INFICON
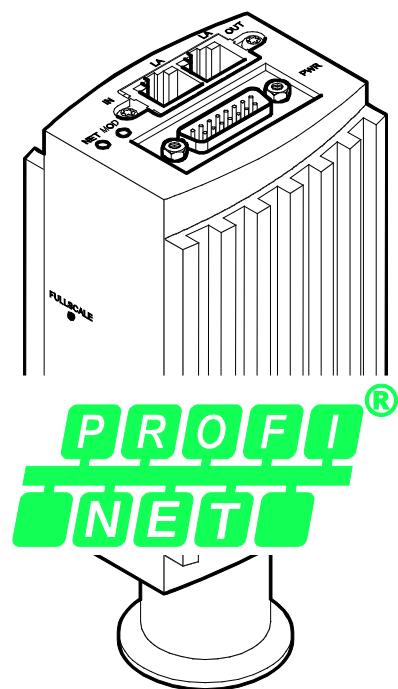
Profinet

for Bayard-Alpert Pirani Capacitance Diaphragm Gauge

BCG450-PN

General Information

> ⚠️ **Caution**
>
> Data transmission errors
>
> Any attempt to simultaneously operate the gauge via the RS232C Serial Interface and Profinet interface or the diagnostic port may result in incorrect data and data transmission errors.
>
> Therefore, it is inadmissible to simultaneously operate the gauge via the RS232C Serial Interface and Profinet interface, or the diagnostic port.

Intended Use

This Communication Protocol contains instructions for operating Profinet interfaces (slaves) together with a master.

☞ For safety information, specifications and operation instructions of the vacuum gauges refer to the appropriate documents (→ 📖 [1], [2], [3]).

Profinet –Interface

This manual describes the functionality of a Profinet BCG450-PN.

For operating the gauge via Profinet, prior installation of the device specific GSDML file is required on the bus master side. This file can be downloaded from our website (www.inficon.com).

Product Identification

In all communications with INFICON, please specify the information on the product nameplate. For convenient reference copy that information into the space provided below.

INFICON AG, LI-9496 Balzers

Model:
PN:
SN:
V   W
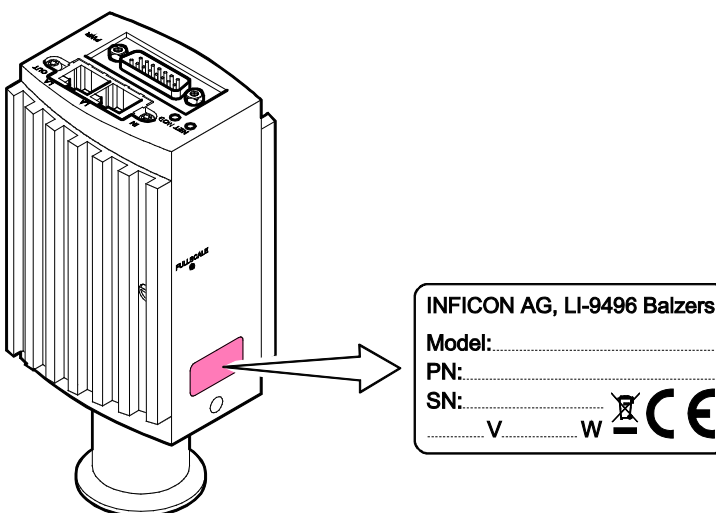
Validity

This document applies to products with part numbers

353-517	(BCG450-PN with Profinet, vacuum connection DN 25 ISO-KF)
353-518	(BCG450-PN with Profinet, vacuum connection DN 40 CF-R)

This manual is based on firmware version 1.0.0.0.

The part number (PN) can be taken from the product nameplate.

If not indicated otherwise in the legends, the illustrations in this document correspond to the gauge BCG450-PN with vacuum connection DN 25 ISO-KF. They apply to gauges with other vacuum connections by analogy.

Trademark

Profinet ®	PROFIBUS Nutzerorganisation e.V. (PNO), Germany
TripleGauge™	INFICON AG Balzers

Contents

For cross-references within this document, the symbol (→ 🕮 XY) is used, for cross-references to further documents, listed under literature, the symbol (→ 📖 [Z]).

1   Technical Data

☞ Further technical data → 📖 [1], [2], [3].

