

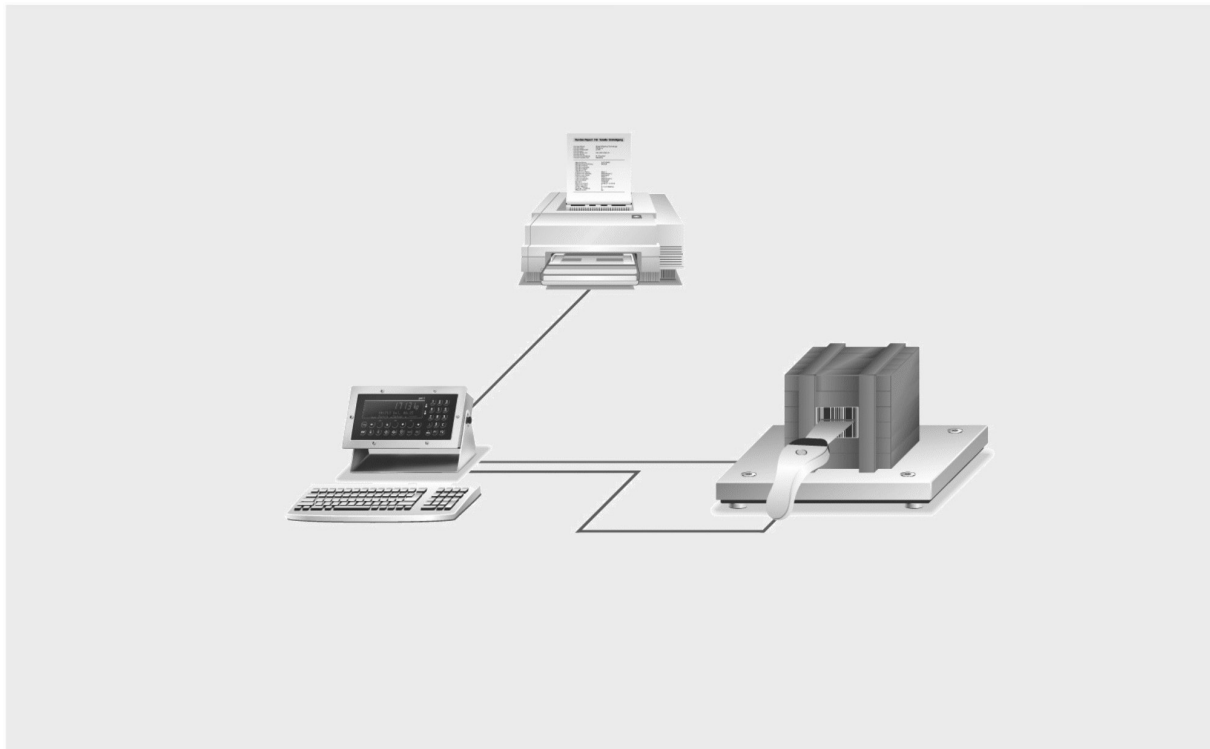


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mechatronics

LOG Controller

X4, X5, X6 - Application

Operating Manual



Operating Manual

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Release 2.20



for PR 5610/80

Release 2.20



for PR 5710/80

Release 2.20



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1. Introduction

1.1. General

1.1.1. Other manuals

This operating manual describes the operation of LOG Controller. For general adjustment and installation: see Installation Manual.

Other manuals:

- Installation, configuration and calibration are described in the  Installation Manual.

1.1.2. Delivery condition

The LOG Controller contains the following standard components:

230V version of PR1713/X5 with LED for WP display without options cards and licenses

- serial interface on Slot 2
- optional PR1791/13 or PR1792 DDE/OPC server communication
- optional PR1713 external terminal
- optional external weighing point 'B' via DIOS master on Slot 3 or XBPI
- optional fieldbus on Slot 4 (no Ethernet)
- optional Ethernet on Slot 4 (no fieldbus)
- optional alibi license for the internal alibi memory: PR8901 / 81

License:

Application license PR5610/80 is included.

1.1.3. LOG Controller

The LOG Controller is used for measurement of material movements. Delivery notes and consumption totals can be produced by means of customer and material tables.

LOG application example:

The LOG Controller supports the normal operating procedures with material movements. It permits connection of a weighing platform with analog load cells via the internal weighing point. Moreover, connection of a second external weighing point via a serial interface with XBPI protocol or via Interbus DIOS master with PR1720 is possible.

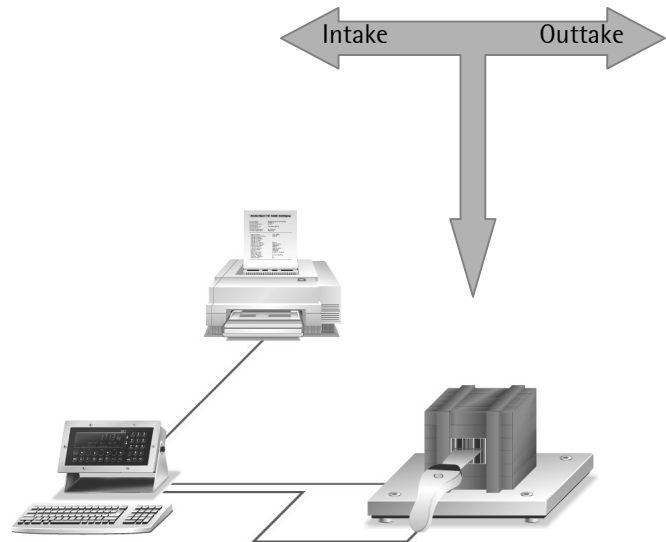
The customer receives and delivers several materials and requests a delivery note. The data of a customer are copied from a customer file. The material data are copied from the material file. Subsequently, the material is weighed and documented with number of pieces in the delivery note. In parallel, the weighing operations can be recorded in an alibi memory.

Function survey:

- Tare function (manual, fixtare, multiplicative, interim tare, additive, value input, automatic)
- Communication via DDE/OPC and fieldbus
- Customer table
- Material table
- Fixtare table
- Consumption tables
- Delivery note
- Label print
- Internal alibi memory
- External alibi memory
- Weight print-out via configurable report
- Additional external weighing point
- Configurable weighing sequence

Typical weighing operation sequence

- Step 1: Select customer from table
 Step 2: Select 1st material from table
 Select number of pieces
 Select tare mode
 Weighing and printing
 Step 3: Select 2nd material from table
 Select number of pieces
 Select tare mode
 Weighing and printing
 |
 Step n: Select n th material from table
 or
 Finalizing delivery note



		Slot 1	Slot 2	Slot 3	Slot 4
PR1713/04	Serial I/O RS485/422 + RS232	•	•	•	
PR1713/13	DIOS master	•			
PR1713/14	Ethernet interface				• x1
PR1721/01	Profibus interface				• x1
PR1721/02	Interbus interface				• x1
PR1721/04	Devicenet interface				• x1

- | |
|------------|
| • Standard |
|------------|

 = Fitted as standard in the delivery condition
- | |
|---|
| • |
|---|

 = Can be fitted additionally
- | |
|------|
| • x1 |
|------|

 = Note restrictions due to high current consumption !
- | |
|--|
| |
|--|

 = Not supported by hardware or software.





2. Operator interface

2.1. Display









7-digit weight values with decimal point can be indicated on the weight display. The weight unit is selectable for tons, kilograms, grams or lbs. In addition to the numeric output value, two text lines can be displayed. The remaining display symbols are shown in the following table.













Status display	Description
B G	Gross weight display Gross weight = net weight + tare weight (B is only active in NTEP mode)
NET	Net weight display
T	The stored tare or initial weight is displayed.




Status display	Description
	The weight value is within +/- 1/4 d.
	Weight standstill
	(not used with LOG Controller)
	(not used with LOG Controller)

2.2. Keypad

The symbols on the front panel keys and their signification are:


Indicator key	Description	Indicator key	Description
	While pressing this key, the gross weight is displayed (<i>B – gross weight</i>).		Print-out
	While pressing this key, the tare weight is displayed.		Key for switch-over between weighing point A, B and $C=A+B$, (not valid for LOG)
	Set/reset tare. The actual gross value is stored in the tare memory, provided that: <ul style="list-style-type: none"> - weight standstill - indicator not in error status 		Set gross weight to zero, provided that: <ul style="list-style-type: none"> - standstill - weight within zero set range - not tared batch is not active

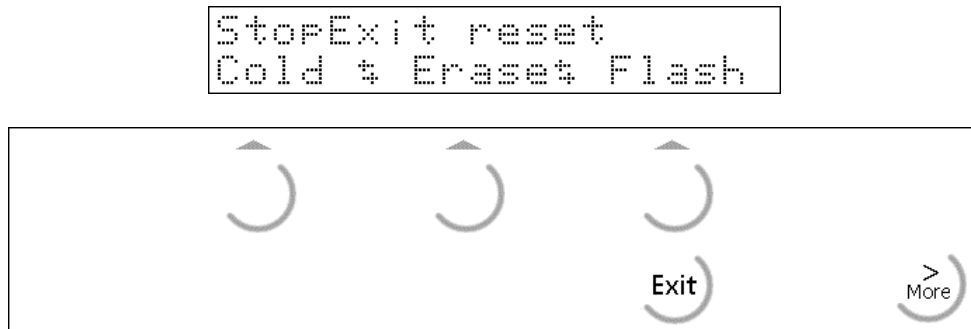
Menu key	Description	Edit key	Description
	Exit from the actual menu and continue operation at the next higher level.		Move cursor left during editing and select values when  is displayed.
	Softkey: select function		Move cursor right during editing and select values when  is displayed.
	Scroll down through menu functions		Enter / execute / confirm
	Scroll back through menu functions		Backspace / delete
	Display of further menu functions, which are indicated by the double arrow 		


Function key	Description	Function key	Description
	(not used with LOG Controller)		Programmable function key (not used with LOG Controller)
			Programmable function key (not used with LOG Controller)



2.3. Operating concept


2.3.1. Operation via softkeys

The operation of LOG Controller is menu-guided. For this purpose, the controller is provided with a softkey functionality: The three softkeys with the upward arrow  below the display have the function described in the lower text line.

