For solids

THERMOPOINT

MULTIPOINT TEMPERATURE TRANSMITTER

OUR PROFESSION IS YOUR LEVEL

TEMPERATURE TRANSMITTERS

THERMOPOINT MULTIPOINT TEMPERATURE TRANSMITTER

FEATURES

- *2-wire multipoint temperature transmitter*
- *Max. 30 m probe length*
- *Max. 15 sensors*
- *Max 35 kN tensile force*
- *Replaceable sensors*
- *Digitally addressed sensors*
- *HART communication*
- *–10°C…+85°C measuring range*
- *Dust Ex models*

APPLICATIONS

- *Grain industry*
- *Feed industry*
- *Food industry*

GENERAL

Temperature of grain, feed stored in silos needs to be monitored for maintaining quality of the stored medium. Monitoring of the total volume of the silo is needed to provide information on accidental quality loss or appearance of germs or fungus. Eventual temperature increases will alert the operator to perform operation or recycling the medium. Temperature measurement is done by electronic temperature sensors placed at equal distances in a coated stainless steel flexible tube. Each sensor sends the actual measured temperature of its environment to the transmitter head. The transmitter head communicates through HART protocol with control room devices. The output is a 2-wire system the communication is only digital. The measured values are transmitted for further processing through HART.

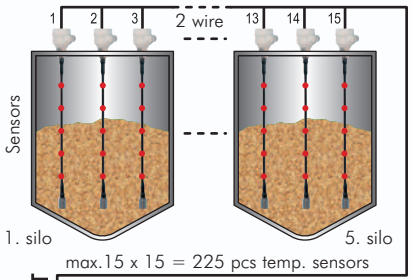
Further processing or datalogging can be done by using a Nivelco's Multicont or a PC. If level measurement is required the system can be extended with a level transmitter. The advantage of using a combined system is that a new transmitter can easily be inserted into the existing loop, communication will also be the existing HART communication.

SYSTEM SET UP

Depending on the required processing the system set up can be the following:

1. Information transmitted by the cable via HART communication are received by Multicont and re-transmitterd to a PC via RS485 protocol. Relays of Multicont can serve alarm functions.
2. Same as above but a Multicont with Datalogger function stores the incoming data in an SD card. The stored data can be processed or archived in any PC.
3. HART signals are directly inputted to a PC using a SAT-304 HART-USB modem. Data processing can be done by Nivelco's NIVISION software.

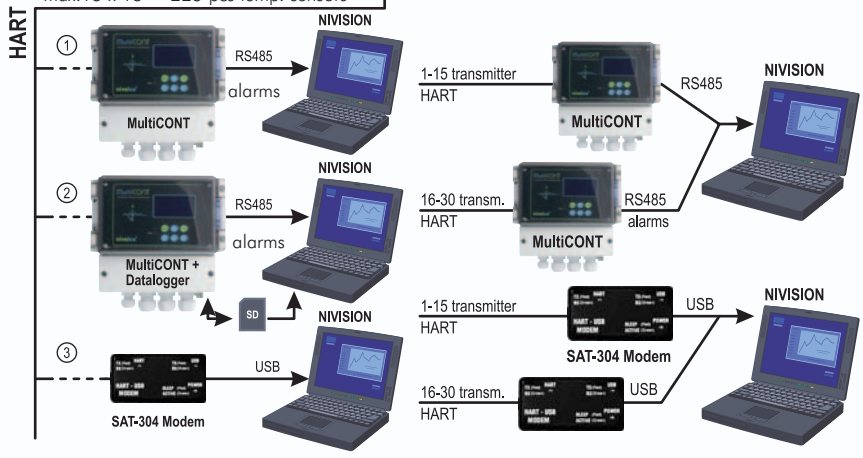
If more than 15 transmitters are needed they have to be redistributed between multiple Multicont units.

