

# Short-Form Instructions



## Please note:

The present short-form instructions are used for description of the main functions and are just an abridgement of the complete operating manual (73018816).

Attention should be paid to the operational manual.

# DL210

## Short-Form of the operating manual V1.00

Short-Form Instructions:73018818

SW-Version: V1.00 and above

Edition: 18.09.2006 (a)

Print Run:

# 1 Display

Basic layout of the display:

Archive			Device status				Menu							
m	a	x	↑	A	W	B	I	n	p	u	t	1	→	Submenu
V	1	A		1	2	3	4	5	6	7	.	8	m	3

Both lines in the display are subdivided into fields which are described below.

## 1.1 Line 1 = Labels

The first line is subdivided into the following five fields:

### 1. Type of computation (the first three characters without labels on the front panel)

The type of computation identifies so-called "initial values" (also termed "capture values"). These are values which have been formed over a time period (e.g. the adjustable measurement period or one month). Labels:

☞	max	Maximum	–	highest value within the time range
☞	min	Minimum	–	lowest value within the time range
☞	Δ Change	–	volume within the time range	
☞	∅ Mean	–	mean within the time range	

### 2. Archive

If an arrow points upwards to the label "Archive", then the displayed value is an archived value. This was frozen at a defined point in time and cannot be changed.

### 3. Device status

Here a maximum of three of the most important items of status information are continually shown.

A flashing character signifies that the relevant state is still present and the relevant message is present in the momentary status.

A non-flashing character signifies that the relevant state is past, but the message in the status register has not yet been cleared.

Meaning of the letters:

- **A "Alert"**  
At least one status message has occurred which is valid as an alert. Alert messages are copied into the status register and are retained here, even after rectification of the cause of the error, until they are manually cleared.
- **W "Warning"**  
At least one status message has occurred which is valid as a warning. Warning messages are copied into the status register and are retained here, even after rectification of the cause of the error, until they are manually cleared.
- **B "Battery low"**  
The remaining battery service life is less than 3 months.
- **P "Programming mode"**  
The programming lock (calibration lock) is open.
- **L "PTB logbook"**  
The PTB logbook (calibration logbook) is full. Modification of the parameters which are taken into account in the PTB logbook are only possible with the programming lock (calibration lock) open, refer to 4.
- **o "On-line"**  
A data transfer via the optical or permanently wired interface is running. In each case the other interface cannot then be used.

#### 4. Menu

Here is displayed to which list according to Chapter 1 the currently displayed value belongs. In submenus (indicated by an arrow to the left, see below) its name is displayed which is identical to the abbreviated designation of the entry point.

#### 5. Submenu

- → (Arrow to the right)  
indicates that the displayed value is the entry point of a submenu. This can be called with the key [ENTER].
- ← (Arrow to the left)  
indicates that you are located in a submenu which can be quit with the key [ESC]. On pressing [ESC] you are returned to the entry point of the submenu.

### 1.2 Line 2 = Value with name and unit

In the second line the name, value and (when available) the unit of the data are always shown. Uncalibrated values are identified for the user with an asterisk ("\*") after the abbreviated designation.

For use outside of applications subject to calibration, the unit can also be obtained without the identification of uncalibrated values.

Example of uncalibrated values:

