

**JUMO GmbH & Co. KG**  
 Delivery address: Mackenrodtstraße 14,  
 36039 Fulda, Germany  
 Postal address: 36035 Fulda, Germany  
 Phone: +49 661 6003-0  
 Fax: +49 661 6003-607  
 e-mail: mail@jumo.net  
 Internet: www.jumo.net

**JUMO Instrument Co. Ltd.**  
 JUMO House  
 Temple Bank, Riverway  
 Harlow, Essex CM 20 2TT, UK  
 Phone: +44 1279 635533  
 Fax: +44 1279 635262  
 e-mail: sales@jumo.co.uk  
 Internet: www.jumo.co.uk

**JUMO PROCESS CONTROL INC.**  
 885 Fox Chase, Suite 103  
 Coatesville PA 19320, USA  
 Phone: 610-380-8002  
 1-800-554-JUMO  
 Fax: 610-380-8009  
 e-mail: info@JumoUSA.com  
 Internet: www.JumoUSA.com



# Logoline 500



## Pen recorder with text printing and LED dot-matrix display

### Brief description

The LOGOLINE 500 recorder family comprises three pen recorders:

Type LL.v-44u, Type LL.v-44uj and Type LL.v-44ud.

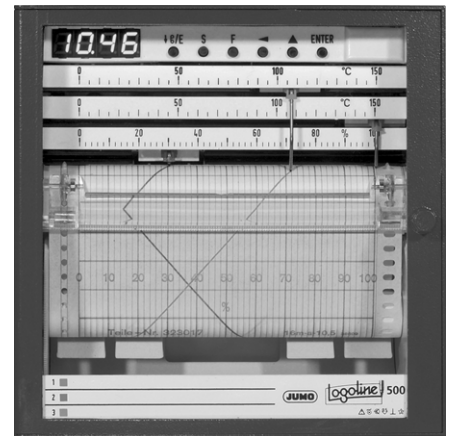
Each pen recorder offers up to three measurement inputs for recording the measurements, which are isolated from each other by optocouplers. The measurements can be read by pointers against scales, or are shown on the display. Channel 1 can be used to output text in addition to the measurement trace.

All channels are zeroed using Hall sensors.

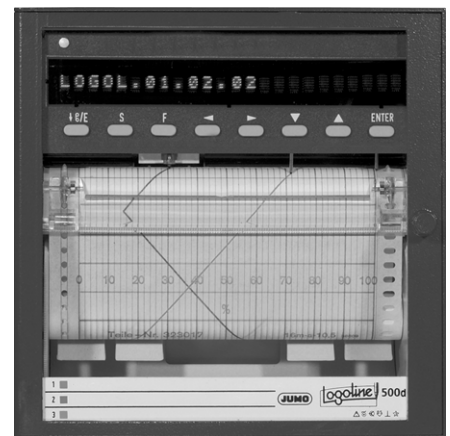
The watchdog monitors the pen recorder function and triggers a restart in the event of a fault. The configuration data are stored permanently in EEPROM. On a power failure, the real-time clock is buffered by the recorders.

The standard current and voltage signals can be connected on all recorders. On types LL.v-44u and LL.v-44uj, input signals can additionally be from thermocouples, resistance thermometers, resistance transmitters and potentiometers. The necessary linearization is performed automatically.

Optional expansions are available for the types LL.v-44u and LL.v-44ud. Eight logic inputs are available for additional operating functions. In most cases, a math and logic module permits the recorder to be individually adapted to complex measurement tasks. An external relay module ER8 for rail mounting supplements the pen recorders by eight switching outputs. A 2-wire transmitter can be operated from an isolated supply.



Type LL3v-44u/ ...  
 Type LL3v-44uj/ ...



Type LL3v-44ud/ ...

### Overview of functions

|  | LL.v-44u  | LL.v-44uj                                      | LL.v-44ud   |
|--|---|--|---|
| 1/2/3 analog inputs (configurable and electrically isolated) | Thermocouples<br>Resistance thermometer<br>Resistance transmitter<br>Potentiometer<br>Voltage<br>Current  | Voltage<br>Current                             | Thermocouples<br>Resistance thermometer<br>Resistance transmitter<br>Potentiometer<br>Voltage<br>Current  |
| 8 logic inputs <sup>1</sup>                                  | for floating contacts or PLC level<br>Functions:<br>- External texts<br>- Binary-linked text<br>- External stop<br>- External speed<br>- Event counter<br>- External scaling<br>- External report |  | for floating contacts or PLC level<br>Functions:<br>- External texts<br>- Binary-linked text<br>- External stop<br>- External speed<br>- Event counter<br>- External scaling<br>- External report |
| Outputs <sup>1</sup>   | - Interface for 8 relay outputs<br>- Supply for 2-wire transmitter  |  | - Interface for 8 relay outputs<br>- Supply for 2-wire transmitter  |
| Recording  | - Measurement traces<br>- Text printing   | - Meas. traces<br>- Text printing (restricted) | - Measurement traces<br>- Text printing   |
| Setup interface  | for configuration and parameter setting   |  | for configuration and parameter setting   |
| RS422/RS485 interface <sup>1</sup>                           | Data transfer from and to the recorder  |  | Data transfer from and to the recorder  |

1. available as an option

### Applications

- Failure and fault analysis
- Compliance with official regulations
- Reports for users and customers
- Monitoring of processes
- Optimization of procedures

