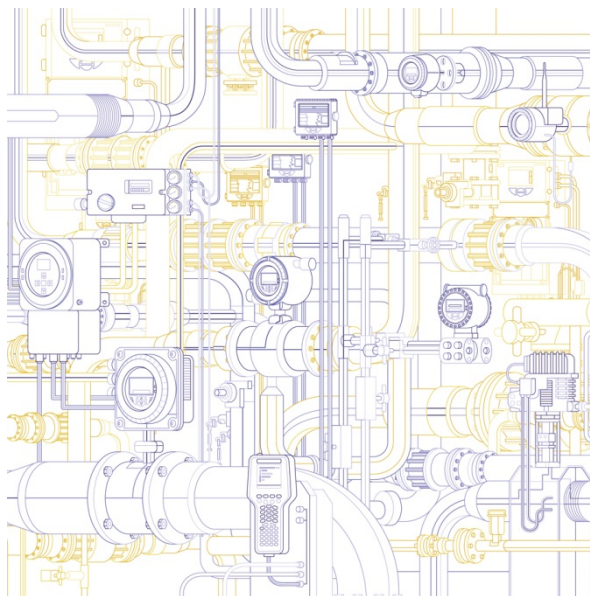


Devices overview PROFIBUS PA

Measurement made easy



PROFIBUS PA device family

- Pressure and Level Transmitter
- Flowmeter
- Analyzer
- Temperature Transmitter
- Positioner
- Network components, Accessories

	Pressure and Level Transmitter		
			
	2600T(266Gxx, 266Hxx, 266Pxx)	2600T(266Dxx, 266Mxx)	2600T(266Axx, 266Nxx, 266Vxx, 266Rxx)
Data sheet	DS/266HSH/NSH, DS/266GSH/ASH, DS/266XSH, DS/266XRH, DS/266XDH, DS/266GDH/ADH, DS/266GRH/ARH, DS/266GST/AST, DS/266XDT, DS/266XRT	DS/266XSH, DS/266MSH, DS/266DHH, DS/266XRH, DS/266MRH, DS/266XDH, DS/266DLH, DS/266MST/RST, DS/266XDT, DS/266XRT	DS/266HSH/NSH, DS/266GSH/ASH, DS/266XSH, DS/266XRH, DS/266XDH, DS/266GDH/ADH, DS/266GRH/ARH, DS/266GST/AST, DS/266XDT, DS/266XRT
Internet	www.abb.com/pressure	www.abb.com/pressure	www.abb.com/pressure
Application	Gauge Pressure / Level <u>Measuring Range:</u> 0.05 kPa ... 60 MPa, OVP up to 90 MPa (0.5 mbar ... 600 bar, OVP up to 900 bar)	Differential Pressure / Flow / Level <u>Measuring Range:</u> 0.05 kPa ... 16 MPa, PN bis 41 MPa (0.5 mbar ... 160 bar, PN bis 410 bar)	Absolute Pressure / Level <u>Measuring Range:</u> 0.3 kPa ... 16 MPa abs., OVP up to 21 MPa (3 mbar ... 160 bar abs., OVP up to 210 bar)
Ambient temperature	-40 ... 85 °C	-40 ... 85 °C	-40 ... 85 °C
Type of protection	IP 67, NEMA 4X	IP 67, NEMA 4X	IP 67, NEMA 4X
Explosion protection	II 1 G Ex ia IIC T6 & II 1/2 G Ex ia IIC T6 (-40 °C ≤ Ta ≤ +40 °C); II 1 D Ex iaD 20 T 95 °C & II 1/2D Ex iaD 21 T 95 °C. II 1/2 G Ex d IIC T6 & II 1/2 D Ex tD A21 IP67 T 85 °C, II 3 G Ex nL IIC T6 & II 3 D Ex tD A22 IP67 T 85 °C. XP/IS/NI/DIP Class I, II or III Div.1 or 2		
Approvals	CE, ATEX, FM Approvals (US and Canada), IEC, GOST, PED		
FISCO approval	Yes	Yes	Yes
For FNICO usable	Yes	Yes	Yes
Overvoltage protection PA	Yes (integrated)	Yes (integrated)	Yes (integrated)
Physics	MBP(-IS) (IEC 61158-2)	MBP(-IS) (IEC 61158-2)	MBP(-IS) (IEC 61158-2)
Baud rate	31.25 kBit/s fix	31.25 kBit/s fix	31.25 kBit/s fix
Ident. No.	3450 HEX	3450 HEX	3450 HEX
PNO Certificate No.	in preparation	in preparation	in preparation
Bus address	1 ... 125 (default 126)	1 ... 125 (default 126)	1 ... 125 (default 126)
local adjustment	Keypad and display	Keypad and display	Keypad and display
central adjustment	Software (e. g.: Asset Vision)	Software (e. g.: Asset Vision)	Software (e. g.: Asset Vision)
PA Profile	V3.02	V3.02	V3.02
Transducer Block (TB)	1 TB: Pressure, 1 TB: Advanced diagnostic with PILD algorithm (Plugged Impulse Line Detection), 1 TB: Display		
Function Block (FB) (Only for profile compliant devices)	3 AI: AI1 - Differential pressure, Flow, level or volume AI2 - Static pressure. AI3 - Sensor temperature or differential pressure	3 AI: AI1 - Differential pressure, flow, level or volume AI2 - Static pressure. AI3 - Sensor temperature or differential pressure	3 AI: AI1 - Differential pressure, flow, level or volume AI2 - Static pressure. AI3 - Sensor temperature or differential pressure
FB Data length cyclical read write	5 / 10 / 15 Byte —	5 / 10 / 15 Byte —	5 / 10 / 15 Byte —
Device configuration central adjustment	DTM or EDD	DTM or EDD	DTM or EDD
local adjustment	Keypad and display	Keypad and display	Keypad and display
Asset Monitor	Yes (for ABB Tools)	Yes (for ABB Tools)	Yes (for ABB Tools)
U _s min.	9.0 V DC	9.0 V DC	9.0 V DC
Basic current ¹⁾	15.0 mA	15.0 mA	15.0 mA
Δ Error current ¹⁾	5.0 mA	5.0 mA	5.0 mA
Start current after 10 ms	= basic current	= basic current	= basic current
External supply	—	—	—

