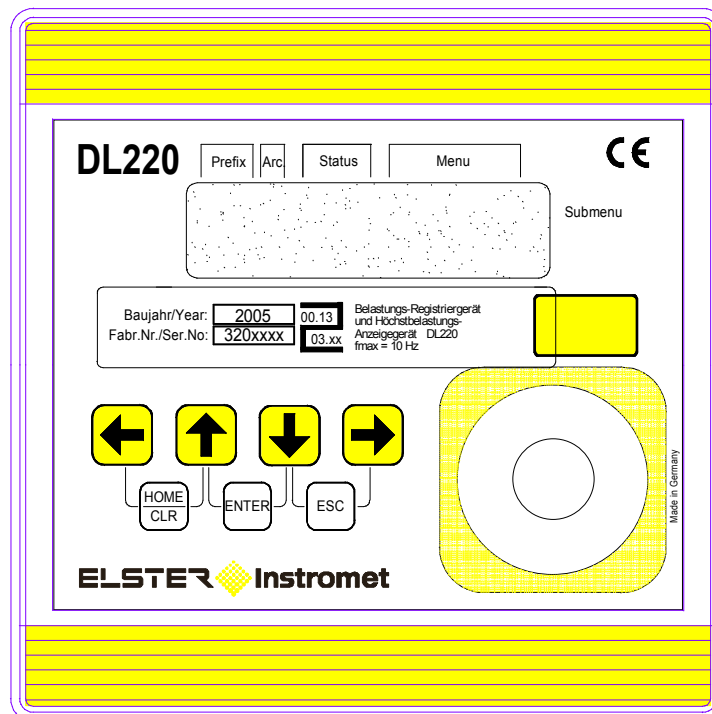# Short-Form Instructions



**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 (73017706).**

**Attention should be paid to the operational manual.**

# DL220

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

| | |
|---|---|
| Short-Form Instructions:73018333 | SW-Version:    V1.00 and above |
| Edition:            15.09.2005 (b) | 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 | → |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| V | 1 | A | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | . | 8 | | m | 3 |

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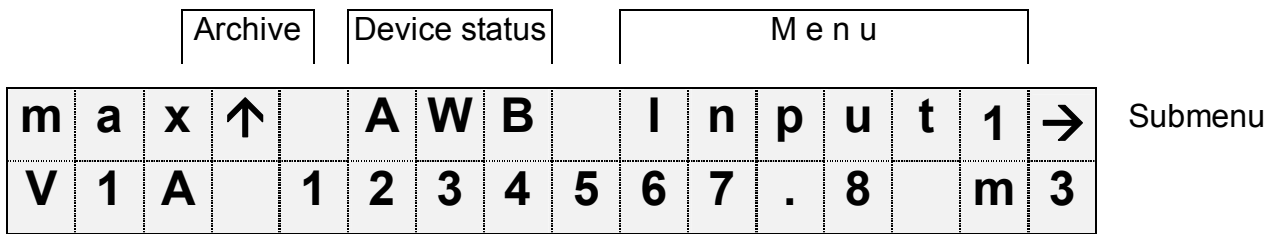
Both lines in the display are subdivided into fields which are described below.

## 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

☞    ∆  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 <u>flashing character</u> signifies that the relevant state is still present and the relevant message is present in the momentary status.

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

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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.