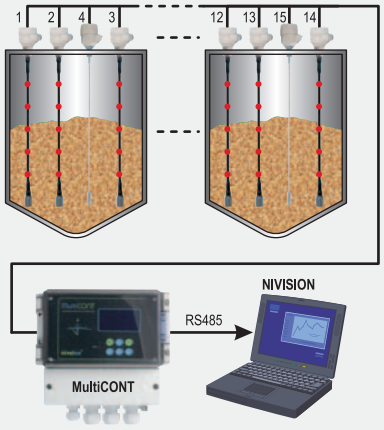


COMBINED SYSTEMS

If level measurement is needed the appropriate level transmitter (for example: Microtrek or Echotrek) can be connectd to the same HART loop. Because of the limitations of the HART standard, the total number of temperature and level transmitters shoul not exceed 15.

Variants of the the combined system set up are the same as described earlier.



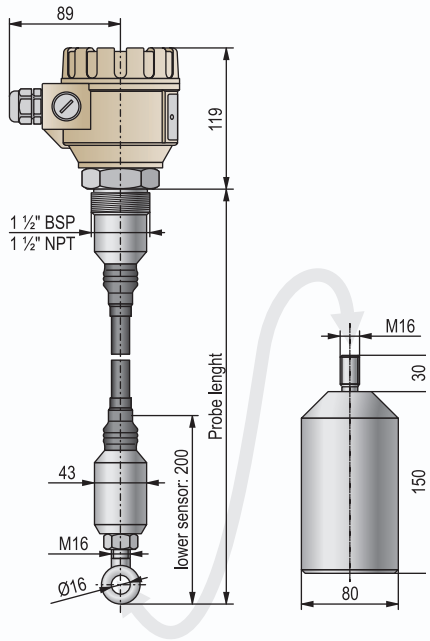


TECHNICAL DATA

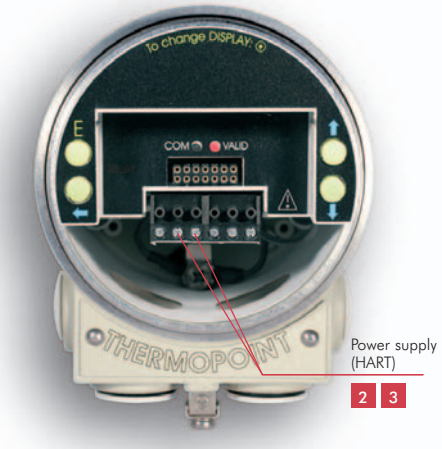
Features		
Probe length		5-30 m see order code
Sensors		max. 15 pcs
Position of sensors*		Up to10 m every 1 m, over 10 m every 2 m
Measuring range		-10°C...+85°C
Power supply		12-36 V DC
Accuracy		± 0,5°C
Measurement cycle		max. (Nx1) sec when N = number of sensors
Output		HART
Process connection		1 ½" BSP, 1 ½" NPT
Cable	material	st.st cable, antistatic PE coating
	tensile force	35 kN
	dimension	Ø16 mm + 1 mm coating
Electrical protection		Class III.
Ingress protection		IP67
Ambient temperature		-30°C...+65°C
Dust Ex approval		ATEX II 1 D ia DA20/A21 IP65 T6
Mass		1,7 kg + ... kg/m

