

## **Transmitter**

#### **FEATURES**

- Analog output ±10 VDC, ±20 mA, 0-20 or 4-20 mA
- Serial communication: RS-485, MODBUS RTU protocol
- Fieldbus interface: Profibus DP (certified)
- Tare, Gross/Net and Zero function (power failure safe)
- Internal resolution >8.000.000 counts
- Relay outputs (level mode/setpoint mode)
- Compact DIN rail mounting
- CE compliant EMC and Low Voltage

#### **DESCRIPTION**

WST 3 Transmitters are high performance, DIN rail-mounted instruments designed for strain gage based transducer applications. They convert load cell(s) input signals into highly stable analog and digital output signals suitable for PC or PLC based control systems.

WST 3 Transmitters typically are used where a local display is essential either for weight/force indication or front panel setup. Setup and calibration procedures are accomplished easily using the front panel or by using PC based deltaCOM software running under Windows 95/98/2000/NT4/ME/XP/Windows 7/Windows 8/Windows 10. All setup data can be stored in a host computer and quickly downloaded into another WST 3 replacement unit with PC software delatCOM.

Units are equipped with two relay outputs having a response time of less than 20 ms. for use in high accuracy, level control applications.

A unique and patented A/D converter, of high resolution and stability, serves as the heart of the transmitter. This advanced A/D drives both the analog and serial outputs which can be user configured to transmit rapid, accurate, and stable weight/force measurements.

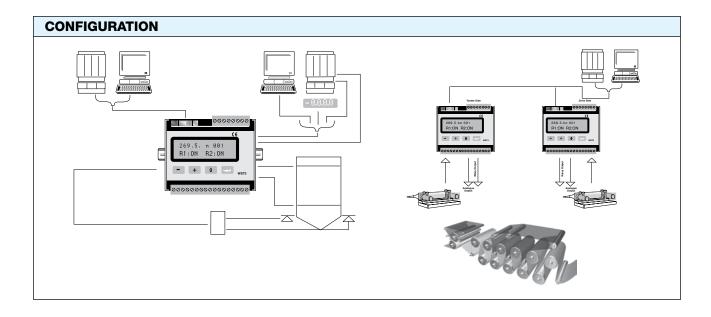




WST 3 Transmitters offer on-board fieldbus communication using the Profibus DP format. Fieldbus versions of Profibus DP, DeviceNet, and Modbus Plus also are available through the GATE 3S network module from BLH Nobel.

WST 3 Transmitters are compatible with other BLH Nobel instruments and communicate via standard RS-485/MODBUS RTU protocol with a common process control host – PC/PLC.

The transmitter is CE marked, and fully compliant with EMC and Low Voltage directives.



