaliBox 200 calibrator &amp; reference</b> .....	<b>15</b>
CaliBox 200 / spare parts .....	16
<b>CIC-Touch display</b> .....	<b>17</b>
<b>Product overview transmitters/calibrators</b> .....	<b>18</b>



# Pascal mass-flow differential pressure measurement instruments



Novasina mass flow differential pressure measuring instruments are capable of measuring pressure differences in very low ranges of  $\pm 20$  Pa and  $\pm 100$  Pa. These devices have been developed for monitoring and controlling in clean rooms, laminar flow boxes, fan filter units, mini environments etc.

## Main features:

Measurement ranges	:	-20 ... +20 Pa and -100 ... +100 Pa	
Measurement interval	:	150 ms ... 1350 ms	(configurable)
Operating temperature	:	0...+50°C	(not condensing)
Measurement accuracy	:	$\pm 0.25$ % FS	(full scale)
		or	
		$\pm 1.5$ % m.v.	(measured value)
Max. resolution	:	0.016 Pa	(20-series)
		0.07 Pa	(100-series)
Offset-Drift( at 20 °C)	:	<0.1 Pa/Year	
Max. overpressure	:	$\pm 2$ bar	( $\pm 200'000$ Pa)
Configuration	:	<b>PascalTool WIN SW</b>	(Win98/NT/2000/XP/Vista/Windows7)

## Differential pressure measurement systems Pascal mass flow transmitters

The Novasina differential pressure gauges are high precision measurement instruments for monitoring and controlling pressure differences of gaseous media in low ranges. The measurement method is based on the principle of mass flow measurement similar to the anemometric measurement method.

The sensor implementing this innovative method does not have any moving parts such as diaphragms etc. This makes very high accuracy, reproducibility, reliability and long-term stability possible.

The user friendly program **PascalTool-WIN** simplifies the calibration and configuration of the instruments. This software is available as free download from our homepage and can be installed easily on the appropriate hardware (Windows-PC).

For more information please visit our homepage.

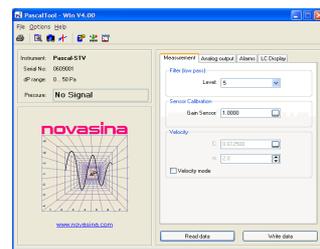
[www.novasina.com](http://www.novasina.com)

## Technical data :

Dimensions	:	68x119x29mm
Weight	:	160 g
Measurement ranges:		-20 ... +20 Pa -100 ... +100 Pa
Measurement intervals:		150 ... 1350 ms
Max. resolution:		0.016 Pa (20-series) 0.07 Pa (100-series)
Measurement accuracy:		$\pm 0.25$ % of full scale or $\pm 1.5$ % of meas. value
Temperature effect:		<0.05% m.v./°C
Atm. pressure effect:		0.1% m.v./hPa
Hysteresis:		0.00%
Offset drift (at 20 °C):		<0.1 Pa/Year
Max. overpressure:		2 bar
Operating temp.:		0 ... 50 °C (not condensing)
Power supply:		10.5 ... 35 VDC
Protection:		IP 54 / EMC

## Applications:

- clean rooms
- mini environments
- clean room air locks
- laminar flow boxes
- air filter monitoring
- air velocity measurement
- leak detection systems



Configuration with PascalTool-WIN: can be easily performed with a PC Windows 95, 98, NT, 2000, XP, Vista, Windows 7



## Pascal MASS FLOW product line



[111 5961](#) Switch 20

### PascalSwitch 20

High precision instrument for monitoring pressure differences in low ranges of  $-20$  to  $20$  Pa. The measurement method is based on the principle of mass flow measurement which enables very high accuracy, reproducibility, reliability and long-term stability. The integrated LED's show when a freely programmable threshold is crossed.

#### Technical data:

- Measurement range  $0 \dots 20$  Pa
- 2 adjustable threshold values
- 2 relays (make- and break)
- Configuration by PascalTool-WIN
- Power supply  $11 \dots 31.5$  VDC
- Power consumption max.  $1.2$  Watt
- Weight:  $340$ g



[111 5962](#) Switch 100

### PascalSwitch 100

Same construction as the *PascalSwitch 20* but with a  $-100$  to  $+100$  Pa range sensor.

*Typical applications for the PascalSwitch are:  
Pressure monitoring in single clean rooms and local warning. Air locks, filter monitoring, mini environments, laminar flow boxes.*

#### Technical data:

- Measurement range  $0 \dots 100$  Pa
- 2 Adjustable threshold values
- 2 Relays (make- and break)
- Configuration by PascalTool-WIN
- Power supply  $11 \dots 31.5$  VDC
- Power consumption max.  $1.2$  Watt
- Weight:  $340$ g



[111 5963](#) Dat 20

### PascalDat 20

The *PascalDat 20* is a high precision device for measuring and controlling pressure differences in low ranges of  $-20$  to  $+20$  Pa. The measurement method is also based on the principle of mass flow measurement. This device has a scalable analogue output and is suitable for monitoring as well as for controlling. Specially designed for clean rooms, it makes rapid and accurate on-site differential pressure measurements in a simple way.

#### Technical data:

- Measurement range  $-20 \dots +20$  Pa
- Digital interface RS 232
- Analogue output:  $0 \dots 10$ V,  $2 \dots 10$ V  
 $0 \dots 20$ mA,  $4 \dots 20$ mA
- Configuration by PascalTool-WIN
- Power supply  $11.5 \dots 31.5$  VDC
- Power consumption max.  $3$  Watt
- Weight:  $340$ g



[111 5964](#) Dat 100

### PascalDat 100

Same construction as the *PascalDat 20* but with a  $-100$  to  $+100$  Pa range sensor.