* Special positions on request

DIMENSIONS



WIRING

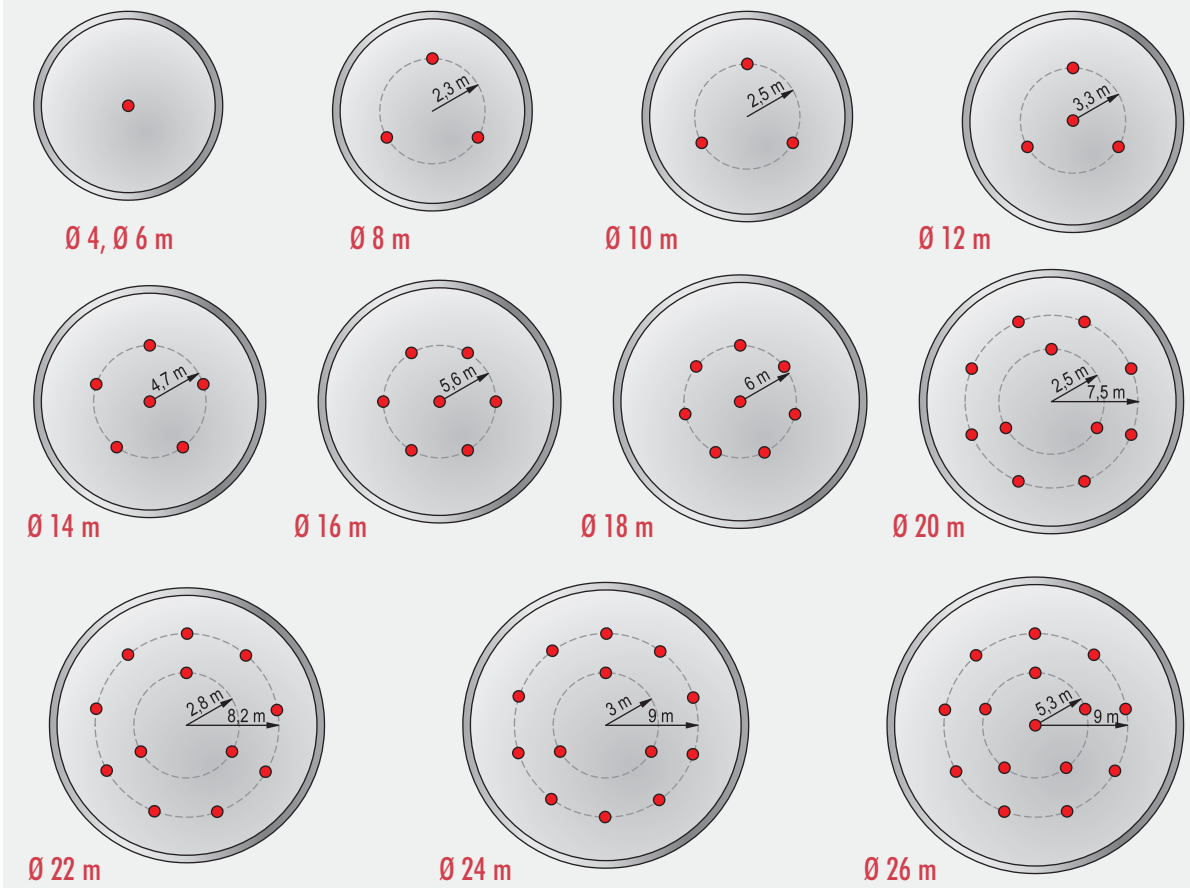


INSTALLATION

Because the mediums stored in silos are good heat-insulating materials the reliable measurement of the temperature is crucial.
Depending on the diameter of the silo the following arrangements are recommended.

Silo diam. (m)	Probes (db)	Probes on center (db)	Probe on the first circle arc		Probe on the second circle arc	
			(db)	R (m)	(db)	R (m)
4	1	1	–	–	–	–
6	1	1	–	–	–	–
8	3	–	3	2,3	–	–
10	3	–	3	2,5	–	–
12	4	1	3	3,3	–	–
14	6	1	5	4,7	–	–
16	7	1	6	5,6	–	–
18	8	1	7	6	–	–
20	11	–	3	2,5	8	7,5
22	12	–	3	2,8	9	8,2
24	13	–	3	3	10	9
26	15	1	5	5,3	9	10,5

PROBE ARRANGEMENT (RECOMMENDED)



ORDER CODES (NOT ALL COMBINATIONS AVAILABLE)

THERMOPOINT multipoint temperature transmitter

THERMOPOINT T□□–□□□–□ *

Function	Code
Multipoint	M

Housing	Code
Aluminium	5

Process connection	Code
1 ½" BSP	H
1 ½" NPT	C

Sensors	Code
1	1
2	2
⋮	⋮
15	15

Code	Insertion length		Code
1	1 m	19 m	K
2	2 m	20 m	L
⋮	⋮	21 m	M
9	9 m	22 m	N
A	10 m	23 m	P
B	11 m	24 m	R
C	12 m	25 m	S
D	13 m	26 m	T
E	14 m	27 m	U
F	15 m	28 m	V
G	16 m	29 m	W
H	17 m	30 m	Z
J	18 m		

Output / Ex	Code
HART	4
HART / ExDia	5

Accessories	
CTN-103-0M-400-00	Counterweight Ø 80 x 150 mm
SAT-304	HART – USB Modem
NIVISION	Software

* order code of an Ex version should end in 'Ex'

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