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### Transmitter

EVOITATION VOITAND	SPECIFICATIONS	
Resolution       8,300,000 counts         Conversion Speed       0.5 to 300 Hz accuracy 0.015%         Full Scale Range       ±3.3 mV/V         Non-Linearity       <0.005% of used range         Excitation Voltage       8.8 VDC to 5.5 VDC with 1 to 8 of 350 Ω transducers, isolated 500 V         No. of 350 Ω load cells       8 pcs (total load >45 Ω)         Filter       0.05 to 75 Hz, type FIR, selectable bandwidth         Offset, drift       <0.0015% of actual value/°C         Gain drift       <0.0015% of actual value/°C         Calibration Methods       Data sheet, table, dead weight         ENVIRONMENTAL       The contraction of the contraction of actual value/°C         Storage Temperature       −10°C to +50°C         Storage Temperature       −25°C to +85°C         Relative Humidity       95%         IP Level       IP20         FRONT PANEL       Proper Consumption         Keyboard       2×16 character LCD display with backlight         Keyboard       4 buttons for menu control and data entry         POWER SUPPLY       Voltage         Power Consumption       8 W         Isolated 16-bit power supply. Other parts 500 V         ANALOG OUTPUT       Isolated 16-bit power supply. Other parts 500 V         Non-Linearity       <0	PARAMETER	VALUE
Conversion Speed       0.5 to 300 Hz accuracy 0.015%         Full Scale Range       ±3.3 mV/V         Non-Linearity       <0.005% of used range         Excitation Voltage       8.8 VDC to 5.5 VDC with 1 to 8 of 350 Ω transducers, isolated 500 V         No. of 350 Ω load cells       8 pcs (total load >45 Ω)         Filter       0.05 to 75 Hz, type FIR, selectable bandwidth         Offset, drift       <0.04 μV/°C         Gain drift       <0.0015% of actual value/°C         Calibration Methods       Data sheet, table, dead weight         ENVIRONMENTAL       Data sheet, table, dead weight         Operating Temperature       -10°C to +50°C         Storage Temperature       -25°C to +85°C         Relative Humidity       95%         IP Level       IP20         FRONT PANEL       2×16 character LCD display with backlight         Keyboard       4 buttons for menu control and data entry         POWER SUPPLY       Voltage         Voltage       24 VDC ±20%         Power Consumption       8 W         Isolated 16-bit bipolar D/A converter         Non-Linearity       <0.01% of used range         Gain Drift       <0.003% of actual value/°C         Filter       0.05 to 75 Hz, type FIR, selectable bandwidth         Vo	PERFORMANCE	
Full Scale Range       ±3.3 mV/V         Non-Linearity       <0.005% of used range         Excitation Voltage       8.8 VDC to 5.5 VDC with 1 to 8 of 350 Ω transducers, isolated 500 V         No. of 350 Ω load cells       8 pcs (total load >45 Ω)         Filter       0.05 to 75 Hz, type FIR, selectable bandwidth         Offset, drift       <0.04 μV/°C         Gain drift       <0.0015% of actual value/°C         Calibration Methods       Data sheet, table, dead weight         ENVIRONMENTAL       Derating Temperature         Operating Temperature       -10°C to +50°C         Storage Temperature       -25°C to +85°C         Relative Humidity       95%         IP Level       IP20         FRONT PANEL       2×16 character LCD display with backlight         Keyboard       4 buttons for menu control and data entry         POWER SUPPLY       Voltage         Power Consumption       8 W         Isolated       16-bit bipolar D/A converter         Non-Linearity       <0.01% of used range         Gain Drift       <0.003% of actual value/°C         Filter       0.05 to 75 Hz, type FIR, selectable bandwidth         Voltage       0-10 or ±10 VDC         Load Data       min. 500 Ω         Offset Drift	Resolution	8,300,000 counts
Non-Linearity   <0.005% of used range	Conversion Speed	0.5 to 300 Hz accuracy 0.015%
Excitation Voltage  8.8 VDC to 5.5 VDC with 1 to 8 of 350 Ω transducers, isolated 500 V  No. of 350 Ω load cells  8 pcs (total load >45 Ω)  0.05 to 75 Hz, type FIR, selectable bandwidth  Offset, drift <ul> <li>&lt;0.04 μV/°C</li> <li>Calibration Methods</li> <li>Data sheet, table, dead weight</li> </ul> ENVIRONMENTAL  Operating Temperature  -10°C to +50°C  Storage Temperature  -25°C to +85°C  Relative Humidity  1P Level  IP20  FRONT PANEL  Display Type and Size  Explay Type and Size  Veryboard  4 buttons for menu control and data entry  POWER SUPPLY  Voltage  24 VDC ±20%  Power Consumption  8 W  Isolation  Digital inputs common with power supply. Other parts 500 V  ANALOG OUTPUT  Type  Isolated 16-bit bipolar D/A converter  Non-Linearity <ul> <li>&lt;0.003% of actual value/°C</li> </ul> Filter  0.05 to 75 Hz, type FIR, selectable bandwidth  Voltage  0-10 or ±10 VDC  min. 500 Ω  Offset Drift <ul> <li>&lt;0.35 mV/°C</li> </ul> Current  0 to 20 mA, ±20 mA, 4 to 20 mA, or -12 to 20 mA	Full Scale Range	±3.3 mV/V