¹⁾ Max. permanent current = basic current + Δ error current

P and L Transmitter	
Diagnosis data to increase the plant availability  = Maintenance req.  = Out of specification  = Check function  = Failure  = No message	2600T(266xx)
Generic fieldbus diagnosis	
(see page 18)	
- plus - Advanced diagnosis	
Device functionality	
Pressure sensor - failed	•
Temperature sensor - failed	•
Static pressure sensor - failed	•
Wrong or missing primary sensor signals	•
Sensor memory fail	•
Sensor memory burn failure	•
Sensor not detected	•
Electronics memory fail	•
Electronics memory burn failure	•
Sensor and electronics incompatible	•
Sensor and electronics interface error	•
Sensor or electronics replacement failures	•
Installation and Process	
Sensor overpressure	•
Pressure out of sensor limits	•
Static pressure out of sensor limits	•
Sensor temperature out of operating limits	•
Static pressure over than installation enviromental limits	•
Pressure out of range	•
Simulation active	•
Plugged impulse line detected - line H plugged - line L plugged - lines H and L plugged - one undetected line plugged	•
New PILD training required	•

Flowmeters	
	
FSM4000	
Data sheet	D184S073U02 D184B093U30
Internet	www.abb.com/flow
Application	Electromagnetic Flowmeter Specially designed for pulp & paper and food & beverage industry, measure pulp stocks flows, fast changing process, two phase liquids, mining slurries and pulsating flows <u>Accuracy:</u> $\leq \pm 0.5$ % of rate <u>Range:</u> DN 3 ... 1000 (flanged) DN 1 ... 100 (variabel / wafer / flange)
Ambient temperature	-25 ... 60 °C
Type of protection	IP 67 (IP 68)
Explosion protection	—
Approvals	3A, FDA, EHEDG
FISCO approval	—
For FNICO usable	—
Overvoltage protection PA	—
Physics	MBP (IEC 61158-2)
Baud rate	31.25 kBit/s fix
Ident. No.	078C HEX
PNO Certificate No.	Z01004
Bus address	1 ... 125 (default 126)
local adjustment	DIP switches
central adjustment	Software (e. g.: Asset Vision)
PA Profile	V3.0
Transducer Block (TB)	Flow
Function Block (FB) (Only for profile compliant devices)	1 AI: Volume flow 2 TOT: flow counter backwards, forwards, differential
FB Data length cyclical read write	5 / 10 / 15 Byte 0 ... 4 Byte
Device configuration central adjustment	DTM or EDD
local adjustment	Keypad, DIP switches, display
Asset Monitor	Yes (for ABB Tools)
U _s min.	9.0 V DC
Basic current ¹⁾	10.0 mA
Δ Error current ¹⁾	3.0 mA
Start current after 10 ms	= basic current
External supply	Yes (230 V AC, 24 V DC, < 45 VA)

¹⁾ Max. permanent current = basic current + Δ error current

Flowmeters		
Diagnosis data to increase the plant availability	FSM4000	
 = Maintenance req.  = Out of specification  = Check function  = Failure  = No message		
Generic fieldbus diagnosis		
(see page 18)		
- plus - Advanced diagnosis		
Device functionality		
AD converter / DSP - error	•	
Driver - error	•	
Internal / external database - error	••	
FRAM in primary - error	•	
External data loaded	•	
Update internal / external database	••	
Device configuration		
Totalizer - reset	•	
Simulation	•	
Error and warning simulation	•	
Test mode	•	
Function test	•	
Automatic adjust running	•	
Hold MV	•	
Installation and Process		
Empty pipe	•	
Flow > 105 %	•	
Totalizer - error	•	
Max. / min. alarm - error	••	
Old primary	•	
Overflow > F / < R	••	
Overflow difference totalizer	•	
Reverse Q	•	

	Flowmeters		
			
	FEH300 HygienicMaster	FEH500 HygienicMaster	FEP300 ProcessMaster
Data sheet	DS/FEH300-EN COM/FEX300/FEX500/PB-EN	DS/FEH500-EN COM/FEX300/FEX500/PB-EN	DS/FEP300-EN COM/FEX300/FEX500/PB-EN
Internet	www.abb.com/flow	www.abb.com/flow	www.abb.com/flow
Application	The Electromagnetic Flowmeter is designed specifically for the food & beverage, pharmaceutical and biotechnology industries. <u>Accuracy:</u> 0.4 % of rate, <u>Option:</u> 0.2 % of rate <u>Range:</u> DN 3 ... 100 (1/10 ... 4")	The Electromagnetic Flowmeter is designed specifically for the food & beverage, pharmaceutical and biotechnology industries. Range of diagnostic function provided is: Detection of Empty Pipe, gasbubbles, electrode coating, Monitoring of conductivity, sensor temperature, proper grounding. <u>Accuracy:</u> 0.3 % of rate, <u>Option:</u> 0.2 % of rate <u>Range:</u> DN 1 ... 100 (1/25 ... 4")	The Electromagnetic Flowmeter is used in the chemistry, power, industrial water/waste water, oil & gas, pulp & paper and metals & mining, with its modular design offers the industry's widest range of liners, electrodes and sizes for process applications. <u>Accuracy:</u> 0.4 % of rate, <u>Option:</u> 0.2 % of rate <u>Range:</u> DN 3 ... 2000 (1/10 ... 80")
Ambient temperature	(-40) -25 ... 60 °C	(-40) -25 ... 60 °C	(-40) -25 ... 60 °C
Type of protection	IP 65/67 (IP 68)	IP 65/67 (IP 68)	IP 65/67 (IP 68)
Explosion protection	Zone 1 ... 2 or Div 1 ... 2	Zone 1 ... 2 or Div 1 ... 2	Zone 1 ... 2 or Div 1 ... 2
Approvals	IECEX, ATEX, cFMus, GOST, 3A, EHEDG	IECEX, ATEX, cFMus, 3A, EHEDG	IECEX, ATEX, cFMus, NEPSI, GOST
FISCO approval	Yes	Yes	Yes
For FNICO usable	Yes	Yes	Yes
Overvoltage protection PA	—	—	—
Physics	MBP (IEC 61158-2)	MBP (-IS) (IEC 61158-2)	MBP (-IS) (IEC 61158-2)
Baud rate	31.25 kBit/s fix	31.25 kBit/s fix	31.25 kBit/s fix
Ident. No.	3430 HEX	3430 HEX	3430 HEX
PNO Certificate No.	in preparation	in preparation	in preparation
Bus address	1 ... 125 (default 126)	1 ... 125 (default 126)	1 ... 125 (default 126)
local adjustment	DIP switches, keypad	DIP switches, keypad	DIP switches, keypad
central adjustment	Software (e. g.: Asset Vision)	Software (e. g.: Asset Vision)	Software (e. g.: Asset Vision)
PA Profile	V3.01	V3.01	V3.01
Transducer Block (TB)	Flow	Flow	Flow
Function Block (FB) (Only for profile compliant devices)	3 AI: Volume flow, int. totalizer forward + reverse, 2 TOT: Totalizer forward + reverse, 1 DI: Alarm, 1 DO: Cyclic control	4 AI: Volume flow, int. totalizer forward + reverse, sensor temperature or conduct, 2 TOT: Totalizer forward + reverse, 1 AO: Density adj., 1 DI: Alarm, 1 DO: Cyclic control	3 AI: Volume flow, int. totalizer forward + reverse, 2 TOT: Totalizer forward + reverse, 1 DI: Alarm, 1 DO: Cyclic control
FB Data length cyclical read write	5 ... 22 Byte 0 ... 11 Byte	5 ... 32 Byte 0 ... 11 Byte	5 ... 22 Byte 0 ... 11 Byte
Device configuration central adjustment	DTM or EDD	DTM or EDD	DTM or EDD
local adjustment	Keypad, DIP switches, display	Keypad, DIP switches, display	Keypad, DIP switches, display
Asset Monitor	Yes (for ABB Tools)	Yes (for ABB Tools)	Yes (for ABB Tools)
U _s min.	9.0 V DC	9.0 V DC	9.0 V DC
Basic current ¹⁾	10.0 mA	10.0 mA	10.0 mA
Δ Error current ¹⁾	3.0 mA	3.0 mA	3.0 mA
Start current after 10 ms	= basic current	= basic current	= basic current
External supply	Yes (AC 100 ... 230 V, AC/DC 24 V)	Yes (AC 100 ... 230 V, AC/DC 24 V)	Yes (AC 100 ... 230 V, AC/DC 24 V)