- **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.
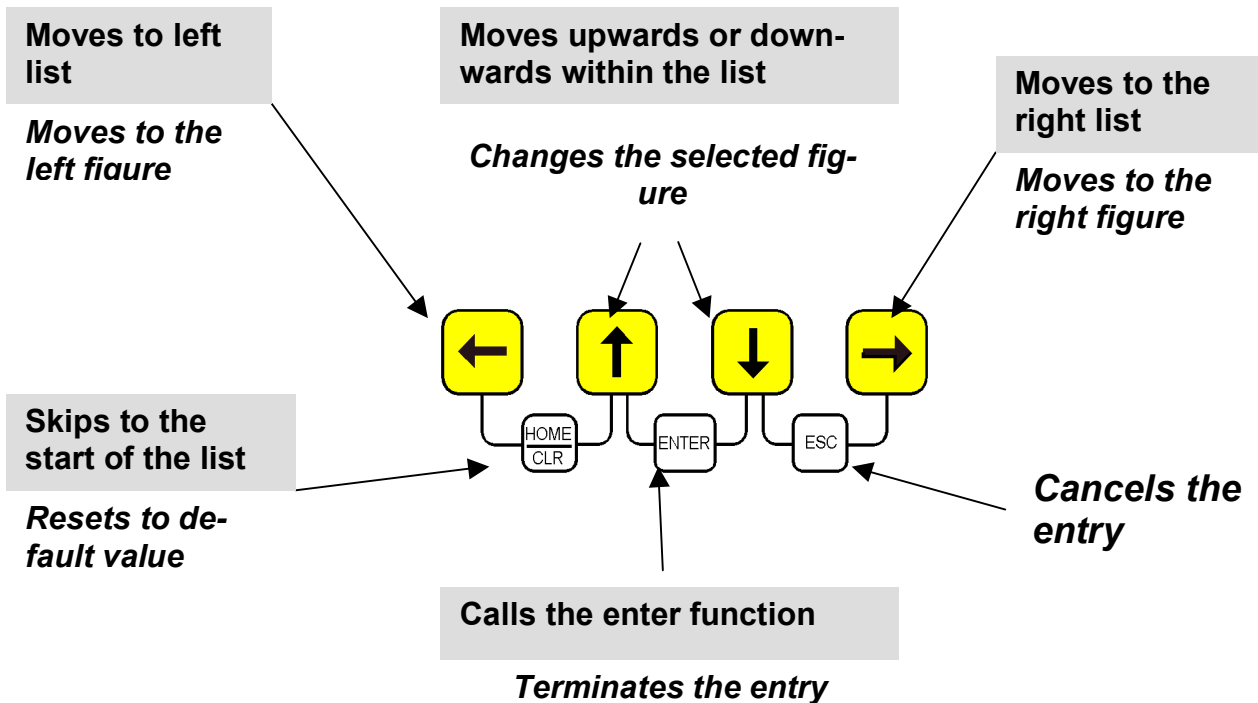
Example of uncalibrated values:

| 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 DL220 is located in the input mode (shown in italics).

**Moves to left list**

*Moves to the left figure*

**Moves upwards or downwards within the list**

*Changes the selected figure*

**Moves to the right list**

*Moves to the right figure*

**Skips to the start of the list**

*Resets to default value*

**Cancels the entry**

**Calls the enter function**

*Terminates the entry*

# 2   Formation of the list structure

## 2.1   Summary charts, List Structure (1)

| Input x is counter input | | |
|---|---|---|
| Vx | Main counter Ex | |
| Vx.A | Adjustable counter Ex | |
| Qx | Flow rate Ex | |
| L.Mix | Limit for monitoring Ex | |
| Md.Ix | Mode Ex | |
| MdMIx | Mode for monitoring Ex | |
| SC.Ix | Source for monitoring Ex | |
| cp.Ix | cp value Ex | |
| SNM | Serial number, counter x | |
| DS.Ca | DS-100 – number for Vx | |
| DS.Cb | DS-100 – number for Vx.A | |
| CuNo | Customer number Ex | |
| Mp.Ix | Measurement period Ex | |
| MP.Re | Remain'g time in meas. period Ex | |
| $\Delta$ Vx.Mp | Incr. meas. period counter Ex | |
| $\Delta$ VxM.L | Last meas. period value Ex | |
| max Vx.Mp | Max. meas. per. counter Ex current month * | U1 |
| max VxM.L | Max.  meas. per. counter Ex last month * | U1 |
| DB.Ix | Day boundary for Ex | |
| $\Delta$ Vx.Dy | Current day counter Ex | |
| $\Delta$ VxD.L | Last day value Ex | |
| max Vx.Dy | Max. day counter Ex current month * | U2 |
| max VxD.L | Max. day counter Ex last month* | U2 |
| Arx.1 | Month archive Ex | U3 |
| Arx.2 | Meas. period archive Ex | U4 |
| Frx.2 | Meas. period archive Ex frozen | |

$\Leftrightarrow$

I1 to

"User"

**or**

| Input x is signalling input | |
|---|---|
| ST.Ix | Status signal input Ex |
| Md.Ix | Mode input x |
| MdMIx | Mode for monitoring Ex |

$\Leftrightarrow$

I2 to

"Status"

Notes:

- "x" can assume the value 1 or 2; e.g.: V1 or V2

- For significance of the short designations: see Chap. 3 and Appendix C.