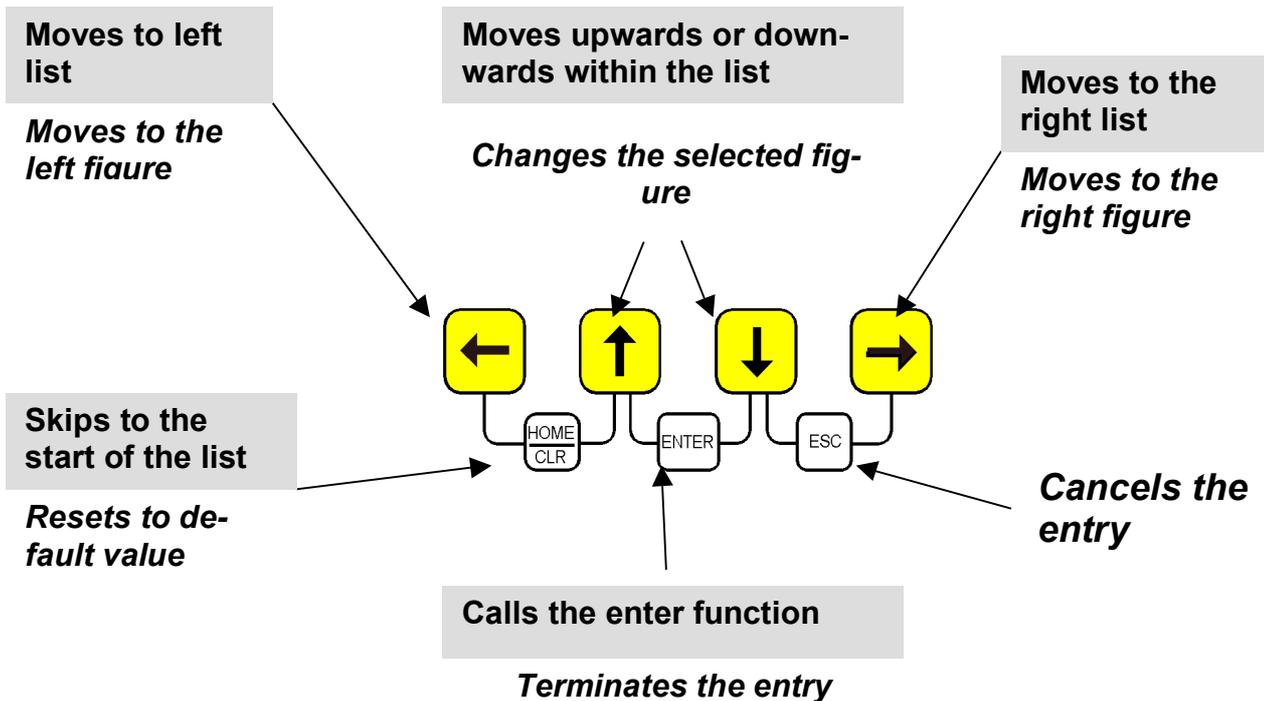
V	1	.	P	*	1	2	3	4	5	6	7	.	8	m	3
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Example of calibrated values:

V	1				1	2	3	4	5	6	7	.	8	m	3
---	---	--	--	--	---	---	---	---	---	---	---	---	---	---	---

### 1.3 Meaning of the keypad

The meaning of the keypad depends on whether only values are being recalled (operation – highlighted in colour) or whether the DL210 is located in the input mode (shown in italics).



## 2 Formation of the list structure

### 2.1 Summary charts, List Structure (1)

Input I1 is encoder input		
Vo	Original counter reading (encoder)	
V1	Main counter I1	
V1.A	Adjustable counter I1	
Q1	Flow rate I1	
L.MI1	Limit for monitoring I1	
Md.I1	Mode for I1	
MdMI1	Mode for monitoring I1	
SC.I1	Source for monitoring I1	
CP.I1	cp value for I1	
SNM	Serial no. of meter on Input 1	
M.Dat	Meterdata	<b>U9</b>
DS.Ca	DS-100 number for V1	
DS.Cb	DS-100 number for V1.P	
CuNo	Customer number I1	
MP.I1	Measurement period I1	
MP.Re	Remain'g time in meas. period I1	
Δ V1MP	Incr. meas. period counter I1	
Δ V1ML	Last meas. period value I1	
max V1MP	Max. meas. per. counter Ex current month *	<b>U1</b>
max V1ML	Max. meas. per. counter Ex last month *	<b>U1</b>
DB.I1	Day boundary for I1	
Δ V1.Dy	Current day counter I1	
Δ V1D.L	Last day value I1	
max V1.Dy	Max. day counter I1 current month *	<b>U2</b>
max V1D.L	Max. day counter I1 last month*	<b>U2</b>
ArMo1	Month archive I1	<b>U3</b>
	Day value archive I1	<b>U4</b>
ArMP1	Meas. period archive I1	<b>U4</b>
FrMP1	Meas. period archive I1 frozen	

or

Submenu U9	
Type	Meter or sensor type
SN.E	Serial no. of the encoder
Manuf	Manufacturer
Med.	Medium
SW.Z	Software version
DateM	Date of manufacture
q.max	Maximum encoder flow
BdEnc	Encoder baud rate