## Technical data

### Thermocouple input (LL.v-44u and LL.v-44ud)

| Designation                          | Range  | Linearization accuracy <sup>1</sup> |
|--------------------------------------|--|-------------------------------------|
| Fe-Con L DIN 43 710                  | -200 to +900°C   | ±0.1 %                              |
| Fe-Con J EN 60 584                   | -210 to +1200°C  | ±0.1 % above -200°C                 |
| Cu-Con U DIN 43 710                  | -200 to +600°C   | ±0.1 % above -150°C                 |
| Cu-Con T EN 60 584                   | -270 to +400°C   | ±0.1 % above -150°C                 |
| NiCr-Ni K EN 60 584                  | -270 to +1372°C  | ±0.1 % above -80°C                  |
| NiCr-Con E EN 60 584                 | -270 to +1000°C  | ±0.1 % above -100°C                 |
| NiCrSi-NiSi N EN 60 584              | -270 to +1300°C  | ±0.1 % above -100°C                 |
| Pt10Rh-Pt S EN 60 584                | -50 to +1768°C   | ±0.15 % above 0°C                   |
| Pt13Rh-Pt R EN 60 584                | -50 to +1768°C   | ±0.15 % above 0°C                   |
| Pt30Rh-Pt6Rh B EN 60 584             | 0 — 1820°C   | ±0.15 % above 400°C                 |
| Shortest span                        | Types L, J, U, T, K, E, N:<br>Types S, R, B:   | 100°C<br>500°C                      |
| Range start/end                      | within the range limits, freely programmable in 0.1°C steps                                |                                     |
| Cold junction                        | Pt 100 internal, external Pt 100 in 3-wire circuit<br>or external cold junction thermostat |                                     |
| Cold junction accuracy (internal)    | ± 1°C  |                                     |
| Cold junction temperature (external) | -20 to +100°C can be set via the setup software  |                                     |
| Measurement time                     | 240msec for all three channels   |                                     |
| Input filter                         | second-order digital filter; filter constant adjustable from 0 — 10.0sec                   |                                     |
| Special features                     | programmable also in °F; customer-specific linearization                                   |                                     |

1. The linearization accuracy refers to the maximum measurement span.

### Resistance thermometer input (LL.v-44u and LL.v-44ud)

| Designation            | Connection   | Range          | Linearization accuracy | Meas. current |
|------------------------|--|----------------|------------------------|---------------|
| Pt 100 DIN             | 2/3-wire   | -200 to +100°C | ±0.4°C                 | 400µA         |
|                        | 2/3-wire   | -200 to +850°C | ±0.8°C                 | 400µA         |
|                        | 4-wire   | -200 to +100°C | ±0.4°C                 | 400µA         |
|                        | 4-wire   | -200 to +850°C | ±0.5°C                 | 400µA         |
| Pt 100 JIS             | 2/3-wire   | -200 to +100°C | ±0.4°C                 | 400µA         |
|                        | 2/3-wire   | -200 to +649°C | ±0.8°C                 | 400µA         |
|                        | 4-wire   | -200 to +100°C | ±0.4°C                 | 400µA         |
|                        | 4-wire   | -200 to +649°C | ±0.5°C                 | 400µA         |
| Pt 500 DIN             | 2/3-wire   | -200 to +100°C | ±0.4°C                 | 50µA          |
|                        | 2/3-wire   | -200 to +850°C | ±0.8°C                 | 50µA          |
|                        | 4-wire   | -200 to +100°C | ±0.4°C                 | 50µA          |
|                        | 4-wire   | -200 to +850°C | ±0.5°C                 | 50µA          |
| Pt 1000 DIN            | 2/3-wire   | -200 to +100°C | ±0.4°C                 | 50µA          |
|                        | 2/3-wire   | -200 to +850°C | ±0.8°C                 | 50µA          |
|                        | 4-wire   | -200 to +100°C | ±0.4°C                 | 50µA          |
|                        | 4-wire   | -200 to +850°C | ±0.5°C                 | 50µA          |
| Ni 100                 | 2/3-wire   | -60 to +100°C  | ±0.4°C                 | 400µA         |
|                        | 2/3-wire   | -60 to +180°C  | ±0.8°C                 | 400µA         |
|                        | 4-wire   | -60 to +100°C  | ±0.4°C                 | 400µA         |
|                        | 4-wire   | -60 to +180°C  | ±0.5°C                 | 400µA         |
| Connection type        | 2-, 3- or 4-wire circuit   |                |                        |               |
| Shortest span          | 15°C   |                |                        |               |
| Sensor lead resistance | max. 30Ω per core in 3-wire circuit<br>max. 15Ω per core in 2-wire circuit |                |                        |               |
| Range start/end        | within the limits, freely programmable in 0.1°C steps                      |                |                        |               |
| Measurement time       | 240msec for all three channels   |                |                        |               |
| Input filter           | second-order digital filter; filter constant adjustable from 0 — 10sec     |                |                        |               |
| Special features       | programmable also in °F; customer-specific linearization                   |                |                        |               |

**Resistance transmitter and potentiometer input (LL.v-44u and LL.v-44ud)**

| Range                  | Accuracy  | Measurement current |
|------------------------|---|---------------------|
| up to 130Ω             | ±150mΩ  | 400μA               |
| up to 390Ω             | ±300mΩ  | 400μA               |
| up to 1600Ω            | ±1.6Ω   | 50μA                |
| up to 3900Ω            | ±2 Ω  | 50μA                |
| Connection type        | resistance transmitter: 3-wire circuit<br>potentiometer: 2-, 3- or 4-wire circuit |                     |
| Shortest span          | 6Ω  |                     |
| Sensor lead resistance | max. 30Ω per core in 3-wire circuit<br>max. 15Ω per core in 2-wire circuit        |                     |
| Resistance values      | within the limits, freely programmable in 0.1Ω steps                              |                     |
| Measurement time       | 240msec for all three channels  |                     |
| Input filter           | second-order digital filter; filter constant adjustable from 0 to 10.0sec         |                     |

