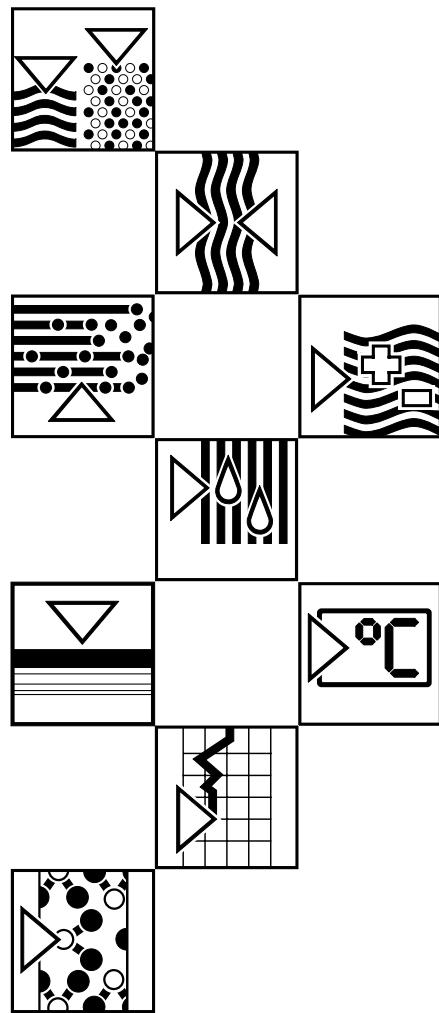


Operating instructions



Endress+Hauser

Nothing beats know-how



Multi-Event

**Recording instrumentation
Operating manual**

Valid for programme versions

VEU 00 A FF 16 channel version

VEU 00 A FE 48 channel version

Unit number

.....

Please fill in

Date

.....

Please fill in

Operator

.....

Please fill in

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Safety notes

This unit is constructed for panel mounting in control panels and cabinets. It complies with the requirements according to EN 61010-1 / VDE 0411 Part 1 and left our works in perfect and safe condition.

In order to maintain this condition and operate safely the user must take note of the following safety information and warnings contained in these instructions.

- Operation of the unit is only permissible in installed condition.
- Installation and connection is only to be done by skilled personnel. Please ensure that the unit is protected from involuntary access and installed to the relevant safety requirements.
- First check that the power supply to be used corresponds with that on the unit legend plate.
- Make sure that a suitable isolation switch is installed in the vicinity of the unit. This switch must be easily accessible and be identified as an isolation switch.
- The mains power supply must be supplied via a fuse ($< 10\text{ A}$)
- If it is assumed that the unit cannot be safely operated (visible damage) it must be immediately taken out of operation and secured against unintentional use.
- There are no components in the unit that can be repaired by the user. All repairs must be done by trained service personnel.

1. Application

The event and operational time recorder Multi-Event registers and records sequentially correct switch state changes and operational times in all areas of industry. All records are identified with time and date.

The record can be selected as either an alphanumeric text line or graphic event record. In addition each channel is checked if the preset limit on events or operational time has been exceeded.

Two versions are available, up to 16 channels or 48 channels.

2. Function.

The input channels are galvanically isolated from the system. The cycle speed is 20 ms. This cycle must not be exceeded if a sequentially correct record of contact changes is to be guaranteed. Each channel can be programmed to operate on either contact changes (events) or operational running time. Channel identification is in the form of a two line, programmable alphanumeric text each with 15 digits.

Each channel has 4 selectable fuctions:

- a) Printout on each contact change.
- b) Printout on only ON changes.
- c) Printout on only OFF changes.
- d) No event printout.

The unit adds the ON state changes into single and summation counters independently of which type of printout is selected. These counters are then individually printed and reset to zero depending on the type of report selected.

Each channel has two time counters to record the ON state running times, (alternative to contact changes)

The number of ON state events can be automatically printed out and reset to zero in pre-selectable time cycles, (measuring period, shift, day, week and month automatic); "manually"; "external command" or on every OFF signal.

Up to 8 channels can be recorded graphically.

One limit per channel dedicated to a single counter is selectable. When a limit is exceeded it is not only printed out but a relay is switched for retransmission. It is also possible to call upon a graphic display (bargraph) showing the percentage relationship of the counter to the limit value.

All events are continuously memorised including date, time and channel identification. If the memory should be full (500 events) the first value is deleted to make place for the next (FIFO).

The Multi-Event is fitted with a serial interface as a standard feature. This can be used to read off and transmit the stored events to a central computer.

2.1 Recording of contact changes (Events)

2.2 Recording operation running time

2.3 Initiation of report printouts

2.4 Graphic event recording

2.5 Limit surveillance

2.6 Event memory

2.7 Serial interface

3. Operation

A programming module is available for setting up. This module is the size of a small pocket calculator and incorporates a keypad and a two-line display (each with 16 digits) After use it slides back into the printer housing.

4. Linear array thermal print head/paper

The linear array thermal print head has no moving parts, and is virtually maintenance free. The system uses thermal sensitive paper
The paper reserve roll and wind-up mechanism is constructed in the form of a plug in cassette, which slides into the front of the printer. The paper width is 60 mm.

5. Connections

Please ensure that the unit is connected in accordance with the relative national safety standards and regulations.