Profinet interface

Communication protocol	protocol specialized for Profinet
Data rate	100 Mbps
Physical layer	100BASE-Tx (IEEE 802.3)
Digital functions	read pressure, select units (Torr, mbar, Pa) emission control, degas function monitor gauge status, filament status
Analog functions	0 … 10 V analog output pressure indication two setpoint relays A + B
Setpoint relays	2
Range	1×10^{-9} … 100 mbar
Relay contact	NO, potential free
Hysteresis	10 % of reading
Contact rating	≤30 V / ≤0.5 A (dc)
Profinet connector	2 × RJ45, 8-pin (socket) <IN>: Profinet input <OUT>: Profinet output
Cable	shielded, special Ethernet Patch Cable (CAT5e quality or higher)
Cable length	≤100 m
Cyclic data	IO-data
Acyclic data	configuration, responses and information

Dimensions [mm]

DN 25 ISO-KF   DN 40 CF-R

INFICON
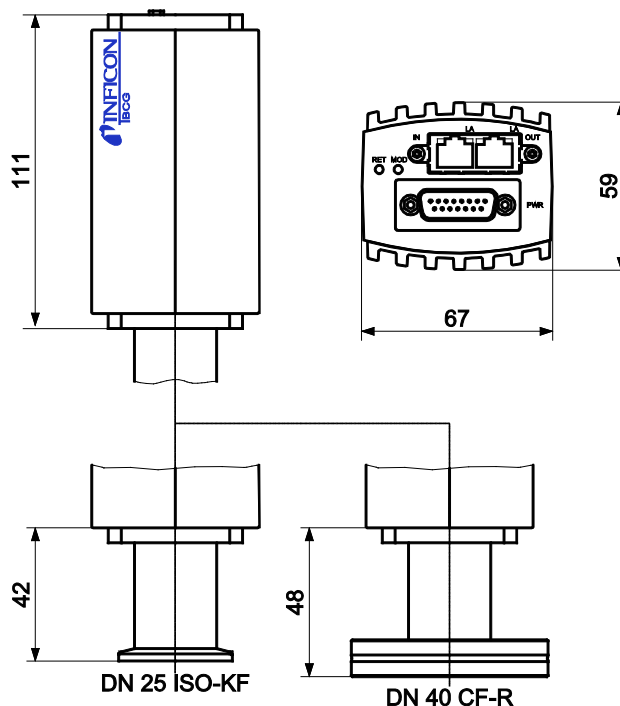
2 Interface Connection

Making an Profinet interface cable

For operating the BCG450-PN gauge via Profinet, two interface cables conforming to the Profinet standard are required.

If no such cables are available, make two according to the following indications.

Cable type

Ethernet Patch Cable (CAT5e quality) with FCC68 connector.

Procedure
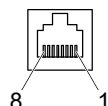
❶ Pin assignment:

FCC68, 8-pin, male, soldering side

8   1

Pin	Signal	Description
1	TD+	Transmission Data +
2	TD-	Transmission Data -
3	RD+	Receive Data +
4	nu	not used
5	nu	not used
6	RD-	Receive Data -
7	nu	not used
8	nu	not used

Pin assignment of the D-sub 15-pin sensor connector according to the respective operating manual (→ 📖 [1], [2], [3]).

❷ Plug the Profinet (and sensor) cables connector into the gauge: From the previous device the cable connected to OUT port has to be connected to the BCG450-PN <IN> port. And the cable from the BCG450-PN <OUT> port has to be connected to the next device's <IN> port.
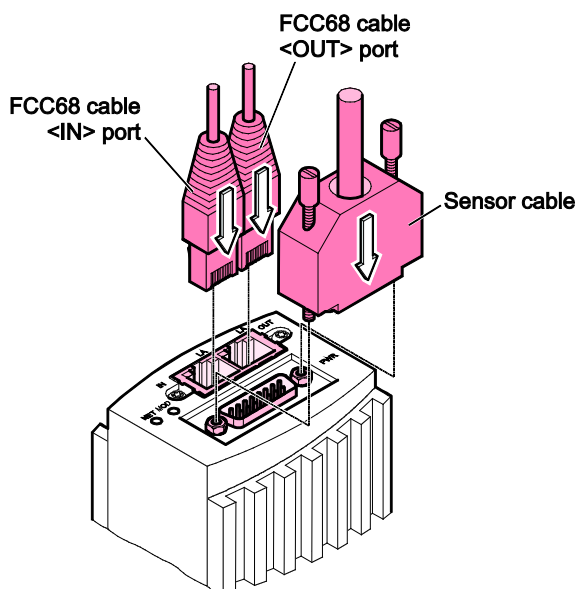
3 Operation