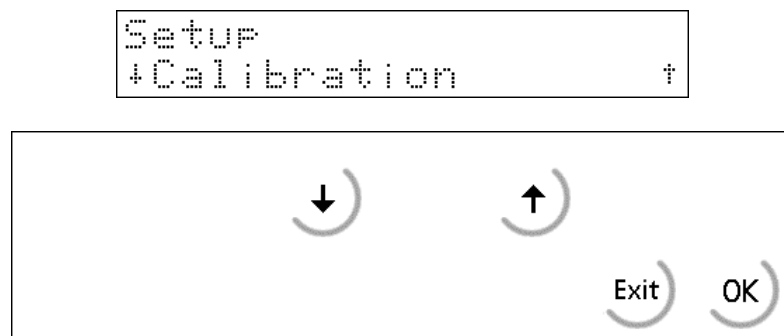




Selection of menu items is by pressing .


If more than three functions can be selected, the double arrow  indicates that further functions can be displayed and called up by pressing key .




Key  can be used to leave a menu. After pressing this key, the operation is continued at the next higher level.

2.3.2. Selection via the scroll keys



Key arrow down  permits scrolling forwards through the menu, key arrow up  permits scrolling backwards through the menu.

Key  can be used to leave the menu and to continue operation at the next higher level.




Key  permits selection of the menu item displayed between  and .

2.3.3. Selection via key More

As too many key pressing operations would be necessary when going through long tables using the scroll keys, direct access to the tables via the alphanumeric keys is also possible:

```

+Sugar - 100 †
      1234567890 ‡
  
```





Instead of pressing key  or , selection e.g. of a database entry from a table is also possible by means of key . In this case, you must enter the first character of the name for access to the name, which starts with the entered letter. Unless the entry can be identified by entry of a single letter, as many other letters as necessary for clear identification of the name have to be entered.
















Example for selection of a database entry:

Table	Direct access with key 'B'	Direct access with key 'B' and 'A'
A	B_	BA_
ABC	BA	BABX300
Azucar - 500	BABX300	BCT700
B	BCT700	Bulk - 200
BA	Bulk - 200	C
BABX300	C	DEF
BCT700	DEF	Flour - 635
Bulk - 200	Flour - 635	Sugar - 100
C	Sugar - 100	
DEF		
Flour - 635		
Sugar - 100		

2.3.4. Alphanumeric character input

In the alphanumeric input mode, a blinking cursor is displayed in the input field. Access to this mode is by pressing an alphanumeric key.


	<p>Several functions are allocated to each alphanumeric key. By pressing once, the first character, e.g. 'A', is displayed in the cursor position. After pressing twice, 'B' is displayed in the cursor position, and after pressing 3 times, 'C' is displayed, etc. After the last possible function, the first one is displayed again. The entry of a character is completed by pressing another character key, or key arrow right .</p> <p>Press key arrow left  to return to the previous character. By pressing the delete key , the character is deleted from the display.</p> <p>If only numeric values must be entered for an input, letters are not enabled. Therefore, the entry of values such as 555 is possible by pressing the key three times without the arrow key.</p>
---	--

Key	Character	Remark
	# " () = \$? ! % 1	Comma, decimal point or colon can be entered using the dot key  . Values with polarity sign are also entered by pressing the dot key  , once for minus and twice for plus. Every entry is completed by pressing key  . Input of a space is possible using key  .
	ABCabc2	
	DEFdef3	
	GHIghi4	
	JKLjkl5	
	MNOmno6	
	PQRSpqrs7	
	TUVtuv8	
	WXYZwxyz9	
	-+*/:; _ ' & , < > .	
	ÄÖÜäöüßø	

3. Main menu

As soon as the unit is ready for operation, the functions of the main menu can be selected, provided that no batch operation was activated.

```
LOG Controller
Start *Setup *Alibi
```

The menu items can be selected by pressing the relevant softkey .




Softkey	Function
[Start]	Main program
[Setup]	Configuration, calibration, determination of the serial port, initial data
[Alibi]	Alibi memory configuration and read-out

3.1. Switching on the LOG Controller

After supply voltage switch-on, the version number of LOG Controller appears on the alphanumeric display. Only now, the main menu is activated.

Installing further options cards, or changing options cards to a different slot must be done before the input of data into tables. After installation of the card, a [Cold] start is necessary.

There are three possibilities to reach the boot menu:

1. Menu [Setup]-[Reboot], [Warm] start possible
2. Press key  when switching on the instrument
3. Press keys  + , ([Setup]-[Software Parameter]-[Reset on stop+exit] = 1 or 5 s.), whereby [Warm] start is not possible.



Please, note that you may only do a [Cold] start when this is necessary (e.g. after installation of a new options card), because all data which were not stored in EPROM or EAROM are lost !!

For further details, see the relevant chapter in the installation manual.

4. Setup


4.1. Setup menu

The [Setup] menu is described in the Installation Manual.



Please, note that you must not change the calibration data any more after entry of weight data. Changing e.g. the weight unit from kg into lb subsequently must be followed by a cold start. Hereby, all RAM data (database tables, etc.) are lost.

```
Kalibr. verändert
Kaltstart ausführen
```

This message is displayed when changing the calibration data subsequently. Now, you have to continue with .


4.1.1. Setup-tree




Setup


- Config	see Config Tree
- Weighingpoints	see installation manual
- Set Clock	see installation manual
- Serial Ports	see installation manual
- Software Parameter	see installation manual
- Network Parameter	see installation manual
- Show Boardnumber	see installation manual
- License Setup	see installation manual
- Print Setupdata	see installation manual
- Refresh Display	see installation manual
- I/O Slots	see installation manual
- Show Version	see installation manual
- Reboot	see installation manual

4.2. Configuration menu for LOG Controller

This menu is used for input of specific LOG Controller configuration data.
The configuration data are stored in RAM and saved in EAROM.

Press  to select [Setup] .

Select [Config] with  or  and confirm with  .

Leave the [Setup] menu with .

With [Edit] the configuration parameters can be changed.

Press [Print] to print out the configuration parameters on the printer interface.

```
LOG Controller
Start *Setup *Alibi
```

```
Setup
+Confis †
```

```
Confis Project
# Edit *Print
```

Unless the system clock is running (time not set), an error message is displayed. The running system clock is an indispensable prerequisite for the alibi memory!

The configuration is finished.

```
System clock stopped
```

4.2.1. Config menu tree

Config

- Customer table
- Material select
- Pieces
- Tare mode
- No.Report prints
- Label print
- Label print device
- Sequence number
- Days of storage
- Scale identifier

Configuration for LOG Controller

- Activating the customer table
- Activating / configuring the material table
- Activating the detection of number of pieces
- Configuring the tare mode
- Activating / number of copies of delivery note
- Activating the label print-out
- Selecting the printer interface for the labels
- Editing the sequence number
- Number of days during which delivery notes must remain stored
- Name of scale for print-out

4.2.2. Changing the configuration

Press [Edit] to change the configuration parameters.

```
Confis Project
  # Edit #Print
```

4.2.2.1. Configuring the process sequence

Customer table:

[Yes]: The operator can select from a customer table in the application. This table can be edited. Customer " * For cash *" and " * Single *" are entered automatically and cannot be deleted. This permits the entry of an anonymous customer without personal data or of a temporary customer with personal data.

```
+Customer table +
  $ Yes $
```

[No]: This item is skipped completely in the application. No delivery note with header and footer items are created, but only individual report lines.

Material select:

[Table]: The operator can select from a material table in the application. This table can be edited. Material: "*" tmp material *" is entered automatically. It permits the entry of a temporary material and cannot be deleted.

```
+Material select +
  $Table $
```

[Single]: material selection is skipped completely in the application. However, material "*" tmp material *" appears in the report with the name defined for parameter 'Name for print-out'. This setting is purposeful for weighing only a defined material during a prolonged period of time.

[No]: Material selection is skipped completely in the application.

Pieces:

[Yes]: The operator can enter a number of pieces in the application.


```
+Pieces +
  $ Yes $
```

[No]: This item is skipped completely in the application.

Tare mode:

[Auto]: With the weight above the minimum weight, the scale tare is set automatically. When the weight is lower than this weight, the tare is reset. Consequently, a separate manual operating step is not required.

```
+Tare mode +
  $Manual $
```

[Manual]: Set tare is by manual intervention via  or by input of a fixtare.

4.2.2.2. No.Report prints

Select parameter "No.Report prints". The number of copies can be entered directly (1 ... 9). Value 0 suppresses the print-out, but the data are made available for the print repeat function (only input, fieldbus or communication).

```
+No.Report prints  ↑
                    $1$
```

4.2.2.3. Automatic label print-out

In this application, another print-out for a label printer can be configured. This functionality is independent of the printer used for the delivery notes.