*Typical applications for the PascalDat are:  
Monitoring and controlling of differential pressure in clean rooms, mini environments and insulators as well as fan filter units and airflow velocity in laminar flow boxes.*

#### Technical data:

- Measurement range  $-100 \dots +100$  Pa
- Digital interface RS 232
- Analogue output:  $0 \dots 10$ V,  $2 \dots 10$ V  
 $0 \dots 20$ mA,  $4 \dots 20$ mA
- Configuration by PascalTool-WIN
- Power supply  $11.5 \dots 31.5$  VDC
- Power consumption max.  $3$  Watt
- Weight:  $340$ g



[111 6844](#) Vision 20

### PascalVision 20

This gauge is a high performance device for measuring, controlling and displaying pressure differences in the low range of  $-20$  to  $+20$  Pa. The measurement method is based on the principle of mass flow measurement. This device has a scalable analogue output and is suitable for monitoring as well as for controlling. Specially designed for clean rooms, it rapidly makes and displays accurate, on-site differential pressure measurements in a simple way.

#### Technical data:

- Measurement range  $-20 \dots +20$  Pa
- LCD-Display
- Digital interface RS 232
- Analogue output:  $0 \dots 10$ V,  $2 \dots 10$ V  
 $0 \dots 20$ mA,  $4 \dots 20$ mA
- Configuration by PascalTool-WIN
- Power supply  $11.5 \dots 31.5$  VDC
- Power consumption max.  $3$  Watt
- Weight:  $340$ g



[111 6845](#) Vision 100

### PascalVision 100

Same construction as the *PascalVision 20* but with a  $-100$  to  $+100$  Pa range sensor.

*Typical applications for the PascalVision are:  
Monitoring, controlling and displaying of differential pressure in clean rooms, mini environments and insulators as well as fan filter units and airflow velocity in laminar flow boxes.*

#### Technical data:

- Measurement range  $-100 \dots +100$  Pa
- LCD-Display
- Digital interface RS 232
- Analogue output:  $0 \dots 10$ V,  $2 \dots 10$ V  
 $0 \dots 20$ mA,  $4 \dots 20$ mA
- Configuration by PascalTool-WIN
- Power supply  $11.5 \dots 31.5$  VDC
- Power consumption max.  $3$  Watt
- Weight:  $340$ g



## Special versions



[111 6386](#) Switch-C 20

### PascalSwitch-C 20

The *PascalSwitch-C 20* is identical to the *PascalSwitch 20*, except that it is equipped with a **special RS-232 interface for simple point-to-point communication with a PC instead of relay outputs.**

#### Technical data:

- Measurement range 0 ... 20 Pa
- 2 Adjustable threshold values
- 2 Relays (make and break)
- Configuration by PascalTool-WIN
- Power supply 11 ... 31.5 VDC
- Power consumption max. 1.2 Watt
- RS-232 interface to PC
- Weight: 340g



[111 6387](#) Switch-C100

### PascalSwitch-C 100

Same construction as the *PascalSwitch-C 20* but with a  $-100$  to  $+100$  Pa range sensor.

#### Technical data:

- Measurement range  $-100..+100$  Pa
- 2 Adjustable threshold values
- 2 Relays (make and break)
- Configuration by PascalTool-WIN
- Power supply 11 ... 31.5 VDC
- Power consumption max. 1.2 Watt
- RS-232 interface to PC
- Weight: 340g

## Accessories



[252 4210](#)  
power supply EU/US/JP

### External power supply

90...260VAC/EUR

External power supply, for voltage range 90 to 260 VAC with exchangeable plugs EU/US/JP.

From the secondary side this power supply can be connected directly to all Pascal mass flow types.

#### Technical data:

- Primary side (plug):
- Voltage range: 90 ... 260VAC
- EU/US/JP plug
- Secondary side (open end cable) :
- Voltage: 24V DC +/- 5%
- Cable ends unshielded and ready for connection.
- Weight: 90 gr



[111 6332](#) Nozzle straight

### Connecting nozzle straight

Straight connecting diameter changing nozzle from 6 mm to hose with inner diameter 8 mm (standard hose diameter for Novasina Pascal gauges).

#### Technical data:

- Material: Plastic / FPM
- Diam. reduction from 8 to 6 mm
- Fixable with a cable clamp
- Dimensions:  $\varnothing$  10/8/5 x 12 mm
- Weight : 1g



[111 5968](#) Nozzle 90°

### Connecting nozzle 90°

Connecting nozzle for wall mounting



#### Technical data:

- Material: Plastic / FPM
- 90° diversion for wall hole mounting in clean rooms
- Fixable with a cable clamp
- Dimensions:  $\varnothing$  8/5 x 20 x 31 mm
- Weight : 2g



**111 6305** Cover cap

**Cover cap**

*Spare part*

Cover cap for housing fixing screws

Suitable for all *Pascal* types

**Technical data:**

- Material: PE 750
- Dimensions: Ø 9.5/7.8 x 8 mm
- Weight: 0.5g



**111 6333** Protective plug

**Protective plug**

*Spare part*

Protective plug for interface socket

Suitable for all *Pascal* types

**Technical data:**

- Material: rubber
- Dimensions: ø 8/3.5 x 10 mm
- Weight: 0.5g



**111 6848** Software

**PascalTool-WIN**

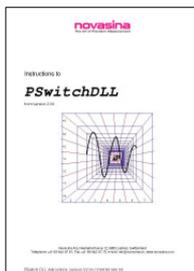
*Configuration program for Windows*

Configuration program PascalTool-WIN for instrument set-up and calibration

->Delivered on a CD.

**Requirements:**

Windows PC with CD drive  
Windows 95 / NT / 2000 / XP / Vista  
Windows 7  
Usable with PascalSwitch, PascalDat and PascalVision



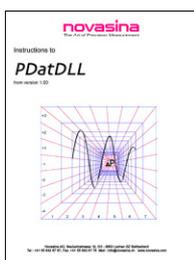
**111 6376** PSwitch DLL

**Development SW Pascal SwitchDLL**

*PSwitchDLL* (Dynamic Link Library) makes it possible to integrate up to 99 *PascalSwitch* gauges into a Process Control System. Measured values are received in the background and are immediately available on request without any time lag. Pressure values from the *Pascal-Switch* are compensated for hose length, atmospheric pressure and ambient humidity. Header files are available for Borland Delphi 5.0 and Borland C++ Builder 5.0. Support for other development systems are the responsibility of the user. An event-routine can be defined, callable whenever data is received.