**DC voltage or current input**

| Basic range      | Accuracy  | Input resistance |
|------------------|---|------------------|
| -15 to +77mV     | ±80μV   | >1MΩ             |
| 0 – 170mV        | ±120μV  | >1MΩ             |
| -76 to + 76mV    | ±120μV  | >1MΩ             |
| -162 to +880mV   | ±1 mV   | >500kΩ           |
| 0 – 1930mV       | ±1 mV   | >500kΩ           |
| -880 to +880mV   | ±1 mV   | >500kΩ           |
| -1.84 to +10V    | ±6mV  | >500kΩ           |
| 0 – 22V          | ±12mV   | >500kΩ           |
| -10 to +10V      | ±12mV   | >500kΩ           |
| Shortest span    | 5mV   |                  |
| Range start/end  | freely programmable within the limits<br>(up to 999mV in 0.01mV steps, above 1V in 1mV steps)                                 |                  |
| -4 to +21mA      | ±20μA   |                  |
| 0 – 45mA         | ±40μA   |                  |
| -20.5 to +20.5mA | ±40μA   |                  |
| Shortest span    | 0.5mA   |                  |
| Range start/end  | within the limits, freely programmable in 0.01mA steps  |                  |
| Measurement time | 240msec for all three channels  |                  |
| Input filter     | second-order digital filter; filter constant adjustable from 0 – 10.0sec  |                  |
| Special features | adjustable linearization for thermocouples and resistance thermometers<br>(for connecting transmitters without linearization) |                  |

**Response on transducer short-circuit/break**

|                                     | Short-circuit <sup>1</sup> | Break <sup>1</sup> |
|-------------------------------------|----------------------------|--------------------|
| Thermocouple <sup>2</sup>           | recognized                 | recognized         |
| Resistance thermometer <sup>2</sup> | recognized                 | recognized         |
| Resistance transmitter <sup>2</sup> | not recognized             | not recognized     |
| Potentiometer <sup>2</sup>          | recognized                 | recognized         |
| Voltage up to 170mV                 | recognized                 | recognized         |
| Voltage above 170mV                 | not recognized             | not recognized     |
| Current                             | 0mA is recognized          | 0mA is recognized  |

1. On the LL.v-44u and the LL.v-44uj, the fiber pens are positioned to 0%. No message is shown on the 7-segment display.

On the LL.v-44ud, the fiber pens are positioned to 0%. ">>>>>>" appears in the LED dot matrix display.

2. LL.v-44u and LL.v-44ud

**Recording system**

|   |   |
|---|---|
| Zero adjustment   | self-compensating system using Hall sensors   |
| Drive   | stepping motor  |
| Sensitivity   | 0.2% or better referred to 100mm recording width  |
| Reproducibility   | 0.25% or better referred to 100mm recording width   |
| Response time   | 1 sec referred to 100mm recording width   |
| Indication and recording accuracy   | Class 0.5 referred to range limits and basic ranges   |
| Ink capacity  | sufficient for approx. 1000m trace; on channel 1 depending on text printing   |
| Color sequence  | channel 1: blue, channel 2: red, channel 3: green   |
| Pen offset  | 2mm; LL.v-44u and LL.v-44ud: can be corrected by pen offset compensation  |
| Overrun/underrun  | electronically limited to 0 – 100mm writing width   |
| Chart speed   | programmable in the steps: 0, 5, 10, 20, 60, 120, 240, 300, 360, 600, 720, 1800, 3600, 7200mm/h; LL.v-44u and LL.v-44ud: freely programmable in 1mm/h steps |
| Chart drive   | by stepping motor and gearbox   |
| Chart cassette  | cassette for roll chart and fanfold chart (tear-off edge, chart-end switch)   |
| Chart<br>overall width / writing width<br>pin spacing<br>visible chart length<br>overall length | roll or fanfold chart to DIN 16 320<br>120mm / 100mm<br>110mm<br>roll chart: 60mm; fanfold chart: 30 – 60mm<br>roll chart: 16m or 32m; fanfold chart: 16m   |
| Scale   | on LL.v-44u und LL.v-44uj, max. 3 scales, white, black figuring   |
| Standard scale graduation   | 0 – 100%, for other scale graduations see code "sk"   |

**Electrical data**

|  |   |
|--|---|
| Supply   | 93 – 263V AC 48 – 63Hz (standard) or 20 – 53V AC/DC 48 – 63Hz (optional)  |
| Electrical safety  | to EN 61 010, Part 1 of March 1994<br>overvoltage category II, pollution degree 2   |
| Test voltages (type test)<br>- Mains supply to measurement circuit<br>- Mains supply to housing<br>- Between measurement circuits<br>- Measurement circuits to housing<br>- Electrical isolation between the analog inputs | AC: 3.7kV 50Hz, 1 min; AC/DC: 510V 50Hz, 1 min<br>AC: 2.3kV 50Hz, 1 min; AC/DC: 510V 50Hz, 1 min<br>510V 50Hz, 1 min<br>510V 50 Hz, 1 min<br>up to 30V AC and 50V DC  |
| Supply voltage error   | less than 0.1% of range span  |
| Power consumption  | 35VA max.   |
| Data back-up   | more than 4 years by lithium battery in RAM, or 2 days by storage capacitor at 15 – 25°C ambient temperature. Additional back-up in EEPROM.   |
| Electrical connection  | at the back through screw-clamp connectors,<br>max. conductor cross-section 2.5mm <sup>2</sup> or 2x 1.5mm <sup>2</sup> with cable ferrules,<br>setup connector with Type LL.v-44ud<br>at the front behind the flip-up dot-matrix display,<br>with Type LL.v-44u, at the right above the measurement channels |
| EMC<br>- Interference emission<br>- Immunity to interference   | EN 61 326<br>Class B<br>to industrial requirements  |

**Housing**

|                              |  |
|------------------------------|--|
| Housing type<br>Housing door | Housing for flush-panel mounting to DIN 43 700, galvanized steel<br>zinc die-casting |
| Transport mechanism          | in corrosion-resistant chrome-nickel steel   |
| Chart cassette               | in plastic (polycarbonate)   |
| Bezel size                   | 144mm x 144mm  |
| Mounting depth               | 227mm  |
| Panel cut-out                | 138 <sup>+1.0</sup> mm x 138 <sup>+1.0</sup> mm                                      |
| Housing mounting             | in a control panel to DIN 43 834   |
| Ambient temperature range    | -10 to +50°C   |
| Ambient temperature error    | 0.3% per 10°C  |
| Storage temperature range    | -20 to +70°C   |
| Climatic conditions          | 75% max. rel. humidity, no condensation  |
| Operating position           | NL 90 ± 30, DIN 16 257 (vertical)  |
| Protection                   | to EN 60 529 Category 2,<br>front IP54 (IP65 with extra code IP65); rear IP20        |
| Weight                       | 3.2kg max.   |

## Operating modes

### LL.v-44u and LL.v-44ud

#### Chart speeds

The LL.v-44u and LL.v-44ud recorders can be programmed with four different operating modes for the chart speed.