[Automatic]: After the end of a weighing operation, a print-out is made automatically.

[No]: The label is created, but print-out is only by pressing [Label] in menu [Material weighing].

```
+Label print      ↑
                  $No  $
```

4.2.2.4. Selecting the interface for label printing

The label printer as an independent printer is allocated an own interface.

Select one of the following interfaces:

- Slot1 RS485
- Slot1 RS232
- Slot2 RS485
- Slot2 RS232
- Slot3 RS485
- Slot3 RS232

```
+Lable print device↑
                  *Slot3 RS232*
```

4.2.2.5. Setting the sequence number

Although the sequence number is entered during configuration, it is not stored in EARAM. For this reason, start is with 1 after a cold start.

Select parameter "Sequence number" from the main menu of configuration. Enter the new number. The number is limited within 1 and 4.294.967.295.

```
+Sequence number  ↑
                  12345
```

4.2.2.6. Days of storage

Selectable options are:

[0]: Reports of today remain stored. All earlier ones are deleted.

[1]...[n]: Reports of today plus number of days remain stored. All earlier ones are deleted. See "Weighing program start".

If the memory space is not sufficient any more, a warning is displayed. See "Material weighing".

With increased memory requirement, a PR1713/05 memory extension module can also be fitted.

```
+Days of storase  ↑
                  1
```

4.2.2.7. Scale identifier

Select parameter "Scale identifier" from the configuration main menu. Enter the identifier. This name is printed out on any report.

```
+Scale identifier +
Station 1
```

4.2.2.8. Default settings

In the delivery condition, the default parameters are set.

Parameter	Value
Customer table	[Yes]
Material select	[Table]
Pieces	[Yes]
Tare mode	[manual]
No.Report prints	[0]
Label print	[No]
Label print device	[Slot 3 RS232]
Sequence number	[1]
Days of storage	[0] (only today)
Scale identifier	[empty]

4.2.3. Configuration data print-out

When printing the first line, a check if printing was possible is done. In case of printer failure during printing, a 2 sec watchdog timer is started. The print-out cannot be changed by 'Nice Label Express'

From the configuration main menu,

```
Confis Project
# Edit #Print
```

Press [Print]

All data and predefined texts are printed out.

```
Printing...
```

Unless printing is possible:

```
Error during Print
```

4.2.4. Leaving the configuration

From the configuration main menu

Press [Exit].

When selecting the parameters,

Press 

When parameters were changed, the following menu is displayed:

- [Yes] The altered parameters are stored in EAPROM.
- [No] All changes are canceled.
- [Exit] Editing can be continued.

```
Store data?
Yes # # No
```

5. Main program

5.1. "Start" program

Select the main program from the initial condition:
Press [Start]:

The main menu of the logistics program is displayed.


[Weigh]

[Print]

[Table]

[Alibi]

[Memory].

or press  to finish the main program.

```
LOG Controller
Start $Setup $Alibi
Start
Weigh $Print $Table
Start
Alibi $Memory$
```

The process starts with the actual application 'LOG' (see chapter 5.2).

Print out the last delivery note (see chapter 7.1.2).

Editing of customer, material and fixture tables. Print-out of defined delivery notes (see chapter 0).

Searching and display of alibi memory entries (see chapter 6).

Display of the free memory space (see chapter 5.5).

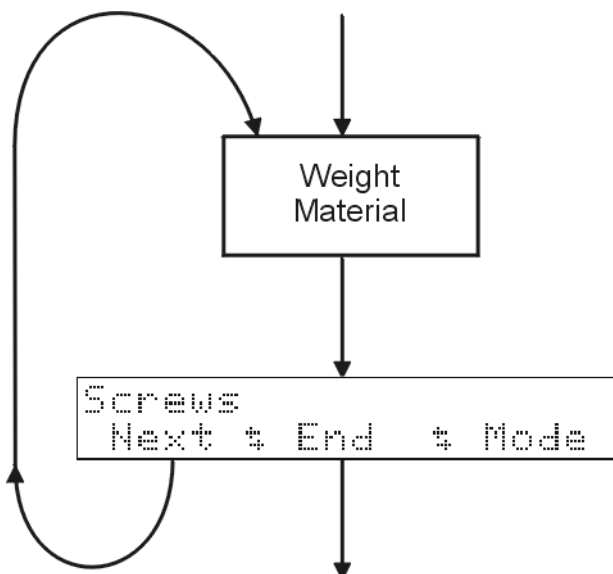
5.2. Weighing program

5.2.1. Survey of operation sequence

Operation is mainly sequential. Various materials which are printed out in a delivery note for a customer can be weighed.

A different number of menu items can be configured, i.e. the application can be adapted to various requirements.

Optional parameters can also be de-selected completely.

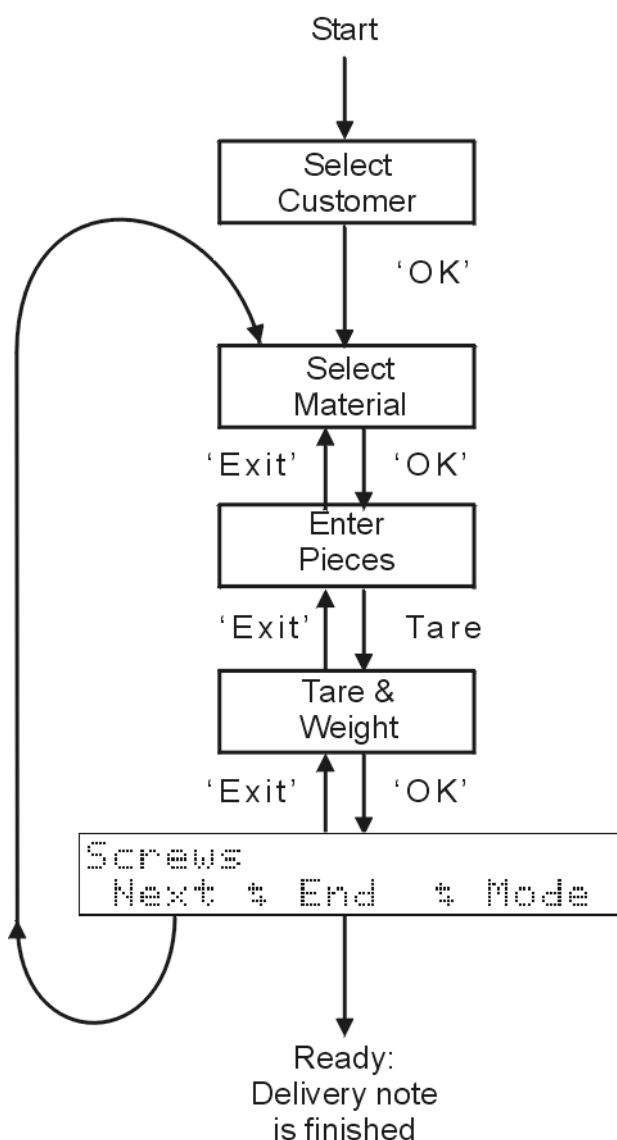


Minimum configuration:

With all options switched off during configuration, the sequence diagram is as shown opposite.

When starting the weighing program, one or several materials can be weighed for a customer.

Every weighing operation is documented with a further line in the delivery note. Subsequently, the next material can be selected [Next] or the weighing program can be finished [End].



Sequence:

The sequence diagram is as shown opposite, if all options in the configuration were activated.

After starting, the customer must be selected from the customer database (optional).

Subsequently, the first material is selectable (selectable / optional).

For each material, a number of pieces can be entered (optional).

This process step permits a multitude of tare setting options: Automatic, manual with current weight, fixtare, multiplicativ, additive or direct input (selectable).

Press [Exit] to return to the previous process step.

Unless an optional process step was activated by configuration, it is skipped.

5.2.2. Weighing program start

Press [Weigh] in the main program.

```
Start
Weigh *Print *Table
```

The logistics program starts. Unless the customer table was activated in the configuration, the program sequence goes to process section "Material table".

The number of days during which the delivery notes remain stored is configurable. When starting for the first time on a day, a message on deletion of earlier reports can be displayed.

```
Delete reports
< 15-08-2003
```

5.2.3. Selection from the customer table

Unless the customer table was activated during configuration, the process sequence goes to process section "Material table"


In this menu, a customer can be selected from the database.

Press  to select the customer. The program sequence goes to process section 'Material'.

```
+Mueller Frank      ↑
                      8 ↑
```

The other data of the selected customer can be viewed and even edited at this point.

Press  for editing the data of the selected table entry.

Activate  to return to the selection menu.


```
+Name for Printout ↑
Mueller Frank
```

Select table entry "**For cash**":

Anonymous text: 'For cash' instead of the customer name is displayed. This customer is not in the database and remains without personal data in the delivery note. This table entry is not editable. The customer number is fixed to 1.

Select table entry "**Single**":

Enter a temporary customer name, which appears with all entered data in the delivery note without being stored in the database. All table entries can be input at this point. The data are not stored. The customer number is fixed to 2.

Press  to return to the main menu of the logistics program.

```
+* For cash *      ↑
                      1 ↑
```


```
+* Single *        ↑
                      2 ↑
```

```
Start
Weigh ↑Print ↑Table
```

5.2.4. Selection from the material table

Unless the material table was activated during configuration, the program sequence proceeds to the next process step.


In this menu, a material from the database can be selected.

Press  to select the material. The program sequence proceeds to process section 'Pieces'.

```

+Art. M6*30 T×20      ↑
                      15 ↓
  
```

The other data of the selected material can be viewed and even edited at this point.

