



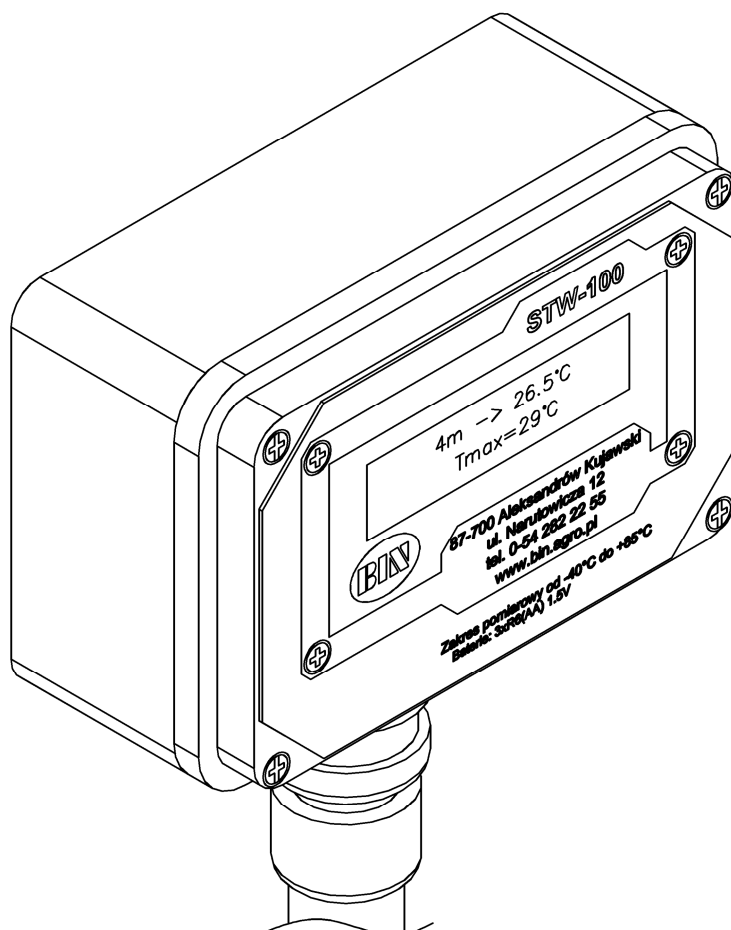
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MULTIPOINT THERMOMETER FOR GRAIN TEMPERATURE MEASUREMENT IN BIN SILOS

Type/model:

Production date:

INSTALLATION AND OPERATION INSTRUCTION MANUAL



Before placing an order, the Customer may obtain up-to-date and comprehensive information on products to be ordered. We reserve the right to introduce changes. All rights reserved. Reproduction, also in part, is allowed after obtaining our consent only.



Aleksandrów Kujawski/Format A4

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Section I. Introduction and general information.

1.Introduction.

The aim of this Manual is to familiarise the User with proper operation of the product purchased. The Manual contains practical guidelines, which must be known by the User of the multipoint thermometer for grain temperature measurement in BIN silos.

If you cannot understand the text contained in the Instruction Manual, please, contact the producer or its representative.



This Instruction Manual is an integral part of the product.



Read the Instruction Manual, especially its sections on safety of work, before starting to operate the thermometer.



**Each use of the instrument for applications other than the ones specified will be recognised as misuse.
The Producer is not responsible for any damages resulting from the above. The user only bears a risk connected with the above. Arbitrary modifications to the product exclude Producer's liability for any damages.**





The caution mark in the Instruction Manual indicates that particular care must be exercised due to the danger for persons and possibility of equipment damage.