3.1 Introduction

Via the Profinet interface, the following and further data are exchanged in the standardized Profinet protocol:

- Pressure reading
- Pressure unit (Torr, mbar, Pa)
- Status and error messages
- Status of the switching functions
- Set Trip Point for switching functions

⚠ **Caution**
Data transmission errors
Any attempt to simultaneously operate the gauge via the RS232C Serial Interface and Profinet interface or the diagnostic port may result in incorrect data and data transmission errors.
Therefore, it is inadmissible to simultaneously operate the gauge via the RS232C Serial Interface and Profinet interface or the diagnostic port.

3.2 Front View
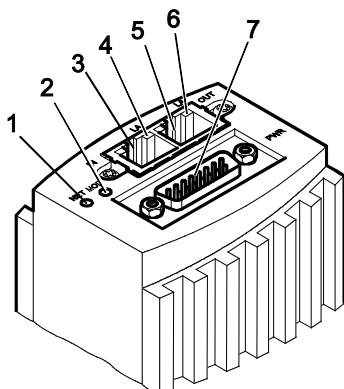
Position	Label	Function
1	NET	The NET-LED indicates the network status of the BCG450-PN gauge
2	MOD	The MOD LED indicates the module status of the BCG450-PN gauge
3	IN	Profinet IN connector
4	LA	Link activity Profinet IN
5	OUT	Profinet OUT connector
6	LA	Link activity Profinet OUT
7	PWR	Sensor cable connector (Power, analog I/O, RS232C I/O and Relay contacts)

3.3 Indicators

3.3.1 <NET> LED

NET
○

Displays the network status.

Color	LED State	Description
	off	No power No connection with IO Controller
green	1 flash	Connection with IO Controller established IO Controller in STOP state or IO data bad IRT synchronization not finished
	blinking	Used by engineering tools to identify the node on the network
	on	Connection with IO Controller established IO Controller in RUN state
red	on	Major internal error (the indication is combined with a red module status LED)
	1 flash	Station name not set
	2 flashes	IP address not set
	3 flashes	Expected Identification differs from read identification

3.3.2 <MOD> LED

MOD
○

Displays the module status.

Color	LED State	Description
	off	No power OR Module in SETUP or NW_INIT state
green	on	Module has shifted from the NW_INIT state
	1 flash	Diagnostic event(s) present
red	on	Device in state Exception Major internal error (this indication is combined with a red network status LED)
red/ green	alternating (red/green)	Firmware update. Do NOT power off the module. Turning the module off during this phase could cause permanent damage.

3.3.3 <LA> LED (<IN> Port)

LA
IN

Displays the input status.
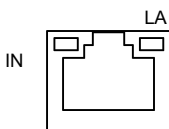
Color	LED State	Description
	off	Port not connected or no power applied to device
green	blinking	Port connected and communication active
	on	Port connected but no communication

3.3.4 <LA> LED (<OUT> Port)

LA
OUT

Displays the output status.
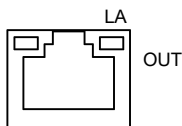
Color	LED State	Description
	off	Port not connected or no power applied to device
green	blinking	Port connected and communication active
	on	Port connected but no communication

4   Object Structure

This chapter describes the acyclic parameters.

4.1   Object Dictionary structure

The parameter for the objects are in groups. They can be accessed with the acyclic read and write commands. To read these parameters the Slot has to be set to zero and the Subslot to one. The Index can be found for each individual parameter blow.
Slot = 0
Subslot = 1
Index = see individual Parameter

Explanations for the abbreviations in the columns of the tables are given below:

Abbr.	Description
Access	parameter read/write access • RO: object can only be read by the SDO service • RW: object can be both read and written by the SDO service
Index	Index for the parameter (Slot = 0, Subslot = 1)
NV	Nonvolatile; attribute value is maintained through power cycles
Object	Abstract representation of a particular component within a device, which consists of data, parameters, and methods.
Type	Data Type • BOOL, BIT = 1 bit. Boolean (0 = false, 1 = true) • USINT, BYTE = 8 bit. Unsigned Byte • UINT = 16 bit. Unsigned integer value • UDINT = 32 bit. Unsigned integer value • ULINT = 64 bit. Unsigned integer value • REAL = 32 bit. Floating point • V_STRING = 8×n bit. Visible string (1 byte for character) • BYTE_ARR(n) = Array of bytes with n bytes

4.1.1   Input Capacitance Diaphragm

Index 0x0100

Index	DataType	NV	Access	Name
0x0100	REAL		RO	Sensor Value

The corrected, converted, calibrated final analog input value of the sensor.