#### Remarks:

- For meaning of abbreviated designations: see Chapter 3 and Appendix C of the manual
- Submenus are located under "U1" – "U9" (see Chapter: 2.4.5 of the manual)
- \* for flow recording and high flow display

## 2.2 Summary charts, List Structure (2)

Input I1 is counter input		
V1	Main counter I1	
V1.A	Adjustable counter I1	
Q1	Flow rate I1	
L.MI1	Limit for monitoring I1	
Md.I1	Mode for I1	
MdMI1	Mode for monitoring I1	
SC.I1	Source for monitoring I1	
CP.I1	cp value for I1	
SNM	Serial no. of Meter 1	
DS.Ca	DS-100 number for V1	
DS.Cb	DS-100 number for V1.P	
CuNo	Customer number I1	
MP.I1	Measurement period I1	
MP.Re	Remain'g time in meas. period I1	
Δ V1MP	Incr. meas. period counter I1	
Δ V1ML	Last meas. period value I1	
max V1MP	Max. meas. per. counter Ex current month *	<b>U1</b>
max V1ML	Max. meas. per. counter Ex last month *	<b>U1</b>
DB.I1	Day boundary for I1	
Δ V1.Dy	Current day counter I1	
Δ V1D.L	Last day value I1	
max V1.Dy	Max. day counter I1 current month *	<b>U2</b>
max V1D.L	Max. day counter I1 last month*	<b>U2</b>
ArMo1	Month archive I1	<b>U3</b>
ArDy1	Day value archive I1	<b>U4</b>
ArMP1	Meas. period archive I1	<b>U4</b>
FrMP1	Meas. period archive I1 frozen	

or

Input I1 is signalling input	
St.I1	Status of signal input I1
Md.I1	Mode for Input 1
MdMI1	Mode for monitoring I1
SC.I1	Source for monitoring I1
L.MI1	Limit for monitoring I1

↔  
to  
„E2“

↔  
to  
„Status“

### Remarks:

- For meaning of abbreviated designations: see Chapter 3 and Appendix C of the manual
- Submenus are located under "U1" – "U9" (see Chapter: 2.4.5 of the manual)
- \* for flow recording and high flow display

## 2.3 Summary charts, List Structure (3)

⇔  
to  
„E2“

Status		
SReg	Total status register	<b>U5</b>
Stat	Total momentary status	<b>U6</b>
Clr	Clear total status register	
Logb.	Log book	<b>U7</b>
AudTr	List of modifications	<b>U8</b>
PLogb	PTB logbook	<b>U8</b>
ClrPL	Clear PTB logbook	

⇔

System	
Time	Time and with "→" to date
MdTim	Summer / winter time on/off
MCyc	Measurement cycle
Disp	Permanent display on/off
Aut.V	Time to automatic display changeover
SNo	Serial number DL210
Vers	Software version
Chk	Checksum software

⇔  
to  
« Service»

⇔  
to  
„System“

Service	
Bat.R	Residual service life of battery
Bat.C	Battery capacity
VBatM	Modem battery voltage
St.SL	Status of supplier's lock
Cod.S	Supplier's combination
St.CL	Status of customer's lock
Cod.C	Customer's combination
St.PL	Status calibration lock
AdjTm	Correction factor, clock
Save	Backup of all data
Clr.A	Clear archives
Clr.V	Clear counters (incl. archives and readout notes)
Clr.X	Execute restart
Addr	User-specific display
diverse	Value of the user-specific display
Anzeigetest (alle Segment blinken)	

⇔

Schnittstelle	
GSM.N	Network operator
GSM.L	GSM reception level
StM	Modem status
P.Sta	Status PIN of SIM card (GSM)
Pin	Entry of SIM-PIN
Num.T	Number of ringing tones before accepting call
Bd.S1	Baud-rate identification, optical interface
CW1.S	Call window 1, start
CW1.E	Call window 1, end
CW2.S	Call window 2, start
CW2.E	Call window 2, end
CW3.S	Call window 3, start
CW3.E	Call window 3, end
CW4.S	Call window 4, start
CW4.E	Call window 4, end
CWTst	"Test" call window
Resp1	Response to Message 1
Resp2	Response to Message 2
Send	Command: Send message now

⇔  
to  
„User“

### Remarks:

- For meaning of abbreviated designations: see Chapter 3 and Appendix C of the manual
- Submenus are located under "U1" – "U9" (see Chapter: 2.4.5 of the manual)

