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Technische Änderungen vorbehalten.

Für Druckfehler kann keine Haftung übernommen werden.

Selbstverständlich sind Gerätevarianten außerhalb der Angaben dieser Geräteinformation möglich.

Bitte sprechen Sie mit unseren technischen Beratern.

Operation / overview

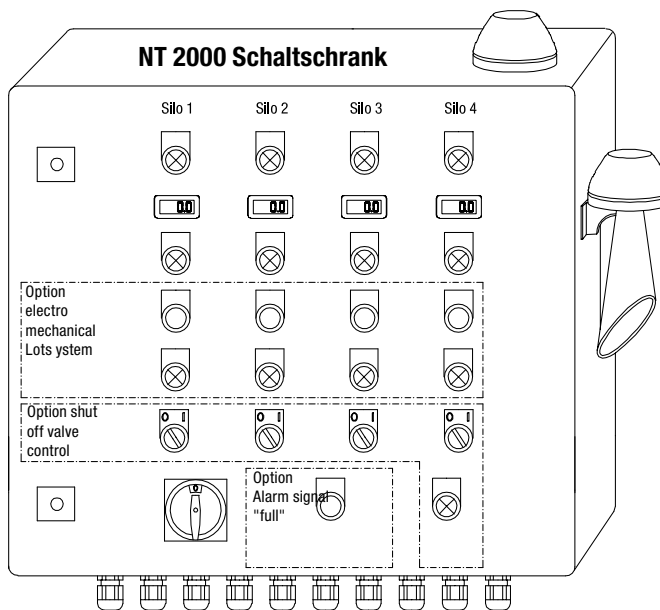
Overview

The NT 2000 is a control cabinet system for fill level display and control which evaluates the normal 4-20 mA and digital signals of level sensors both acoustically and optically.

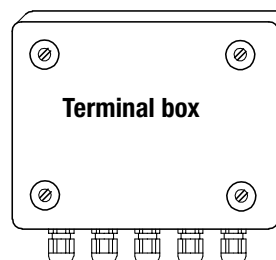
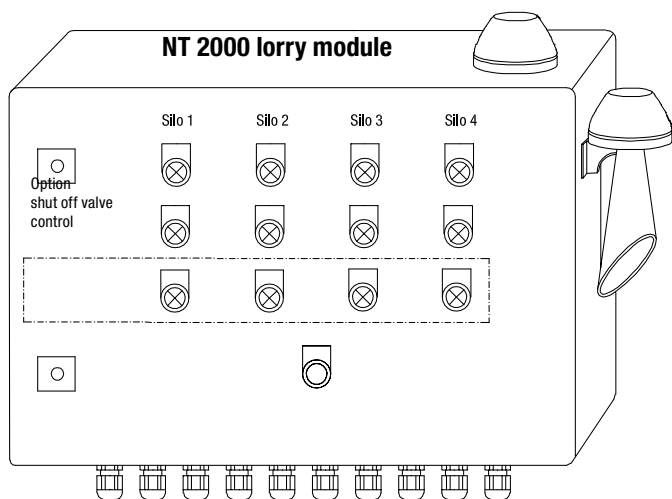
The fill level display is via the Nivotec® NT 10 LED display in percentage, height, volume or weight. The 4-20 mA and digital inputs can be connected from any amount of sensors. It must only be decided whether the inputs are from pure electronic measurement technology or from electromechanical Lot measurement systems.

A start button, alarm and end position signal are provided on the front of the control panel user panel for Lot systems; point level sensors such as full and empty are displayed via LEDs on the front of the panel. The NT 2000 can also be set up with a shut off valve control, which prevents the filling of the wrong silo and overfilling.

The alarm signal "full" is via an acoustic buzzer or via a flashing lamp. When the lorry module is included, then the "full" alarm is also integrated into this module.



The lorry module is mounted on the silo site. We suggest to protect it against snow, rain or sun with a roof. It contains a buzzer or flashing light which can be cancelled via a button. Likewise there is an LED for full and empty detection for each silo. Enabling of the shut off valve is also on this module. These ensure that no silo is overfilled or that the wrong silo is filled. For the clamping between the signals / supply voltage, a terminal box is mounted on the silo frame. The Nivotec NT 2000 is delivered as a complete system with project specific electrical plans.