4.1.2   Input Capacitance Diaphragm

Index 0x0101

Index	DataType	NV	Access	Name
0x0101	BOOL		RO	Reading Valid
0x0102	BOOL		RO	Overrange Exceeded
0x0103	BOOL		RO	Underrange Exceeded

Indicates whether the Value parameter contains a valid value within the specified accuracy or not.

Reading Valid	
0	Invalid
1	Valid

Index 0x0102

Indicates whether the Value parameter contains a value in over range.

Reading Valid	
0	No Overrange Exceeded
1	Overrange Exceeded

Index 0x0103

Indicates whether the Value parameter contains a value in under range.

Reading Valid	
0	No Underrange Exceeded
1	Underrange Exceeded

4.1.3 Information Capacitance Diaphragm

Index	DataType	NV	Access	Name
0x0140	UINT		RO	Sensor Warning
0x0141	UINT		RO	Sensor Error

Index 0x0140

Sensor Warnings	
Bit 0	0
Bit 1	Electronics Warning
Bit 2…15	0

Index 0x0141

Sensor Errors	
Bit 0	0
Bit 1	Electronics Failure
Bit 2…15	0

4.1.4 Input Common Heat Transfer

Index	DataType	NV	Access	Name
0x0300	REAL		RO	Sensor Value

Index 0x0300

The corrected, converted, calibrated final analog input value of the sensor.

4.1.5 Input Heat Transfer

Index	DataType	NV	Access	Name
0x0301	BOOL		RO	Reading Valid
0x0302	BOOL		RO	Overrange Exceeded
0x0303	BOOL		RO	Underrange Exceeded

Index 0x0301

Indicates whether the Value parameter contains a valid value within the specified accuracy or not.

Reading Valid	
0	Invalid
1	Valid

Index 0x0302

Indicates whether the Value parameter contains a value in over range.

Reading Valid	
0	No Overrange Exceeded
1	Overrange Exceeded

Index 0x0303

Indicates whether the Value parameter contains a value in under range.

Reading Valid	
0	No Underrange Exceeded
1	Underrange Exceeded

4.1.6 Information Heat Transfer

Index	DataType	NV	Access	Name
0x0340	UINT		RO	Sensor Warning
0x0341	UINT		RO	Sensor Error

Index 0x0340

Sensor Warnings	
Bit 0	0
Bit 1	Electronics Warning
Bit 2…15	0

Index 0x0341

Sensor Errors	
Bit 0	0
Bit 1	Electronics Failure
Bit 2…15	0

4.1.7 Input Common Hot Cathode Ion

Index	DataType	NV	Access	Name
0x0500	REAL		RO	Sensor Value

Index 0x0500

The corrected, converted, calibrated final analog input value of the sensor.

4.1.8 Input Hot Cathode Ion

Index	DataType	NV	Access	Name
0x0501	BOOL		RO	Reading Valid
0x0502	BOOL		RO	Overrange Exceeded
0x0503	BOOL		RO	Underrange Exceeded
0x0504	BOOL		RO	Emission Status Off/On
0x0505	BOOL		RO	Degas Status Off/On

Index 0x0501

Indicates whether the Value parameter contains a valid value within the specified accuracy or not.

Reading Valid	
0	Invalid
1	Valid

Index 0x0502

Indicates whether the Value parameter contains a value in over range.

Reading Valid	
0	No Overrange Exceeded
1	Overrange Exceeded

Index 0x0503   Indicates whether the Value parameter contains a value in under range.

