

## Table of contents

---

	Page
Overview	P2
-----	
NT 2000 Level monitoring via control cabinet visualisation	P4
-----	
NT 3500 Level monitoring via web server visualisation (via Ethernet)	P6
-----	
Accessories	P8

Subject to change.

Valid: From 01.04.2014 until 31.03.2015, unless otherwise agreed.

All dimensions in mm (inches).

By publishing this selection list all other lists become invalid.

All prices in Euro, excluding VAT.

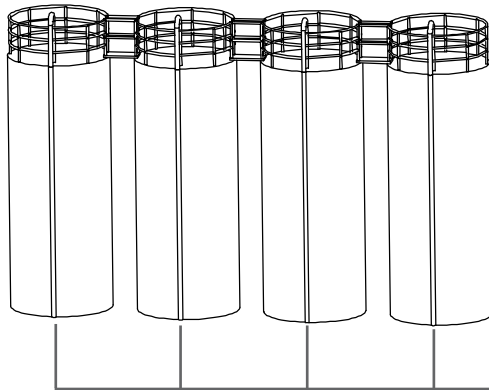
We assume no liability for typing errors.

All prices are EXW Betzigau, excluding packaging costs.

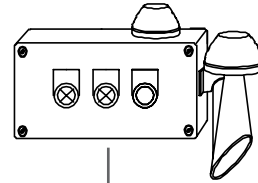
Different variations to those specified are possible. Please contact our technical consultants.

## Overview

Silo plant with continuous level measurement technology, level limit sensors and shut off valves in the filling pipes.



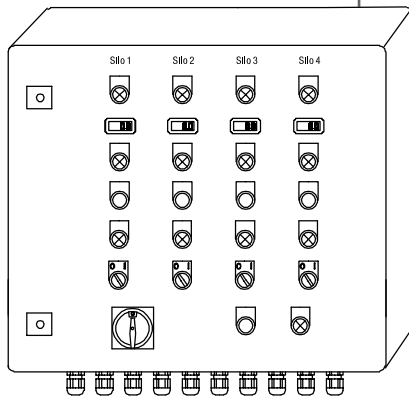
Truck module



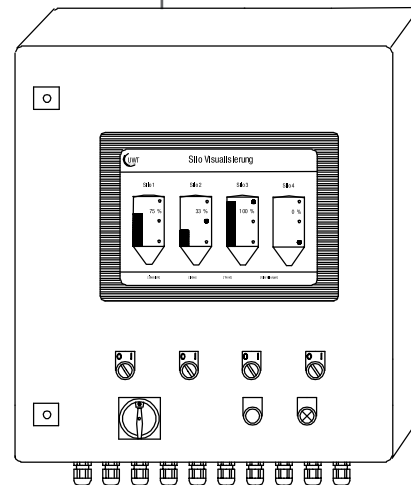
Modbus RTU  
 4-20mA/HART or countig pulses from UWT-lead systems  
 Digital level limit signals