1. Normal operation

2. Limit operation

If the measurement goes above/below the programmed limits, the recorder switches to the speed which has been programmed under "limit operation".

3. External operation

A signal on one of the logic inputs at the back of the recorder switches to the speed programmed under "external speed".

4. Timed operation

Chart speed which is operative within a programmable time span.

#### Zoom (plot area)

In zoom operation, an enlarged recording is made of a section of the full range.

#### Presentation range (offset)

This parameter is used to define the presentation range of a trace on the chart.

This assists the evaluation of traces which are close together or overlapping.

### LL.v-44uj

This recorder only features the operating mode "normal operation". Zoom and offset functions are not applicable.

## Text printing

### LL.v-44u and LL.v-44ud

Text printing is used for comments on the recorded trace and for event recording.

Priorities can be assigned to the texts to serve as abort criteria during simultaneous text printing requests.

Text printing can be separately configured for each text, either time-optimized or during printing of the recording traces.

Text printing facilities:

- Time, date
- Scaling of the channels
- Change of chart speed
- Recording start/end text
- Eight external texts<sup>1</sup>
- 16 binary-linked external texts<sup>1</sup>
- Eight relay texts<sup>1</sup>
- Event counter<sup>1</sup>
- Report
- Print test
- Service print

1. extra code zf is required.

### LL.v-44uj

For LOGOLINE 500 junior, text printing is limited to

- Time, date
- Change of chart speed
- Text at recording start and end
- Print test
- Service print.

Printing priorities and the printing mode can not be set.

## Extra codes

### LL.v-44u and LL.v-44ud

#### Logic inputs (zf)

Both types can be equipped with eight logic inputs.

The inputs can be operated through floating contacts or by the following voltage levels:

inactive 0 — 5V

active 20 — 35V

The voltages must be applied for 0.5sec.

Functions available:

- External start/stop
- Chart speed change to "external speed"
- Text printing
- Start/stop external report
- Start scaling print
- Event counter

#### Supply for 2-wire transmitter (zf)

An isolated supply for a 2-wire transmitter is available.

24V ± 5% DC 45mA

#### Serial interface for ER8 (zf)

The external relay module ER8 can be operated using the serial interface.

#### RS422/RS485 interface

This interface is intended for communication with higher-level systems (e. g. bus system or PC).

It can be used to

- read out the measurements,
- monitor operating states, and
- transmit text and values to the recorders.

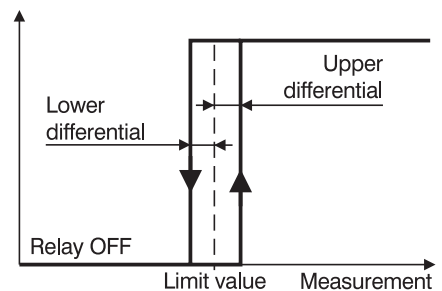
## Accessories

### LL.v-44u and LL.v-44ud

#### External relay module ER8

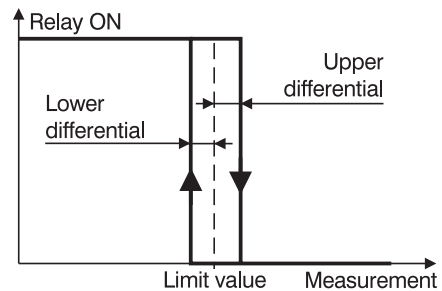
The Types LL. v-44u and LL.v-44ud can be equipped with an external relay module ER8 (eight relay outputs) to monitor the infringement of upper or lower limits. The assignment of the relay outputs to the measurement channels is freely programmable. The limits are set at the parameter level.

Relay function within the measurement range: Ik7, Ik8



#### Ik7:

Function: relay is energized when: Measurement > limit + upper differential.



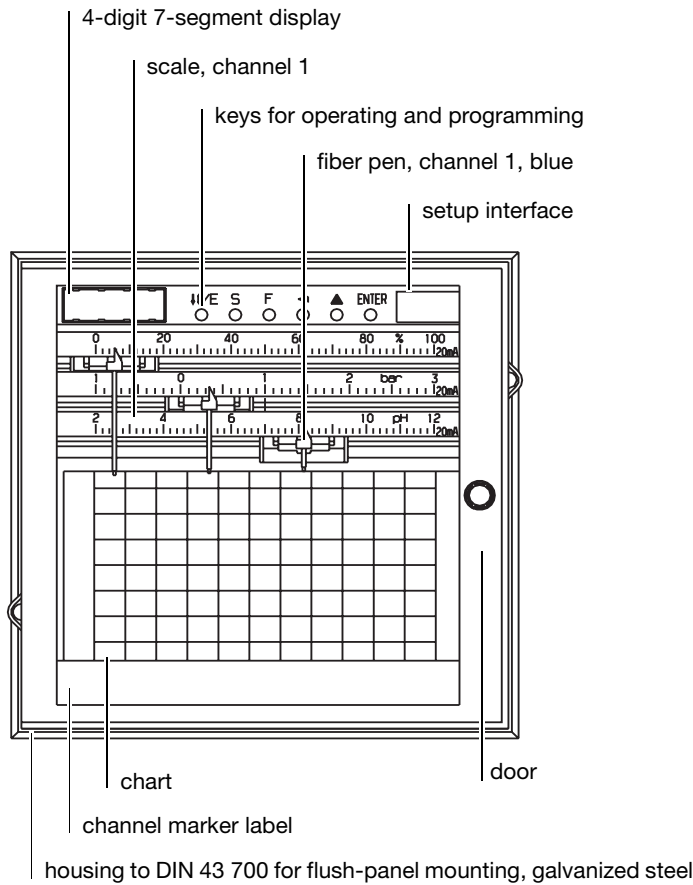
#### Ik8:

As Ik7, but relay function is reversed.