Key "F1" can be pressed to edit the data of the selected table entry. Press  to return to the selection menu.

```


+Name for Ausdruck ↑
M6*30 T×20 425-776A
  
```

Select table entry "*" tmp material *":

Enter a temporary material name which shall not be stored in the database. All table entries can be made at this point. The data are not stored. The material number is fixed to 1.

```

+* tmp material * ↑
                      1 ↓
  
```

Press  to leave this process section and to return to the previous process section.

From step Material select, one or several items for a delivery note can already be stored. A warning message is displayed.

[Yes]: All materials weighed so far are canceled. The process returns to the main menu of the logistics program.

[Back]: The process goes to process section 'Material weighing#'.


[No]: The process remains in this process section.

```


Exit all?
Yes # Back # No
  
```

5.2.5. Entry of the number of pieces

Unless the number of pieces was activated during configuration, the process sequence goes to the next process section.

Entry is as pieces. Complete by pressing . This value appears on the delivery note.

The program sequence goes to process section 'Taring'.

Press  to leave this process section and to return to the previous process section.

```

Number of Pieces
                      1000
  
```

5.2.6. Taring

Dependent of configuration parameter Tare mode ([Auto] or [Manual]), this process step behaves in a different way:
[Auto]:

Taring is automatic, when the gross weight is higher than the configured minimum weight. (see: [Setup]-[Weighingpoint]-[Calib.]-[Param]-[Don't print below])

The process goes to the next process step. During this time, display is:

```
Weight < min. weight
```

Further operation is not possible in this mode.

[Manual]:

Various taring methods can be used:

```
Select tare
Tare $Fixtare$ Mult.
```

```
Select tare
Intrm $ Add. $ Value
```

[Tare]:

Taring is done with the actual weight on the scale. Alternatively, actuating the tare key on the instrument front panel is also possible.

The process goes to the next process step.

If the weighing point was already tared, the following message is displayed during two seconds.

```
WP is tared!
```

[Fixtare]:

The operator can select an item from the fixtare table and confirm it with 'enter'. Prerequisite: tare was reset

The process goes to the next process step.

If the weighing point was already tared, the following message is displayed during two seconds:

```
WP is tared!
```

```
+Blue drum          †
                    1 ‡
```

[Mult.]:

The operator can select an item from the fixtare table and confirm it with 'enter'. Subsequently, the number of containers must be input to calculate an overall tare.

The process goes to the next process step.

If the weighing point was already tared, the following prompt is displayed:


```
Add tare?
Yes #           # No
```

```
+Blue drum          †
                    1 ‡
```

[Yes]: The new tare is added to the present one.


[No]: returns you to the menu for selecting the tare functions.

[Intrm]:

The operator applies a new tare weight and confirms with . The new tare weight is added to an already existing tare value. The process goes to the next process step.

```
Press OK key
to tare
```

[Add.]:

The operator can select an item from the fixtare table and confirm it with . The selected tare value is added to an already existing tare value. The process goes to the next process step.

```
+Blue drum          †
                    1 ‡
```


[Value]:

The operator can enter a value directly.
Entry is as a weight. It is completed with 'enter'. The process goes to the next process step.
If the weighing point was already tared, the following question is displayed:


```
Add tare?
Yes #           # No
```

```
Fixtare
                                     2 kg
```

[Yes]: The new tare is added to the present one.

[No]: A return to the menu for selection of the tare functions is made.


When taring the weighing point for the first time, or when retaring, a branch to the next process section is made.

Press  to go to the next process section, if the weighing point was tared.

Unless the weighing point was tared, a warning message is displayed.

Press [Abort] to return to the menu for selection of the tare functions.

```
Wait for tare
#Abort #
```

Press  to leave this process step and to return to the previous process step.

With two weighing points configured, the active weighing point cannot be changed as soon as the material was tared. When changing weighing points in tared condition, a warning message is displayed until returning to the initial weighing point:

```
Wrong weighingpoint!
#           #
```

5.2.7. Material weighing

The scale is tared.

In this process step, the material is placed onto the tared scale and weighed.

Key 'More' indicates a second menu level.

```
M6*30 TX20 425-776A
Next $ End $ Mode
M6*30 TX20 425-776A
Cancel$ $ Label
```

Completing the weighing operation

When completing the weighing operation with [End], the delivery note is created and the operation for this customer is finished.

When completing the weighing operation with [Next], this material is booked and another material can be weighed. A report line for the delivery note is created and also printed immediately, if so configured. If this is the first weighed material item, the header of the delivery note is printed previously. The process goes to step 'Select from the material table'.

Menu item [Next] is displayed only, when the scale is tared.

```
M6*30 TX20 425-776A
Next $ End $ Mode
```

Messages during print-out

The header of the delivery note is printed.

```
Report header
```

A line of the delivery note is printed.

```
Report line
25 kg
```

The delivery note is finished.

```
Sum value
130 kg
```

The actual report was stored successfully. However, no free memory space for a new report line is left. Should the earliest delivery note be deleted?

```
Sum Pieces
100
```

[Yes]: The earliest delivery note is deleted.

[No]: Another material selection for another weighing operation is not started. The current menu is not left.

```
Delete oldest report
Yes # # No
```

Display mode

The upper display line is determined by the display mode and can be changed with [Mode]. The display mode changes between the display of material identifier, number of pieces and total weight of all materials weighed so far.

In display mode 'Material name':

Der material name is displayed on the first line.

The net weight appears on the Weight display.

```
M6*30 TX20 425-776A
Next $ End $ Mode
```

In display mode 'Pieces':

The number of pieces of all previous delivery note items is displayed on the first line.

The net weight is indicated on the weight display.

```
Total: 0 pcs
Next $ End $ Mode
```

In display mode 'Total':

The total of all previous delivery note items is displayed on the first line.

The net weight is indicated on the weight display.

```
Total: 17 kg
Next $ End $ Mode
```

Cancel function

If completed material lines are provided, a cancel line can be generated by input of the item number. The

```
M6*30 TX20 425-776A
Cancel$ $ Label
```

consumption totals are booked back into the material table.


Delete

The already created lines of the delivery note report can be viewed by scrolling.

```

+ 1+          <0012kg>
M6*30 TX20 425-776A*
```

Leave the cancel function with .


Delete the selected line with . An additional cancel line with negative polarity sign of the net weight is created. All consumption totals are corrected.

```

Cancel report line
4: 50 kg
```

A deleted line gets indication 'L' and is not deleted from the database, because it was already printed. The cancel line is given indication '-L' and appears in the database additionally. It is printed out. A message with indication of line number and canceled weight is displayed:

The cancel function is left.

Press  to switch over between two display modes:

1. Weighed weight and material name
2. Number of pieces and material number

```

+ 1+          <0012kg>
M6*30 TX20 425-776A*
```

```

+ 1+          5 Pcs
                123 *
```

Label printing

Key [Label] activates label printing on an additional label printer (see chapter 7.1).

This function can be handled also automatically. See configuration.

5.3. Printing the last delivery note

Press [Print] to print out the last delivery note.

Determination that print-out should be automatic is also possible during configuration.

Delivery notes stored earlier can be printed out via the table function (see chapter 0).

```

Start
Weigh *Print *Table
```

5.4. Table editing

Press [Table]:

```

Start
Weigh *Print *Table
```

Customer, material and fixtare tables can be edited and printed.

All stored delivery notes can be selected and printed.

```

Edit tables
Customs Mat. *Fixtar
Edit tables
Report*      *
```

5.4.1. Customer table

Press [Custom]:

In this menu, table entries can be generated with [New], edited with [Edit], deleted with [Delete] and printed out with [Print]

```
Edit tables
Custom$ Mat. $Fixtar
```

```
Customer
New $ Edit $Delete
```

```
Customer
      $      $Print
```

5.4.1.1. Generating new customer entries

Press [New]:

```
Customer
New $ Edit $Delete
```

Enter the customer name. The name can consist of letters and digits and must be defined only once.

```
Customer name
Abc_
```

Complete the entry by pressing .

If this name was already defined, a message which must be acknowledged must be displayed. Subsequently, a new name must be defined.

```
Name already exists
# # OK
```


Enter the customer ident. The ident must be defined only once.

```
Customer ident
                                200_
```

Finish the entry with .

If this ident was already defined, a message which must be acknowledged is displayed. Subsequently, a new ident must be defined.

```
Ident already exists
# # OK
```

If  was pressed to cancel the entry of name or ident, no new entry is generated.

After the entry of name and ident, the menu is continued with the input of the other parameters, as described for menu item [Edit]. See below.

5.4.1.2. Editing customer entries

Press [Edit]:

```
Customer
New  $ Edit $Delete
```

Select the customer.

```
+Meier                                     †
                                           15 †
```

Editable parameters of the customer table

For print-out, an additional text for the name can be entered.

```
+Name for printout †
Meier GmbH
```

Address field 1

```
+Addressfield 1 †
Hauptstrasse 123
```

Address field 2

```
+Addressfield 2 †
22230 Hamburg
```

Address field 3

```
+Addressfield 3 †
Germany
```

Additional field 1

```
+Description 1 †
Industriepark Nord
```

Additional field 2

```
+Description 2 †
```

5.4.1.3. Deleting customer entries


Press [Delete]:

```
Customer
New  $ Edit $Delete
```

Press [All] to delete all customers.