2. Safety.

2.1. Basic safety rules.

1. Persons involved in operation of the thermometer shall observe general safety rules.
2. The User is obliged to read this Instruction Manual for the thermometer and instruction manuals for all equipment, where the thermometer is used, and to observe instructions and guidelines contained there.
3. In particular, the following is forbidden:
 - never allow using the product by third unauthorised persons, who did not read the Instruction Manual,
 - never allow using the product by sick or intoxicated (with alcohol, drugs, etc.) persons, or by juvenile persons.
4. The thermometer and thermometer controls shall be protected against access of children and unauthorised persons.
5. The thermometer Owner is obliged to prepare detailed safety and health instructions for the thermometer.
6. Protect all system components and temperature display against damage.
7. Pay particular attention not to damage the instrument and the system (cutting of cables, crushing or cutting the measuring probe, etc.), when installing.
8. Before installing, connect the display and check proper operation of the instrument.
9. Use measurement probes of proper length for each silo type.
10. Never install more than one measuring probe in a BIN type silo.
11. Never dismantle, extend, shorten, cut, etc. any measurement probe components (plug, temperature sensors, electric wires, etc.). Non-observance of remarks contained above may lead to instrument damage.
12. Protect the display against weather (rain, snow, etc.), when measuring the temperature.
13. It is forbidden to leave the display connected to the measuring probe after the temperature readout, since, during the changing weather, the battery life is reduced or the damage to the instrument may occur, when the display is connected to the measuring probe for a long time.
14. The product shall be installed and started for the first time (test run) by the installation company authorised by BIN.
15. Always replace all three batteries at the same time with new ones, use three „R6” („AA”) batteries.
16. The measuring probe and the display contain electronic components, therefore, protect them against water, fire, explosive materials, acids, bases and other dangerous chemicals.
17. When operating, be careful not to damage the measuring probe, for example, by catching it by the screw conveyor, cutting with shovel, etc.
18. When the display is not connected to the measuring probe, the probe connector must be protected with cap.
19. Before each filling of the silo with grain, check secure fixing of the eyebolt and measuring probe in the saddle holder.
20. In case the instrument is delivered without the name plate, or the name plate is damaged, the User shall inform the Producer about that in writing in order to obtain the name plate duplicate.
21. It is forbidden to make any modifications to the product construction or to change instrument application without Producer's consent in writing.

2.2. Name plate and information on the product.

Producer:	BIN Sp. z o.o.	
Address:	87-700 Aleksandrów Kuj. ul. Narutowicza 12	
Article code:	TEMP_CZYT/1	
Type:	STW-100	
Power supply:	batteries: 3x1.5V (R6)	
Series No.:	xxxx	
Rear of production:	2005	

The name plate is located inside the temperature display housing.



Caution! The name plate and information other signs on the product shall be maintained clean and legible. In case they become damaged, illegible or the part carrying them is replaced with a new one, buy a new name plate or sign at BIN and place it instead of an old one.