So Ω transducers, isolated 500 V	Non-Linearity	<0.005% of used range
Filter  0.05 to 75 Hz, type FIR, selectable bandwidth  Offset, drift  <0.04 μV/°C  Gain drift  <0.0015% of actual value/°C  Calibration Methods  ENVIRONMENTAL  Operating Temperature  -10°C to +50°C  Storage Temperature  -25°C to +85°C  Relative Humidity  95%  IP Level  IP20  FRONT PANEL  Display Type and Size  2×16 character LCD display with backlight  Keyboard  4 buttons for menu control and data entry  POWER SUPPLY  Voltage  24 VDC ±20%  Power Consumption  8 W  Isolation  Digital inputs common with power supply. Other parts 500 V  ANALOG OUTPUT  Type  Isolated 16-bit bipolar D/A converter  Non-Linearity  <0.01% of used range  Gain Drift  <0.003% of actual value/°C  Filter  0.05 to 75 Hz, type FIR, selectable bandwidth  Voltage  0-10 or ±10 VDC  Load Data  min. 500 Ω  Offset Drift  <0.35 mV/°C  Current  0 to 20 mA, ±20 mA, 4 to 20 mA  or -12 to 20 mA	Excitation Voltage	8.8 VDC to 5.5 VDC with 1 to 8 of 350 $\Omega$ transducers, isolated 500 V
Selectable bandwidth  Offset, drift  Offset, drift  Onumber    Onumber    Operating Temperature    Operating Temperature	No. of 350 Ω load cells	8 pcs (total load >45 Ω)
Gain drift       <0.0015% of actual value/°C         Calibration Methods       Data sheet, table, dead weight         ENVIRONMENTAL       -10°C to +50°C         Storage Temperature       -25°C to +85°C         Relative Humidity       95%         IP Level       IP20         FRONT PANEL         Display Type and Size       2×16 character LCD display with backlight         Keyboard       4 buttons for menu control and data entry         POWER SUPPLY       24 VDC ±20%         Power Consumption       8 W         Isolation       Digital inputs common with power supply. Other parts 500 V         ANALOG OUTPUT       Isolated 16-bit bipolar D/A converter         Non-Linearity       <0.01% of used range         Gain Drift       <0.003% of actual value/°C         Filter       0.05 to 75 Hz, type FIR, selectable bandwidth         Voltage       0-10 or ±10 VDC         Load Data       min. 500 Ω         Offset Drift       <0.35 mV/°C         Current       0 to 20 mA, ±20 mA, 4 to 20 mA or -12 to 20 mA	Filter	
Calibration Methods       Data sheet, table, dead weight         ENVIRONMENTAL       Operating Temperature       -10°C to +50°C         Storage Temperature       -25°C to +85°C         Relative Humidity       95%         IP Level       IP20         FRONT PANEL         Display Type and Size       2×16 character LCD display with backlight         Keyboard       4 buttons for menu control and data entry         POWER SUPPLY         Voltage       24 VDC ±20%         Power Consumption       8 W         Isolation       Digital inputs common with power supply. Other parts 500 V         ANALOG OUTPUT       Isolated 16-bit bipolar D/A converter         Non-Linearity       <0.01% of used range	Offset, drift	<0.04 μV/°C
ENVIRONMENTAL         Operating Temperature       -10°C to +50°C         Storage Temperature       -25°C to +85°C         Relative Humidity       95%         IP Level       IP20         FRONT PANEL         Display Type and Size       2×16 character LCD display with backlight         Keyboard       4 buttons for menu control and data entry         POWER SUPPLY         Voltage       24 VDC ±20%         Power Consumption       8 W         Isolation       Digital inputs common with power supply. Other parts 500 V         ANALOG OUTPUT       Isolated 16-bit bipolar D/A converter         Non-Linearity       <0.01% of used range         Gain Drift       <0.003% of actual value/°C         Filter       0.05 to 75 Hz, type FIR, selectable bandwidth         Voltage       0-10 or ±10 VDC         Load Data       min. 500 Ω         Offset Drift       <0.35 mV/°C         Current       0 to 20 mA, ±20 mA, 4 to 20 mA or -12 to 20 mA	Gain drift	<0.0015% of actual value/°C