Press [Single] to delete a single customer.

```
Delete customer
Single# All  #
```

For deleting a single customer, the customer must be selected with .

```
+Meier                                     †
                                           15 †
```

Customers "*" Single " and "*" For cash *" cannot be deleted.

```
Customer name
is reserved
```

5.4.1.4. Printing customer entries


Press [Print]:

```
Customer
$          †Print
```

Press [All] to print all customers.

Press [Single] to print a single customer.

```
Print customer
Single# All  #
```

For printing a single customer, the customer must be selected with .

```
+Meier                                     †
                                           15 †
```

During printing, the following message is displayed:

```
Printing...
```

Unless printing was possible, a warning message is displayed.

```
Error during print
```

5.4.1.5. Predefined customer entries

After a cold start, two customer entries are made automatically. These two entries cannot be deleted.

For customers who want to remain anonymous and do not wish personal data in the delivery note, customer entry "*For cash*" is selected.

This table entry cannot be edited. The customer number is fixed to 1.

```

+* For cash *          ↑
                               1 ↓
  
```

For customers who may present only once, i.e. who should not be stored in the customer database, customer entry "*Single*" is selected.

A temporary customer name is entered. This name appears on the delivery note with all entered data. The data are not stored. The customer number is fixed to 2.

```

+* Single *           ↑
                               2 ↓
  
```

5.4.2. Material table

Press [Material]:

In this menu, table entries can be generated with [New], edited with [Edit], deleted with [Delete] and printed out with [Print]

```

Edit tables
Custom$ Mat. $Fixtar
  
```

```

Material
New $ Edit $Delete
  
```

```

Material
$ $Print
  
```

5.4.2.1. Generating new material entries

Press [New]:


```

Material
New $ Edit $Delete
  
```

Enter the material name. The name may contain letters and digits and must be defined only once.

```

Material name
Bolt M5 * 50
  
```

Complete the entry with .

If this name exists already, a message which must be acknowledged is displayed. Subsequently, a new name must be defined.

```

Name already exists
# # OK
  
```

Enter the material number. The number must be defined only once.

```

Material number
120400_
  
```


Complete the entry by pressing .

If this number exists already, a message which must be acknowledged is displayed. Subsequently, a new number must be defined.

```

Ident already exists
# # OK
  
```

In case the entry of name or number was canceled by

pressing , generation of a new entry is omitted.

After the entry of name and number, the menu is continued with the entry of the other parameters, as in menu item [Edit] (see below).

5.4.2.2. Editing material entries

Press [Edit]:

```
Material
New  * Edit *Delete
```

Select the material.

```
+Screws M5 * 50      †
120400 ‡
```

Editable parameters of the material table

For the print-out, an additional text for the name can be entered.

```
+Name for printout †
S M5*50 ncl 400
```

Totalizing counter 1

The totalizing counter adds the weights of a delivered material. It can be edited.

The two counters operate independently.

```
+Sum 1 †
12 kg
```

Totalizing counter 2

The totalizing counter adds the weights of a delivered material. It can be edited.

The two counters operate independently.

```
+Sum 2 †
1230 kg
```

5.4.2.3. Deleting material entries


Press [Delete]:

```
Material
New  * Edit *Delete
```

Press [All] to delete all materials.

Press [Single] to delete a single material.

```
Delete material
Single* All  *
```

For deleting a single material, it must be selected with 

```
+Screws M5 * 50      †
120400 ‡
```

Material " * tmp material * " cannot be deleted.

```
Material name
is reserved
```

5.4.2.4. Printing material entries


Press [Print]:

```
Material
*          *Print
```

Press [All] to print all materials.

Press [Single] to print a single material.

```
Print material
Single* All  *
```

To print a single material, the material must be selected with 

```
+Screws M5 * 50      †
120400 ‡
```

During printing, the following message is displayed:

```
Printing...
```

Unless printing was possible, a warning message is displayed.

```
Error during print
```

5.4.2.5. Predefined material entry

After a cold start, a material entry is made automatically. This entry cannot be deleted.

For entry of a material which is and shall not be stored in the database, table entry "tmp material" can be selected.

During weighing, all data can be entered and appear on the delivery note. The data are not stored. The material number is fixed to 1.

```
+* tmp material * †
1 ‡
```

5.4.3. Fixtare table

Press [Fixtar]:

```
Edit tables
Custom$ Mat. $Fixtar
```

In this menu, table entries can be generated with [New], edited with [Edit], deleted with [Delete] and printed out with [Print]

```
Fixtare
New $ Edit $Delete
Fixtare
$ $Print
```


5.4.3.1. Generating new fixtare entries

Press [New]:

```
Fixtare
New $ Edit $Delete
```

Enter the fixtare name. The name can contain letters and digits and must be defined only once.

```
Fixtare name
Drum 03
```


Complete the entry with .

If this name exists already, a message which must be acknowledged is displayed. Subsequently, a new name must be defined.

```
Name already exists
# # OK
```

Enter the fixtare number. The number must be defined only once.


```
Fixtare number
3_
```

Complete the entry with .

If this number exists already, a message which must be acknowledged is displayed. Subsequently, a new number must be defined.

```
Ident already exists
# # OK
```

In case the entry of name or number was canceled with

, generation of a new entry is omitted.

After the entry of name or number, the menu is continued with the entry of the other parameters, as in menu item [Edit]. See below.

5.4.3.2. Editing fixtare entries

Press [Edit]:

```
Fixtare
New $ Edit $Delete
```

Selecting the fixtare.

```
+Drum 03 †
3 $
```

Editable parameters of the fixtare table

For print-out, an additional text for the name can be entered.

```
+Description †
Premix hopper
```

The fixtare value can be viewed and edited at this point.

```
+Fixtare value †
8 kg
```

The fixtare value can be set with the current gross weight.

```
+Set fixtare †
# Set #
```


5.4.3.3. Deleting fixtare entries

Press 'Delete':

```
Fixtare
New  $ Edit $Delete
```

Press [All] to delete all fixtares.

Press [Single] to delete a single fixtare.

```
Delete fixtare
Single# All  #
```

To delete a single fixtare, the fixtare must be selected.

```
+Drum 03                                     +
                                           3 $
```

5.4.3.4. Printing fixtare entries

Press 'Print':

```
Fixtare
$          $Print
```

Press [All] to print all fixtares.

Press [Single] to print a single fixtare.

```
Print fixtare
Single# All  #
```

For printing a single customer, the customer must be selected.

```
+Drum 03                                     +
                                           3 $
```

During printing, the following message is displayed:

```
Printing...
```

Unless printing was possible, a warning message is displayed.

```
Error during print
```

5.4.4. Printing stored delivery notes

Press [Report]:

```
Edit tables
Reports$
```

In this menu, all stored delivery notes can be printed out. The period during which the delivery notes remain stored is configurable.

```
Search report
Date #Seq.no#
```

5.4.4.1. Printing delivery notes according to date

Press [Date]:

```
Search report
Date #Seq.no#
```

Enter the date from which you want to print out delivery notes.

```
Enter date
2003-05-06
```

Enter the start time from which you want to print delivery notes.

```
Enter start time
00:00:00.00
```

Enter the end time up to which you want to print delivery notes.

```
Enter end time
23:59:59
```

During printing, a message is displayed. Print-out can be canceled with [Abort].

```
Printing...
#Abort #
```

5.4.4.2. Printing delivery notes according to sequence number

Press [Seq.no]:

```
Search report
Date #Seq.no#
```

Enter the sequence number of the delivery note you want to print.

```
Sequence number
1
```

During printing, the following message is displayed:

```
Printing...
```

5.5. Free memory space

Following display will be shown in the start menu with



Press [Mem] to display the available free memory space. This message remains on the display until a key is pressed.

```
Start
Alibi #Memory#
Free memory
1114304
```

5.5.1. Memory requirement of table entries

Dependent of type, table entries require different memory capacity:

Table	Memory space per entry
Customer	128
Material	64
Fixtare	64
Report header (unique per delivery note)	64
Report line	96

With increased memory requirement, a PR1713/05 memory extension can be fitted.

6. Alibi memory

6.1. Configuring and viewing the internal alibi memory

The alibi memory is used for W&M storage of weight data. It is indispensable unless W&M tickets with copies are printed, in order to store the weight data for the required period of time. This is the user's responsibility. The alibi memory must be configured according to the requirements (CAL switch open). To activate the internal alibi memory, memory extension PR1713/05 and license PR8901/81 are required.

6.1.1. Configuring the alibi memory

Memory configuration is during commissioning. For this purpose, the CAL switch must be open. With the CAL switch closed, the alibi memory can neither be deleted nor changed in size subsequently. A coldstart or reconfiguration deletes the memory and its configuration. A dataset has 64 bytes.


The memory requirements due to the application (all databases) must be taken into account by the user himself.


Press [Alibi].

```
LOG Controller
Start $Setur $Alibi
```

Provided that the number of entries was already configured, the displayed number can be changed. For this, the CAL switch must be open.

```
Number of entries#
                  1000
```

Press  to store the parameter and to generate the database. Any change in the number of entries, also of an equal value, deletes the current database and generates a new, empty one.


Press  to cancel an entry.

6.2. Viewing the memory contents


The access to the alibi memory is as during configuration, except that the CAL switch is closed.



6.2.1. Searching for date and time


Searching for date and time is started by pressing [Date].



Optionally,  can be pressed to return to the alibi memory menu.

With [Date], the date of the last entry is displayed.

Another date can be entered with .

The time of the last entry for the selected date is displayed. Press  or  to display further times of weighing operations for this date.