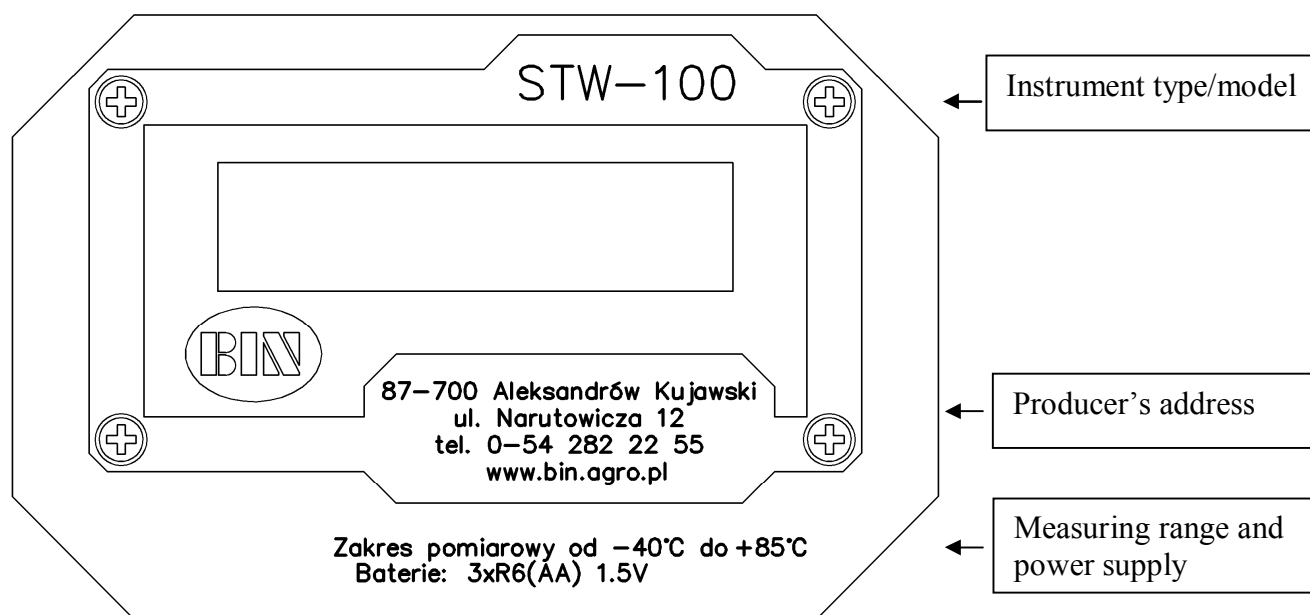


Figure 1: Information on the product.

3. Ordering.

The thermometer STW-100 and spare parts for it shall be placed at BIN Sp. z o.o. or authorised commercial representatives of BIN.

Each time, when planning purchases, please contact the producer or its local commercial representative to obtain a detailed information,

The producer sells complete device with auxiliary equipment, spare parts, etc.

4. Transport of equipment ordered.

Transport of the equipment ordered is carried out either by the seller or by the Customer, according to the agreement.



PROTECT THE THERMOMETER STW-100, IN PARTICULAR, TEMPERATURE DISPLAY, AGAINST MOISTURE, WHEN TRANSPORTING AND STORING.

Wetting and storage of wetted parts may cause irreversible damage to the equipment. The producer is not responsible for the damages caused by improper storage resulting from non-observance of producer recommendations.

Section II. Thermometer STW-100

1.General description of the product.

1.1.Product construction and application.

Multipoint thermometer STW-100 is applied for temperature measurement of grain in type BIN silos. Independently of how many temperature probes are used, a single temperature display unit is enough to read the temperature from all probes. The thermometer should not be used during the storm with atmospheric discharges, near high voltage lines, transformer stations, etc.