## 2.4 Summary charts, List Structure (4)

Menu=1: <b>User (default values)</b>		Menu=1:
↔	V1.P	Adjustable counter I1
to	V1	Main counter I1
„Interface“	max V1ML	Max. meas. per. counter I1 last month *
	Date	Date of „max V1ML“
	Time	Time of „max V1ML“
	max V1D.L	Max. day counter I1 last month*
	Datum	Date of „max V1TL“
	Zeit	Time of „max V1TL“
	Sreg	Total status register
	StM	Modem status
	Bat.R	Residual service life of battery
	Time	Time and with "→" to date
	Menu	Selection display menu

### Remarks:

- Selection display menu:
  - 1 - Complete display structure
  - 2 - Only "User" column
- With exception of the last value, this list is application-specific, refer to chapter 3.7 of the manual
- For meaning of abbreviated designations: see Chapter 3 and Appendix C of the manual
- \* for flow recording and high flow display

### 3 Summary of the message numbers

Momentary status		Stat	St.Sy	St.1	St.2	St.3	St.4
Status register		S.Reg	SR.Sy	SR.1	SR.2	SR.3	SR.4
No.	Type <sup>1</sup>	Group message	System message	Status 1	Status 2	Status 3	Status 4
01	A	Any message 01	Restart	Enc.Plaus.	-	-	-
02	A	-	-	Enc.Error	-	-	-
03	W	Any message 03	Data restore	-	-	-	-
04	W	Any message 04	-	-	-	-	-
05	W	Any message 05	-	-	-	-	-
06	W	Any message 06	-	I1 Warn Lim.	I2 Warn Lim.	-	-
07	W	Any message 07	-	-	-	-	-
08	W	Any message 08	Sett. error	I1 Warn.sig.	I2 Warn.sig.	-	-
09	R	Any message 09	Batt. low	-	-	-	Batt2 low
10	R	Any message 10	-	-	-	-	-
11	R	Any message 11	Clock n. set	-	-	-	-
12	R	Any message 12	-	Lim. I1	Lim. I2	-	-
13	R	Any message 13	online	RepSig.I1	Rep.Sig.I2	-	-
14	R	Any message 14	-	Cal.lock o.	Man.lock o.	Suppl. lock	Cust. lock
15	I	Any message 15	Batt. operat	-	-	-	-
16	I	Any message 16	Daylight saving	Call Win.1	Call Win.2	Call Win.3	Call Win.4

<sup>1</sup> A = Alarm; W = Warning; R = Report; I = Information

### 3.1 Types of message

A differentiation is made between four types of message:

- Alarm** is used in the DL210 for "Restart" and in the encoder mode.
- Warning** affects all signals which are so important that the user must be informed about the signal and must therefore acknowledge it.
- Report** is less "important" than "Warning" and does not therefore need acknowledging.
- Information** is only needed for internal functions for the labelling of operating states (usually time modes).

### 3.2 Message register

#### 3.2.1 Momentary status „Stat“

The "*momentary status*" contains only the current messages. The messages: Alarm, Warning and Report are entered in this register (refer to chapter 3.3). If the cause of a message is no longer active, it is automatically deleted from this register. This means that a quick overview of the current operating states is possible.

#### 3.2.2 Statusregister „SReg“

The "*status register*" contains all active and passed messages (alarms and warnings) which have not yet been acknowledged. There is then the possibility of being able to check messages that have already passed (refer to chapter 3.3). If the cause of a message is no longer active, it can be deleted from this register (refer to chapter 3.4).