Press  to display the data of the selected entry with sequence number, weighing point and weight mode. The weight value appears on the weight display.

Press  or  to display further entries for this date. The type of weight can be 'Gross', 'Net', 'Tare' or 'Calcul' for calculated weight, e.g. a sum.

```
Search for
Date #Range # Seq
```

```
Date:
2002-04-11
```

```
Date:
2002-04-12
```


```
2002-04-12 Time:
+11:41:42.00 †
```

```
2002-04-12 11:41.02
+ #41 A-Gross †
```




```
2002-04-12 11:48:26
+ #11 A-Gross †
```

6.2.2. Searching for a sequence number

Searching for a sequence number is started by pressing

'Seq'. Optionally,  can be pressed to return to the alibi memory menu.

The number of the last weighing sequence is displayed. A different sequence number can be entered.

Press  to display the data of the selected entry with sequence number, weighing point and weight mode. The weight value appears on the weight display. Press  or  to display further entries with the same sequence number.

The type of weight can be [Gross], [Net], [Tare] or [Calcul] for calculated weight, e.g. a sum.


```
Search for
Date #Range # Seq
```

```
Sequence number
12
```

```
Sequence number
11
```

```
2002-04-12 11:46:13
+ #11 A-Gross †
```

```
2002-04-12 11:48:26
+ #11 A-Gross †
```


Return to the sequence number entry by pressing .

```
Sequence number
11
```



6.2.3. Printing a range

Select [Range] to choose the range entry for the weighing data print-out.



The date of the first entry in the alibi memory is displayed.



Another date can be entered by pressing .


The time of the first entry for the selected date is displayed.

Press  or  to display further entries for this date.

Unless an entry for the selected date exists, an error message is displayed during 3 s. Subsequently, the date entry must be repeated.

Press  to select the start of the list. The date of the last entry is displayed. Another date can be entered and stored by pressing . Unless an entry for the selected date exists, an error message is displayed during 3 s. Subsequently, this date entry must be repeated.

Keys  or  can be pressed to display all entries for the defined period.

Press  to select the end of the list and to activate the print-out. All weighing data for the defined period with date, time, sequence number, weight mode, weighing point and weight are printed out.

```
Search for
Date #Range #Seq
```

```
First date:
2002-04-12
```

```
2002-04-12 Time:
+11:41:42.00 †
```

```
No matching entry !
```

```
Last date:
2002-04-16
```

```
2002-04-12 Time:
+11:41:42.00 †
```

```
Printing ...
```

6.3. Printing alibi data

Print-out is on interface (PRN:) with one line per weight, irrespective of whether a single weight or a range is printed out. The printer does not require W&M approval.

```
2003-01-31 17:51:21 #12345678 Gross A <123.45 kg>
```

The date format is JJJJ.MM.TT. Unless the weight is of the gross, net, tare or calculated type, '???' is printed as weight type. With a faulty CRC test value, '-----' instead of the weight is printed.

6.3.1. Data in the alibi memory

- Weight value, contains the weight, the weight type and the weighing point identification (WEIGHT)
- Date & time (DT)
- Operation number within 1 and 999999 (DINT).
- modified CRC-16 (WORD), whereby stored data cannot be changed also by application programming. Entries with incorrect CRC check are provided with a series of minus signs instead of the weight.

The data are stored in a ring memory. After the memory is full, new data will shift the earliest data out of the memory. The function is transparent for the user.

6.3.2. Size of the alibi memory

For the application program, 100 kbytes for the dynamic memory, e.g. databases, are reserved. Depend-ent of firmware version, approx. 200 kbytes are occupied by system and application.

When creating the database, the entry is limited to the actual conditions due to already occupied memory space, i.e. the present memory extension and memory requirement of the firmware are taken into account.

For operation, an own main program which can be called up at the uppermost operating level of PR 5610 is provided. The following functions are grouped here:

- Configuring, when the CAL switch is open.
- Search and print-out of data sets, when the CAL switch is closed.


6.3.3. Time behaviour of the alibi memory

As the database can contain several thousand entries, handling times in the range of seconds must be expected in case of accesses. The time requirement for execution of a database operation increases with the number of possible entries. For this reason, configuration should provide only the indispensable number of entries. During searching in the database, 3 dots in the upper left corner of the two-line operation display are shown.

6.4. Writing into the alibi memory

If the alibi memory is activated, writing is done at every net weighing operation in the "weighing" program. Simultaneously, an entry into the delivery note is made.

At every weighing operation, the sequence numbers are incremented. One sequence number belongs to the parameters of the alibi memory and cannot be changed. The other number is always freely editable and could be set e.g. to One every morning.

By pressing  on the instrument front panel, a simple weight print-out, but no entry into the alibi memory is made.


7. Print-outs

7.1. Print-out examples

The LOG Controller has various reports for print-out. Some of these reports can be configured freely by PC program "Nice Label Express".

	Configurable with "Nice Label Express"
1. Weight report	yes
2. Delivery note	yes
3. Labels	yes
4. Configuration data	no
5. Set-up data	no
6. Customer data	no
7. Material data	no
8. Fixture data	no
9. Alibi memory data	no

7.1.1. Weight print-out

By pressing the print key  on the instrument front panel, a simple weight print-out can be started. The key functions also without running main program.

With "Error ..." displayed on the scale, printing is not possible.

The scale name appears only, if it was defined.

Unless a Nice Label Express layout was defined, a simple weight report in the following format is printed out.

When using "Nice Label Express", layout "PRINT.lbl" must be used for editing.

The data made available in the relevant layout are explained in section "Nice Label Express".

Print-out example:

```
Scale id   : screw warehouse
Daten    . . : 30.10.2003
Time     . . : 11:06:59
Gross    . . : A    <00.277 kg>
Net      . . . : A    <00.277 kg>
Tare     . . . : A    <00.000 kg>
```

7.1.2. Delivery note

How to print out a delivery note is described in section "Printing the last delivery note", "Printing a stored delivery note" and "Material weighing".

Unless a Nice Label Express layout was defined, the delivery note will be printed out in the following format.

When using "Nice Label Express", layouts "*.lbl" must be used for editing.

The delivery note comprises three different print-outs:

the report header ("REPORTH.lbl"),

several lines ("REPORTL.lbl"),

the report footer ("REPORTF.lbl").

The data made available in the relevant format are explained in section "Nice Label Express".

Print-out example:

```

Report
Scale identifier: screw warehouse
Date . . . . . : 2003.10.28 12:48
Sequence number . . : 301
Customer . . . . . : Meier

Line  Material name          Piece          Weight          Date
-----
  1   M6*30 TX20 425-776A 5           15 kg 22.4.2003 14:55
      123
      M06030 143785 GN
 2L  M6*50 TX20 425-776A 100          200 kg 22.4.2003 14:56
      123
      M06050 143785 GN
 3-L M6*50 TX20 425-776A 100          200 kg 22.4.2003 14:57
      123
      M06050 9786543 GN
  4   M8*100 TX20 425-776A 5           15 kg 22.4.2003 14:59
      123
      M08100 476758 XC
  5   M3*10 TX20 425-776A 5           15 kg 22.4.2003 15:01
      123
      M03010 1454666

```


7.1.3. Labels

The customer data print-out is described in section "Material weighing".

Unless a Nice Label Express layout was defined, the delivery note will be printed out in the following format.

When using "Nice Label Express", layout "LABEL.lbl" must be used for editing.

The data made available in the relevant layout are explained in section "Nice Label Express" .

Print-out example:

```
Label
-----
Date . . . . . : 20.06.2003
Time . . . . . : 12:34:00
Material name . : Schrauben M04*80
Material number : 1230400
Pice . . . . . : 4000
Value . . . . . : 5 kg
-----
```

7.1.4. Configuration

The customer data print-out is described in section "Printing customer entries".

Print-out example:

```
Project configuration data
-----
Date . . . . . : 2003.10.28 12:48
Application . . . : LOG-Controller - Rel 2.20
Version . . . . . : 2003-03-13
Customer table . : No
Material select . : Table
Pieces . . . . . : Yes
No.Report prints : 1
Label print . . . : No
Label print device: Slot3 RS232
Days of storage . : 1
Scale identifier : screw warehouse
```

7.1.5. Set-up data

The set-up data print-out is described in the Installation Manual.

7.1.6. Customer data

How to print out customer data is described in section "Printing customer entries".

Print-out example:

```

Customer table
Scale identifier: screw warehouse
Date: 08.06.2003  11:19:00

Customer name      Address            Description
-----
* For cash *      No Address
1                  No Address
* For cash *      No Address

* Single *        No Address
2                  No Address
                  No Address

Meier Egon        Hauptstr. 23
3                  Stuttgart
                  Deutschland

Müller Walter     Waldweg 100
4                  Hamburg
                  Deutschland

```

7.1.7. Material data

How to print out material data is described in section "Printing material entries".

Print-out example:

```

Material table
Scale identifier: screw warehouse
Date: 08.06.2003  15:00:00

Material name      Ident              Sum
-----
* tmp Artikel *   1                  250 kg
1                  * tmp material *  250 kg
Screws M10*100    Screws M10*100    880 kg
1                  Screws M10*100    880 kg
Screws M12*120    Screws M12*120    150 kg
1                  Screws M12*120    150 kg
Screws M08*80     Screws M08*80     300 kg
1                  Screws M08*80     300 kg

```

7.1.8. Fixtare data

How to print out fixtare data is described in section "Printing out fixtare entries".