**Requirements:**

Windows PC with CD drive  
Windows 95/98 / NT / 2000 / XP / Vista / Windows 7  
RS-232 interface  
**Usable with PascalSwitch C only**  
Weight: 250g



**111 7545** PDat DLL

**Development SW kit Pascal DatDLL**

With this *PDatDLL* (Dynamic Link Library) you are able to integrate up to 99 *PascalDat / Vision* into a Process Control System. The measuring values will be received in the background and are immediately available on request without any time lag. The *PascalDat* or *Vision* can be configured by this DLL. Header files are available for Borland Delphi 5.0. Support for other development systems are the responsibility of the user. Two event-routines can be defined that are callable when data is received or an error is flagged.

**Requirements:**

Windows PC with CD drive  
Windows 95/98 / NT / 2000 / XP / Vista / Windows 7  
RS-232 interface  
**Usable with PascalDat and PascalVision only**  
Weight: 250g



**111 6849** Cable PC

**Programming cable to PC (DB9)**

Programming cable for connecting a PC to a *Pascal-Switch, PascalDat* or *PascalVision*

**Composed of:**

- Cable length: 1,5 m
- Special stereo plug on Pascal
- D-Sub 9 plug on the PC side
- Weight: 95g



**111 9415** USB-RS-232 converter

**PC/Laptop converter USB-RS232**

*to PC/Laptop for COM applications*

For Laptops without D-Sub RS232 interface to convert a USB to RS-232 signal. For Windows, MAC or Linux systems.

Such converters are also available in computer shops.

**USB to RS-232 converter:**

- Cable length : 100 cm
  - Weight : 50 g
  - Connector : D Sub-9 (COM Port)
  - Socket : USB connector
- Cable supplied incl. driver software



**111 7603** Certificate

**Factory calibration**  
*at 3 measurement points*

Factory calibration and check on a checking station under standard conditions including appropriate documents und certificates.

**Attention:** *Due to the requested configuration and compensation of hose lengths, absolute pressure and relative air humidity, an FDA validation requires performing an IQ and OQ on the application.*

**Factory calibration** including certificate at 3 measurement points.

Only possible without an installed hose.

The tests are done by a calibrated and certified reference differential pressure gauge.



**111 6074** Configuration

**Customer specific configuration**

On demand, specific configurations can be defined as factory settings.

All requested parameters must be provided in advance in a specially prepared Excel spread sheet form.

The Excel-based form should be filled in by the end-user to ensure accurate configuration.



# Pascal-ST/Z membrane differential pressure measurement instruments



Thanks to an outstanding sensor technology, optimised measurement electronic, software and an **integrated automatic zero-point calibration**, these instruments excel with their extremely accurate and stable readings.

Various software functions for adjustment, password protection, measurement filters and intervals, scalable outputs as well as alarm settings emphasise the versatility of this instrument. Its application areas are consequently vast and it is ideal for demanding controls.

For the first time ever a membrane differential pressure instrument offers such outstanding performances at such competitive prices!

## Main features:

Measurement ranges	: 0...+50 Pa / 0...+200 Pa	(unidirectional)
Measurement accuracy at 20°C	50 : +/- 0.3%	(of the full scale)
	200 : +/- 0.1%	(of the full scale)
Hysteresis	: +/- 0.15 Pa	(over the full scale)
Typical offset drift	: +/- 0.15 Pa	(automatic zeropoint calibration)
Configuration	: PascalTool-WIN SW	(Win98/NT/2000/XP/Vista/Windows7)

## Differential pressure measuring system Pascal-ST/Z membrane transmitters

The Pascal-ST/Z differential pressure measuring devices are precision instruments for monitoring and controlling pressure differences of gaseous media in low ranges. The measurement principle is based on the static differential pressure detection with a silicon membrane.

Beside a high robustness and accuracy this devices offer an easy and intuitive handling and start up. The zero calibration is performed automatically and so the instrument is ready for use immediately after its installation.

All other configurations can be done using the user friendly **PascalTool-WIN** software (from version V 4.11). The software can be downloaded for free from the Novasina homepage and installed on a local personal computer (Windows).

For more information please visit our homepage.

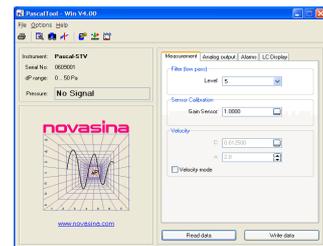
[www.novasina.com](http://www.novasina.com)

## Technical data:

Dimensions:	68 x 119 x 29 mm
Weight:	ca. 160 g
Meas. ranges:	0...+50 Pa 0...+200 Pa
Max. resolution:	0.1 Pa (50-series) 0.1 Pa (200-series)
Meas. accuracy:	50: +/- 0.3% (of full scale) 200: +/- 0.1% (of full scale)
Temperature effect:	50 : < 0.01 Pa / °C 200 : < 0.03 Pa / °C
Hysteresis:	+/- 0.15 Pa (const. Temp.)
Offset-Drift:	+/- 0.15 Pa (auto zero)
Max. overpressure:	+/- 20'000 Pa
Operating temp.:	5...45°C
Power supply:	10.5... 35 VDC
Protection:	IP 54 / EMC

## Applications:

- clean rooms, mini environments, clean room air locks
- laminar flow boxes
- air filter monitoring
- air velocity in ducts with pitot tubes
- leak detection systems
- isolators



**Configuration with PascalTool-WIN:**  
can be easily performed with a PC  
Windows 95, 98, NT, 2000, XP, Vista,  
Windows 7



## Pascal-ST/Z MEMBRANE product line



**260 0036** Pascal  
STS 50 Z

### Pascal-STS 50 Z

Measurement instrument for monitoring and alarm for differential pressures in low ranges of 0 to +50 Pa (unidirectional). The measurement principle is based on a silicon membrane for static measurement. The installation is a closed system (no air mass flow). The exceeding or under-running of the **freely selectable alarm levels** are displayed by integrated LED. Two galvanic separated, corresponding to the LED, relays can be used for an external alarm installation.