Position and width of the switching differential can be selected via the setup program.

Contact rating:  
3A, 250V AC 50Hz  
3A, 30V DC  
resistive load

## Indications and controls LL.v-44u and LL.v-44uj



## Operation and configuration

### On the recorder

#### LL.v-44uj and LL.v-44ud

All parameters can be programmed from the instrument keys. A 7-segment or an LED dot-matrix display are available to monitor the parameters.

#### LL.v-44u

The following parameters can be altered from the keys:

- Language
- Date and time
- Summer time
- Relay limit settings
- Chart speed
- Print test
- Service print

### Via setup program for PC

#### LL.v-44u and LL.v-44ud

More conveniently than by the instrument keys, all parameters can be configured via the PC setup program.

Additional functions are:

- Customer-specific linearization
- Setting the printing mode of texts ("Overwrite trace" or "Interrupt trace")
- Different settings (also for several instruments) can be managed.
- Reading out and altering the setting of a configured instrument
- Archiving and printing the setting

#### Customer-specific linearization

In the setup program there is a choice between linear, square law and cube law linearization. There can be up to 41 calibration points for linear and square law linearization, and up to 61 calibration points for cube law linearization. These calibration points are used to determine the coefficients for polynomials which are defined for each section, so that even a few calibration points produce a smooth graph.

Accuracy: depends on the shape of the graph and the selected linearization.

## Language

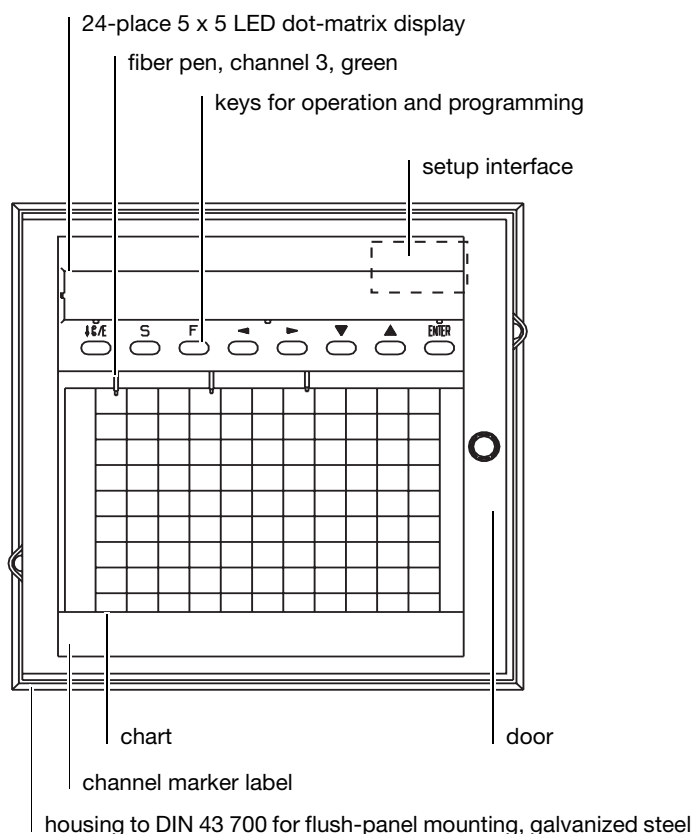
#### LL.v-44u and LL.v-44uj

The language setting (English, German, French) appears in the print-out only.

#### LL.v-44ud

The language which was set (English, German, French) appears in the print-out and in the LED dot-matrix display.