Operating Temperature       -10°C to +50°C         Storage Temperature       -25°C to +85°C         Relative Humidity       95%         IP Level       IP20         FRONT PANEL         Display Type and Size       2×16 character LCD display with backlight         Keyboard       4 buttons for menu control and data entry         POWER SUPPLY         Voltage       24 VDC ±20%         Power Consumption       8 W         Isolation       Digital inputs common with power supply. Other parts 500 V         ANALOG OUTPUT       Isolated 16-bit bipolar D/A converter         Non-Linearity       <0.01% of used range         Gain Drift       <0.003% of actual value/°C         Filter       0.05 to 75 Hz, type FIR, selectable bandwidth         Voltage       0-10 or ±10 VDC         Load Data       min. 500 Ω         Offset Drift       <0.35 mV/°C         Current       0 to 20 mA, ±20 mA, 4 to 20 mA or -12 to 20 mA	Calibration Methods	Data sheet, table, dead weight
Storage Temperature  Relative Humidity  IP Level  IP20  FRONT PANEL  Display Type and Size  Keyboard  A buttons for menu control and data entry  POWER SUPPLY  Voltage  Power Consumption  Isolation  Isolation  Digital inputs common with power supply. Other parts 500 V  ANALOG OUTPUT  Type  Isolated 16-bit bipolar D/A converter  Non-Linearity  Co.01% of used range  Gain Drift  Voltage  O-10 or ±10 VDC  Load Data  Offset Drift  O to 20 mA, ±20 mA, 4 to 20 mA or -12 to 20 mA  OTHER SUPPLY  O ip20  EVALUATE SERVICE  ANALOG OUTPUT  Type  O to 20 mA, ±20 mA, 4 to 20 mA or -12 to 20 mA	ENVIRONMENTAL	
Relative Humidity  IP Level  IP20  FRONT PANEL  Display Type and Size  Keyboard  4 buttons for menu control and data entry  POWER SUPPLY  Voltage  24 VDC ±20%  Power Consumption  Isolation  Digital inputs common with power supply. Other parts 500 V  ANALOG OUTPUT  Type  Isolated 16-bit bipolar D/A converter  Non-Linearity  Co.01% of used range  4.0.05 to 75 Hz, type FIR, selectable bandwidth  Voltage  1.0.05 to 75 Hz, type FIR, selectable bandwidth  Voltage  1.0.05 to 75 Hz, type FIR, selectable bandwidth  Voltage  1.0.05 to 75 Hz, type FIR, selectable bandwidth  Voltage  1.0.05 to 75 Hz, type FIR, selectable bandwidth  Voltage  1.0.05 to 75 Hz, type FIR, selectable bandwidth  Voltage  1.0.05 to 75 Hz, type FIR, selectable bandwidth  Voltage  1.0.05 to 75 Hz, type FIR, selectable bandwidth  Voltage  1.0.05 to 75 Hz, type FIR, selectable bandwidth  Voltage  1.0.05 to 75 Hz, type FIR, selectable bandwidth  Voltage  1.0.05 to 75 Hz, type FIR, selectable bandwidth  Voltage  1.0.05 to 75 Hz, type FIR, selectable bandwidth  Voltage  1.0.05 to 75 Hz, type FIR, selectable bandwidth  Voltage  1.0.05 to 75 Hz, type FIR, selectable bandwidth  Voltage  1.0.05 to 75 Hz, type FIR, selectable bandwidth  Voltage  1.0.05 to 75 Hz, type FIR, selectable bandwidth  Voltage  1.0.05 to 75 Hz, type FIR, selectable bandwidth	Operating Temperature	-10°C to +50°C
IP Level  FRONT PANEL  Display Type and Size  Keyboard  4 buttons for menu control and data entry  POWER SUPPLY  Voltage  Power Consumption  Isolation  Digital inputs common with power supply. Other parts 500 V  ANALOG OUTPUT  Type  Isolated 16-bit bipolar D/A converter  Non-Linearity  Co.01% of used range  40.003% of actual value/°C  Filter  0.05 to 75 Hz, type FIR, selectable bandwidth  Voltage  0-10 or ±10 VDC  Load Data  Offset Drift  Current  Pisplay Value (Co.003 mA, ±20 mA, 4 to 20 mA or -12 to 20 mA	Storage Temperature	-25°C to +85°C
FRONT PANEL  Display Type and Size  Keyboard  4 buttons for menu control and data entry  POWER SUPPLY  Voltage  24 VDC ±20%  Power Consumption  By  Digital inputs common with power supply. Other parts 500 V  ANALOG OUTPUT  Type  Solated 16-bit bipolar D/A converter  Non-Linearity  40.01% of used range  Consumption  Consumption  Solated 16-bit bipolar D/A converter  Non-Linearity  10.01% of used range  10.003% of actual value/°C  10.05 to 75 Hz, type FIR, selectable bandwidth  Voltage  10.10 or ±10 VDC  10.05 to 75 mV/°C  10.05 to 75 mV/°C  10.05 to 75 mV/°C  10.05 to 75 mV/°C  10.07 to 20 mA, ±20 mA, 4 to 20 mA or −12 to 20 mA	Relative Humidity	95%
Display Type and Size       2×16 character LCD display with backlight         Keyboard       4 buttons for menu control and data entry         POWER SUPPLY       24 VDC ±20%         Power Consumption       8 W         Isolation       Digital inputs common with power supply. Other parts 500 V         ANALOG OUTPUT       Isolated 16-bit bipolar D/A converter         Non-Linearity       <0.01% of used range         Gain Drift       <0.003% of actual value/°C         Filter       0.05 to 75 Hz, type FIR, selectable bandwidth         Voltage       0-10 or ±10 VDC         Load Data       min. 500 Ω         Offset Drift       <0.35 mV/°C         Current       0 to 20 mA, ±20 mA, 4 to 20 mA or -12 to 20 mA	IP Level	IP20