Equipment overview

System	Control cabinet with module for display and control of the fill level and point measurement of silos
Control cabinet	Project specific, complete wired system with electric plans, including the power supply for the measurement technology
Input signal	- 4-20 mA - digital (potential free or +24 VDC)
Displays	- Fill level display LED display Nivotec® NT 10 in percentage, height, volume or weight - point level "full" and "empty" via LEDs
Alarm signal "full" on control cabinet	Full signal via buzzer or blinking lamp, LED for full and empty level; cancelled via button on control cabinet
Lorry module	Fill level monitoring during the filling; full signal via buzzer or flashing lamp; cancelled via button. An LED shows a silo has been cleared for by option shut-off valve.
Shut off valve	A silo can be cleared for filling by a key switch; automatic shut off valve operation when full detection occurs.
Terminal box	For connection between the measurement signal and supply voltage on the silo and the silo frame

Options / functions

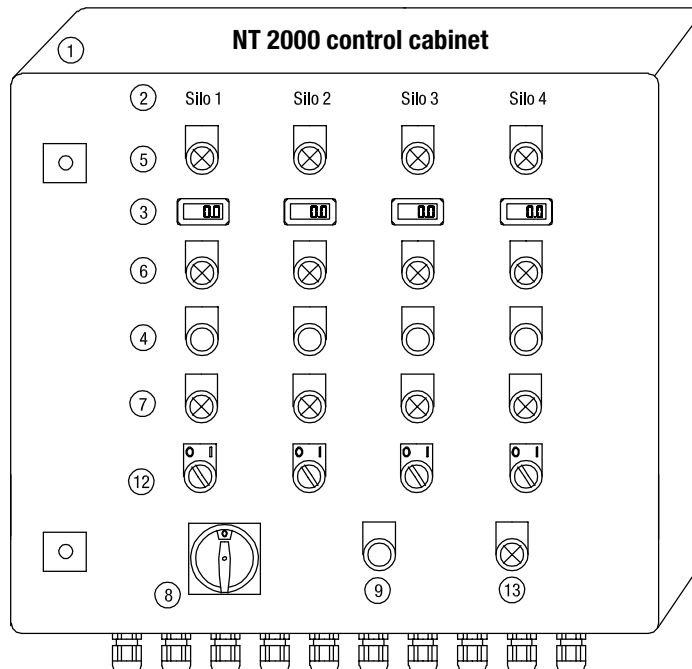
Option	Function	
	Description	Additional information
Basic equipment	Control cabinet for mounting on the wall with right hinged door.	The type and dimensions are dependant on the size of the project.
	Per measurement point - one digital display NT 10	The NT 10 as a current loop meter (4-20mA) and can be programmed to display the fill level in percentage, height, volume or weight. The programming is described in the Nivotec accessories documentation.
	Per measurement point, - yellow LED for full signal - red LED for empty signal	LEDs illuminate when full or empty signal is received.
	Main switch is in the control cabinet door	
	Cable glands on the underside of the control cabinet	The number is dependant on the size of the project.
	All clamps for the connection of measurement signals, sensor and control cabinet power supplies, earthing etc are supplied in the control cabinet.	The control cabinet runs on 230 VAC. All further modules such as the power supplies, fuses, relays, logic modules, etc are in the cabinet on DIN rails and are internally wired.
	Project specific electrical plans	The electrical plans are prepared to the actual standards and contain all circuit diagrams, cable lists, clamp plans, parts lists and documentation of all components that are contained in the project.
Measurement technology	The electronic measurement technology such as Nivowave® or Radar, etc can be connected. No extra user modules are necessary in the control cabinet door.	
	By use electromechanical Lot systems such as the UWT SLS 3000, a green illuminated start button and a red LED for malfunction signals is included on the control cabinet door.	When the Lot is started, the green start button illuminates (end stop signal from Lot). Once the measurement is completed, the light is extinguished. Therefore it can be visually seen whether a measurement is in operation or not.
Alarm signal "full"	The alarm signal "full" occurs when the full sensor sends a signal during filling and is via an acoustic buzzer or optical flashing lamp. The alarm signal can be cancelled via a button on the control cabinet door. Either the option buzzer or flashing lamp may be chosen.	The buzzer or flashing lamp can be mounted where required.
Lorry module	The lorry module contains the alarm signal "full" and shows via LEDs which silos are full and empty. The alarm signals can be cancelled via a button on the lorry module.	When the shut off valve option is selected, the module shows which silo has been released for filling via an LED. The lorry module is typically mounted near the filling station.
Terminal box	The terminal box is for the intermediate connections of all signals and power supplies from the silo plant to further evaluations. It is a metal housing with a screw on lid and cable glands on the underside.	The installation is on the silo frame. The cables are laid out according to the electrical plans. The size of the terminal box is dependant on the number and type of the sensors as well as the size of the project.
Shut off valve control	The valve in the filling pipes can be opened before filling via a key switch on the control cabinet. Once the silo is detected as full, the valve is automatically closed and therefore prevents overfilling. The valve can only be reopened via the key switch (eg to blow out the filling pipe).	When the lorry module is selected, the silos that have been released for filling are shown via an illuminated LED.