- Submenus are arranged under "U1" – "U4" (see Chapter: 2.4.3)

- * for flow recording and high flow display

**Mp.I1,MP.I2**          **Measurement period, Input 1**
Setting of the measurement period for saving the data records (counter readings) in the archive of Input 1. The output is given right-justified in minutesSummary charts, List Structure (2)

## 2.2  Summary charts, List Structure (2)

⇔

to

"Inp.2"

| Status | | |
|---|---|---|
| S.Reg | Total status register | **U5** |
| Stat | Total momentary status | **U6** |
| Clr | Clear total status register | |
| Logb. | Log book | **U7** |
| AudTr | List of modifications | **U8** |

⇔

| 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 |
| S.No | Serial number DL220 |
| 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.V | Clear counters (incl. archives) |
| Clr.X | Execute restart |
| Addr | User-specific display |
| diverse | Value of the user-specific display |
| Display test (all segments flash) | |

⇔

| Output | |
|---|---|
| Md.O1 | Mode, Signal Output 1 |
| SC.O1 | Source, Signal Output 1 |
| cp.O1 | cp value, Signal Output 1 |
| SpO1 | Signal for Status Output 1 |
| Bu.O1 | Output of pulse memory |
| Md.O2 | Mode, Signal Output O2 |
| SC.O2 | Source, Signal Output O2 |
| cp.O2 | cp value, Signal Output O2 |
| Spo2 | Signal for Status Output O2 |
| Bu.O2 | Output of pulse memory |

⇔

to

"Interface"

**MCyc**    **Measurement cycle**

Time interval at which all data (e.g. meter readings, measurements, time) are updated. Reaction to events can only take place on this cycle (e.g.: end of measurement period). The display is also only updated on the measurement cycle. The measurement cycle is superimposed right-justified as a unit and numerical value.

☞    **The shorter the time is selected, the more often the measurements are updated and the more the battery service life is reduced !**

☞    **The measurement cycle can only be set to a multiple or to an integer divisor of 60 seconds (e.g.: 15s, 60s, 120s, 180s, Default: 300s).**

☞    **The measurement cycle must also be matched to the measurement periods used; e.g.: with a measurement cycle of 120 s a measurement period of 5 leads to asynchronous saving of data (06:00; 06:06(!); 06:10).**

## 2.3  Summary charts, List Structure (3)

| Interface | |
|---|---|
| GSM.N | Network operator |
| GSM.L | GSM reception level |
| P.Sta | Status PIN of SIM card (GSM) |
| Pin | Entry of SIM-PIN |
| EvSMS | Event for triggering an SM |
| Num.T | Number of ringing tones before accepting call |
| Bd.S1 | Baud-rate identification, optical interface |
| CW1.S | Call time window 1, start |
| CW1.E | Call time window 1, end |
| CW2.S | Call time window 2, start |
| CW2.E | Call time window 2, end |
| Resp1 | Response to Spont. Signal 1 |
| Resp2 | Response to Spont. Signal 2 |
| Send | Release spontaneous signal |

⇔ to "Output"

| User | |
|---|---|
| 1 | User Value 1 |
| 2 | User Value 1 |
| 3 | User Value 1 |
| 4 | User Value 1 |
| 5 | User Value 1 |
| 6 | User Value 1 |
| 7 | User Value 1 |
| 8 | User Value 1 |
| 9 | User Value 1 |
| 10 | User Value 1 |
| 11 | User Value 1 |
| 12 | User Value 1 |

⇔ to "Inp.1"

## 2.4 Overview 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 [1] | Group message | System message | Status 1 | Status 2 | Status 3 | Status 4 |
| 01 | A | Any message 01 | Restart | - | - | - | - |
| 02 | A | - | - | - | - | - | - |
| 03 | W | Any message 03 | Data restore | - | - | - | - |
| 04 | W | Any message 04 | - | Output 1 Error | Output 2 Error | - | - |
| 05 | W | Any message 05 | - | Input 1 Pulse cmp | Input 2 Pulse cmp | - | - |
| 06 | W | Any message 06 | HW fault | Input 1 Warn Lim. | Input 2 Warn Lim. | - | - |
| 07 | W | Any message 07 | SW fault | - | - | - | - |
| 08 | W | Any message 08 | Setting error | Input 1 Warn.sig. | Input 2 Warn.sig. | - | - |
| 09 | R | Any message 09 | Battery low | - | - | - | Battery 2 low |
| 10 | R | Any message 10 | - | - | - | - | - |
| 11 | R | Any message 11 | Clock n. set | - | - | - | - |
| 12 | R | Any message 12 | - | Input 1 Limit | Input 2 Limit | - | - |
| 13 | R | Any message 13 | online | - | - | - | - |
| 14 | R | Any message 14 | - | Calibration lock open | Manufacturer lock open | Supplier lock open | Customer lock open |
| 15 | I | Any message 15 | Battery operation | - | - | - | - |
| 16 | I | Any message 16 | Dayl.Sav. Time aktiv | Call Win.1 | Call Win.2 | | - |

---

[1] A = Alert; W = Warning; R = Report; I = Information