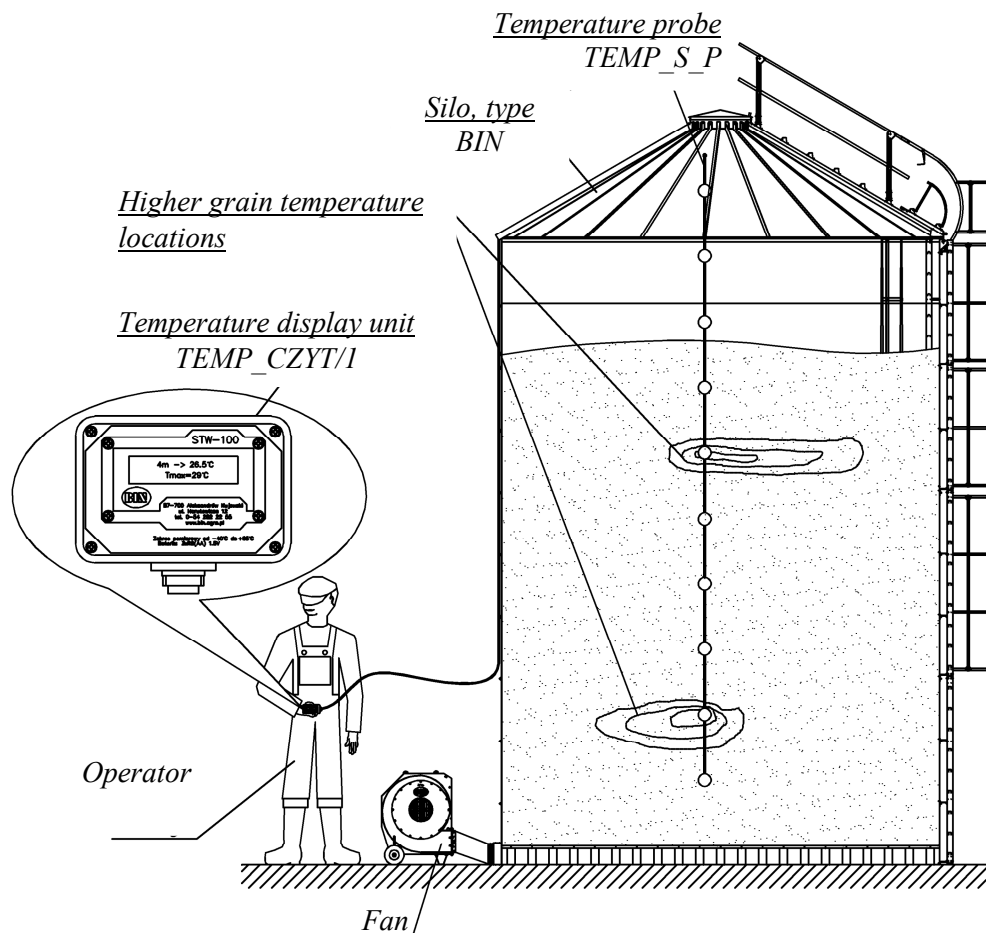


Figure 2: STW-100 thermometer construction and application.

The STW-100 thermometer (see Figure 2) consists of two main units: the temperature display unit TEMP_CZYT/1 and measuring probe TEMP_S_P. The display unit is provided with the display, which displays the temperature shown by individual probe sensors. The second display line shows maximum temperature in the silo. The display unit is provided with the socket to connect the measuring probe to it.

The measuring probe consists of temperature sensors located every 1 metre at the probe length.

The temperature sensors are mounted to the steel rope, and one end of the rope is made so that it can be secured to the silo roof. All sensors are connected with an electric cable, which is ended with the connector outside the silo. The connector shall be connected to the display unit to read the temperature.

1.2. Specifications and completing.

Article code	TEMP_CZYT/1	TEMP_S_P
Measurement range	-40°C ÷ +85°C	
Readout	automatic	-
Probe detection	automatic	-
Display	LCD	-
Instrument weight	200g	600 ÷ 2200g
Dimensions	L128xW110xH60	L8500 ÷ 35000
Ambient temperature for operation	+0°C ÷ +40°C	-40°C ÷ +85°C
Storage temperature	+5°C ÷ +40°C	
Air humidity	30% ÷ 70%	
Power supply	3xR6(AA) 1.5V	-

Table 1: STW-100 thermometer specifications.

Product name		Article code
BIN20 BIN20W BIN60	4-point probe	TEMP_S_P4
BIN60W BIN100	6-point probe	TEMP_S_P6
BIN100W BIN200	8-point probe	TEMP_S_P8
BIN200W	10-point probe	TEMP_S_P10
BIN500 BIN1000	12-point probe	TEMP_S_P12
BIN1500	14-point probe	TEMP_S_P14
Temperature display unit		TEMP_CZYT/1

Table 2: Complete STW-100 thermometer with temperature probe.



A single display unit is used to read temperatures from any number of temperature probes of any type.

it is forbidden to install more than one temperature probe in a single BIN type silo.

2. Installation and first start-up.

Installation of the thermometer requires specialised equipment and proper knowledge. Therefore, the thermometer shall be installed by installation company authorised by BIN. The installation company shall co-operate with the customer within the scope of arrangement of works, settlement of balances and acceptance of installation works.



Disassembly, extension, shortening, splitting, etc. of any components (connector, temperature sensors, wires, etc.) of the measuring probe is strictly forbidden. Non-compliance with the above may cause damage to the whole instrument.

The measuring probe of the SILOTHERMOMETR STW-100 shall be installed inside the silo (see Figure 3a and Figure 3b). The other parts shall be located outside the silo, near the access ladder (approximately 30 cm from the ladder).