Display Type and Size       with backlight         Keyboard       4 buttons for menu control and data entry         POWER SUPPLY       24 VDC ±20%         Power Consumption       8 W         Isolation       Digital inputs common with power supply. Other parts 500 V         ANALOG OUTPUT       Isolated 16-bit bipolar D/A converter         Non-Linearity       <0.01% of used range         Gain Drift       <0.003% of actual value/°C         Filter       0.05 to 75 Hz, type FIR, selectable bandwidth         Voltage       0-10 or ±10 VDC         Load Data       min. 500 Ω         Offset Drift       <0.35 mV/°C         Current       0 to 20 mA, ±20 mA, 4 to 20 mA or -12 to 20 mA	FRONT PANEL	
Reyboard         data entry         POWER SUPPLY         Voltage       24 VDC ±20%         Power Consumption       8 W         Isolation       Digital inputs common with power supply. Other parts 500 V         ANALOG OUTPUT       Isolated 16-bit bipolar D/A converter         Non-Linearity       <0.01% of used range         Gain Drift       <0.003% of actual value/°C         Filter       0.05 to 75 Hz, type FIR, selectable bandwidth         Voltage       0-10 or ±10 VDC         Load Data       min. 500 Ω         Offset Drift       <0.35 mV/°C         Current       0 to 20 mA, ±20 mA, 4 to 20 mA or -12 to 20 mA	Display Type and Size	
Voltage         24 VDC ±20%           Power Consumption         8 W           Isolation         Digital inputs common with power supply. Other parts 500 V           ANALOG OUTPUT         Isolated 16-bit bipolar D/A converter           Non-Linearity         <0.01% of used range           Gain Drift         <0.003% of actual value/°C           Filter         0.05 to 75 Hz, type FIR, selectable bandwidth           Voltage         0-10 or ±10 VDC           Load Data         min. 500 Ω           Offset Drift         <0.35 mV/°C           Current         0 to 20 mA, ±20 mA, 4 to 20 mA or -12 to 20 mA	Keyboard	
Power Consumption       8 W         Isolation       Digital inputs common with power supply. Other parts 500 V         ANALOG OUTPUT       Isolated 16-bit bipolar D/A converter         Non-Linearity       <0.01% of used range         Gain Drift       <0.003% of actual value/°C         Filter       0.05 to 75 Hz, type FIR, selectable bandwidth         Voltage       0-10 or ±10 VDC         Load Data       min. 500 Ω         Offset Drift       <0.35 mV/°C         Current       0 to 20 mA, ±20 mA, 4 to 20 mA or -12 to 20 mA	POWER SUPPLY	
Isolation       Digital inputs common with power supply. Other parts 500 V         ANALOG OUTPUT       Isolated 16-bit bipolar D/A converter         Non-Linearity       <0.01% of used range	Voltage	24 VDC ±20%
Power supply. Other parts 500 V	Power Consumption	8 W
	Isolation	
Non-Linearity         <0.01% of used range           Gain Drift         <0.003% of actual value/°C           Filter         0.05 to 75 Hz, type FIR, selectable bandwidth           Voltage         0-10 or ±10 VDC           Load Data         min. 500 Ω           Offset Drift         <0.35 mV/°C           Current         0 to 20 mA, ±20 mA, 4 to 20 mA or -12 to 20 mA	ANALOG OUTPUT	
Gain Drift         <0.003% of actual value/°C           Filter         0.05 to 75 Hz, type FIR, selectable bandwidth           Voltage         0-10 or ±10 VDC           Load Data         min. 500 Ω           Offset Drift         <0.35 mV/°C           Current         0 to 20 mA, ±20 mA, 4 to 20 mA or -12 to 20 mA	Туре	
Filter         0.05 to 75 Hz, type FIR, selectable bandwidth           Voltage         0-10 or ±10 VDC           Load Data         min. 500 Ω           Offset Drift         <0.35 mV/°C           Current         0 to 20 mA, ±20 mA, 4 to 20 mA or -12 to 20 mA	Non-Linearity	<0.01% of used range
Voltage         0-10 or ±10 VDC           Load Data         min. 500 Ω           Offset Drift         <0.35 mV/°C           Current         0 to 20 mA, ±20 mA, 4 to 20 mA or -12 to 20 mA	Gain Drift	<0.003% of actual value/°C
Load Data         min. 500 Ω           Offset Drift         <0.35 mV/°C	Filter	
Offset Drift         <0.35 mV/°C           Current         0 to 20 mA, ±20 mA, 4 to 20 mA or -12 to 20 mA	Voltage	0-10 or ±10 VDC
Current         0 to 20 mA, ±20 mA, 4 to 20 mA           or -12 to 20 mA	Load Data	min. 500 Ω
or –12 to 20 mA	Offset Drift	<0.35 mV/°C
Load Data max. 500 Ω	Current	
	Load Data	max. 500 Ω
Offset Drift <0.7 µA/°C	Offset Drift	<0.7 μA/°C