#### Technical data:

- Measurement range: 0 ... 50 Pa
- 2 selectable thresholds red/green LED indicators
- 2 relays (close/make contact)
- Configuration by PascalTool-WIN software
- Power supply: 10.5 ... 35 VDC
- Power consumption max. 2.5 W
- Relays contacts: 2 x 48V, 2 A
- Weight: 320 gr



**260 0040** Pascal  
STS 200 Z

### Pascal-STS 200 Z

Measurement instrument for monitoring and alarm for differential pressures in low ranges of 0 to +200 Pa (unidirectional). The measurement principle is based on a silicon membrane for static measurement. The installation is a closed system (no air mass flow). The exceeding or under-running of the **freely selectable alarm levels** are displayed by integrated LED. Two galvanic separated, corresponding to the LED, relays can be used for an external alarm installation.

#### Technical data:

- Measurement range: 0 ... 200 Pa
- 2 selectable thresholds red/green LED indicators
- 2 relays (close/make contact)
- Configuration by PascalTool-WIN software
- Power supply: 10.5 ... 35 VDC
- Power consumption max. 2.5 W
- Relays contacts: 2 x 48V, 2 A
- Weight: 320 gr



**260 0037** Pascal  
STVS 50 Z

### Pascal-STVS 50 Z

Same instrument with alarm functions as the Pascal-STS 50 Z, with additional integrated LCD display though. The display can be set to different units using the configuration software.

The device can also measure and display, by converting the differential pressure, the air velocity value. This setting can be done by the PascalTool WIN software.

#### Technical data:

- Measurement range: 0 ... 50 Pa
- 2 selectable thresholds red/green LED indicators
- 2 relays (close/make contact)
- Configuration by PascalTool-WIN software
- Display: LCD Dot Matrix
- Power supply: 10.5 ... 35 VDC
- Power consumption max. 2.5 W
- Relays contacts: 2 x 48V, 2 A
- Weight: 320 gr



**260 0041** Pascal  
STVS 200 Z

### Pascal-STVS 200 Z

Same instrument with alarm functions as the Pascal-STS 200 Z, with additional integrated LCD display though. The display can be set to different units using the configuration software.

The device can also measure and display, by converting the differential pressure, the air velocity value. This setting can be done by the PascalTool WIN software.

#### Technical data:

- Measurement range: 0 ... 200 Pa
- 2 selectable thresholds red/green LED indicators
- 2 relays (close/make contact)
- Configuration by PascalTool-WIN software
- Display: LCD Dot Matrix
- Power supply: 10.5 ... 35 VDC
- Power consumption max. 2.5 W
- Relays contacts: 2 x 48V, 2 A
- Weight: 320 gr



**260 0034** Pascal  
STD 50 Z

### Pascal-STD 50 Z

Measurement instrument for monitoring and alarm for differential pressures in low ranges of 0 to +50 Pa (unidirectional). The measurement principle is based on a silicon membrane for static measurement. The installation is thus a closed system (no air mass flow). The measured value goes on for controlling or data collection on a configurable **analogue output** (U: 0/2...10V, I: 0/4...20 mA). The exceeding or under-running of the free selectable alarm levels are displayed by integrated LED.

#### Technical data:

- Measurement range: 0 ... 50 Pa
- Output: analogue output  
U : 0/2...10VDC (max.500 Ohm)  
I : 0/4...20mA (max.500 Ohm)  
freely scalable & adjustable
- Configuration by PascalTool-WIN software
- Power supply: 10.5 ... 35 VDC
- Power consumption max. 2.5 W
- Weight: 320 gr



**260 0038** Pascal  
STD 200 Z

### Pascal-STD 200 Z

Measurement instrument for monitoring and alarm for differential pressures in low ranges of 0 to +200 Pa (unidirectional). The measurement principle is based on a silicon membrane for static measurement. The installation is thus a closed system (no air mass flow). The measured value goes for controlling or data collection on a configurable **analogue output** (U: 0/2...10V, I: 0/4...20 mA). The exceeding or under-running of the free selectable alarm levels are displayed by integrated LED.

#### Technical data:

- Measurement range: 0 ... 200 Pa
- Output: analogue output  
U : 0/2...10VDC (max.500 Ohm)  
I : 0/4...20mA (max.500 Ohm)  
freely scalable & adjustable
- Configuration by PascalTool-WIN software
- Power supply: 10.5 ... 35 VDC
- Power consumption max. 2.5 W
- Weight: 320 gr



**260 0035** Pascal  
STV 50 Z

### Pascal-STV 50 Z

Measurement instrument for monitoring and alarm for differential pressures in low ranges of 0 to +50 Pa (unidirectional). The measurement principle is based on a silicon membrane for static measurement. The installation is thus a closed system (no air mass flow). The measured value is displayed on a Dot Matrix LCDisplay. This value goes for controlling or data collection on a configurable **analogue output** (U: 0/2...10V, I: 0/4...20 mA). The exceeding or under-running of the free selectable alarm levels are displayed by integrated LED.

#### Technical data:

- Measurement range: 0 ... 50 Pa
- Output: analogue output  
U : 0/2...10VDC (max.500 Ohm)  
I : 0/4...20mA (max.500 Ohm)  
freely scalable & adjustable
- Configuration by PascalTool-WIN software
- Display: LCD Dot Matrix
- Power supply: 10.5 ... 35 VDC
- Power consumption max. 2.5 W
- Weight: 320 gr



**260 0039** Pascal  
STV 200 Z

### Pascal-STV 200 Z

Measurement instrument for monitoring and alarm for differential pressures in low ranges of 0 to +200 Pa (unidirectional). The measurement principle is based on a silicon membrane for static measurement. The installation is thus a closed system (no air mass flow). The measured value is displayed on a Dot Matrix LCDisplay. This value goes for controlling or data collection on a configurable **analogue output** (U: 0/2...10V, I: 0/4...20 mA). The exceeding or under-running of the free selectable alarm levels are displayed by integrated LED.