¹⁾ Max. permanent current = basic current + Δ error current

Flowmeters	
	
FEP500 ProcessMaster	
Data sheet	DS/FEP500-EN COM/FEX300/FEX500/PB-EN
Internet	www.abb.com/flow
Application	The Electromagnetic Flowmeter is used in the chemical industry, power, industrial water/waste water, oil & gas, pulp & paper and metals & mining, with its modular design offers the industry's widest range of liners, electrodes and sizes for process applications, incl. extended diagnostic functions: see FEH500 <u>Accuracy:</u> 0.3 % of rate, <u>Option:</u> 0.2 % of rate <u>Range:</u> DN 3 ... 2000 (1/10 ... 80")
Ambient temperature	(-40) -25 ... 60 °C
Type of protection	IP 65/67 (IP 68)
Explosion protection	Zone 1 ... 2 or Div 1 ... 2
Approvals	IECEX, ATEX, cFMus
FISCO approval	Yes
For FNICO usable	Yes
Overvoltage protection PA	—
Physics	MBP(-IS) (IEC 61158-2)
Baud rate	31.25 kBit/s fix
Ident. No.	3430 HEX
PNO Certificate No.	in preparation
Bus address	1 ... 125 (default 126)
local adjustment	DIP switches, keypad
central adjustment	Software (e. g.: Asset Vision)
PA Profile	V3.01
Transducer Block (TB)	Flow
Function Block (FB) (Only for profile compliant devices)	4 AI: Volume flow, int. totalizer forward + reverse, sensor temperature or conduct, 2 TOT: Totalizer forward + reverse, 1 AO: Density adj., 1 DI: Alarm, 1 DO: Cyclic control
FB Data length cyclical read	5 ... 32 Byte
write	0 ... 11 Byte
Device configuration central adjustment	DTM or EDD
local adjustment	Keypad, DIP switches, Display
Asset Monitor	Yes (for ABB Tools)
U _s min.	9.0 V DC
Basic current ¹⁾	10.0 mA
Δ Error current ¹⁾	3.0 mA
Start current after 10 ms	= basic current
External supply	Yes (AC 100 ... 230 V, AC/DC 24 V)

¹⁾ Max. permanent current = basic current + Δ error current

Flowmeters			
Diagnosis data to increase the plant availability	FEH300, FEP300	FEH500, FEP500	
 = Maintenance req.  = Out of specification  = Check function  = Failure  = No message			
Generic fieldbus diagnosis			
(see page 18)			
- plus - Advanced diagnosis			
Device functionality			
Distorted communication to Sensor Memory	•	•	
FRAM / ROM / RAM error in the transmitter	•••	•••	
Sensor memory not detected	•	•	
AD converter overloaded	•	•	
... Further diagnosis data see manual	•••	•••	
Device configuration			
Different simulations	••	••	
- active	••	••	
External output switch-off	•	•	
- active	•	•	
Display value < 1600 h for Qmax	•	•	
External totalizer	••	••	
- stop / - reset	•	•	
Last valid value is retained.	•	•	
Sensor & Tx series are incompatible	•	•	
An alarm is being simulated	•	•	
Installation and Process			
Flow > 103 %	•	•	
Empty pipe	•	•	
Partially filled pipe (TFE)	•	•	
Electrical impedance	•	•	
- too high	•	•	
Conductivity	•	•	
- alarm	•	•	
Electrode deposit	•	•	
- alarm	•	•	
Gas bubble	•	•	
- alarm	•	•	
Pulse output overshoot	•	•	
Sensor temperature	•	•	
- alarm	•	•	

Flowmeters	
	
FV4000, FS4000	
Data sheet	D184S035U02 D184B093U22
Internet	www.abb.com/flow
Application	Vortex and Swirl Flowmeter. For vapor, gas and liquids Vortex: $\leq \pm 1\%$ of rate for gases $\leq \pm 0.75\%$ of rate for liquids Swirl: $\leq \pm 0.5\%$ of rate <u>Temperature of measuring medium:</u> Vortex: $-55 \dots 280\text{ }^{\circ}\text{C} / 400\text{ }^{\circ}\text{C}$ Swirl: $-55 \dots 280\text{ }^{\circ}\text{C}$ <u>Range:</u> Vortex: DN 15 ... DN 300 Swirl: DN 15 ... DN 400
Ambient temperature	$-30 \dots 70\text{ }^{\circ}\text{C}$
Type of protection	IP 67
Explosion protection	II 2G Ex ia IIC T4
Approvals	ATEX 556309 X, IECEx CoC TUN 10.0028 X
FISCO approval	Yes
For FNICO usable	Yes
Overvoltage protection PA	—
Physics	MBP(-IS) (IEC 61158-2)
Baud rate	31.25 kBit/s fix
Ident. No.	05DC HEX
PNO Certificate No.	Z00789
Bus address	1 ... 125 (default 126)
local adjustment	DIP switches
central adjustment	Software (e. g.: Asset Vision)
PA Profile	V3.0
Transducer Block (TB)	Flow
Function Block (FB) (Only for profile compliant devices)	2 AI: Flow, temperature 1 TOT: flow counter
FB Data length cyclical read write	5 / 10 / 15 Byte 0 ... 2 Byte
Device configuration central adjustment	DTM or EDD
local adjustment	Keypad, DIP switches, display
Asset Monitor	Yes (for ABB Tools)
U _s min.	9.0 V DC
Basic current ¹⁾	10.0 mA
Δ Error current ¹⁾	3.0 mA
Start current after 10 ms	= basic current
External supply	—