Print-out example:

```
Fixtare table
Scale identifier: screw warehouse
Date: 08.06.2003 12:33:00

Fixtare name      Fixtare number      Description      Tare value
-----
Container 02      1                   5 kg
Container 03      21                  4 kg
Premix Container  31                  8 kg
```

7.1.9. Alibi memory data

How to print out alibi data is described in section "Printing alibi data".

7.2. Nice Label Express

Reports can be printed directly or via NLE. The name of the NLE file is e.g. "PRINT.lbl". Unless a layout generated by NLE exists, printing is done directly with a fixed format.

To create a self-defined report, program Nice Label Express is required. With these reports, all variable contents (e.g. weights) and fixed texts (e.g. "Sequence number") are transmitted to the report via variables.

As fixed texts are also transmitted into the print report, the user can create his language adaptations in many cases using "Translatelt" also for NLE. In this case, "Nice Label Express" is not necessary.

For "Nice Label Express", a fixed variable structure from the application is made available.

Variable for NLE	Type	Description	Weight print-out	Label print-out	Report header	Report line	Report footer
datetime	STR20	Date and time	×	×	×	×	×
onlytime	STR20	only time	×	×			
seqnum	UDINT	Sequence number		×	×	×	×
gross	WEIGHT	Gross weight	×				
net	WEIGHT	Net weight	×				
tare	WEIGHT	Tare weight	×				
setpoint	WEIGHT	Future extension					
actual	WEIGHT	Actual weight (report line, sum)		×		×	×
piece	DINT	Number of pieces		×		×	×
wp_id	STR2	Weighing point "A", "B"	×	×		×	×
cancel	STR2	Identification for canceling				×	
line	UINT	Line number				×	
scale_id	STR20	Instrument identification name	×	×	×	×	×
cusnam	STR20	Customer name			×		×
cuscode	STR20	Customer number					
cusprt	STR20	Additional customer name for print-out					
matnam	STR20	Material name		×		×	
matcode	STR20	Material number		×		×	
matprt	STR20	Additional material name for print-out		×		×	

Texts for NLE	Type	Description	Weight print-out	Label print-out	Report header	Report line	Report footer
txtscal	STR20	Scale name, identification of this weighing point	×	×	×		×
txthead	STR20	Header text of a print-out		×	×		
txtdate	STR20	Date	×	×	×		×
txttime	STR20	Time	×	×			
txtseqn	STR20	Sequence number		×	×		×
txtcust	STR20	Customer			×		×
txttotw	STR20	Total weight		×			×
txttotp	STR20	Total number of pieces		×			×
txtmatn	STR20	Material name		×			
txtmatc	STR20	Material number		×			
txtgross	STR20	Gross weight	×				
txtnet	STR20	Net weight	×				
txttare	STR20	Tare	×				
txttable	STR80	Table header			×		

8. SPM Layout

Direct access to the SPM is possible via DDE, OPC, EWCOP, DUST or ModBus. The areas

- MB 0 ... MB 127
- MB 704 ... MB 1023

are allocated to firmware functions.

Weights are in DINT format in 'kg' or 'lb', dependent of scale configuration.

Address	MSBit in MX	Format	Name	Description
MX 139	139	BOOL		Set WP A to zero
MX 140	140	BOOL		Set tare WP A
MX 141	141	BOOL		Reset tare WP A
MX 155	155	BOOL		Set WP B to zero
MX 156	156	BOOL		Set tare WP B
MX 157	157	BOOL		Reset tare WP B
MX 430	430	BOOL	protect2	Key switch for disabling 'Setup', copy of the relevant digital input
MD 16	512	DWORD		WP A weight value
MX 568	568	BOOL		WP A standstill
MX 569	569	BOOL		WP A zero within 1/4 d
MX 570	570	BOOL		WP A within zero set range
MX 574	574	BOOL		WP A tared
MX 575	575	BOOL		WP A polarity sign
MD 18	576	DWORD		WP B weight value
MX 632	632	BOOL		WP B standstill
MX 633	633	BOOL		WP B zero within 1/4 d
MX 634	634	BOOL		WP B within zero set range
MX 638	638	BOOL		WP B tared
MX 639	639	BOOL		WP B polarity sign
MD 32	1024	UDINT	Seqnum	Report: sequence number (editable)
MD 33	1056	DINT	piece	Report and alibi: number of pieces
MB 143	1144	STR20	mat_nam	Material name
MB 143	1144	USINT		Length
MD 36	1152	DINT		characters 1 ... 4
MD 37	1184	DINT		characters 5 ... 8
MD 38	1216	DINT		characters 9 ... 12
MD 39	1248	DINT		characters 13 ... 16
MD 40	1280	DINT		characters 17 ... 20
MB 167	1336	STR20	mat_cod	Material number
MB 167	1336	USINT		Length
MD 42	1344	DINT		characters 1 ... 4
MD 43	1376	DINT		characters 5 ... 8
MD 44	1408	DINT		characters 9 ... 12
MD 45	1440	DINT		characters 13 ... 16
MD 46	1472	DINT		characters 17 ... 20
MB 191	1528	STR20	cus_nam	Customer name
MB 191	1528	USINT		Length
MD 48	1536	DINT		characters 1 ... 4
MD 49	1568	DINT		characters 5 ... 8
MD 50	1600	DINT		characters 9 ... 12

MD 51	1632	DINT		characters 13 ... 16
MD 52	1664	DINT		characters 17 ... 20
MB 215	1720	STR20	cus_cod	Customer number
MB 215	1720	USINT		Length
MD 54	1728	DINT		characters 1 ... 4
MD 55	1760	DINT		characters 5 ... 8
MD 56	1792	DINT		characters 9 ... 12
MD 57	1824	DINT		characters 13 ... 16
MD 58	1856	DINT		characters 17 ... 20
MD 68	2176	DINT	seq_alibi	Alibi: sequence number (cannot be edited)
MD 69	2208	DINT	wgt_alibi	Report and alibi: weight in WP-A format
MD 70	2240	DINT	date_alibi	Report and alibi: date, format: BCD - YYYYMMDD
MD 71	2272	DINT	time_alibi	Report and alibi: time, format: BCD - HHMMSSCC
MB 288	2304	USINT	wp_alibi	Report and alibi: weighing point 'A' or 'B' -> 1 or 2
MB 289	2312	USINT	typ_alibi	Print-out: weight type 0 gross weight 1 net weight

9. Fieldbus

PR5610 can become a fieldbus slave for Profibus, Interbus-S or DeviceNet by inserting a fieldbus interface card (PR1721) into Slot 4 for communication of one or several PR1756 with a communication master (e.g. Siemens S7 Profibus). Data processing at the fieldbus is at intervals of 20 ms. Weights are always DINT in 'kg' or 'lb', dependent of scale configuration.

9.1. Configuration

Configuration parameters in menu section [Setup]-[Fieldbus]:

[Protocol] The protocol, e.g. Profibus-DP, can be selected.
 [Scale Interface] For using the fieldbus interface as described here, parameter [Scale Interface] must be set to [enabled].

9.2. Application protocol

The interface works with a 2 * 8-byte write window and a 2 * 8-byte read window. The windows are allocated to the weighing points. The fieldbus exchanges data cyclically with each slave. This means: in every cycle, 8 bytes are written and 8 bytes are read, also if no data contents are changed. Via window 2 (allocated to WP B), the firmware functions and WP-specific functions are available. The functions related to the instrument are handled via window 1 (allocated to WP A).

The application protocol described here is independent of the selected fieldbus and explained as seen from the fieldbus master.

9.2.1. Write window

This window is used to transmit data from the master to the slave (LOG controller).

The first four bytes are used for writing a data value. The type of these data is described in byte 5.

The bits in byte 6 and 7 are independent of the write value data type in direct access.

Byte 0	write data: MSB
Byte 1	"
Byte 2	"
Byte 3	write data: LSB
Byte 4	read data type request
Byte 5	write data type
Byte 6	direct control bits
Byte 7	direct control bits

Procedure for reading a parameter:

1. Write the data / parameter type into byte 4 of the write window (e.g. net weight) as *read data type request*.
2. Wait, until in 4th byte of the read window, the echo of *read data type request* is equal to the *read data type request* of the 4th byte in the write window.
3. Now, the value is available in byte 0 to 3.

9.2.2. Read window

In this window, data are transmitted from the slave (LOG Controller) to the master.
 The first four bytes are used for reading a data value. The type of these data is written in byte 4. The data type corresponds to the requirement in the write data window.
 Bytes 6 and 7 contain status bits independent of the read value data type.
 For status bit reading and writing of direct control bits, a procedure is not required. The general system bits and the status bits are always present and need not be requested in particular. The direct control bits are also available continuously.

Procedure for parameter writing:

1. wait, until write_handshake = 0 in the read window (PR1713 is ready to receive new data)
2. write value in byte 0 to 3
3. write data type in byte 5 (write data type request)
4. wait, until write_handshake = 1 (LOG Controller confirms data reception) write 0 in byte 5 (write data type request) -> write_handshake is set to 0.