4-20mA  
 Digital level limit signals

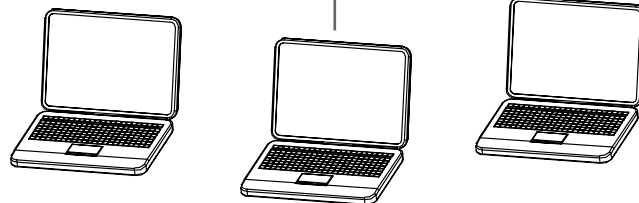
NT 2000



NT 3500





Ethernet



Remote data enquiry



## Overview

	NT 2000	NT 3500
		
<b>System</b>	Control cabinet system for display and monitoring of contents with digital instrumentation and LEDs for level limits.	Control cabinet system for display and monitoring of contents and levels. The self contained system works with visualisation software on a web server.
<b>Number of silos</b>	Max. 10 (more are possible on request)	Max. 15 (more are possible on request)
<b>Software</b>	Not available	Licence free visualisation software in HTML form. Password-protected access on alle Ethernet PCs.
<b>Control cabinet</b>	Standard equipment	Standard equipment or pre-mounted on cap rail
<b>Input signal</b>	Analogue inputs (4-20mA)	<ul style="list-style-type: none"> <li>- Modbus RTU of Nivobob® 3000</li> <li>- Analogue inputs (4-20mA) / HART</li> <li>- Counting inputs (from electromechanical lead systems)</li> <li>- Profibus available on request</li> </ul>
<b>Alarm signal Silo-„full“</b>	Optional - Full signal available as a flashing light with buzzer	Optional - Full signal available as a flashing light with buzzer
<b>Display in the control cabinet door</b>	<ul style="list-style-type: none"> <li>- Digital display for silo level</li> <li>- LED for full and empty signal</li> </ul>	<ul style="list-style-type: none"> <li>- Touch panel 10,4" or 15"</li> <li>- Digital display for silo level</li> <li>- LED for full and empty signal</li> </ul>
<b>Remote data request</b>	Not available	Via Internet or GSM Modem
<b>Trend data</b>	Not available	The recording of the level data is made internal as a ring buffer. These can be exported and processed as .csv.
<b>Truck module</b>	Optional <ul style="list-style-type: none"> <li>- Mounting on the silo</li> <li>- Display Silo „full“ via LED and flashing light with buzzer</li> <li>- Reset by push button</li> </ul>	Optional <ul style="list-style-type: none"> <li>- Mounting on the silo equipment</li> <li>- Display Silo „full“ via LED and flashing light with buzzer</li> <li>- Reset by push button</li> </ul>
<b>Pinch valve control</b>	Not available	Optional <ul style="list-style-type: none"> <li>- Automatic in case of silo full detection</li> <li>- Release via key switch / PC / Touchpanel</li> </ul>
<b>Interfaces</b>	Not available	<ul style="list-style-type: none"> <li>- Modbus RTU</li> <li>- Ethernet</li> <li>- Profibus on request</li> </ul>

### Technical data

Dimensions	Depending on the number of silos
Material , degree of protection, ambient temperature	Control cabinet: steel plate, IP54, 0..50°C Truck module: steel plate, IP65, -25..+60°C Terminal box NT50: steel plate, IP65, -25..+60°C
Supply voltage	230V 50Hz
Supply power	Depending on the number of silos and connected sensors