#### Technical data:

- Measurement range: 0 ... 200 Pa
- Output: analogue output  
U : 0/2...10VDC (max.500 Ohm)  
I : 0/4...20mA (max.500 Ohm)  
freely scalable & adjustable
- Configuration by PascalTool-WIN software
- Display: LCD Dot Matrix
- Power supply: 10.5 ... 35 VDC
- Power consumption max. 2.5 W
- Weight: 320 gr



**111 6848** Software

### PascalTool-WIN

*Configuration program for Windows*

Configuration program PascalTool-WIN for instrument set-up and calibration

->Delivered on a CD.

#### Requirements:

Windows PC with CD drive

Windows 95 / NT / 2000 / XP / Vista / Windows 7

Usable with Pascal STS, STVS, STD, STV / Z

## Accessories



**252 4210**  
power supply EU/US/JP

### External power supply

90...260VAC/EUR

External power supply, for voltage range 90 to 260 VAC with exchangeable plugs EU/US/JP.

From the secondary side this power supply can be connected directly to all Pascal ST/Z types.

#### Technical data:

- Primary side (plug):
- Voltage range: 90 ... 260VAC
- EU/US/JP plug
- Secondary side (open end cable) :
- Voltage: 24V DC +/- 5%
- Cable ends unshielded and ready for connection.
- Weight: 90 gr



**111 6849** Cable PC

**Programming cable to PC (DB9)**

Programming cable for connecting a PC to all *Pascal-ST/Z types*.

**Composed of:**

- Cable length: 1,5 m
- Special stereo plug on Pascal
- D-Sub 9 plug on the PC side
- Weight: 95g



**111 9415**  
USB-RS-232 converter

**PC/Laptop converter USB-RS232**

to PC/Laptop for COM applications

For Laptops without D-Sub RS232 interface to convert a USB to RS-232 signal. For Windows, MAC or Linux systems.

Such converters are also available in computer shops.

**USB to RS-232 converter:**

- Cable length : 100 cm
- Weight : 50 g
- Connector : D Sub-9 (COM Port)
- Socket : USB connector

Cable supplied incl. driver software



**252 3481** Zero-cal. plug

**Zero calibration plug to Pascal-ST**  
*(only for old Pascal-ST without automatic zero point calibration)*

Zero calibration plug **as spare part** for zero calibration of former Pascal-ST version with following PN: 252 1062; -1066, -1067; -1068; -1077; -1079; -1080; -1081.

The Pascal-ST firmware recognises the plug automatically and performs the zero calibration without any other additional configuration.

**Technical data:**

Special plug with internal short circuit bridge  
Weight: 10 gr

Available separately as spare part



**111 7603** Certificate

**Factory calibration**  
*at 3 measurement points*

Factory calibration and check on a checking station under standard conditions including appropriate documents und certificates.

Factory calibration including certificate at 3 measurement points.

The tests are done by a calibrated and certified reference differential pressure gauge.



**111 6074** Configuration

**Customer specific configuration**

On demand, specific configurations can be defined as factory settings.

All requested parameters must be provided in advance in a specially prepared Excel spread sheet form.

The Excel-based form should be filled in by the end-user to ensure accurate configuration.



**111 6333** plug black

**Protection plug black**

Protection plus for RS-232 front socket. Colour, black.

Available for all *Pascal* models **as spare part**

**Technical data:**

Material: plastic / FPM  
Dimensions: ø 8/3.5 x 10  
Colour: black  
Weight: 0.5 gr



**111 7038** plug white

**Protection plug white**

Protection plus for RS-232 front socket. Colour, white.

Available for all *Pascal* models **as spare part**

**Technical data:**

Material: plastic / FPM  
Dimensions: ø 8/3.5 x 10  
Colour: white  
Weight: 0.5 gr

**Attention:** This protection plug is made of silicone!



# PascalMaxx membrane differential pressure measurements instruments

*for clean rooms and HVAC applications*



Differential pressure measurement, made easy!

The *PascaMaxx*, a measurement instrument for pressure ranges up to 2000 Pa, which is typically used in HVAC (Heating, Ventilation, Air Conditioning) or clean room applications (50 Pa version), is provided with the most modern technology. Thanks to the high quality membrane sensor, optimised measurement electronics and **integrated automatic zero-point calibration** this device is able to measure pressure differences at high levels with best accuracy, repeatability and stability.

Various functions, which can be chosen and set by the front keypad buttons make this system extremely versatile and adaptive. For each application, even the most specific, this instrument can be configured and integrated perfectly.

### Main features:

Measurement ranges	:	-50..+50 Pa / 0...+500 Pa / 0...+2000 Pa
Measurement accuracy	:	+/-50 : +/-0.5% (of the full scale)
	:	500 : +/-0.25% (of the full scale)
	:	2000 : +/- 0.5% (of the full scale)
Offset drift	:	< 2 Pa / year (automatic zero calibration)
Configuration	:	by keypad buttons

## Differential pressure measuring system PascalMaxx

*Accurate, fast, versatile, adaptive, robust, stable, cost efficient*

With the new PascalMaxx, Novasina widens its product line. After the HygroMaxx for rel. humidity and temperature measurement Novasina launches now the new differential pressure measurement instrument for ranges up to 2'000 Pa.

The PascalMaxx outstands by its versatility and easy operability. A real added value is offered by the **integrated fully automatic zero-point calibration system**, which is adjusting drifts continuously and makes the measurement device stable and insensitive to mounting position.