1. Install brackets with clamps at the silo side wall (see Detail Ia) – keep proper distance of the first clamp and electric box with plug from silo foundation surface (see Detail III) and proper distance between other clamps (approximately 50 cm).
2. Install pipes and flexible couplings in clips – the length of the last pipe shall be adapted to the change from silo wall to the silo roof (see Detail I).
3. Install clips without brackets on the silo roof surface (see Detail Ib) and place the pipes with flexible couplings in clips.
4. Install temperature probe holder (see Detail II).
5. Connect the end of the last pipe with the cable gland PG21 by means of flexible couplings (see Detail II).
6. Thread the measuring probe with its cable through the pipes and flexible couplings installed according to points 1 – 5 above.



To facilitate installation, pipes and flexible couplings may be removed from clips and the probe may be threaded through them (keeping proper order) in convenient place. Then, install the pipes in clips again.

7. Fix the measuring probe to the eyebolt with the use of saddle clip (see Detail IIb) – observe proper distance between the probe end and perforated floor surface (Detail IV).
8. Protect the excess probe cable with band clip (Detail IIb).
9. Check proper installation of all components and remove installation defects, if necessary.
10. Connect the display and make test temperature readout.
 - If the display shows correct temperature for all probe sensors, disconnect the display – the instrument is ready for use.
 - If the display shows no characters, disconnect it and check the condition of batteries – replace them with new ones, if necessary.
 - If the display shows no characters again or shows incorrect values or its operation is incorrect in any other way, contact the producer.