9.3. Data formats

write the DINT value *editint* 4660 (1234 hex)
 write window: byte number value 132 (84 hex)

0	1	2	3	4	5	6	7
00	00	12	34		84		

The REAL format to IEEE 754 ; IEC 60559

REAL : 32 Bit = 1 Bit sign, 8 Bit Exponent bias 127, 23 Bit Mantissa

Example:

200 = 43 48 00 00

```

    4 3 4 8 0 0 0 0
0100 0011 0100 1000 0000 0000 0000 0000
s|      |              |
eee eeee e          |
      1.mmm mmmm mmmm mmmm mmmm mmmm
    
```

Sign = 0
 Exponent = 10000110 = 134 - bias 127 = 7

MANTISSA = 1.100 1000 0000 0000 0000 0000 = 1,5625 * 2⁷ = 200

STRING is always 20 characters long and transmitted in portions of 5 * 4 characters.

See also chapter 'SPM-Layout' for additional description.

9.4. Write data

All write values are addressed by write data type request. The data typical for a WP are accessible via various write windows. Access to the WP-independent data is via the write window of WP A or WP B.

Value in byte 5 Write data type request		Write data in byte 0...3 (parameters) for WP A and WP-independent function
Dec	Name	
31		Fixtare [DINT] WP-A
112		Set WP-A to zero no write data required
113		Set tare WP-A no write data required
114		Reset tare WP-A no write data required
115		Activate test WP-A no write data required
116		Reset test WP-A no write data required

Value in byte 5 Write data type request		Write data in bytes 0...3 (parameters) for WP-A and WP-independent functions
Dec	Name	
112		Set WP-A to zero no write data required
113		Set tare WP-A no write data required
114		Reset tare WP-A no write data required
115		Activate test WP-A no write data required
116		Reset test WP-A no write data required

Direct control bits (write bits for the fieldbus master, own windows for WP A and WP B):

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 6								
Byte 7	Use as fixtare	Set fixtare	Reset powerfail	Test off	Test on	Reset tare	Set tare	Set to zero

Note: The addresses with gray background and control bits are handled by the firmware part of the interface. All control bits react only on a change 0 -> 1. To be able to detect a change, the relevant status must be present during min 40 ms.

Use as fixtare	set the fixtare value with the actual weight
Set fixtare	tare the scale with the fixtare value
Reset power fail	reset power fail flag
Test off	de-activate analog test
Test on	activate the analog test
Reset tare	scale tare is reset
Set tare	the scale tare is set
Set to zero	set the scale to zero, when the weight is within the zero set range.

9.5. Read data

All read values are addressed by read data type request. The WP-typical data are accessible via various read windows. The data independent of the WP are accessible via the read window of WP-A or WP-B.

Value in byte 4 Read data type request		Read data in byte 0...3 (parameters) for WP-A and WP-independent functions
Dec	Name	
4		Exponent/unit/stepwidth WP-A
8		Gross weight [DINT] WP-A
9		Net weight [DINT] WP-A
10		Tare [DINT] WP-A
12		Gross x100 WP-A
14		Full scale [DINT] WP-A
50		Report: sequence number (can be edited) [DINT]
51		Report: number of pieces [DINT]
52		Report and alibi: sequence number (cannot be edited) [DINT]
53		Report and alibi: date_alibi, date [DINT]
54		Report and alibi: time_alibi, time [DINT]
55		Report and alibi: wgt_alibi, weight [DINT]
56		Report and alibi: typ_alibi * 256 + wp_alibi [DINT]
60		Material name; [characters 1...4]
61		Material name; [characters 5...8]
62		Material name; [characters 9...12]
63		Material name; [characters 13...16]
64		Material name; [characters 17...20]
65		Material number; [characters 1...4]
66		Material number; [characters 5...8]
67		Material number; [characters 9...12]
68		Material number; [characters 13...16]
69		Material number; [characters 17...20]
70		Customer name; [characters 1...4]
71		Customer name; [characters 5...8]
72		Customer name; [characters 9...12]
73		Customer name; [characters 13...16]
74		Customer name; [characters 17...20]
75		Customer number; [characters 1...4]
76		Customer number; [characters 5...8]
77		Customer number; [characters 9...12]
78		Customer number; [characters 13...16]
79		Customer number; [characters 17...20]

Value in byte 4 Read data type request		Read data in byte 0...3 (parameters) for WP-
Dec	Name	
4		Exponent/unit/stepwidth WP-B
8		Gross weight [DINT] WP-B
9		Net weight [DINT] WP-B
10		Tare [DINT] WP-B
12		Gross weight x100 WP-B
14		Full scale [DINT] WP-B

Direct control bits (for reading by the fieldbus master, own window for WP-A and WP-B)

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 5	write hand-shake	power fail						
Byte 6						tare active	calibr. active	test active
Byte 7	beyond calibration	standstill	within the zero set range	zero within 1/4d	below zero	above overload	above FSD	error number in gross weight

Note: The addresses with gray background and control bits are handled by the firm-ware part of the interface.

write handshake	0 = PR1713 is ready to receive new data
power fail	scale has a voltage sag (this signal must be reset to delete it)
tare active	scale is tared
calibration active	scale is calibrated
test active	scale is in test mode
beyond calibration	scale is between FSD and overload; when the W&M mode is active, then also with weight < 0 (Dim bit)
standstill	scale is in standstill
within zero set range	scale is within zero set range
zero within 1/4d	scale is zero (+/-weight < 1/4d)
below zero	scale is below zero
above overload	scale is loaded beyond the overload range
above FSD	scale is above full scale value (maximum scale range e.g. 5000 kg), but still no overload.
error number in gross	scale is in error condition e.g. 'Err 3'. An error number instead of a weight is on the display and in the gross weight.

10. Analog test

During calibration of the instrument a test value is calculated and stored in EARAM. This value is scaled to full scale (e.g. 5000). It can be used to detect an error in the analog part.

Selection of the analog test from the initial condition:

```
LOG Controller
Start $Setup $Alibi
```

Select second menu level and press [Test]:

```
LOG Controller
Test $      $
```

When activating the analog test, the measuring signal is disconnected from the load cell. Dependent of calibration, the value is displayed either as actual test value or as difference between the initially stored test value and the actual test value (e.g. 0000).

```
Analog test active
# Stop #
```

Pressing [Stop] or  finishes the analog test.

If the active weighing cannot be switched to the analog test mode, the following message is displayed for 3 sec.

```
Analog test error
```

11. Database

11.1. Customer table

```

CUSTOMER : STRUCT
  NAME : STR18; (* customer name *)
  CODE : UDINT; (* customer number *)
  NAM_PRT : STR20; (* additional name for printout *)
  ADR1 : STR20; (* adressfield 1 *)
  ADR2 : STR20; (* adressfield 2 *)
  ADR3 : STR20; (* adressfield 3 *)
  PR_TXT1 : STR20; (* additional field 1 *)
  PR_TXT2 : STR20; (* additional field 2 *)
END_STRUCT;

```

11.2. Material table

```

MATER : STRUCT
  NAME : STR18; (* materialname *)
  CODE : UDINT; (* materialnumber *)
  NAM_PRT : STR20; (* additional name for printout *)
  SUM1 : WEIGHT; (* sum 1 *)
  SUM2 : WEIGHT; (* sum 2 *)
END_STRUCT;

```

11.3. Fixtare table

```

FIXTARE : STRUCT
  NAME : STR18; (* fixtare name *)
  CODE : UDINT; (* fixtare number *)
  PR_TXT1 : STR20; (* Description *)
  VALUE : WEIGHT; (* Value *)
END_STRUCT;

```

11.4. Report header

```

REP_H : STRUCT
  CUS_NAME : STR18; (* customer name *)
  SEQNUM : UDINT; (* sequence number for the report *)
  DATIM : DATE_AND_TIME; (* date and time *)
  SUM_PIECE : DINT; (* sum of pieces *)
  SUM_VALUE : WEIGHT; (* sum of weights *)
END_STRUCT;

```

11.5. Report lines

```

REP_L : STRUCT
  SEQNUM : UDINT; (* sequence number for the report *)
  LINE : UINT; (* line number *)
  CANCEL : INT; (* cancel status *)
  NAME : STR18; (* material name *)
  CODE : UDINT; (* material number *)
  NAM_PRT : STR18; (* additional name for printout *)
  PIECE : DINT; (* piece *)
  VALUE : WEIGHT; (* weight value *)
  DATIM : DATE_AND_TIME; (* time of this weighing, same as alibi
memory *)
END_STRUCT;

```

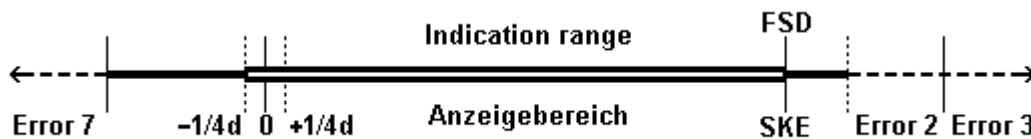
12. Error messages

12.1. Error messages on the weight display

The error statuses of the analog part are output on the weight display. Display is coded as 'Error X'.



Display	Description
Error 1	Internal calculation overflow (faulty calibration)
Error 2	Test voltage above full scale plus overflow
Error 3	Test voltage above maximum value of 36mV. However, the message can also mean error in the analog part, load cell error or load cell cable break.
Error 7	Test voltage negative or faulty load cell connection
Error 8	ADC error, e.g. hardware defective or overloaded



12.2. Error messages on the text display

LOG Controller generates the following error messages.

Display	Description
DBase error	Opening a table or writing into a table of the database was not possible. Table is reserved to a different program, or does not exist.
DBase is empty	No data were found in the table.
Ident already exists	Input of new data into the table under an already existing name is not possible. All table entries must have different names.
Analog test failed	The analog test cannot be activated. The weighing point is not free, or in error status.

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