¹⁾ Max. permanent current = basic current + Δ error current

Flowmeters		FV4000, FS4000
Diagnosis data to increase the plant availability		
 = Maintenance req.  = Out of specification  = Check function  = Failure  = No message		
Generic fieldbus diagnosis		
(see page 18)		
- plus - Advanced diagnosis		
Device functionality		
Backup database - faulty		•
Main database - faulty		•
Preamplifier - error		•
Totalizer - defect		•
Temperature measurement - error		•
Device configuration		
Vapor calculation - error		•
Function test pulse output		•
Function test contact output		•
Function test simulation of flow		•
Installation and Process		
Flow > 115 % of QmaxDN		•
Flow > 115 % of Qmax		•
Max. / Min. temperature - alarm		••
Max. / Min. flow - alarm		••

Flowmeters	
	
FCM2000 CoriolisMaster	
Data sheet	D184S068U02 D184B093U34
Internet	www.abb.com/flow
Application	Coriolis Mass Flowmeter <u>Multivariable Measurement:</u> - Mass flow (up to 0.1 %) - Density (5 g/l or 1 g/l) - Temperature (-50 ... 200 °C) <u>Special applications:</u> - Concentration measurement <u>Nominal diameter:</u> DN 1.5 ... DN 150 Variable Ex concept
Ambient temperature	-40 ... 60 °C
Type of protection	IP 67
Explosion protection	Zone 0 ... 2 or Div 1 ... 2
Approvals	CE, IECEx, ATEX, cFMus, NEPSI
FISCO approval	Yes
For FNICO usable	Yes
Overvoltage protection PA	—
Physics	MBP(-IS) (IEC 61158-2)
Baud rate	31.25 kBit/s fix
Ident. No.	0849 HEX
PNO Certificate No.	Z01208
Bus address	1 ... 125 (default 126)
local adjustment	DIP switches
central adjustment	Software (e. g.: Asset Vision)
PA Profile	V3.0
Transducer Block (TB)	Flow
Function Block (FB) (Only for profile compliant devices)	6 AI: Mass- and volume flow, density, temperature 2 TOT: Volume and mass totalizer
FB Data length cyclical read write	5 / 10 / 15 / 20 / 25 / 30 Byte 0 ... 4 Byte
Device configuration central adjustment	DTM or EDD
local adjustment	Keypad, DIP switches, Display
Asset Monitor	Yes (for ABB Tools)
U _s min.	9.0 V DC
Basic current ¹⁾	14.0 mA
Δ Error current ¹⁾	12.0 mA
Start current after 10 ms	= basic current
External supply	Yes (230 VAC, 24 VAC/VDC, < 25VA)

¹⁾ Max. permanent current = basic current + Δ error current

Flowmeters		
Diagnosis data to increase the plant availability	FCM2000	
 = Maintenance req.  = Out of specification  = Check function  = Failure  = No message		
Generic fieldbus diagnosis		
(see page 18)		
- plus - Advanced diagnosis		
Device functionality		
Internal / external FRAM - error	••	
DSP communication - error	•	
AD converter - error	•	
Sensor / sensor amplitude - error	••	
Driver / driver current - error	••	
Sensor A / B / C - error	•••	
Device configuration		
External data loaded	•	
Update internal / external data	••	
Simulation	•	
Installation and Process		
Density measurement - error	•	
Density <0.5 kg/l	•	
Pipe / housing temp. measurem. - error	•	
Flow rate > 105 %	•	
Totalizer mass >F / <R	••	
Totalizer volume >F / <R	••	
Min. / max. alarm Qm	••	
Min. / max. alarm density	••	
Min. / max. alarm temperature	••	
Reverse Q	•	
Overflow >F / <R mass	••	
Overflow >F / <R volume	••	

	Flowmeters		
			
	FPD500 OriMaster (V2/V4)	FPD510 IOMaster (V2)	FPD550 PitotMaster (V2)
Data sheet	DS/FPD500-EN	DS/FPD510-EN	DS/FPD550-EN
Internet	www.abb.com/flow	www.abb.com/flow	www.abb.com/flow
Application	Compact orifice flowmeter for steam, gas and liquids <u>Accuracy:</u> ±1.5 ... 2% <u>Size range:</u> DN25 ... DN300 Order code: V2/V4 via 266Dxx (PdP) transmitter	Compact integral orifice flowmeter for steam, gas and liquids <u>Accuracy:</u> ±1.5 ... 2% <u>Size range:</u> DN15 ... DN25 Order code: V2 via 266Dxx (PdP) transmitter	Compact averaging pitot flowmeter for steam, gas and liquids <u>Accuracy:</u> ±1.5 ... 2% <u>Size range:</u> DN100 ... DN600 Order code: V2 via 266Dxx (PdP) transmitter
Ambient temperature	-40 ... 85 °C	-40 ... 85 °C	-40 ... 85 °C
Type of protection	IP 67, NEMA 4X	IP 67, NEMA 4X	IP 67, NEMA 4X
Explosion protection	II 1 G Ex ia IIC T6 & II 1/2 G Ex ia IIC T6 (-40 °C ≤ Ta ≤ +40 °C); II 1 D Ex iaD 20 T 95 °C & II 1/2 D Ex iaD 21 T 95 °C. II 1/2 G Ex d IIC T6 & II 1/2 D Ex tD A21 IP67 T 85 °C. II 3 G Ex nL IIC T6 & II 3 D Ex tD A22 IP67 T 85 °C, XP/IS/NI/DIP Class I, II or III Div.1 or 2		
Approvals	CE, ATEX, GOST, PED	CE, ATEX, GOST, PED	CE, ATEX, GOST, PED
FISCO approval	Yes	Yes	Yes
For FNICO usable	Yes	Yes	Yes
Overvoltage protection PA	Yes (integrated)	Yes (integrated)	Yes (integrated)
Physics	MBP(-IS) (IEC 61158-2)	MBP(-IS) (IEC 61158-2)	MBP(-IS) (IEC 61158-2)
Baud rate	31.25 kBit/s fix	31.25 kBit/s fix	31.25 kBit/s fix
Ident. No.	V2/V4=3450 HEX	V2=3450 HEX	V2=3450 HEX
PNO Certificate No.	in preparation	in preparation	in preparation
Bus address	1...125 (default 126)	1...125 (default 126)	1...125 (default 126)
local adjustment	Keypad and display	Keypad and display	Keypad and display
central adjustment	Software (e. g.: Asset Vision)	Software (e. g.: Asset Vision)	Software (e. g.: Asset Vision)
PA Profile			
Transducer Block (TB)			
Function Block (FB)			
(Only for profile compliant devices)	Details see pressure (PdP) transmitter <u>Order code:</u> V2/V4 via 266Dxx (PdP) transmitter	Details see pressure (PdP) transmitter <u>Order code:</u> V2 via 266Dxx (PdP) transmitter	Details see pressure (PdP) transmitter <u>Order code:</u> V2 via 266Dxx (PdP) transmitter
FB Data length cyclical read write			
Device configuration central adjustment	DTM or EDD	DTM or EDD	DTM or EDD
local adjustment	Keypad and display	Keypad and display	Keypad and display
Asset Monitor	Yes (for ABB Tools)	Yes (for ABB Tools)	Yes (for ABB Tools)
U _s min.	9.0 V DC	9.0 V DC	9.0 V DC
Basic current ¹⁾	15.0 mA	15.0 mA	15.0 mA
Δ Error current ¹⁾	5.0 mA	5.0 mA	5.0 mA
Start current after 10 ms	= basic current	= basic current	= basic current
External supply	—	—	—