### 3.4 Clearing an alarm or a warning

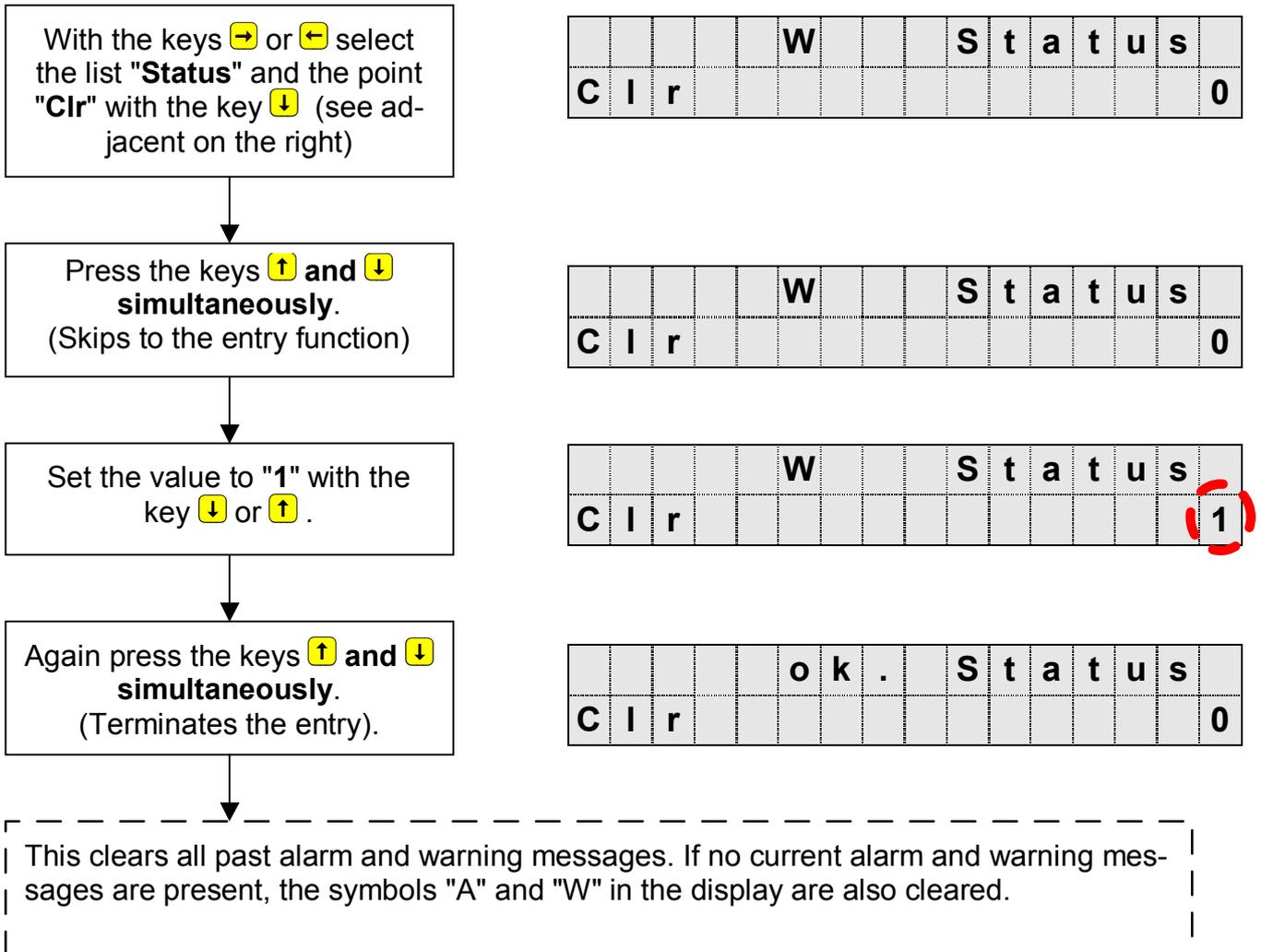
The clearing of all past (!) messages in the status register S.Reg occurs in the list "Status" under the display: "Clr". Clearing messages is only possible with an open calibration, manufacturer's or supplier's lock.

After calling by ENTER, an "0" is positioned right-justified in the display. The function is triggered, i.e. all status registers are cleared, after switching to "1" with ↑ or ↓ and terminating with ENTER.

If messages are currently present, then they are recorded again directly after a clear. The deleted messages can still be called in the logbook.

Example:

Once the message is recognised (see previous chapter), it should also be cleared.



## 4 PTB logbook

The PTB logbook contains the values which have been changed with the calibration lock closed and the supplier's lock open. If the PTB logbook is full this is indicated by a blinking "L" in the display and the parameters subject to the access right "PL" can only be changed with the calibration lock open.