Technical data / components

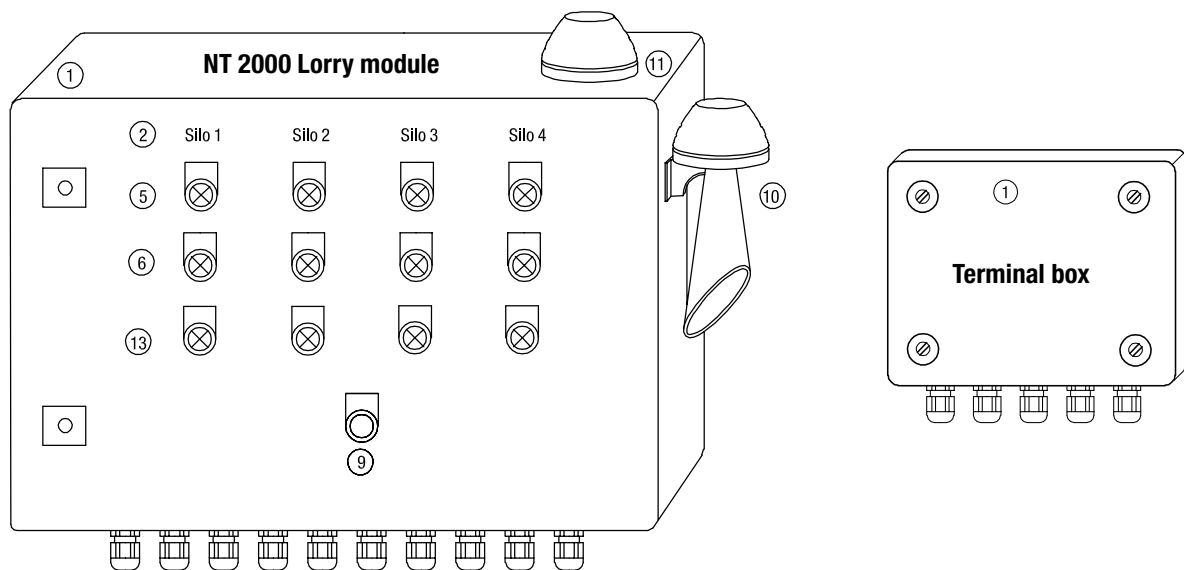
Technical data

Housing	Dimensions	The dimensions of the control cabinet module, lorry module and terminal box are dependant on the number of measurement points and the option selections. Generally the cabinets are for wall mounting. Should it be required, it is possible to supply a control cabinet mounted on a stand.
	Material Protection class	Steel, Colour RAL 7035 Control cabinet IP 54 Lorry module IP 66 Terminal box IP 66
Supply voltage	Input voltage	230 VAC
	Control voltage	24 VDC
	Current consumption	Dependant on the number of measurement points and the selection of options.
	Fuse	The fusing is dependant on the project specific current loads.
Display module	LED display	Nivotec® NT 10 (see documentation NT 10)
	Lamps	LED in housing red and yellow
Operating conditions	Temperature	0 to 50 °C

Components



Components



The component numbers correspond to the provided labelling on the control cabinet, lorry module and terminal box drawings.

No	Group	Labelling	Components
1	Housing	without	Rittal AE or Häwa, with right hinged swing door, RAL 7035 (Screw on lid for terminal box)
2	Silo No.	Silo x	PVC white, black writing
3	LED display	without	Nivotec NT 10, 4-20 mA
4	Start button electromechanical Lot system	START	Green colour, lights up for the end stop signal
5	Display silo full	FULL	LED yellow
6	Display silo empty	EMPTY	LED red
7	Display malfunction electromechanical Lot system	Malfunction	LED red
8	Main switch	without	Type Moeller, red/yellow
9	Cancellation of buzzer or flashing light	ALARM OFF	Black colour
10	Buzzer	without	Type Eichhoff / Friedland 230 VAC
11	Flashing lamp	without	Type Werma / Moeller red colour
12	Key switch	Filling enabled	Type Moeller
13	Display - filling enabled	FILLING ENABLED	LED green
	All displays		LED lights, Type Moeller
	All buttons		Type Moeller
	Name plates		PVC white, black writing
	Clamps		Type Wago
	Fuses		Type ABB
	FI switches		Type ABB
	Relays		Type SHC / Schrack
	Logic modules		Type Siemens

Installation / Service

Safety instructions:

- The installation of the Nivotec® NT 2000 system can only be carried out by suitably qualified persons.
- The cabling and wiring must be carried out in accordance with the delivered electrical plans.
- Other cable may only be used when approved in advance by UWT
- The installation of the modules must take into account the housing protection classes.
- The system NT 2000 has no ATEX approval. If it is needed it must be discussed with UWT staff during the discussion of your project requirements.

Service:

The qualified service staff at UWT can install and carry out the initial setup of the Nivotec systems as well as all level measurement technology in both a professional and qualified manner.

You will receive an acceptance test report as well as user documentation for the ongoing support of your system.

Please contact a member of the UWT sales or service team to discuss your requirements.