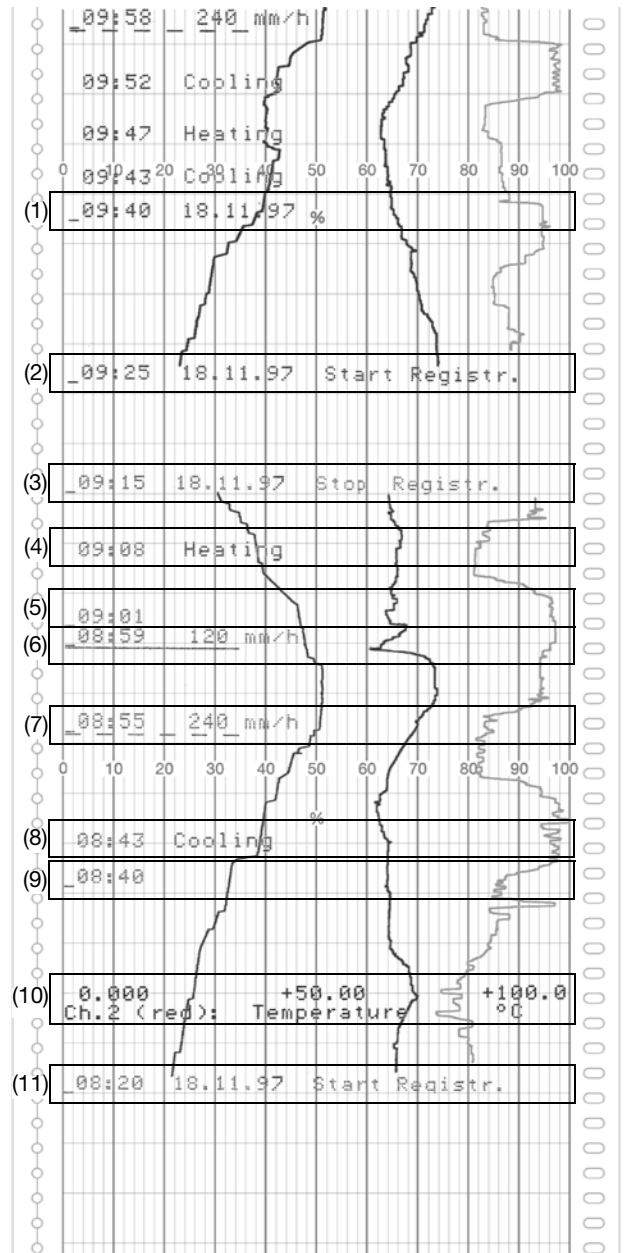
## Indications and controls LL.v-44ud



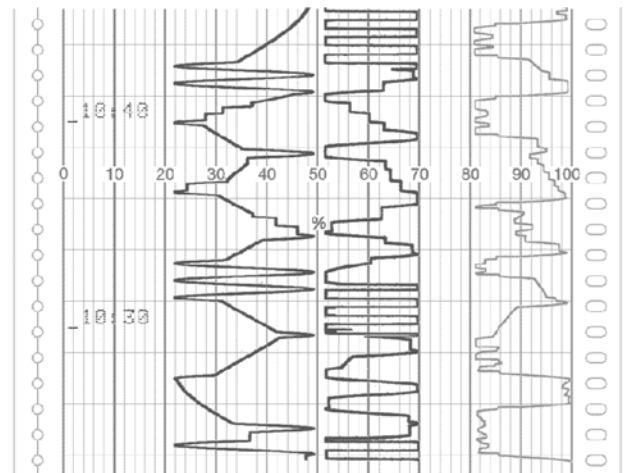
## Example of a recording with text print-out for Type LLv-44u (ud)

The factory-setting provides for all the measurement traces to be printed in the range 0–100%, i.e. across the entire chart width.

- (1) Print the time (with every fourth print-out, the current chart speed, the programmed instrument name or the date are printed alternately)
- (2) Print-out at the start of the recording (begin text)
- (3) Print-out at the end of the recording (end text)
- (4) Relay text
- (5) Current time
- (6) Speed change to normal operation
- (7) Speed change to limit operation
- (8) Relay text on exceeding the limit
- (9) Current time
- (10) Print-out of scaling with channel number, pen color, channel name and unit.
- (11) Begin text

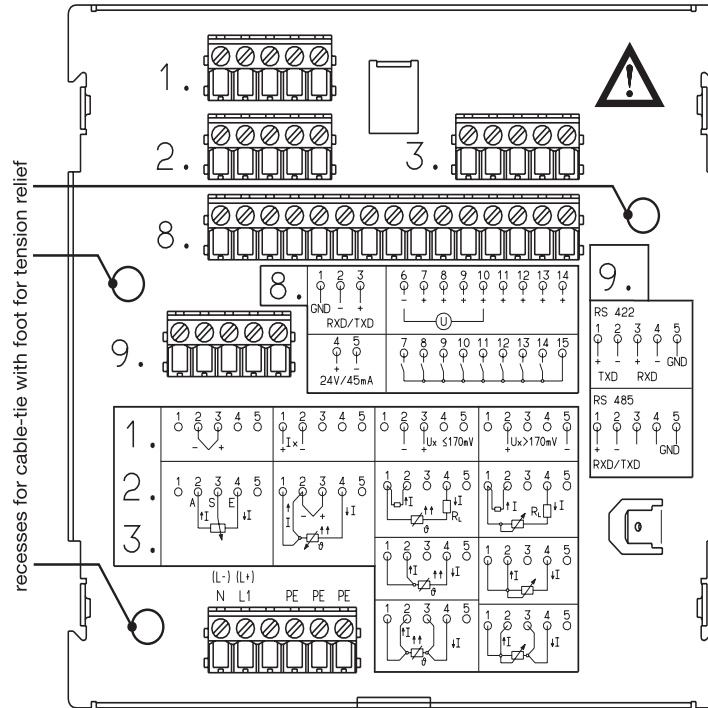


In the example above, the measurement traces are printed out in normal mode, i.e. all traces share the entire width of the chart (0 – 100mm). The presentation range can be selected freely on the chart for each trace. This assists the evaluation, in particular of traces which are close to each other or which overlap. The traces in the example on the right have thus been arranged over three sections of the chart.



### Connection diagram

Rear view with screw-clamp connectors



| Connection   |   |                         |                | Diagram                                   |
|--|---|-------------------------|----------------|---|
| Supply as on label                                     | N neutral<br>L1 line<br>PE protective earth | N (L-)<br>L1 (L+)<br>PE |                | (L-) (L+)<br>N L1 PE PE PE<br>1 2 3 4 5 6 |
| <b>Analog inputs</b>                                   | <b>Input 1</b>                              | <b>Input 2</b>          | <b>Input 3</b> |   |
|  | Connector                                   | Connector               | Connector      |   |
| Thermocouple   |   |                         |                |   |
| Thermocouple with external Pt 100 cold junction        |   |                         |                |   |
| Resistance thermometer/potentiometer in 2-wire circuit | 1.  | 2.                      | 3.             | <p>*<math>R_{comp} = R_{line}</math></p>  |
| Resistance thermometer/potentiometer in 3-wire circuit |   |                         |                |   |
| Resistance thermometer/potentiometer in 4-wire circuit |   |                         |                |   |