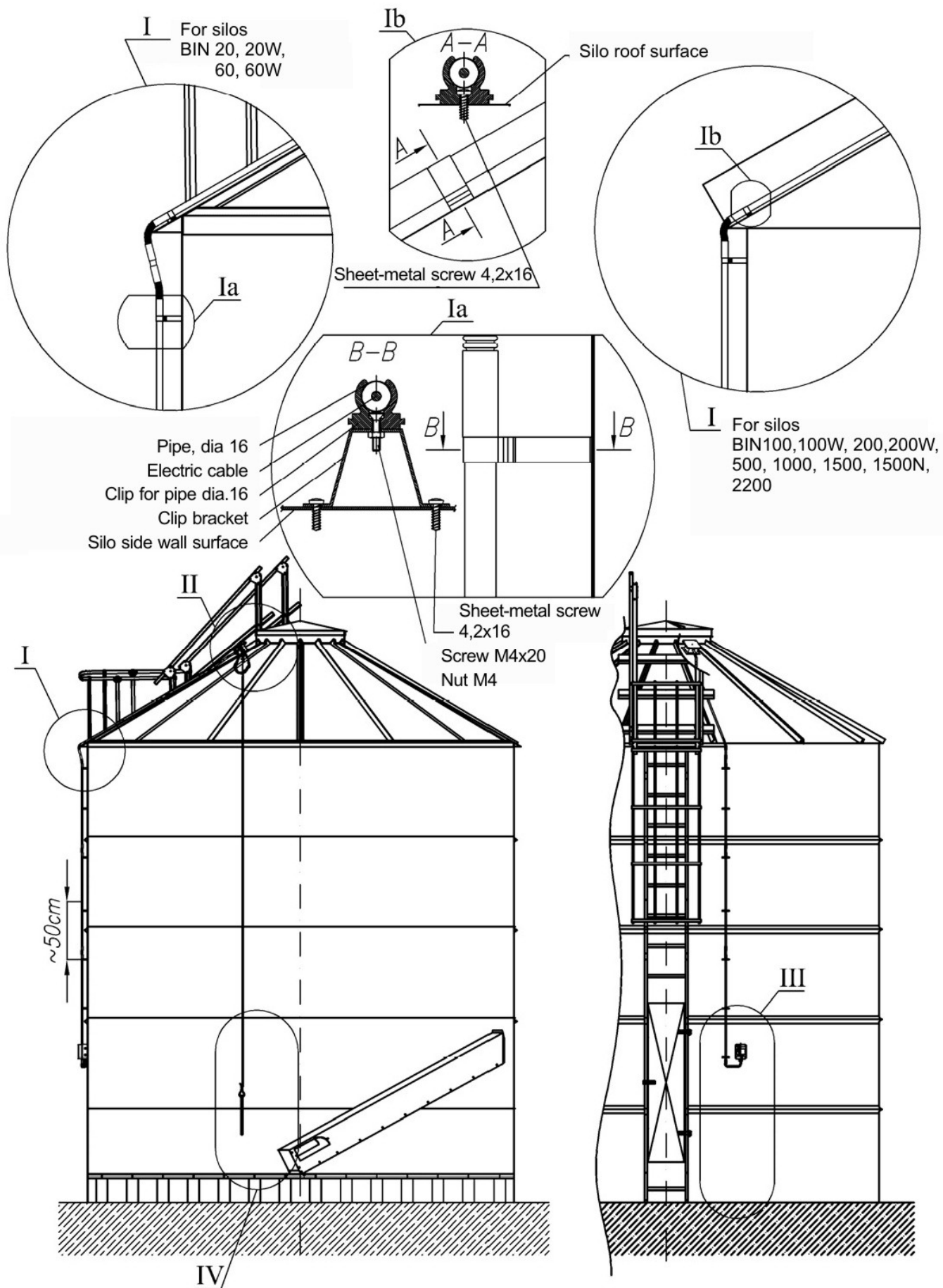


Figure 3a: Installation of STW-100 thermometer.