Reading Valid	
0	No Underrange Exceeded
1	Underrange Exceeded

Index 0x0504

Emission Status Off/On	
0	OFF
1	ON

Index 0x0505

Degas Status Off/On	
0	OFF
1	ON

4.1.9 Configuration Hot Cathode Ion

Index	DataType	NV	Access	Name
0x0521	BOOL	x	RW	Emission User Mode
0x0524	REAL	x	RO	Emission Current

Index 0x0521   Defines whether the emission is switched on automatically (controlled by a different sensor) (automatic) or manually by the user (manual)

Emission User Mode	
0	Automatic
1	Manual

Index 0x0524   Emission current in milliamps

4.1.10 Information Hot Cathode Ion

Index	DataType	NV	Access	Name
0x0540	UINT		RO	Sensor Warning
0x0541	UINT		RO	Sensor Error
0x0543	UDINT		RO	Time Filament 1

Index 0x0540

Sensor Warnings	
Bit 0	Sensor Filament 1 Warning
Bit 1…8	0
Bit 9	Electronics Warning
Bit 10	0
Bit 11	Pressure to high for Degas
Bit 12…15	0

Index 0x0541

Sensor Errors	
Bit 0	Sensor Filament 1 Error
Bit 1…8	0
Bit 9	Electronics Failure
Bit 10	0
Bit 11	Overpressure Emission OFF
Bit 12…15	0

Index 0x0543   Duration time filament 1 is powered in seconds.

4.1.11 Command Degas ON / OFF

Execution of this command will initiate or cancel a degas operation.

Index	DataType	NV	Access	Name
0x0576	BYTE_ARR(2)		RW	Command
0x0577	BYTE		RO	Status
0x0578	BYTE_ARR(3)		RO	Response

Index 0x0576

A degas command is initiated when the following byte sequence is sent.

Command	
Byte 0	0: Degas OFF
	1: Degas ON
Byte 1	Index of the sensor module. Value has to be 4
	4: Hot Cathode

Index 0x0577

Status (supported values)	
0	Last command completed, no errors, no reply available
1	Last command completed, no errors, reply available
2	Last command completed, errors present, no reply available
3	Last command completed, errors present, reply available
255	Command is executing

Index 0x0578

Response	
Byte 0	Status, See Index 0x0577
Byte 1	not used = 0x00
Byte 2	0: Degas ON / OFF successful
	1: Degas ON / OFF failed (unspecified reason)
	2: Degas On failed because pressure to high
	254: No previous Degas ON / OFF command issued

4.1.12 Command Emission ON / OFF

Execution of this command will turn on or off the gauge's emission state.

Index	DataType	NV	Access	Name
0x0579	BYTE_ARR(2)		RW	Command
0x057A	BYTE		RO	Status
0x057B	BYTE_ARR(3)		RO	Response

Index 0x0579

An emission command is initiated when the following byte sequence is sent.

Command	
Byte 0	0: Emission OFF
	1: Emission ON
Byte 1	Index of the sensor module. Value has to be 4
	4: Hot Cathode

Index 0x057A

Status (supported values)	
0	Last command completed, no errors, no reply available
1	Last command completed, no errors, reply available
2	Last command completed, errors present, no reply available
3	Last command completed, errors present, reply available
255	Command is executing

Response	
Byte 0	See Index 0x057A
Byte 1	not used = 0x00
Byte 2	0: Emission ON / OFF successful
	1: Emission ON / OFF failed (unspecified reason)
	2: Emission On failed because pressure to high 254: No previous Emission ON / OFF command issued

4.1.13 Input Trip Point 1

Index	DataType	NV	Access	Name
0x0800	BOOL		RO	Status High Trip
0x0801	BOOL		RO	Status Low Trip

Index 0x0800

Status High Trip	
0	High Trip not assert
1	High Trip assert

Index 0x0801

Status Low Trip	
0	Low Trip not assert
1	Low Trip assert

4.1.14 Configuration Trip Point 1

If Percentage High Trip Source is unequal to zero.

The High Trip Point is calculated by:

$$\text{High Trip Point Limit} = \text{Value}^{*)} \times \text{Percentage}^{**)}$$

[*] Value from Piezo Sensor

[**] Percentage High Trip Source (Index 0x0828)

In this case, the High Trip Point Limit value is automatically updated by the device itself. Any user-written value to the parameter High Trip Point Limit will be refused.

If Percentage High Trip Source is zero the High Trip Point is equal with the value referenced in High Trip Point Limit.

The value defined in High Trip Point Limit is compared with the pressure value of the device.

If Percentage Low Trip Source is unequal to zero.

The Low Trip Point is calculated by:

$$\text{Low Trip Point Limit} = \text{Value}^{*)} \times \text{Percentage}^{**)}$$

[*] Value from Piezo Sensor

[**] Percentage Low Trip Source (Index 0x82B)

In this case, the Low Trip Point Limit value is automatically updated by the device itself. Any user-written value to the parameter Low Trip Point Limit will be refused.