¹⁾ Max. permanent current = basic current + Δ error current

Flowmeters	
	
FPD570 WedgeMaster (V2)	
Data sheet	DS/FPD570-EN
Internet	www.abb.com/flow
Application	Compact wedge flowmeter for steam, gas and liquids <u>Accuracy:</u> $\pm 1.5 \dots 2 \%$ <u>Size range:</u> DN25 ... DN150 Order code: V2 via 266Dxx (PdP) transmitter
Ambient temperature	-40 ... 85 °C
Type of protection	IP 67, NEMA 4X
Explosion protection	See FPD500
Approvals	CE, ATEX, GOST, PED
FISCO approval	Yes
For FNICO usable	Yes
Overvoltage protection PA	Yes (integrated)
Physics	MBP(-IS) (IEC 61158-2)
Baud rate	31.25 kBit/s fix
Ident. No.	V2=3450 HEX
PNO Certificate No.	in preparation
Bus address	1...125 (default 126)
local adjustment	Keypad and display
central adjustment	Software (e. g.: Asset Vision)
PA Profile	Details see pressure (PdP) transmitter <u>Order code:</u> V2 via 266Dxx (PdP) transmitter
Transducer Block (TB)	
Function Block (FB) (Only for profile compliant devices)	
FB Data length cyclical read write	
Device configuration central adjustment	DTM or EDD
local adjustment	Keypad and display
Asset Monitor	Yes (for ABB Tools)
U _s min.	9.0 V DC
Basic current ¹⁾	15.0 mA
Δ Error current ¹⁾	5.0 mA
Start current after 10 ms	= basic current
External supply	—

1) Max. permanent current = basic current + Δ error current

Flowmeters		
Diagnosis data to increase the plant availability	 = Maintenance req.  = Out of specification  = Check function  = Failure  = No message	
Generic fieldbus diagnosis		
(see page 18)		
- plus - Advanced diagnosis		
Device functionality		
Pressure sensor - failed	•	
Temperature sensor - failed	•	
Static pressure sensor - failed	•	
Wrong or missing primary sensor signals	•	
Sensor memory fail	•	
Sensor memory burn failure	•	
Sensor not detected	•	
Electronics memory fail	•	
Electronics memory burn failure	•	
Sensor and electronics incompatible	•	
Sensor and electronics interface error	•	
Sensor or electronics replacement failures	•	
Installation and Process		
Sensor overpressure	•	
Pressure out of sensor limits	•	
Static pressure out of sensor limits	•	
Sensor temperature out of operating limits	•	
Static pressure over than installation enviromental limits	•	
Pressure out of range	•	
Simulation active	•	
Plugged impulse line detected - line H plugged - line L plugged - lines H and L plugged - one undetected line plugged	•	
New PILD training required.	•	