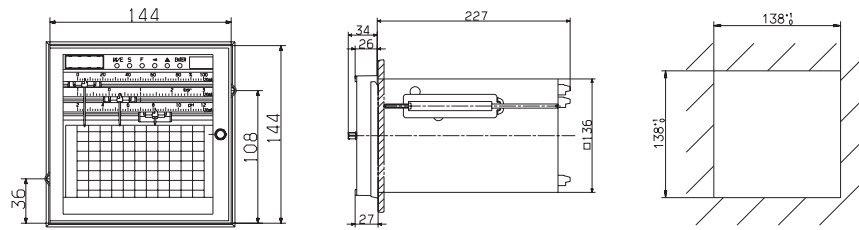


| Analog inputs                                 | Input 1   | Input 2   | Input 3   |   |
|---|-----------|-----------|-----------|---|
|   | Connector | Connector | Connector |   |
| Resistance transmitter with 3-wire connection | 1.        | 2.        | 3.        | <p>A = start<br/>S = slider<br/>E = end</p> |
| Voltage input up to 170mV                     |           |           |           |   |
| Voltage input above 170mV                     |           |           |           |   |
| Current input                                 |           |           |           |   |

|  |   | Connector |   |
|--|---|-----------|---|
| External relay module ER8                                    | Communication with external relay module  | 8.        |   |
| Supply for external 2-wire transmitter                       | 24V ± 5% 45mA   |           |   |
| Digital operating inputs                                     | <p>Contact operation<br/>LOW = R<sub>OFF</sub> 100kΩ min.<br/>HIGH = R<sub>ON</sub> 50kΩ max.</p> |           | <p>contact no. 7 = logic input 1<br/>.<br/>.<br/>contact no. 14 = logic input 8</p> |
| <p>Min. pulse duration:<br/>HIGH 500msec<br/>LOW 500msec</p> | <p>Voltage operation<br/>LOW = 0 – 5V DC (inactive)<br/>HIGH = 20 – 35V DC (active)</p>           |           | <p>contact no. 7 = logic input 1<br/>.<br/>.<br/>contact no. 14 = logic input 8</p> |
| Serial interface RS422/RS485                                 | Communication with higher-level systems   | 9.        | <p>RS 422                      RS 485</p>   |

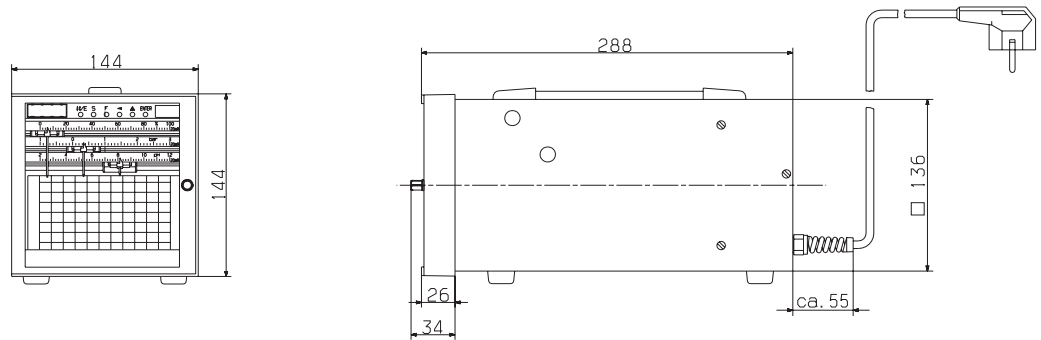
## Dimensions

### Housing for flush-panel mounting



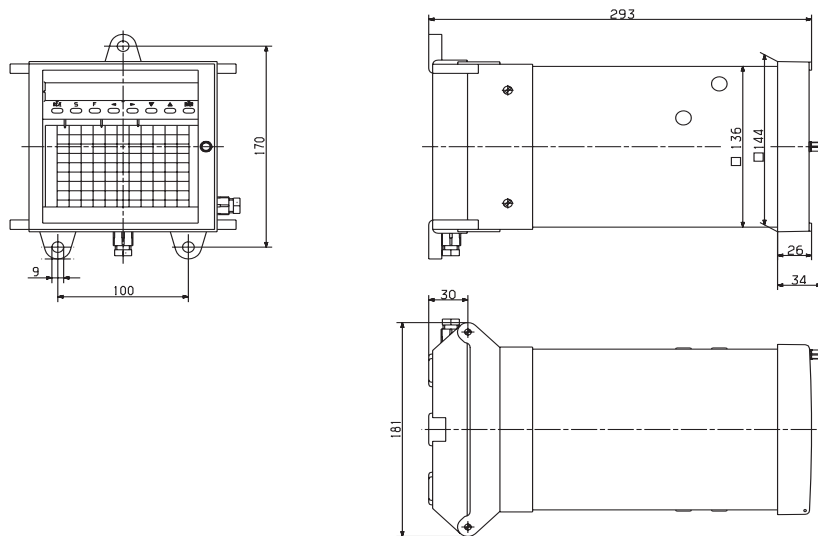
### Code tm

Housing with carrying handle, rubber feet and terminal cover, also 3m mains supply cable with SCHUKO plug



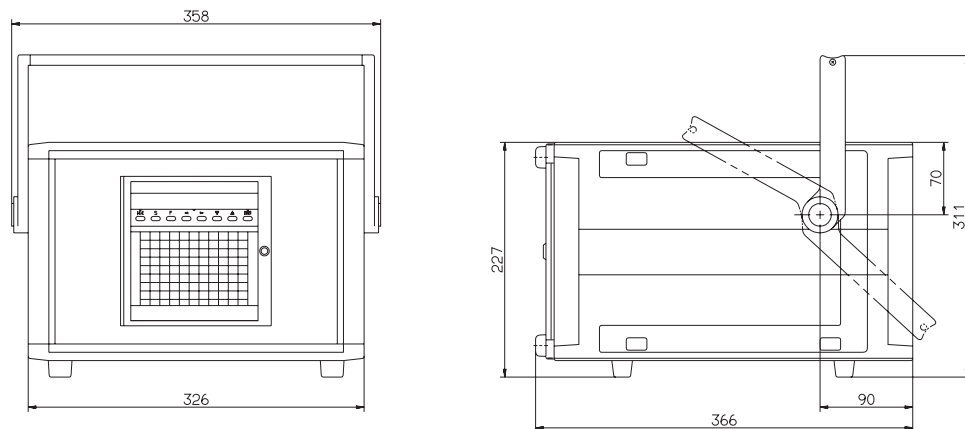
### Code ab

Housing for wall mounting. The panel-mounting housing is fitted in a carrier and can be swung out through 90°.