If Percentage Low Trip Source is zero the Low Trip Point is equal with the value referenced in Low Trip Point Limit.

The value defined in Low Trip Point Limit is compared with the pressure value of the device.
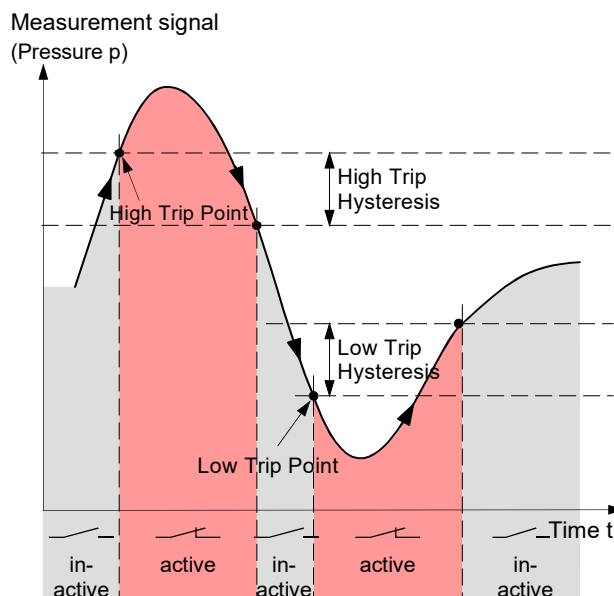
Index	DataType	NV	Access	Name
0x0820	BOOL	x	RW	High Trip Enable
0x0821	BOOL	x	RW	Low Trip Enable
0x0826	REAL	x	RW	High Trip Point Limit
0x0828	REAL	x	RW	Percentage High Trip Source
0x0829	REAL	x	RW	Low Trip Point Limit
0x082B	REAL	x	RW	Percentage Low Trip Source
0x082C	REAL	x	RW	High Trip Hysteresis
0x082D	REAL	x	RW	Low Trip Hysteresis

Index 0x0820

High Trip Point Enable	
0	Disable
1	Enable

Index 0x0821

Low Trip Point Enable	
0	Disable
1	Enable

Index 0x0826

High Trip Point Limit: High limit to trigger trip point condition if pressure value of the device is above this limit.

Index 0x0828

Percentage of piezo sensor value in [%].

Index 0x0829

Low Trip Point Limit: Low limit to trigger trip point condition if pressure value of the device is below this limit.

Index 0x082B

Percentage of piezo sensor value in [%].

Index 0x082C

High Trip Hysteresis: Hysteresis value for High Trip Point.

Index 0x082D

Low Trip Hysteresis: Hysteresis value for Low Trip Point.

4.1.15 Input Trip Point 2

Index	SI	DataType	NV	Access	PM	Name
0x0900	0x01	BOOL		RO	tx	Status High Trip
0x0901	0x02	BOOL		RO	tx	Status Low Trip

Index 0x0900

Status High Trip	
0	High Trip not assert
1	High Trip assert

Index 0x0901

Status Low Trip	
0	Low Trip not assert
1	Low Trip assert

4.1.16 Configuration Trip Point 2

Index	DataType	NV	Access	Name
0x0920	BOOL	x	RW	High Trip Enable
0x0921	BOOL	x	RW	Low Trip Enable
0x0926	REAL	x	RW	High Trip Point Limit
0x0928	REAL	x	RW	Percentage High Trip Source
0x0929	REAL	x	RW	Low Trip Point Limit
0x092B	REAL	x	RW	Percentage Low Trip Source
0x092C	REAL	x	RW	High Trip Hysteresis
0x092D	REAL	x	RW	Low Trip Hysteresis

Index 0x0920

High Trip Point Enable	
0	Disable
1	Enable

Index 0x0921

Low Trip Point Enable	
0	Disable
1	Enable

Index 0x0926

High Trip Point Limit: High limit to trigger trip point condition if pressure value of the device is above this limit.

Index 0x0928

Percentage of piezo sensor value in [%].

Index 0x0929

Low Trip Point Limit: Low limit to trigger trip point condition if pressure value of the device is below this limit.

Index 0x092B

Percentage of piezo sensor value in [%].

Index 0x092C

High Trip Hysteresis: Hysteresis value for High Trip Point.

Index 0x092D

Low Trip Hysteresis: Hysteresis value for Low Trip Point.

If Percentage High Trip Source is unequal to zero.