- ☞ *The blinking „L“ is not an errorcode, but a hint to recognize that it is not possible from now on to change the values listed in the following table with the calibration lock closed.*
- ☞ *Has the calibration lock been opened with full PTB logbook it can only be closed after clearing the PTB logbook.*
- ☞ *Before clearing the PTB logbook it should be read out, for example with the WinPADS program.*
- ☞ *The PTB logbook does not contain the values which have been changed with the calibration lock open. These changes are dokumented in the „Audit-Trail“ archiv.*

### 4.1 Values

The following values can be changed with the supplier's lock open while the calibration lock is closed:

Name	Address	Designation / value	Cal.	Access	Default	DC
V1	1:200	Main counter input 1	Ja	PL	0	3
Md.I1	1:207	Mode I1	Ja	PL	1	4
cp.I1	1:253	Cp value I1	Ja	PL	1	3
Mp.I1	5:150	Measurement period I1	Ja	PL	60	3
DB.I1	5:141	Day boundary I1	Ja	PL	06:00	3
-	-	Calibration lock	Ja	-	-	-

In the PTB logbook the value before (old = "a") and after the change (new = "n"), as well as the states of the locks and appropriate information about the date and time of the change are retained.

### 4.2 Clearing the PTB logbook

If the PTB logbook is full, changing the values described above with the calibration lock closed is not possible until clearing it. Clearing the PTB logbook can only occur with the calibration lock open! Before clearing the PTB logbook it should be read out, for example with the Win-PADS program.

**"The symbol "L" in the DL210 is blinking". What should be done ?**

Open the calibration lock first!

With the keys  or  select the list "Status" and the point "ClrPL" with the key  (see adjacent on the right)

				P	L			S	t	a	t	u	s
C	l	r	P	L									0

Press the keys  and  simultaneously. (Skips to the entry function)

				P	L			S	t	a	t	u	s
C	l	r	P	L									0

Set the value to "1" with the key  or .

				P	L			S	t	a	t	u	s
C	l	r	P	L									1

Again press the keys  and  simultaneously. (Terminates the entry).

				P				S	t	a	t	u	s
C	l	r	P	L						B	u	s	y

This clears the "PTB logbook", the symbol "L" in the display is also cleared. The first new entry is the closing of the calibration lock.

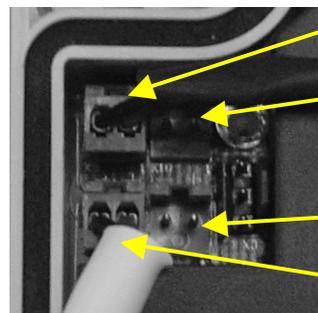


## 5 Battery replacement

☞ So that no data is lost, a manual backup must be carried out under "Service" – "Save" (Save, address: 1:131). *The date, time and all counter readings are then saved in a non-volatile memory.*

- (1) Open up the front cover with the electronics and swivel downwards. The battery is now accessible on the CPU board.
- (2) Check whether the size and identification number of the new battery match those on calibration cover plate for the fitted device battery. Normally, the device battery has a black connecting cable.

- (3) If one or two modem batteries are present (here a white connecting cable is used) and if they have to be replaced, then this must be carried out first.



- X9 (Device battery)
- X10 (Device battery)
- X13 (Modem battery)
- X12 (Modem battery)

- (3.1) Pull off the existing modem battery or batteries from the terminals X12 and X13 and plug on the new battery or batteries to these terminals. The connectors are fitted with polarity reversal protection and a mech. interlock.
- (3.2) Connect the new device battery to the free connector X9 or X10. The connectors are fitted with polarity reversal protection and a mech. interlock.
- (4) Now the old device battery can be pulled off terminal X9 (X10).
- (5) Reclose the device (make sure that the cable is not pinched).
- (6) Check in the display that no message "3" is entered under "Status"!
- (7) The capacity of the new device battery minus about 20% must be re-entered under "Service - "Battery capacity" (BAT.C, address: 1:1F3)

**Battery identity number: 73015774 --> Entry in the DL210: 13,0 Ah**

Remaining battery service life (display: „Bat.R“): **150 Monate**

**Battery identity number: 73016294 --> Entry in the DL210: 1,6 Ah**

Remaining battery service life (display: „Bat.R“): **18 Monate**

The entry is also essential even with the same capacity value, so that the computation of the remaining battery service life is re-initiated.

- (8) The voltage figure **3.6V** should be displayed under "Service" – "Modem battery voltage" (VBatM, address: 4:410).
- (9) This successfully concludes the battery replacement.

## 6 Terminal layout