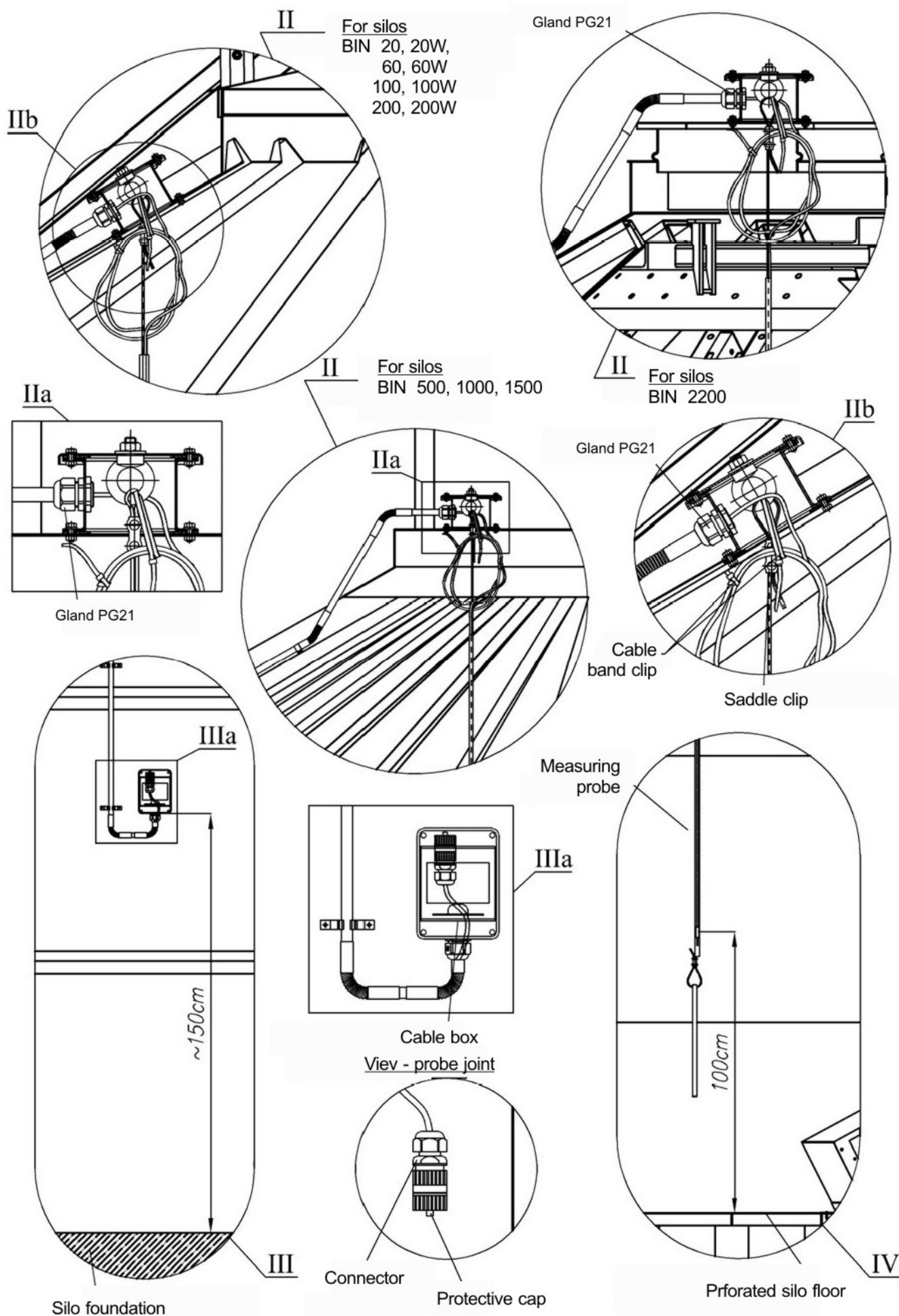


Figure 3b: Installation of STW-100 thermometer.

3. Thermometer operation and servicing.

Correct use and properly and in term made inspections, maintenance and possible repairs are critical for proper operation of the thermometer and preventing premature and excessive wear and tear of its parts.

Temperature measurement:

1. Remove protective cap from the probe connector.
2. Screw the probe connector into the socket on the display casing.
3. Wait few seconds.
4. The display will show an information on number of temperature sensors in the probe. Then, the display will show the temperature every 1 m along grain column height in the silo (starting from the height of 1 m above the perforated silo floor).
5. After making measurement, disconnect the probe from the display and protect the connector with protective cap.



When not used, store the display in a dry room, temperature between +5 and 40°C, do not expose it to direct sunlight.

Replacement of batteries:



The display must be disconnected from the probe, when replacing the batteries.

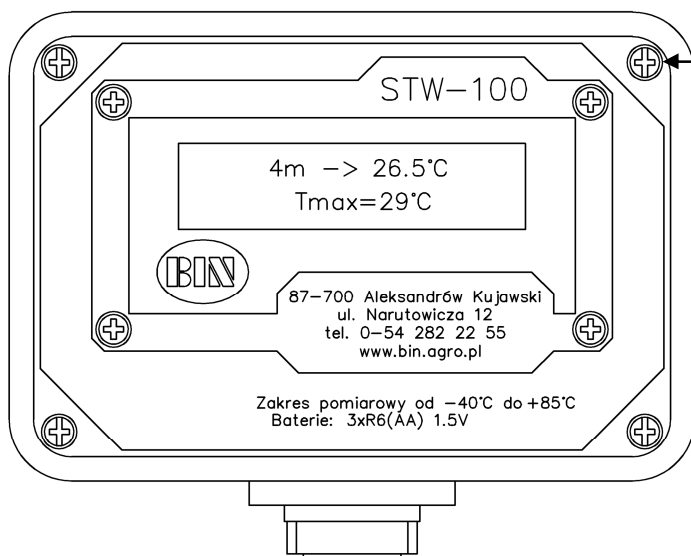
1. Remove the screws fixing the halves of display casing (Figure 4).
2. Remove the rear part of display casing.
3. Replace batteries, paying particular attention to proper positioning of all batteries in their holders (“+” on the battery must comply with “+” on the casing).
4. After replacing the batteries, assemble the casing and check functioning of the display by connecting the probe to it



Always replace all batteries with identical new ones – use “R6” (“AA”) batteries – 3 pieces.



When the display unit is not connected to the temperature probe, the probe connector shall be protected with cap.



Screws, which secure both display unit parts with each other

Figure 4: Removal of STW-100 thermometer casing.

Section III. Final and additional information.

1. Storage.

In case the equipment is not used for a longer time, the temperature display unit shall be stored in a dry room, temperature approximately $+5 \div +40^{\circ}\text{C}$, not exposed to direct sunlight. The measuring probe shall be left installed in a location (silo), where it is normally used.

When starting the instrument after longer standstill, proceed as for the first start-up (according to the description contained in this Instruction Manual).