### Other features:

- scalable analogue output U/I
- relay contact for alarm threshold
- setting of contact status of relay (NO / NC)
- possibility of a 2 point control
- password protection system
- 2 point calibration capability (zero and gain)
- big, clear readable LCDisplay

### Technical data:

Dimensions:	110x118x50 mm
Weight:	approx. 200 g
Meas. ranges:	-50...+50 Pa 0... +500 Pa 0...+2000 Pa
Max. resolution:	0.1 Pa (50 / 500 Pa range) 1 Pa (2000 Pa range)
Meas. accuracy:	50: +/-0.5% (of full scale)
at +20°C over	500: +/-0.25% (of full scale)
full meas. range	2000: +/-0.5% (of full scale)
Temperature effect:	50 : +/- 2% of m.v / °C 500 : +/- 1% of m.v / °C 2000 : +/- 1% of m.v./ °C
Offset-Drift :	< 2 Pa / year with automatic zero calibration
Max. overpressure:	50 : +/- 25'000 Pa 500 : +/- 25'000 Pa 2000 : +/- 50'000 Pa
Operating temp.:	0...50°C
Power supply:	19.2 ... 28.8 VDC
Protection:	IP 41 / EMC

### Applications:

- Clean room pressure control
- HVAC filter and fan belt monitoring
- HVAC flap controls
- air flow in ducts with pitot tube
- leak detection systems



## PascaMaxx



**260 0955**

PascalMaxx 50 Z

### PascalMaxx 50 Z (bidirectional)

Measurement instrument for monitoring and controlling the differential pressure in rooms. Measurement range -50 to +50 Pa (**bidirectional**). The measurement principle is based on a piezo-resistive silicon membrane. Together with the analogue signal output U/I this instrument is provided with an integrated 230V relay, whose contact thresholds can be freely set by the device keypad buttons. The big, clear LCDisplay facilitates the reading of the measurement values.

#### Technical data:

- Measurement range: -50...+50 Pa
- 1 adjustable threshold
- 1 analogue output U/I
- Power supply: 19.2 ... 28.8 VDC
- Power consumption max. 2 Watt
- Relay: 230V, 2 A
- Weight: approx. 200 gr



**260 0091**

PascalMaxx 500 Z

### PascalMaxx 500 Z

Measurement instrument for monitoring and controlling the differential pressure in HVAC applications. Measurement range 0 to +500 Pa (**unidirectional**). The measurement principle is based on a piezo-resistive silicon membrane. Together with the analogue signal output U/I this instrument is provided with an integrated 230V relay, whose contact thresholds can be freely set by the device keypad buttons. The big, clear LCDisplay facilitates the reading of the measurement values.

#### Technical data:

- Measurement range: 0 ... 500 Pa
- 1 adjustable threshold
- 1 analogue output U/I
- Power supply: 24V DC  $\pm$  25%
- Power consumption max. 2.5 Watt
- Relay: 230V, 2 A
- Weight: approx. 200 gr



**260 0083**

PascalMaxx 2000 Z

### PascalMaxx 2000 Z

Measurement instrument for monitoring and controlling the differential pressure in HVAC applications. Measurement range 0 to +2000 Pa (**unidirectional**). The measurement principle is based on a piezo-resistive silicon membrane. Together with the analogue signal output U/I this instrument is provided with an integrated 230V relay, whose contact thresholds can be freely set by the device keypad buttons. The big, clear LCDisplay facilitates the reading of the measurement values.

#### Technical data:

- Measurement range: 0..2'000 Pa
- 1 adjustable threshold
- 1 analogue output U/I
- Power supply: 24V DC  $\pm$  25%
- Power consumption max. 2.5 Watt
- Relay: 230V, 2 A
- Weight: approx. 200 gr

## Accessories



**252 4210**

power supply EU/US/JP

### External power supply

90...260VAC/EUR

External power supply, for voltage range 90 to 260 VAC with exchangeable plugs EU/US/JP.

From the secondary side this power supply can be connected directly to all PascalMaxx types.

#### Technical data:

- Primary side (plug):
- Voltage range: 90 ... 260VAC
- EU/US/JP plug
- Secondary side (open end cable) :
- Voltage: 24V DC  $\pm$  5%
- Cable ends unshielded and ready for connection.
- Weight: 90 gr



### Factory calibration at 3 measurement points

Factory calibration and check on a checking station under standard conditions including appropriate documents und certificates.

Factory calibration including certificate at 3 measurement points.

The tests are done by a calibrated and certified reference differential pressure gauge.

[111 7603](#) Certificate



### Spare plug set to *PascaMaxx*

Spare plug set for *PascaMaxx* PCB, for power supply, analogue outputs and relay.

**Composed of:**

- Plug : 2 pole power supply
- 3 pole relay
- 4 pole analogue output
- Weight : total 20 g

[260 0096](#)  
Spare plug set



### Filter set

Protection filter for applications with high pollution.

The filter hoses can be connected with the connectors and the main hoses to the instrument nozzles.

**Composed of:**

- 2 pcs hose with filter
- 2 pcs Ø4 / Ø4 mm hose connector
- 2 pcs Ø4 / Ø6 mm hose connector

[260 0097](#) Filter set



# CaliBox 200

## mobile dP calibrator

*Portable differential pressure calibrator and reference measurement instrument*



This new differential pressure generator and reference instrument has been designed for laboratories as well as for mobile use in clean rooms. Thanks to its **rechargeable battery** the device can be operated up to 48 hours independent from any external power source.

At the push of a button, the generator becomes a real reference measurement device, if required also available with accredited certificate. The internal sensor operates with high accuracy and long term stability, which is achieved with a combination of a high quality sensor element and a fully automated zeroing system. This makes the instrument not just accurate but also maintenance free!

But the CaliBox 200 offers more! Its steady and **stable pressure generation** allows a calibration of **static** membrane **and dynamic** mass flow sensors. Hence this all-rounder can be used for most of the differential pressure measurement technologies. Other strengths are the mechanical and pressure robustness.

### Main features:

- Pres. Range: **0...200 Pa** (uni-directional) *Generator / Measurement*
- Accuracy : typical +/-0.15 Pa (0.08% FS)
- Mobility : rechargeable battery 25.6V/10 Ah (48h autonomy)
- Versatility : can be used for membrane & mass flow sensor technology
- Simplicity : configuration by buttons & PascalTool WIN software

## CaliBox 200

### Mobile calibrator for dP sensor calibration & adjustment

*Flexible, accurate, fast, versatile, adaptive, robust, stable, cost efficient*

This cost efficient CaliBox 200 is an universal solution suits perfectly for every calibration professional, who wants to calibrate on site.

The CaliBox 200 is delivered inside a robust carrying case including all accessories such as hoses, tools, PC software etc. The differential pressure is set by a precision control button and is lead via a hose to the test specimen. During this process the pressure is always kept stable at the same level with no need to always build up the pressure. This permits to calibrate efficiently several specimens in series.