Analyzer			
			
	TB82EC	TB82TC	TB82TE
Data sheet	D-NCA-TB82	D-NCA-TB82	D-NCA-TB82
Internet	www.abb.com/analytical-instruments	www.abb.com/analytical-instruments	www.abb.com/analytical-instruments
Application	Process Analytics - Solution Conductivity <u>Process Display Range:</u> Sensor Group A: 0.0 µS/cm ... 1999 mS/cm B: 0.00 µS/cm ... 1999 µS/cm C: 0.000 µS/cm ... 199.9 µS/cm <u>Concentration:</u> 0.000 ... 1999 Digits (EU configurable) <u>Temperature:</u> -20 ... 300 °C	Process Analytics - Solution Conductivity <u>Process Display Range:</u> 1 µS/cm ... 1999 mS/cm <u>Concentration:</u> 0.000 ... 1999 Digits (EU configurable) <u>Temperature:</u> -20 ... 300 °C	Process Analytics - Solution Conductivity <u>Process Display Range:</u> Sensor Cell Constant 0.01: 0.001 µS/cm ... 199.9 µS/cm 0.10: 0.01 µS/cm ... 1999 µS/cm 1.00: 0.1 µS/cm ... 19.99 mS/cm <u>Concentration:</u> 0.000...1999 Digits (EU configurable) <u>Temperature:</u> -20 ... 300 °C
Ambient temperature	-20 ... 60 °C	-20 ... 60 °C	-20 ... 60 °C
Type of protection	IP 65, NEMA 4X	IP 65, NEMA 4X	IP 65, NEMA 4X
Explosion protection	Ex ia IIC T4, Class I Division 1 up to Class II Division 2, Class III	Ex ia IIC T4, Class I Division 1 up to Class II Division 2, Class III	Ex ia IIC T4, Class I Division 1 up to Class II Division 2, Class III
Approvals	CE, ATEX, CSA	CE, ATEX, CSA	CE, ATEX, CSA
FISCO approval	—	—	—
For FNICO usable	Yes	Yes	Yes
Overvoltage protection PA	Yes (integrated)	Yes (integrated)	Yes (integrated)
Physics	MBP(-IS) (IEC 61158-2)	MBP(-IS) (IEC 61158-2)	MBP(-IS) (IEC 61158-2)
Baud rate	31.25 kBit/s fix	31.25 kBit/s fix	31.25 kBit/s fix
Ident. No.	5102 HEX	5104 HEX	5103 HEX
PNO Certificate No.	—	Z00413	Z00413
Bus address	1 ... 125 (default 126)	1 ... 125 (default 126)	1 ... 125 (default 126)
local adjustment	Keypad	Keypad	Keypad
central adjustment	Software (e. g.: Asset Vision)	Software (e. g.: Asset Vision)	Software (e. g.: Asset Vision)
PA Profile	V3.0	V3.0	V3.0
Transducer Block (TB)	Analyzer	Analyzer	Analyzer
Function Block (FB) (Only for profile compliant devices)	2 AI: AI1 - Conductivity or concentration. AI2 - Conductivity, concentration, temperature or uncompensated conductivity	2 AI: AI1 - Conductivity or concentration. AI2 - Conductivity, concentration, temperature or uncompensated conductivity	2 AI: AI1 - Conductivity or concentration. AI2 - Conductivity, concentration, temperature or uncompensated conductivity
FB Data length cyclical read	5 / 10 Byte	5 / 10 Byte	5 / 10 Byte
write	—	—	—
Device configuration	DTM	DTM	DTM
central adjustment	DTM	DTM	DTM
local adjustment	Keypad and display	Keypad and display	Keypad and display
Asset Monitor	Yes (for ABB Tools)	Yes (for ABB Tools)	Yes (for ABB Tools)
U _s min.	9.0 V DC	9.0 V DC	9.0 V DC
Basic current ¹⁾	15.0 mA	15.0 mA	15.0 mA
Δ Error current ¹⁾	10.0 mA	10.0 mA	10.0 mA
Start current after 10 ms	= basic current	= basic current	= basic current
External supply	—	—	—

¹⁾ Max. permanent current = basic current + Δ error current

Analyzer	
	
TB82PH	
Data sheet	D-NPA-TB82PH
Internet	www.abb.com/analytical-instruments
Application	Process Analytics - pH/ORP/pION <u>Process Display Range:</u> pH: -2 ... 16 pH ORP: -1999 ... 1999 mV pION: -1999 ... 1999 mV <u>Temperature:</u> -20 ... 300 °C
Ambient temperature	-20 ... 60 °C
Type of protection	IP 65, NEMA 4X
Explosion protection	Ex ia IIC T4, Class I Division 1 up to Class II Division 2, Class III
Approvals	CE, ATEX, CSA
FISCO approval	–
For FNICO usable	Yes
Overvoltage protection PA	Yes (integrated)
Physics	MBP(-IS) (IEC 61158-2)
Baud rate	31.25 kBit/s fix
Ident. No.	5101 HEX
PNO Certificate No.	–
Bus address	1 ... 125 (default 126)
local adjustment	Keypad
central adjustment	Software (e. g.: Asset Vision)
PA Profile	V3.0
Transducer Block (TB)	Analyzer
Function Block (FB) (Only for profile compliant devices)	2 AI: AI1 - PV (pH, ORP or pION), AI2 - PV, temperature, sensor input, reference impedance or function generator value
FB Data length cyclical read write	5 / 10 Byte –
Device configuration central adjustment	DTM
local adjustment	Keypad and display
Asset Monitor	Yes (for ABB Tools)
U _s min	9.0 V DC
Basic current ¹⁾	15.0 mA
Δ Error current ¹⁾	10.0 mA
Start current after 10 ms	= basic current
External supply	–

¹⁾ Max. permanent current = basic current + Δ error current

Analyzer				
Diagnosis data to increase the plant availability				
 = Maintenance req.  = Out of specification  = Check function  = Failure  = No message	TB82EC	TB82TC	TB82TE	TB82PH
Generic fieldbus diagnosis				
(see page 18)				
- plus - Advanced diagnosis				
Device functionality				
Electronics failure	•	•	•	•
Incorrect input PCB	•	•	•	•
Process calibration offset / zero warning				•
Process calibration slope warning				•
Calibration mode				•
Device configuration				
Reference impedance limit				•
Calibration - error	•	•	•	•
AI1 / AI2 simulation - active	••	••	••	••
Installation and Process				
Low pH measuring electrode impedance				•
High reference electrode impedance				•
Ground loops present or shorted sensor cable	•			•
Open sensor cable or sensor out of solution				•
Temperature out of limits	•	•	•	•
PV out of limits	•	•	•	•
Temperature sensor failure	•	•	•	•
Dirty sensor alarm	•			
Polarized sensor			•	

Temperature Transmitter		
		
	TTH300	TTF300
Data sheet	DS/TTH300-EN	DS/TTF300-EN
Internet	www.abb.com/temperature	www.abb.com/temperature
Application	Head mounted transmitter <u>RTD:</u> Pt10, Pt50, Pt100, Pt200, Pt1000, Ni50, Ni100, Ni120, Ni1000 <u>Thermocouple:</u> Type B, C, D, E, J, K, L, N, R, S, T, U <u>Voltage:</u> -125 ... 125 mV / -125 ... 1,100 mV <u>Resistance:</u> 0 ... 500 Ω / 0 ... 5,000 Ω Customer Specific Curve Callendar Van Dusen Coefficients (-50)-40 ... 85 °C	Field mounted transmitter <u>RTD:</u> Pt10, Pt50, Pt100, Pt200, Pt1000, Ni50, Ni100, Ni120, Ni1000 <u>Thermocouple:</u> Type B, C, D, E, J, K, L, N, R, S, T, U <u>Voltage:</u> -125 ... 125 mV / -125 ... 1,100 mV <u>Resistance:</u> 0 ... 500 Ω / 0 ... 5,000 Ω Customer Specific Curve Callendar Van Dusen Coefficients (-50)-40 ... 85 °C
Ambient temperature	IP 20	IP 67
Type of protection	II 1G Ex ia IIC T6	II 1G Ex ia IIC T6
Explosion protection	CE, ATEX, IECEX, FM, CSA	CE, ATEX, IECEX, FM, CSA
Approvals	Yes	Yes
FISCO approval	Yes	Yes
For FNICO usable	—	—
Overvoltage protection PA		
Physics	MBP(-IS) (IEC 61158-2)	MBP(-IS) (IEC 61158-2)
Baud rate	31.25 kBit/s fix	31.25 kBit/s fix
Ident. No.	3470 HEX	3470 HEX
PNO Certificate No.	in preparation	in preparation
Bus address	0 ... 125 (default 126)	0 ... 125 (default 126)
local adjustment	Keypad and display	Keypad and display
central adjustment	Software (e. g.: Asset Vision)	Software (e. g.: Asset Vision)
PA Profile	V3.01	V3.01
Transducer Block (TB)	Temperature	Temperature
Function Block (FB) (Only for profile compliant devices)	4 AI: Calculated value, sensor 1, sensor 2, reference junction, 1 AO: Display value, 2 DI: Extended diagnostic 1 & 2	
FB Data length cyclical read write	5 ... 24 Byte 0 / 5 Byte	5 ... 24 Byte 0 / 5 Byte
Device configuration central adjustment	DTM or EDD	DTM or EDD
local adjustment	Keypad and display	Keypad and display
Asset Monitor	Yes (for ABB Tools)	Yes (for ABB Tools)
U _s min.	9.0 V DC	9.0 V DC
Basic current ¹⁾	12.0 mA	12.0 mA
Δ Error current ¹⁾	8.0 mA	8.0 mA
Start current after 10 ms	= basic current	= basic current
External supply	—	—

