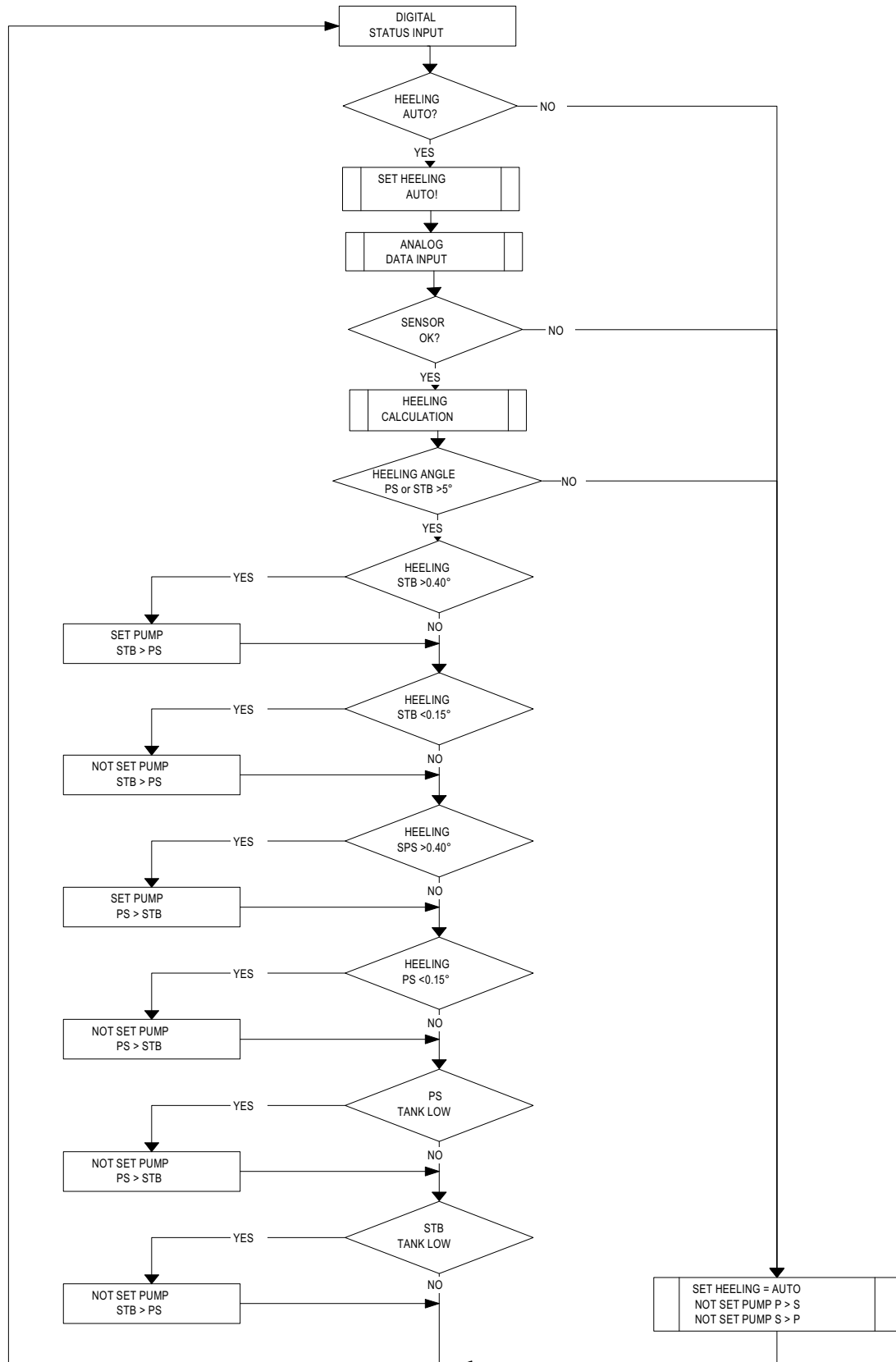




FUNCTION SCHEME



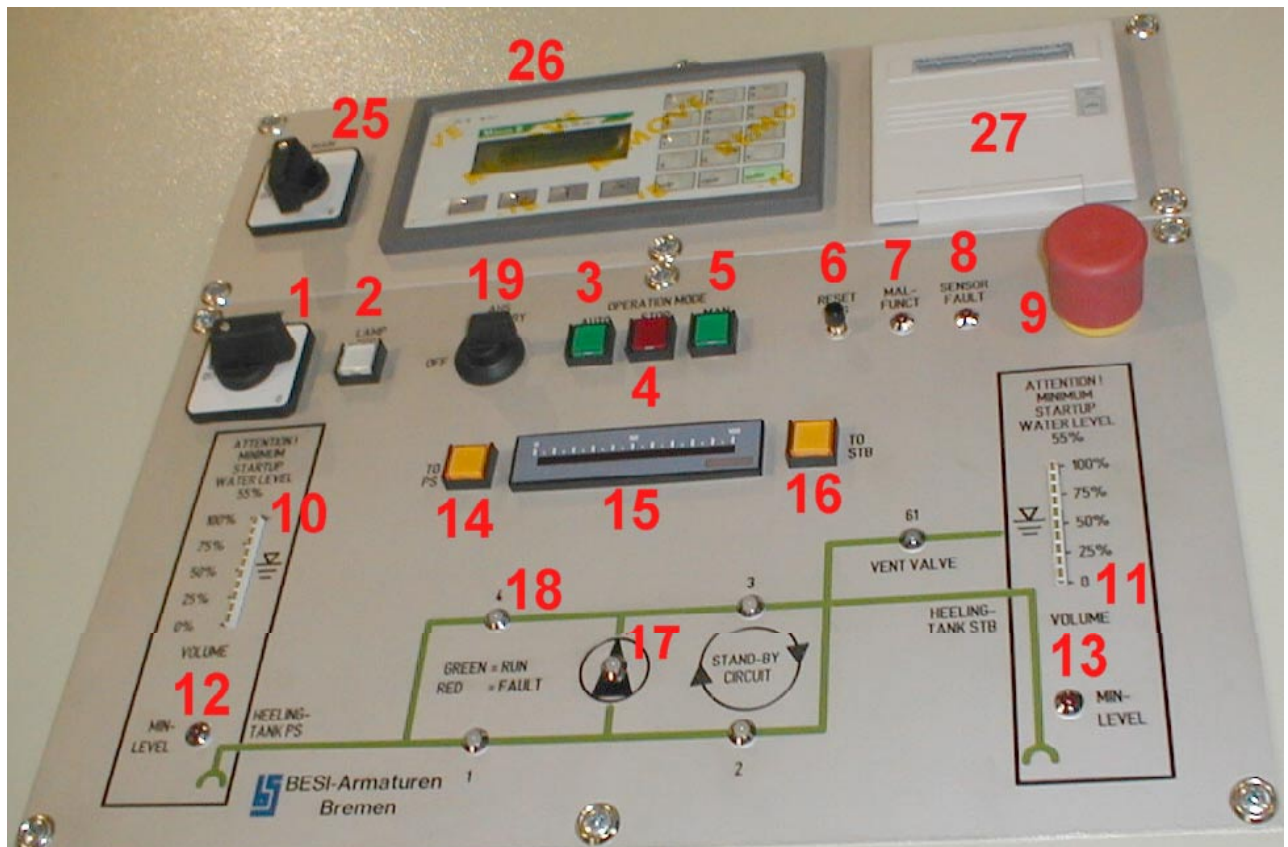


SHORT-MANUAL

FOR THE SERVICE OF BESI_s

**AUTOMATIC ANTI HEELING
CONTROL SYSTEM**

PART 1



- | | |
|-------------------------------------|---|
| 1) Main Switch | 19) Service Selektor Switch |
| 2) Pushbutton Switch Lamp Test | 20) Optional (Indication Ballast Operation) |
| 3) Pushbutton Switch Auto Mode | 21) Optional (Indication Heeling Operation) |
| 4) Pushbutton Switch Stop | 22) Optional (Pushbutton Switch Local Operation) |
| 5) Pushbutton Switch Manual Mode | 23) Optional (Pushbutton Switch Manual Operation PC) |
| 6) Pushbutton Switch Reset SPS | 24) Optional (Pushbutton Switch Automatic Operation PC) |
| 7) Indication Mal.-Funtion | <u>Stability Test Unit</u> |
| 8) Indication Sensor Fault | 25) Main Switch |
| 9) Emergency Stop Pushbutton Switch | 26) Operator Panel MI-4 - 110 |
| 10) Level Indication PS | 27) Printer CBM 291 |
| 11) Level Indication STB | |
| 12) Indication Minimum Level PS | |
| 13) Indication Minimum Level STB | |
| 14) Pushbutton Switch Pump To PS | |
| 15) Heeling Angle Indication | |
| 16) Pushbutton Switch Pump To STB | |
| 17) Indication Pump Running | |
| 18) Indication System - Valves | |



Function Description Central Unit:

- 1) **Bargraph Indicators PS and STB (No. 10 and No. 11), Tank volumes in % of total effective volume in anti-heeling tanks, enable correct initial filling and indicate the remaining capacity for heeling compensation.**
- 2) **Heeling Angle Indication (No. 15), reaches from -5° to 5°.**
- 3) **Min.-Level Indication (No. 12 and No. 13), flashes at minimum-level.**
- 4) **Service Selector Switch (No. 19),**
Standby: Heeling-System ready for operating via front panel.
**Off: Operation via frontpanel is blocked;
volumes and valves positions permanently indicated.**
- 5) **Reset switch (No. 6), resets the SPS to run mode.**
- 6) **Manual-mode (No. 3), system can be operated by pushbutton.**
- 7) **Manual operation: push "Pump to PS" (No. 14) or "Pump to STB" (No. 16).**
- 8) **Pushbutton "Stop" (No. 4), stops any operation.**
- 9) **Auto mode (No. 3), automatic control of heeling-system by SPS.**
- 10) **Indication: Pump running status (No. 17).**
- 11) **Emergency stop pushbutton (No. 9), interrupts all active circuits imediately;
new starts afterwards necessary.**
- 12) **Indication mal.-function (No. 7), flashes at malfunction of general system.**
- 13) **At mal.-funtion push first "Stop"-Pushbutton then "Man" or "Auto".**
- 14) **Indication sensor fault (No. 8), flashes at sensor fault.**

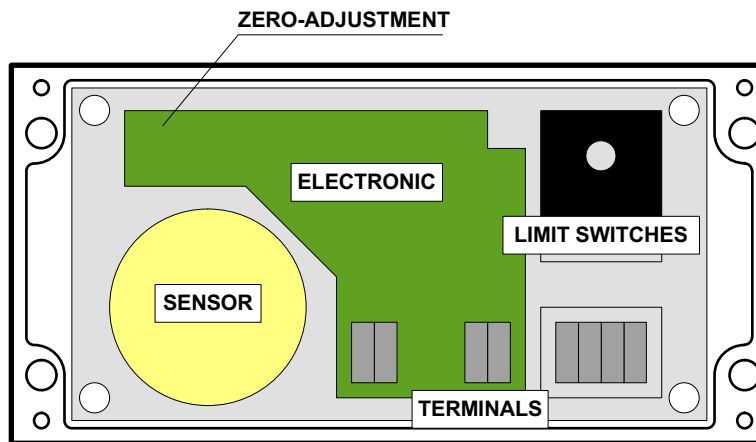


SHORT-MANUAL

FOR THE SERVICE OF BESI_s

**AUTOMATIC ANTI HEELING
CONTROL SYSTEM**

PART 2



SPECIFICATIONS:

RANGE: + / - 5 DEGREE
SUPPLY: DC 24 V
OUTPUT: 4 - 20 mA
TEMPERATURE: 0 - 50° CELSIUS
LIMIT SWITCHES: +10 / -10 DEGREE
PROTECTION CLASS: IP 68
CONNECTION: min. 6 x 0,75 qmm

FUSE: 200mA (slow)
POWER CONSUMPTION: 4 watt
SEPERATION: OF POTENTIALS
BETWEEN SUPPLY & OUTPUT
LIMIT SWITCHES ARE DRY

LIMIT SWITCHES: **CURRENT:** < 30 V, < 0,25 A
ACCURACY: +/- 1 DEGREE

MOUNTING: ON GROUNDED FOUNDATION
KALIBRATION: BY POTENTIOMETER (Zero Adjustment)

CONNECTIONS:

- 1: _ Supply (+) DC 24 V
- 2: _ Supply (-)
- 3: _
- 4: _
- 5: _
- 6: _
- 7: _
- 8: _
- 9: _ Current Out (+) 4-20mA
- 10: _ Current Out (-)
- 11: _ Limit Switch (-10°)
- 12: _ Limit Switch (-10°)
- 13: _ Limit Switch (+10°)
- 14: _ Limit Switch (+10°)



Type: NM 1-4 L-Z 0015

Funktionsbeschreibung:

Der vorliegende Neigungsgeber ermöglicht die Erfassung des Neigungswinkel in der Achse. Der Meßwert wird in Form eines Analogsignals (4...20 mA) zur weiteren Auswertung weitergegeben. Die Versorgungsspannung beträgt 24 Volt DC. Das Meßsystem ist in einem Aluminiumgehäuse (Schutzklasse IP-65) montiert. Zusätzlich stehen zwei von der Meßelektronik unabhängige, mechanische Neigungsschalter zur Überwachung zur Verfügung.

Hinweis: Die mechanischen Neigungsschalter enthalten Quecksilber!

Function Description:

That present inclinometer system makes the detection of an angle of inclination in one measuring axis possible.

The measurement will formed as analog signals (4...20 mA) for evaluation of results. The supply voltage is 24 volt DC.

The measuring system is in a diecast aluminium housing (safety class IP-65) mounted.

Additional are available two mechanical inclination limit switches for surveillance.

These two switches are independent of the measuring electronic.

Warning: The mechanical inclination switches contain mercury.