The robust carrying case protects the inner life of the CaliBox 200 and an integrated valve system protects the sensor from overload pressure. In addition the CaliBox 200 provides a scalable and adjustable analogue output, which can be used to connect external devices such as data loggers, PC, laptops etc.

For more information please visit our homepage.

[www.novasina.com](http://www.novasina.com)

#### Applications:

- on site pressure generation
- on site pressure reference device
- calibration laboratory instrument (with accreditation)
- on site calibrator for dP sensor calibration (range 0 to 200 Pa)

#### Technical data:

Dimensions:	360 x 304 x 194 mm
Weight:	approx. 7.30 kg
Meas. ranges:	0...+200 Pa
Max. resolution:	0.01 Pa
Meas. accuracy:	typical <= 0.15 Pa
at +20°C	0.08% (of full scale)
Temperature effect:	<= 0.03 Pa / °C
	+/- 0.015% (of full scale)
Offset-Drift :	<= 0.15 Pa / year
	(automatic zero-point cal.)
Hysteresis :	typical 0.15 Pa / year
Max. overpressure:	-100... 500 kPa
Operating temp.:	0...50°C (not condensing)
Storage temp. :	-10...+60 °C
Power supply:	AC : 100...260 VAC
	DC : LiFePo4 battery
	25.6V / 10 Ah
Charging time :	< 3 hours
Operation time :	> 24...48 hours
Analogue Out :	0/2...10V (max. load 10k)
Digital interface:	RS-232
Protection open :	IP 30
Protection close :	IP 54



## Mobile differential pressure calibrator

### CaliBox 200



[260 0538](#) CaliBox 200

Mobile, battery powered differential pressure generator and reference instrument to calibrate static (membrane) and dynamic (mass flow) differential pressure sensors within range of 0 to +200 Pa. A robust carrying case protects the internal dP sensor and air generator. The instrument delivered with a factory certificate (certificate with accreditation as option).

**Included:**

- Battery charger 100...260 VAC incl. power cable
- 4 / 5 / 8 mm tubes 2m length and nozzle
- 2 x 4 mm hoses, length 2m
- RS-232 interface cable for connection with PC
- CD with *PascalTool* WIN for PC
- Operation manual

**Technical data:**

- Dimensions: 360x304x194 mm
- Weight: approx. 7.30 kg
- Power AC : 100...260 VAC
- DC : LiFePo4 battery 25.6V / 10 Ah
- Meas. range: 0...+200 Pa
- accuracy: typ. <= 0.15 Pa at +20°C
- 0.08% (of full scale)

for more details please see page 15

## Spare Parts



[260 0643](#) Battery charger

### Power supply 90...260V Charger

External battery charger for the internal LiFePo4 battery (25.6V / 10Ah) with main plug power input from 100...360 VAC 50/60 Hz

**Technical data:**

- Weight: approx. 7.30 kg
- Dimensions: 135 x 90 x 50 mm
- Input :** 90 ... 260VAC Euro plug
- Output :** 29.2 VDC / 3A
- Charging time : < 3 hours



[111 6849](#) Cable PC

### Programming cable to PC (DB9)

Programming cable for connecting a PC to a *CaliBox 200*.

**Composed of:**

- Cable length: 1,5 m
- Special stereo plug on Pascal
- D-Sub 9 plug on the PC side
- Weight: 95g



[111 9415](#) USB-RS-232 converter

### PC/Laptop converter USB-RS232

to PC/Laptop for COM applications

For Laptops without D-Sub RS-232 interface to convert a USB to RS-232 signal. For Windows, MAC or Linux systems.

Such converters are also available in computer shops.

**USB to RS-232 converter:**

- Cable length : 100 cm
- Weight : 50 g
- Connector : D Sub-9 (COM Port)
- Socket : USB connector

Cable supplied incl. driver software



[111 6848](#) Software

### PascalTool-WIN

*Configuration program for Windows*

Configuration program PascalTool-WIN for instrument set-up and calibration

->Delivered on a CD.

**Requirements:**

Windows PC with CD drive  
Windows 95 / NT / 2000 / XP / Vista / Windows 7



[111 6332](#) Nozzle straight

### Connecting nozzle straight

Straight connecting diameter changing nozzle from 6 mm to hose with inner diameter 8 mm (standard hose diameter for Novasina Pascal gauges).

**Technical data:**

- Material: Plastic / FPM
- Diam. reduction from 8 to 6 mm
- Fixable with a cable clamp
- Dimensions: ø 10/8/5 x 12 mm
- Weight : 1g



**on demand**  
SCS calibration

### SCS calibration

*at 11 measurement points*

Instrument calibration by an accredited laboratory including all needed documentation and certificates.

**Note:**

Novasina collaborates with the Swiss SCS accreditation organisation, which is compatible with all major international accredited institutes of metrology.

**Technical data:**

SCS calibration including certificate at 11 measurement points.

Calibration and documentation is done by an accredited Swiss laboratory



## CIC-Touch external display for clean rooms

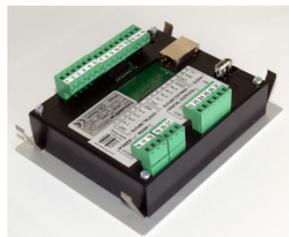
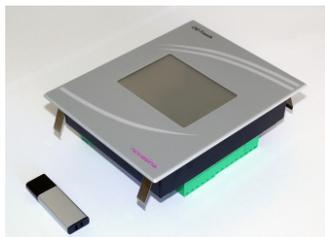


This multi display for clean room air parameters such as air humidity, temperature, differential pressure and particles allows to check at a glance the actual climatic parameters in clean rooms. The online data are provided by external sensors and/or contact relays. Besides the actual measurement value, which is shown with the respective unit (e.g. temperature, humidity etc.) and measurement location, also the backlight colour changes according to the actual status. Green colour for values within the threshold and red colour if the threshold is exceeded.