4.1.17 Exceptions

4.1.18 Active Exception Status

Index	DataType	NV	Access	Name
0x040	USINT		RO	ActiveException Status

Active Exception Status

Active Exception Status	
Bit 0	Device Warning
Bit 1	Manufacturer Warning
Bit 2	Device Error
Bit 3	Manufacturer Error
Bit 4…7	0

4.1.19 Active Device Warning Details

The "active device warning details" parameter describes the warning state of the complete device.

Index	DataType	NV	Access	Name
0x0041	UDINT		RO	Active Device Warning Details
0x0042	UDINT		RO	Active Manufacturer Warning Details

Index 0x0041

Active Device Warning Details	
Bit 0…31	0

Index 0x0042

Active Manufacturer Warning Details	
Bit 0	0
Bit 1	CDG Electronics warning
Bit 2…16	
Bit 17	Heat Transfer Electronics warning
Bit 18...24	0
Bit 25	Hot Ioni Electronics warning
Bit 26…31	0

4.1.20 Active Device Error Details

The "active device error details" parameter describes the error state of the complete device.

Index	DataType	NV	Access	Name
0x0043	UDINT		RO	Active Device Error Details
0x0044	UDINT		RO	Active Manufacturer Error Details

Index 0x0043

Active Device Error Details	
Bit 0…31	0

Index 0x0044	Active Manufacturer Error Details	
	Bit 0	0
	Bit 1	CDG Electronics failure
	Bit 2...16	
	Bit 17	Heat Transfer Electronics failure
	Bit 18...24	0
	Bit 25	Hot Ioni Electronics failure
	Bit 26...31	0

4.1.21 Active Global Device Warning Details

The "active global device warning details" parameter describes the warning state of the complete device.

Index	DataType	NV	Access	Name
0x0045	UDINT		RO	Active Global Device Warning Details
0x0046	UDINT		RO	Active Global Manufacturer Warning Details

Index 0x0045	Active Global Device Warning Details	
	Bit 0…31	0

Index 0x0046	Active Global Manufacturer Warning Details	
	Bit 0	Internal Communication Exception (between Profinet-Controller and Device-Application)
	Bit 1…2	0
	Bit 3	EEProm CRC warning
	Bit 4…31	0

4.1.22 Active Global Device Error Details

The "active global device error details" parameter describes the error state of the complete device.

Index	DataType	NV	Access	Name
0x0047	UDINT		RO	Active Global Device Error Details
0x0048	UDINT		RO	Active Global Manufacturer Error Details

Index 0x0047	Active Global Device Error Details	
	Bit 0…31	0

Index 0x0048	Active Global Manufacturer Error Details	
	Bit 0	Internal Communication Exception (between Profinet-Controller and Device-Application)
	Bit 1…5	Wrong software version used in base device
	Bit 6	Device Electronics Error
	Bit 7…31	0

4.1.23 Combination Gauge

Index	DataType	NV	Access	Name
0x0001	BOOL		RO	Combination Gauge Reading Valid
0x0002	BOOL		RO	Combination Gauge Overrange Exceeded
0x0003	BOOL		RO	Combination Gauge Underrange Exceeded
0x0004	REAL		RO	Combination Gauge Active Value
0x0005	UINT		RO	Combination Gauge Active Sensor Number

Index 0x0001

Identifies whether the complete vacuum pressure gauge (with several measuring principles) is out of its absolute overrange or absolute underrange, or in any other failure condition.

Index 0x0002

If the bit "Overrange" is set, all modules of the gauge are in an overrange condition.

Index 0x0003

If the bit "Underrange" is set, all modules of the gauge are in an underrange condition

Index 0x0004

The value copied from the measurement value of the active measuring module used for the cyclic sensor value.

Index 0x0005

Identifies the module that is providing the measurement value, the latter of which is copied into the Active Value parameter for all Input PDO's.

0	No module has a valid value
1	Capacitance diaphragm sensor is providing the Active Value
2	Piezo sensor is providing the Active Value
3	Heat Transfer sensor is providing the Active Value
4	Hot Cathode sensor is providing the Active Value

4.1.24 Trip Point Output All

Index	DataType	NV	Access	Name
0x0006	UDINT		RO	Trip Point Output All Instance

Index 0x0006

Status of Trip Point instances.