## NT 2000

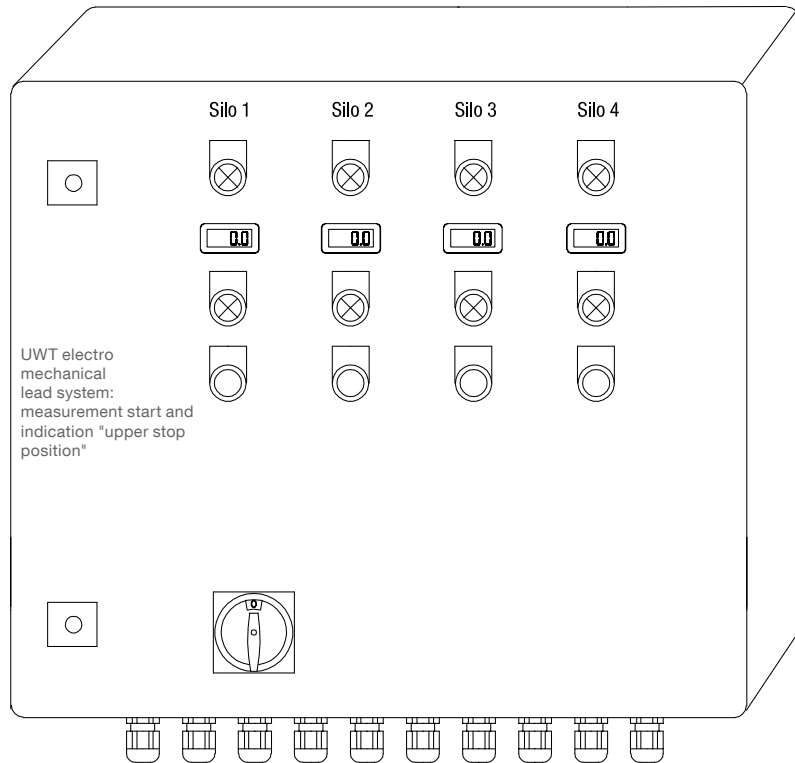
### Features

- Fill level indication on an LED display in percentage, height, volume or weight
- Simple and easy handling of the various display elements
- Evaluation of the analogue 4-20 mA signals of any sensors
- Fill control via full alarm signal
- Separate truck module for comfortable monitoring during silo filling

### NT 2000 control cabinet

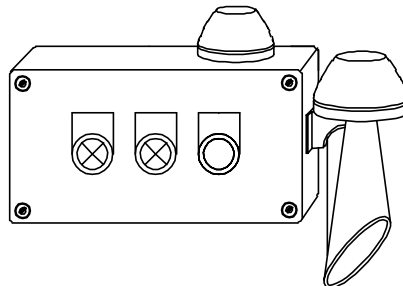
The NT 2000 offers the level indication modules and monitoring functions integrated in a control cabinet.

The fill level is displayed via the Nivotec® digital display, the level limits via full and empty LEDs. 4-20 mA signals are evaluated. It is possible to integrate an alarm signal via a flashing light with buzzer which signals when the silo becomes full during filling. The flashing light with buzzer can be mounted directly on the silo. The NT 2000 is a complete system which also provides the supply voltage for the sensors. It is delivered with project specific electrical plans.



### Truck module

For use with one silo.  
 Mounting directly on the silo frame.  
 Indication of empty and full level with LEDs.  
 Reset of alarm "Silo full".



Example: Truck module with full/empty LEDs, push button for reset of alarm "Silo full"