PARAMETER	VALUE	
DIGITAL INPUTS		
Inputs	2 pcs (for tare and gross/net switching)	
Type and Load	24 VDC, 6 mA	
RELAY OUTPUTS		
Number	2 pcs (each with 1 switching group)	
Load	max. 1 A, 30 VAC or VDC	
COMMUNICATION INTERFACE		
Interface	RS-485 (two-wires or four-wires), isolated 500 V	
Protocol	MODBUS RTU or ASCII	
Baud Rate	Up to 115.2 kbaud	
Function	For control communication (MODBUS RTU) or external display (ASCII)	
FIELDBUS INTERFACE		
Туре	Profibus DP, modular slave	
Baud Rate	Up to 12 Mbit/s (autodetect)	
Compatibility	Compatible with Gate 3/Gate 3S (6/20 byte mapping)	
Function	Access to all data and functions in WST 3 through memory mapping	
Mapping	6 bytes in/out (Commands in. Weight and status out.) 20 bytes in/out (Commands and data in. Weight, status info and data out.) 86 bytes in/20 bytes out, extended 20 bytes mapping.	
MECHANICAL DATA		
Dimensions	75×100×110 mm (H×W×D)	
Standard Mounting	DIN 46277 and DIN EN 50022	
Connector Type	Plug-in screw terminals, D-sub (Profibus)	
Certifications	CE, Profibus Certification	

Subject to change without notice.



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