Trip Point Output All Instance	
Bit 0	Status High Trip (0x0800)
Bit 1	Status Low Trip (0x0801)
Bit 2	Status High Trip (0x0900)
Bit 3	Status Low Trip (0x0901)
Bit 4…31	0

4.1.25 Configure Device

Index	DataType	NV	Access	Name
0x0021	UINT	x	RW	Data Units Enum

Index 0x0021

Data Unit for Input Sensor as Enum to have a list of possible values.

Data Units	
0x01(Pa)	Pascal
0x04(mBar)	mbar
0x05(Torr)	Torr

4.1.26 Information Device

Index	DataType	NV	Access	Name
0x0049	UDINT		RO	Measurement Principle
0x004A	BYTE		RO	Number of Sensors
0x004C	V_STRING	x	RO	SW Version VPG PCB

Index 0x0049

Measurement principle assigned to the object instance.

The most significant nibble of the parameter represents the sensor type of the first sensor module; the second most significant nibble of the parameter represents the sensor type of the second sensor module, and so forth.

Measurement Principle	
1	Capacitance Manometer
2	Piezo
3	Heat Transfer
4	Cold Cathode
5	Hot Cathode

4.1.27 Device Reset Command

Execution of this command causes the device to emulate a complete power cycle.

☞ As consequence of an reset all following devices are disconnected from the network.

There are two versions of this command:

- Standard reset (as described above)
- Factory reset (as described above, but additionally, all parameters are restored to as-shipped defaults).

Index	DataType	NV	Access	Name
0x0082	BYTE_ARR(6)		RW	Command
0x0083	BYTE		RO	Status
0x0084	BYTE_ARR(2)		RO	Response

Index 0x0082

A device reset is initiated when the following byte sequence is sent.

Command	
Byte 0	0x74
Byte 1	0x65
Byte 2	0x73
Byte 3	0x65
Byte 4	0x72
Byte 5	0x00 = Standard reset, 0x66 = Factory Reset

Index 0x0083

Status (supported values)	
0	Reserved
1	Reserved
2	Last command completed, error, no response
3	Reserved
255	Command is executing

Index 0x0084

Response	
Byte 0	See Index 0x0083
Byte 1	not used = 0x00

4.1.28 Cyclic Data

Telegram 1

Data	DataType
Combination Gauge Active Value	REAL
Combination Gauge Active Sensor Number	UINT
Active Exception Status	USINT
Trip Point Output All Instance	UDINT

Telegram 2

Data	DataType
Combination Gauge Active Value	REAL
Active Exception Status	USINT

Telegram 3

Data	DataType
Combination Gauge Active Value	REAL
Active Exception Status	USINT
Trip Point Output All Instance	UDINT

Telegram 4

Data	DataType
Combination Gauge Active Value	REAL

Telegram 5

Data	DataType
Active Exception Status	USINT

![INFICON logo]

A: Literature

[1] www.inficon.com
Instruction Sheet
TripleGauge™,
Bayard-Alpert Pirani Capacitance Diaphragm Gauge
BCG450, BCG450-PN, BCG450-SD, BCG450-SE, BCG450-SP
tima40d1 (German)
tima40e1 (English)
INFICON AG, LI–9496 Balzers, Liechtenstein

[2] www.inficon.com
Instruction Sheet
TripleGauge™,
Bayard-Alpert Pirani Capacitance Diaphragm Gauge
BCG450-PN, BCG450-SD, BCG450-SE, BCG450-SP
tima41d1 (German)
tima41e1 (English)
INFICON AG, LI–9496 Balzers, Liechtenstein

[3] www.inficon.com
Operating Manual
TripleGauge™,
Bayard-Alpert Pirani Capacitance Diaphragm Gauge
BCG450, BCG450-SD, BCG450-SE, BCG450-SP
tina40d1 (German)
tina40e1 (English)
INFICON AG, LI–9496 Balzers, Liechtenstein

[4] www.profibus.com
Profibus user organization

[5] IEC 61158-x-12 (all parts for type 12): Industrial communication networks – Fieldbus specifications

[6] IEC 61784-2: Industrial communication networks – Profiles – Part 2: Additional fieldbus profiles for real-time networks based on ISO/IEC 8802-3

[7] SEMI E54 / Draft 5102A: SPECIFICATION FOR SENSOR/ACTUATOR NETWORK SPECIFIC DEVICE MODEL FOR VACUUM PRESSURE GAUGES

[8] SEMI E52: Practice for referencing gases, gas mixtures and vaporizable materials used in digital mass flow controllers

Notes

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