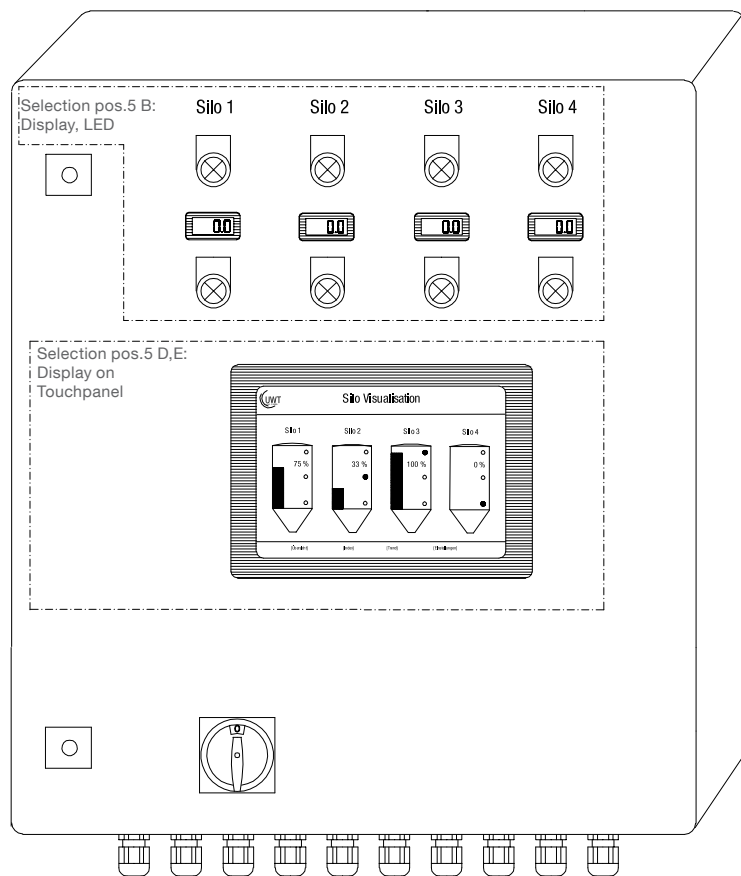
## NT 3500

### Features

- Fill level visualisation via HTTP-web server
- Visualisation via standard Internet browser software on all Ethernet PCs
- Password protected
- Worldwide remote enquiry of the level password protected - on request
- Software operation additional via a touch panel in the control cabinet or via fill level LEDs
- Data in percentage, height, volume or weight
- Trend display, data storage, export via .csv
- Evaluation of the analogue 4-20 mA signals of any sensors, as well as Modbus RTU of the UWT-systems
- Fill control via full alarm signals and shut off valves
- Separate truck module for safe and comfortable monitoring during silo filling

### NT 3500 control cabinet

The heart of the NT 3500 is the web server module, which the visualisation software uses. All fill level control and display functions can be operated via the visualisation on a PC or a Touch panel with backlight and foil touch. An Ethernet interface ensures that the visualisation can be simultaneously operated from all PCs which are connected to the interface. Access is password protected. Additionally the control cabinet can be equipped with operating and display elements. Either the 10.4" or 15" touch panel or the digital level display with full and empty LEDs can be chosen. The electromechanical lead system can be started by the visualisation or by a push button. The flashing light with buzzer for alarm "silo full" can be mounted directly on the silo. The shut off valve can either be operated via a key switch on the truck module or mouse click on the PC and on the touch panel. The NT 3500 is a complete system which also provides the supply voltage for the sensors. The system is delivered with project specific electrical plans.

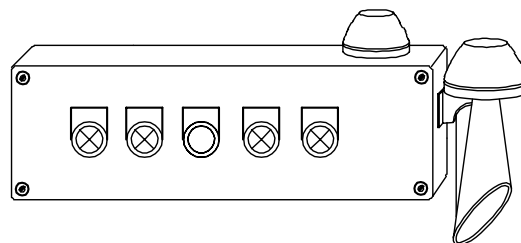


### Truck module

- Use with one silo
- Mounting directly at the silo frame
- Display silo full/empty with LEDs
- Reset of alarm "silo full"
- Pinch valve control and status LED (optional)

#### Functionality:

The filling is enabled by an authorized user via key switch on the truck module or via mouse click on the PC or on the Touch panel. In case of a full silo the LED "silo full" and the flashing light with buzzer are switched on. The reset button is blinking during alarm. The pinch valve closes ca. 1 min after full detection. After reset of the alarm the reset button lights for ca. 5 min. When pressing the button again, the pinch valve opens once for ca. 3 min to enable the expulsion of the filling pipe. As long as a full silo is detected, the pinch valve can be opened again by the authorized user.



Example: Truck module with LEDs full/empty, key switch for control of the pinch valve, illuminated button for display and reset of alarm "silo full" and expulsion of the filling pipes, status LED for pinch valve

## NT 3500

### Level monitoring system Nivotec NT 3500

Price including monitoring of the first silo  
 Extra price for each additional silo monitoring