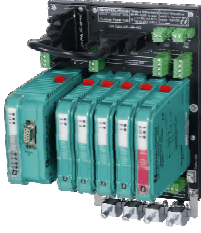
Temperature Transmitter		TTH300, TTF300
Diagnosis data to increase the plant availability		
 = Maintenance req.  = Out of specification  = Check function  = Failure  = No message		
Generic fieldbus diagnosis		
(see page 18)		
- plus - Advanced diagnosis		
Device functionality		
Sensor drift	•	
Sensor 1 - line resistance too high	•	
Sensor 1 - short circuit	•	
Sensor 1 - wire break	•	
Sensor 2 - line resistance too high	•	
Sensor 2 - short circuit	•	
Sensor 2 - wire break	•	
Device temperature out of spec.	•	
Device error	•	
Sensor 1 + 2 redundancy - failure	•	
Sensor 1 redundancy - short circuit	•	
Sensor 1 redundancy - wire break	•	
Sensor 2 redundancy - short circuit	•	
Sensor 2 redundancy - wire break	•	
Device configuration		
Device not calibrated	•	
Device being simulated	•	
Configuration error	•	
Installation and Process		
Sensor 1 measurement range - overflow, - underflow	••	
Sensor 2 measurement range - overflow, - underflow	••	

¹⁾ Max. permanent current = basic current + Δ error current

Positioner		
		
	TZIDC-110	TZIDC-210
Data sheet	10/18-0.23-EN	10/18-0.33-EN
Internet	www.abb.com/measurement	www.abb.com/measurement
Application	Intelligent Positioner Precise control of positioning with pneumatic linear and rotary actuators. Interference due to shock and vibration < 1 % up to 10 g. <u>Control pressure:</u> 0 ... 6 bar <u>Housing material:</u> Aluminum	Intelligent Positioner Flameproof enclosure Precise control of positioning with pneumatic linear and rotary actuators. Interference due to shock and vibration < 1 % up to 10 g. <u>Control pressure:</u> 0 ... 6 bar <u>Housing material:</u> Aluminum
Ambient temperature	-40 ... 85 °C	-40 ... 85 °C
Type of protection	IP 65, NEMA 4X	IP 65, NEMA 4X
Explosion protection	II 2G Ex ia IIC T6 resp. T4 Gb II 3G Ex n A II T6 esp. T4 Gc	II 2G Ex d IIC T6 Gb II 2G Ex ia IIC T6 resp. T4 Gb
Approvals	CE, ATEX, FM, CSA, IECEx, GOST	CE, ATEX, FM, CSA, IECEx, GOST
FISCO approval	Yes	Yes
For FNICO usable	Yes	Yes
Overvoltage protection PA	—	—
Physics	MBP(-IS) (IEC 61158-2)	MBP(-IS) (IEC 61158-2)
Baud rate	31.25 kBit/s fix	31.25 kBit/s fix
Ident. No.	0639 HEX	0639 HEX
PNO Certificate No.	in preparation	in preparation
Bus address	1 ... 125 (default 126)	1 ... 125 (default 126)
local adjustment	Keypad	Keypad
central adjustment	Software (e. g.: Asset Vision)	Software (e. g.: Asset Vision)
PA Profile	V3.0	V3.0
Transducer Block (TB)	Electro-pneumatic Positioner	Electro-pneumatic Positioner
Function Block (FB) (Only for profile compliant devices)	1 AO: Setpoint value, position value, digital position, RCAS_IN, RCAS_OUT	1 AO: Setpoint value, position value, digital position, RCAS_IN, RCAS_OUT
FB Data length cyclical read write	3 ... 20 Byte 5 Byte	3 ... 20 Byte 5 Byte
Device configuration central adjustment	DTM or EDD	DTM or EDD
local adjustment	Push Buttons and display	Push Buttons and display
Asset Monitor	Yes (for ABB Tools)	Yes (for ABB Tools)
U _s min.	9.0 V DC	9.0 V DC
Basic current ¹⁾	10.5 mA	10.5 mA
Δ Error current ¹⁾	4.5 mA	4.5 mA
Start current after 10 ms	= basic current	= basic current
External supply	—	—

Positioner	
Diagnosis data to increase the plant availability	TZIDC-110, TZIDC-210
 = Maintenance req.  = Out of specification  = Check function  = Failure  = No message	
Generic fieldbus diagnosis	
(see page 18)	
- plus - Advanced diagnosis	
Device functionality	
Device error	•
Position sensor malfunction	•
Installation and Process	
Working range adjustment required	•
Position sensor out of range	•
Auto adjustment failed	•
Position controller not ready for operation (inactive)	•
Position out of working range	•
Mechanical end position exceeded	•
Positioning monitoring time exceeded	•
Temperature limit exceeded	•
Movement counter limit exceeded	•
Travel counter limit exceeded	•
Switch point 1 exceeded	•
Switch point 2 exceeded	•
Simulation active	•
Local operation active	•