The CIC-Touch display can be easily mounted in clean room walls without the need of any screws. The unit can be placed in a wall cavity, snapped in and fixed with clips, which are part of the display unit itself. Thanks to the consequent clean room suitable design, the installation depth is very low and hence the unit fits in all current clean room walls. The smooth front panel complies with the demands of clean room design, easy to be cleaned and no edges subject to pollution.

Another highlight of the CIC-Touch is the connectivity such as analogue/digital interfaces, contact relays, Ethernet, USB, Modbus, RS-232, RS-485 and a SD card. The CIC-Touch can be easily connected to any external sensor and also integrated in existing monitoring systems. The configuration is performed via the intuitive operation and configuration menu.

The CIC-Touch can also be factory configured for specific OEM applications.



### Applications:

- Clean rooms
- Isolators
- Laminar flow benches
- Operating rooms
- Laboratories, calibration rooms
- Specific OEM solutions

### Industries:

- Semiconductor
- Pharmaceutical
- Hospitals
- OEM

### Your advantages:

- Semi-flush with the wall, no sharp edges, front panel only 2 mm thickness
- Easy to clean, flat and smooth surfaces
- Low installation depth and ideal for integration in all current clean room walls
- Snap-in mounting without any screws
- Display of up to 4 parameters at the same time
- Status display with status backlight colour
- Easy configuration by intuitive menu
- Several integrated communication interfaces



### CIC-Touch touchscreen display

Recommended ambient sensors to be connected:

#### Differential pressure:

- Pascal-ST/Z (this catalogue on page 8)
- PascalMaxx (this catalogue on page 12)

#### Air humidity and temperature:

- HygroDat 100 (Air catalogue on page 21)
- HygroMaxx S/R/M (Air catalogue on page 10)
- TempMaxx (Air catalogue on page 17)

**Remark:** CIC-Touch is an universal display and any sensor can be connected, it can also be used for installation in existing sensor networks.

### Specifications:

Display:	graphical display 3,5" TFT display 70x52mm
Panel:	150 x 120 mm (H2O2 res.)
Mounting dimension:	H 127 x W 107 x D 50mm. incl. connectors
Power supply:	24 V AC/DC
Inputs:	4 x digital inputs 4 x analogue inputs
Outputs:	2 x relay contacts 230V
Digital interfaces:	ethernet Modbus (RS-485)
USB:	standard PC compatible

**260 0941** CIC-Touch display



Instrument	Parameter	Industry	Applications	Main features
<b>PascalMaxx</b> 50/ 500/ 2000 Z 	dP (diff.press)	<ul style="list-style-type: none"> <li>• Pharmaceutical</li> <li>• Textile</li> <li>• Chemical</li> <li>• Medical</li> <li>• Hospitals</li> <li>• Semiconductor</li> </ul>	<ul style="list-style-type: none"> <li>• Clean room pressure control</li> <li>• HVAC installations</li> <li>• Filter saturation monitoring</li> <li>• Fan belt monitoring</li> <li>• Air speed control</li> <li>• Air locks</li> </ul>	<ul style="list-style-type: none"> <li>• Good accuracy</li> <li>• Big clear display</li> <li>• 1 scalable analogue output</li> <li>• 1 relay contact</li> <li>• Automatic zero-point calibration</li> <li>• Calibration 2 dP points</li> <li>• Integrated dust particle filter</li> <li>• Intuitive menu structure</li> <li>• Password protection</li> </ul>
<b>Pascal-ST</b> 50 / 200 Z 	dP (diff.press)	<ul style="list-style-type: none"> <li>• Pharmaceutical</li> <li>• Semiconductor</li> <li>• Chemical</li> <li>• Medical</li> <li>• Health Care</li> <li>• Power Plants</li> </ul>	<ul style="list-style-type: none"> <li>• Clean room control</li> <li>• Filter saturation monitoring</li> <li>• Fan belt monitoring</li> <li>• Air speed control</li> <li>• Air locks</li> <li>• Specific OEM applications</li> </ul>	<ul style="list-style-type: none"> <li>• High accuracy for clean rooms applications</li> <li>• 1 scalable/adjustable AO (STV/STD model)</li> <li>• 2 relay contacts (STS and STVS model)</li> <li>• Automatic zero-point calibration</li> <li>• Calibration 2 dP points</li> <li>• Integrated dust particle filter</li> <li>• Calibration by Windows PascalTool WIN</li> <li>• Password protection</li> </ul>
<b>CaliBox 200</b> 	dP (diff.press) Calibrator & reference instrument	<ul style="list-style-type: none"> <li>• Pharmaceutical</li> <li>• Semiconductor</li> <li>• Chemical</li> <li>• Medical</li> <li>• Health Care</li> </ul>	<ul style="list-style-type: none"> <li>• On-site calibration in clean rooms</li> <li>• Calibration in cal. laboratories</li> <li>• Use as reference instrument (also available with certificate)</li> </ul>	<ul style="list-style-type: none"> <li>• Highest accuracy and stability</li> <li>• High versatility for mass flow &amp; static instruments</li> <li>• 2 in one - calibrator and reference instrument</li> <li>• Integrated auto-zero calibration</li> <li>• Integrated dust particle filter</li> <li>• Scalable / adjustable analogue output</li> <li>• High performance battery 48 hours capacity</li> <li>• Robust carrying case</li> </ul>
<b>CIC-Touch</b> 	Universal touchscreen display	<ul style="list-style-type: none"> <li>• Pharmaceutical</li> <li>• Semiconductor</li> <li>• Chemical</li> <li>• Medical</li> <li>• Health Care</li> <li>• Hospitals</li> </ul>	<ul style="list-style-type: none"> <li>• Clean rooms</li> <li>• Isolators</li> <li>• Laminar flow benches</li> <li>• Operating rooms</li> <li>• Laboratories, calibration rooms</li> <li>• Specific OEM solutions</li> </ul>	<ul style="list-style-type: none"> <li>• Semi-flush mounting</li> <li>• Easy to clean, flat and smooth surfaces</li> <li>• Low installation depth</li> <li>• Snap-in mounting without any screws</li> <li>• Display of 4 parameters</li> <li>• Status display with status backlight colour</li> <li>• Easy configuration</li> <li>• Several integrated communication interfaces</li> </ul>