#### Basic configuration

<b>NT 3500</b> .....	
Pos. 1	<b>Visualisation system - HTTP web server</b> Incl. 24V DC power supply (used also for supply of the level limit sensors) A Completely wired in a control cabinet incl. main switch .....
	B No control cabinet, pre-wired on a top hat rail .....
Pos. 2	<b>Input signals of level sensors</b> With use of UWT electro mechanical lead systems: supply voltage of lead system 230V AC 1 Modbus RTU ( NB 3000) .....
	2 4-20mA (active) .....
	3 Counting pulses lectro mechanical lead system .....
	4 4-20mA / 2-wire HART (SITRANS LR560) .....
Pos. 3	<b>Integration of level limit switches incl. alarm "silo full"</b> 1x flashing light with buzzer, 1x reset button Alarm "silo full" (for outside mounting): with Pos.4 0 delivery in loose parts (reset button inside a surface mounting housing) with Pos.4 1 delivery in loose parts (reset button mounted in the truck module) Level limit sensor supply / signal output as follows: 0 without .....
	B Full level sensor (24V DC / floating or PNP) .....
	Full and empty level sensor (24V DC / floating or PNP) .....
	D Full level sensor (230V AC / floating) .....
	E Full and empty level sensor (230V AC / floating) .....
Pos. 4	<b>Truck module</b> (only with pos.3 B,C) Delivery of one separate truck module per silo 0 without .....
	1 with .....
Pos. 5	<b>Visualisation at control cabinet</b> Only with pos.1 A 0 without .....
	B Digital level display and LED full or full/empty (only with pos.2. 2) .....
	Digital level display and LED full or full/empty (only with pos.2. 2) for NB 3000/4000, SLS 3000, SLB 300 incl. start button for measurement, display "upper stop position" and "failure" .....
	D 10.4" 800x600 Touch panel .....
	E 15" 1024x768 Touch panel .....
Pos. 6	<b>Pinch valve control</b> (only with pos.4 1) Shut off in case of silo full detection, possibility of expulsion of the filing pipes Display and operating elements located on the truck module 0 without .....
	1 Filling enabled via mouse click on the PC and on Touch panel .....
	2 Filling enable by key switch on the truck module .....
Pos. 7/8	<b>Number of vessels / silos</b> (max. 15, more are possible on request)
Pos. 9	<b>Remote enquiry</b> A via Internet .....
	B via GSM Modem ..... on request

Basic configuration Position

<b>NT 3500</b>								
	1	2	3	4	5	6	7/8	9

← **Order code**

## Accessories

### NT 50

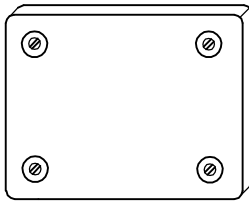
#### Terminal box

Intermediate terminals for the wires leading to the silo (mounting e.g. on the silo frame). One box per silo is required. Consists of a terminal box for outdoor use, terminals on top hat rail, cable glands.

NT 50-1 Terminals for level, level limit switches, endswitch of filling coupling. W260xH210xD117mm.

NT 50-2 Similar to NT 50-1, additional terminals for truck module (pitch valve control, button alarm "silo voll") W310xH210xD117mm.

- NT 50-1 (eb100400) .....
- NT 50-2 (eb100410) .....

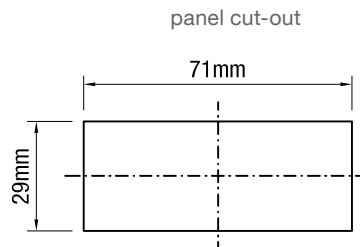


### NT 12

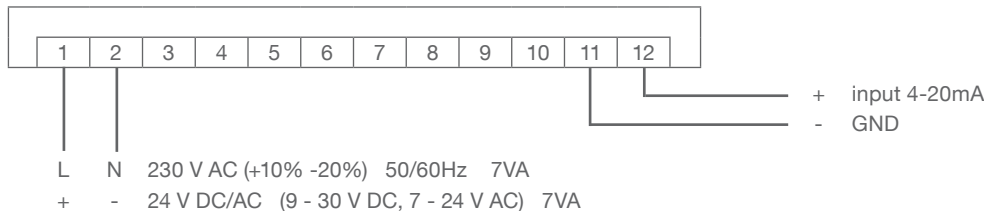
#### Digital display

4-20mA, freely programmable, 4 digits, 9mm yellow 7-segment LED display, W77xH35xD71mm, ambient temperature 0..50°C

- NT 12-1 24 V DC/AC (eb100370) .....
- NT 12-2 230 V AC (eb100380) .....



#### Connection



#### Programming example:

4mA relates to a display of 0,0 tons, 20mA to 60,0 tons

Following parameters are changed from the presets (procedure see external programming manual):

d.CnF -> i.Typ = 4-20mA

U.oPt -> d.Pnt set on first digit from right side (decimal dot setting)

L.SCL -> 0 (lower scale value 0 tons at 4mA)

H.SCL -> 60.0 (upper scale value 60,0 tons at 20mA)