¹⁾ Max. permanent current = basic current + Δ error current

	Segment Coupler DP/PA		
			
	NDL300	NDL300, NPP310, NGP310, NGP312	NDL300, NPP310, NGP310, NGP312
Data sheet	DS/NDL-EN	DS/NDL-EN	DS/NDL-EN
Internet	www.abb.com/fieldbus	www.abb.com/fieldbus	www.abb.com/fieldbus
Application	Segment coupler <u>compact</u> . Unit connects one PROFIBUS DP segment with 2 PROFIBUS PA segments and it consists of 1 x motherboard, 1x DP/PA gateway and 2x Power Supply modules for up to 2x 31 PA devices. Building on a DIN rail (M36).	Segment coupler <u>simplex</u> . Unit connects one PROFIBUS DP segment with 1-4 PROFIBUS PA segments. Modular construction with 2x Motherboards, 1x DP/PA gateway, 1-4x Power Supply modules for up to 4x 31 PA devices and 1x diagnostic module. Building on a DIN rail and in Ex (Haz.) Zone 2. PA segment diagnostic via DTM.	Segment coupler <u>redundant</u> . Unit connects one PROFIBUS DP segment (red.) with 1-4 PROFIBUS PA segments. Modular construction with 2x Motherboards, 1(+1)x DP/PA gateway, 1-4(+1-4)x Power Supply modules for up to 4x 31 PA devices and 1x diagnostic module. Building on a DIN rail and in Ex (Haz.) Zone 2. PA segment diagnostic via DTM.
Ambient temperature	-40 ... 60 °C	-40 ... 60 °C	-40 ... 60 °C
Type of protection	IP 20	IP 20	IP 20
Explosion protection	—	II 3G Ex nA IIC T4, II 3G Ex nA II T4, II 3G Ex nAC IIC T4	II 3G Ex nA IIC T4, II 3G Ex nA II T4, II 3G Ex nAC IIC T4
Approvals	CE	CE, ATEX, FM	CE, ATEX, FM
FISCO approval	—	—	—
For FNICO usable	—	—	—
Overvoltage protection PA	—	—	—
Physics	EIA 485 (RS 485) / MBP (IEC 61158-2)	EIA 485 (RS 485) / MBP (IEC 61158-2)	EIA 485 (RS 485) / MBP (IEC 61158-2)
Baud rate	up to 12 Mbit/s (DP) / 31.25 kbit/s (PA)	up to 12 Mbit/s (DP) / 31.25 kbit/s (PA)	up to 12 Mbit/s (DP) / 31.25 kbit/s (PA)
Ident. No.	transparent	transparent	transparent
PNO Certificate No.	—	—	—
Bus address	transparent	Only when using the diagnostic DIP switch	Only when using the diagnostic DIP switch
local adjustment	—	—	—
central adjustment	—	—	—
PA Profile	—	—	—
Transducer Block (TB)	—	—	—
Function Block (FB)	—	—	—
(Only for profile compliant devices)			
FB Data length cyclical			
read	—	—	—
write	—	—	—
Device configuration			
central adjustment	automatically	automatically	automatically
local adjustment	—	—	—
Asset Monitor	—	—	—
U _s min.	19.2 V DC	19.2 V DC	19.2 V DC
1. U and I - PA supply	U _s : 25...28 V DC / I _s : ≤ 360 mA	U _s : 25...28 V DC / I _s : ≤ 360 mA	U _s : 25...28 V DC / I _s : ≤ 360 mA
2. U and I - PA supply	—	U _s : 28...30 V DC / I _s : ≤ 500 mA	U _s : 28...30 V DC / I _s : ≤ 500 mA
External supply	Yes (19.2...35 V DC, 1.46...0.77 A)	Yes (19.2...35 V DC, ≤ 16 A)	Yes (19.2...35 V DC, ≤ 16 A)

	Network components, Accessories for MBP(-IS)																							
	Junctions												Con-nectors		Cables					Overvoltage protection				
	NGB900	NPJ120-NO	NPJ130-NO	NPJ420-NO	NPJ460-NO	NPJ120-EX	NPJ130-EX	NPJ420-EX	NPJ460-EX	NPZ100-EX	NGJ100-NE family	NPE100-NE	NPE300-NE	NPC080-NO	NPC150-NO	NPC250-NO	NPC080-EX	NPC150-EX	NPC250-EX	NGV210-NO & NGV211-NO	NGV210-EX & NGV211-EX	NGV220-NO	NGV220-EX	
Data sheet	1)	10/63-6.40-EN												10/63-6.47-EN					10/63-6.15-EN					
Installation suggestion		10/63-0.40-EN																						
Internet		www.abb.com/fieldbus																						
For hazardous areas	•					•	•	•	•	•														
For Non-Haz. areas	•	•	•	•	•	•	•	•	•	•	•													
IP 20																								
IP 66		•	•	•	•	•	•	•	•	•														
IP 67	•																							
Bus termination incl.	•	•	•	•	•						•													
Bus termination ext. (via NPZ100-EX)						•	•	•	•															
Bus termination for hazardous areas										•														
One-way (T) junction		•	•			•	•				•													
Four-way junction	•			•	•			•	•		•													
X-way junction											•													
Output - cable bushing	•		•		•	•	•	•																
Output - socket M12		•		•		•		•																
For hazardous area and Non-Haz. area												•	•											
Plug M12												•												
Socket M12													•											
Metal housing												•	•											
For hazardous areas																	•	•	•					
2 x 0.88 mm ² (AWG18/7)														•				•	•					
2 x 1.30 mm ² (AWG16/7)															•			•						
2 x 2.10 mm ² (AWG14/7)																•			•					
For hazardous areas																					•	•		•
Top-hat rail mounting, IP 20																					•	•		•
Cable gland mounting, M20 x 1.5, IP 67																						•		•

1) DS/NGB-EN

For all		
Diagnosis data to increase the plant availability	All Fieldbus devices	
 = Maintenance req.  = Out of specification  = Check function  = Failure  = No message		
Generic fieldbus diagnosis		
Device functionality		
Hardware failure of the electronic	•	
Hardware failure mechanics	•	
Motor temperature too high	•	
Electronic temperature too high	•	
Memory error	•	
Power supply failed	•	
Warm start	•	
Cold start	•	
Maintenance required	•	
Maintenance demanded	•	
Device configuration		
Device not initialized	•	
Self calibration failed	•	
Zero point error	•	
Configuration not valid	•	
Characterization invalid	•	
Identification number violation	•	
Installation and Process		
Failure in measurement	•	
Failure of the device armature	•	
Function check / simulation mode	•	
Invalid process conditions / Out of specification	•	

Notes

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Service

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