### Code TG-35

Portable recorder housing for varying applications in mobile use



Order details

**(1) Basic version LOGOLINE 500**

|                 |   |
|-----------------|---|
| LL . v-44u/ ... | pen recorder with scales and universal inputs   |
|                 |   |
| 1               | <b>Input</b><br>1 input with text output<br>factory-set<br>configuration to customer specification <sup>1</sup> |
|                 |   |
| 2               | 2 inputs (input 1 with text output)<br>factory-set<br>configuration to customer specification <sup>1</sup>      |
|                 |   |
| 3               | 3 inputs (input 1 with text output)<br>factory-set<br>configuration to customer specification <sup>1</sup>      |

**(1) Basic version LOGOLINE 500junior**

|                  |  |
|------------------|--|
| LL . v-44uj/ ... | pen recorder with scales and inputs for standard signals |
|                  |  |
| 1                | <b>Input</b><br>1 input with text output<br>factory-set  |
|                  |  |
| 2                | 2 inputs (input 1 with text output)<br>factory-set       |
|                  |  |
| 3                | 3 inputs (input 1 with text output)<br>factory-set       |

**(1) Basic version LOGOLINE 500d**

|                  |   |
|------------------|---|
| LL . v-44ud/ ... | pen recorder with display and universal inputs  |
|                  |   |
| 1                | <b>Input</b><br>1 input with text output<br>factory-set<br>configuration to customer specification <sup>1</sup> |
|                  |   |
| 2                | 2 inputs (input 1 with text output)<br>factory-set<br>configuration to customer specification <sup>1</sup>      |
|                  |   |
| 3                | 3 inputs (input 1 with text output)<br>factory-set<br>configuration to customer specification <sup>1</sup>      |

**(2) Interface**

|   |   |       |   |
|---|---|-------|---|
| x | x | RS422 | for communication with higher-level systems |
| x | x | RS485 | for communication with higher-level systems |

**(3) Extra codes**

|   |   |    |   |  |
|---|---|----|---|--|
| x | x | sk | special scales, e. g. m <sup>3</sup> /h, bar etc.   |  |
| x | x | zf | extra functions:<br>8 logic inputs, serial interface for external relay module ER8,<br>electrically isolated 24 V/50 mA DC supply<br>for 2-wire transmitter |  |
| x | x | c  | storage capacitor (ex-factory: lithium battery)   |  |
| x | x | x  | fp  | cassette for fanfold chart 16m long  |
| x | x | x  | r32   | roll chart 32m long  |
| x | x | x  | ab  | housing for wall mounting (the panel-mounting housing<br>can be swung out through 90° in the carrier).       |
| x | x | x  | tm  | housing with carrying handle, rubber feet and terminal cover,<br>also 3m mains supply cable with SCHUKO plug |
| x | x | x  | TG-35   | portable case for recorder   |
| x | x | x  | ts  | door with lock (IP54)  |
| x | x | x  | IP65  | IP65 seal, wide mounting brackets  |

Order code (1) (2) (3) , ...<sup>2</sup> ...

Order example LL3v-44ud / RS422 / sk ,

1. Please specify probe type and range in plain text.  
2. List extra codes in sequence, separated by commas.

## Standard accessories

|   | LOGOLINE  |           |           |
|---|-----------|-----------|-----------|
|   | 500       | 500junior | 500d      |
| 1 Operating Instructions  | B 70.6001 | B 70.6011 | B 70.6021 |
| 2 mounting brackets   | X         | X         | X         |
| cable-tie with foot (can be released), for strain relief of the connected sensor leads                                | X         | X         | X         |
| 1 disposable fiber pen per channel  | X         | X         | X         |
| 2 chart rolls 16m long or<br>1 chart roll 32m long (with code r32) or<br>1 fanfold chart pack 16m long (with code fp) | X         | X         | X         |

## Accessories

|   | LOGOLINE |           |      |
|---|----------|-----------|------|
|   | 500      | 500junior | 500d |
| PC interface with TTL/RS232 converter           | X        | —         | X    |
| Setup program on 3.5" diskette (2 items)        | X        | —         | X    |
| External relay module ER8 (code zf is required) | X        | —         | X    |

X = possible

— = not possible

## Order examples

| Order details   | Description  | LOGOLINE |           |      |
|---|--|----------|-----------|------|
|   |  | 500      | 500junior | 500d |
| LL3v-44u/ts,fp,tm<br>LL<br>3<br>v-44<br>u<br>ts<br>fp<br>tm | pen recorder<br>3 channels<br>amplifier and bezel size 144mm x 144mm<br>version with scales and universal measurement inputs<br>door with lock (IP54)<br>cassette for fanfold chart<br>house with carrying handle, rubber feet and mains supply cable                                      | X        |           |      |
| LL1v-44uj/TG-35<br>LL<br>1<br>v-44<br>uj/<br>TG-35          | pen recorder<br>1 channel<br>amplifier and bezel size 144mm x 144mm<br>version with scales and standard signal input (current/voltage)<br>portable case  |          | X         |      |
| LL2v-44ud/zf,RS485<br>LL<br>2<br>v-44<br>ud<br>zf<br>RS485  | pen recorder<br>2 channels<br>amplifier and bezel size 144mm x 144mm<br>display version with universal measurement inputs<br>8 logic inputs, supply for 2-wire transmitter and interface for ER8<br>serial interface for communication with higher-level systems, such as bus system or PC |          |           | X    |