2. Disassembly and disposal of.

After it is found that the instrument cannot be used any more, proceed as follows:

- Disassemble all thermometer parts and units.
- Separate thermometer parts due to their place and way of disposal of.
- Pass all metal and plastic parts and units to the specialist recycling companies, which will dispose of those parts and units.
- Protect other thermometer parts so that they cannot harmfully influence people and natural environment.

3. Guarantee and guarantee card

BIN Spółka z o. o. guarantees proper operation of the purchased product of our company. The period of guarantee is 12 months from the date of sale and it is valid only with the sale document made for the user by us or by our representative. The guarantee concerns free of charge correction of faults having a significant influence on product functioning. Therefore the regulations concerning the warranty according to the article 558 § 1 KC (the Civil Code) are excluded.

General conditions of the guarantee

1. Territorial range of the guarantee
The guarantee covers entire territory of Poland. The guarantor will cover transport costs connected with accepted guarantee claim to the limit of 250 km according to typical rates.
2. The guarantee does not cover any faults that came into being due to incorrect or excessive operation, natural wear of parts and other reasons which are not on manufacturer's side.
3. The guarantee does not cover any other costs not specified above, especially costs being the result of disability of the device.
4. The guarantee expires in case of:
 - operation of the product inconsistently with its appropriation,
 - incorrect installation or in case of accomplishing unauthorised modifications,
 - execution of works requiring special authorization by people who are unauthorized to execute such works.

Special conditions of the guarantee

1. In case of products:
 - including electric motors, the manufacturer of the motors gives separate guarantee.
 - delivered in elements – the client will check the condition of these elements upon delivery and then will store them on his own responsibility until they are used for assembly. Special attention must be paid to the condition of flat zinc-coated elements. They must be stored in a way enabling free flow of air around each element. The contact of two wet zinc-coated sheets causes creation of non-movable spots even during a short lasting period of storage.
2. If there are any obligations resting on the purchaser's side and based on the settlements agreed when placing an order or included in the service manual, then the guarantee does not cover the results caused by failing to fulfil obligations or incorrect realization of the obligations.
3. The overdue financial commitments of the purchaser towards guarantor or salesman cause the loss of the rights connected with the guarantee until these commitments are settled.

The procedure of execution of guarantee rights

All defects must be reported to the salesman by the client in writing, using the attached guarantee certificate. The salesman will notify the client within 14 days about the way of adjusting the complaint, and about the place and the appointed date of repairs covered by the guarantee.

Manufacturer:

BIN Sp. z o.o.
87-700 Aleksandrów Kujawski
ul. Narutowicza 12

Salesman

.....
(The salesman signature is not required if there is an annotation in the sale invoice about transferring the guarantee)



BIN Sp. z o.o.
87-700 Aleksandrów Kujawski
ul. Narutowicza 12
tel. 0-54 282 22 55

GUARANTEE CARD

Model	Year of production	Serial number	Purchasing document number

If possible give a detailed description of damage or revealed defect

Forename and surname (Company name)	Place	Street and house number	Postal code and post office

Date	Signature	Telephone Number	Date, signature and stamp of electrician starting the device



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87-700 Aleksandrów Kujawski
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CE Declaration of Conformity

The Producer: BIN Sp. z o.o.
87-700 Aleksandrów Kujawski
ul. Narutowicza 12
POLSKA

hereby declares that the product:

Type/model	Equipment name
STW-100	Multipoint thermometer for grain temperature measurement in BIN silos.

is in accordance with the requirements of the Ordinance of Minister of Transport and Building Industry on compliance of the equipment with basic requirements for electromagnetic compatibility and marking (DZ. U. (Official Journal), No. 265; Pos. 2227) dated in 27 December 2005,

and the following harmonised standards:

PN-EN 61000-6-2:2003 **Electromagnetic compatibility (EMC); Part 6-2: General Standards; Resistance in industrial environment.**

PN-EN 61000-6-4:2004 **Electromagnetic compatibility (EMC); Part 6-4: General Standards; Requirements for emission in industrial environment.**

This CE Declaration of Conformity is for the following product:

Series No.:

Aleksandrów Kujawski 17.07.2009r.

Main Designer

Piotr Chojnacki, MSc, Eng.