On noisy mains power supplies a voltage stabiliser should be connected as the printer will automatically cut out above and below a certain voltage (for tolerances see "Technical Data") thereby preventing any further recording.

5.1 Terminal layout and connections

Separate earth terminal

Terminal strips A, C and mains supply (terminals N+L) are plug in screwed terminals.

Position A :

Terminal 01
Terminal 02
Terminal 03 - 05
Terminal 06 - 08
Terminal 09 - 11
Terminal 12 - 14

Terminal strip A

Internal auxiliary voltage +12 V
Common (GND)
Paper end alarm, power, fault relay (Rel.1)
Limit relay 1 (Rel.2)
Limit relay 2 (Rel.3)
Limit relay 3 (Rel.4)

Position B:

Pin 01 - 48
Pin 49
Pin 50

50 pole connector

Channels 1 - 48 input
Internal auxiliary voltage +12 V
Common (GND)

Note:

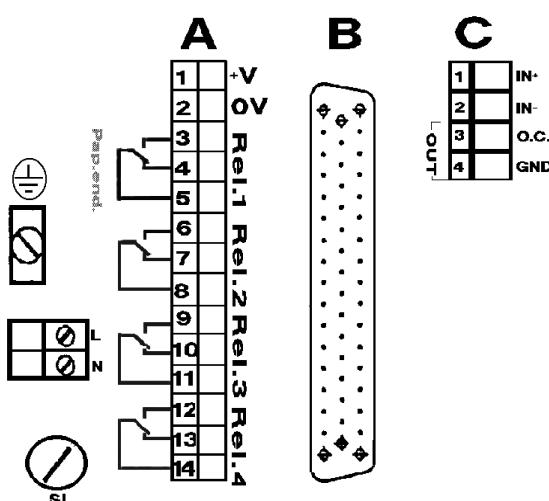
Do not connect pin 50 if the internal auxiliary voltage is being used.

Terminal 1 (position A) and pin 49 (position B) are identical.

Terminal 2 (position A) and pin 50 (position B) are identical.

Position C: Terminal strip for serial interface

Terminal 1 TTY input +
Terminal 2 TTY input -
Terminal 3 TTY output +
Terminal 4 TTY output -



Unit rear panel

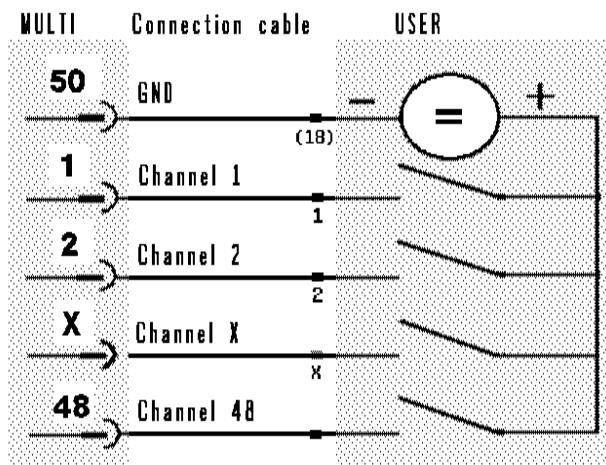
The inputs can either be potential free contacts or contacts supplied by an external voltage source. For the colour coded adapter cable see section 16.

5.2 Connection examples

When using an external voltage source approx. 12 V/DC.

Note: The number shown in brackets is the pin number used when operating a 16 channel version.

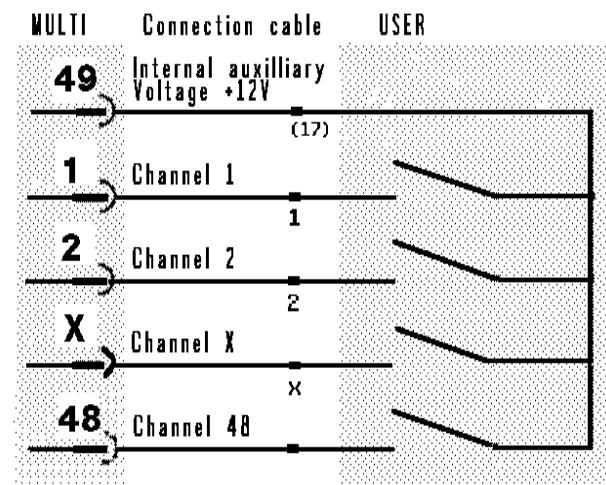
Connection example A:



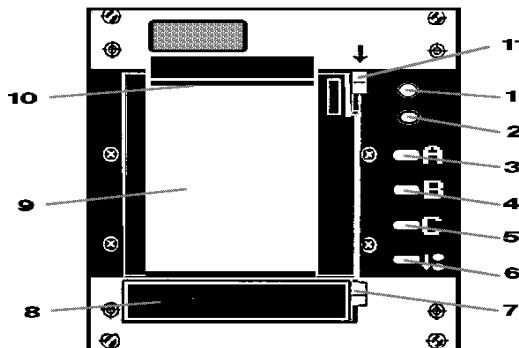
When using the internal auxiliary voltage approx. 12 V/DC

Note: The number shown in brackets is the pin number used when operating a 16 channel version.

Connection example B:

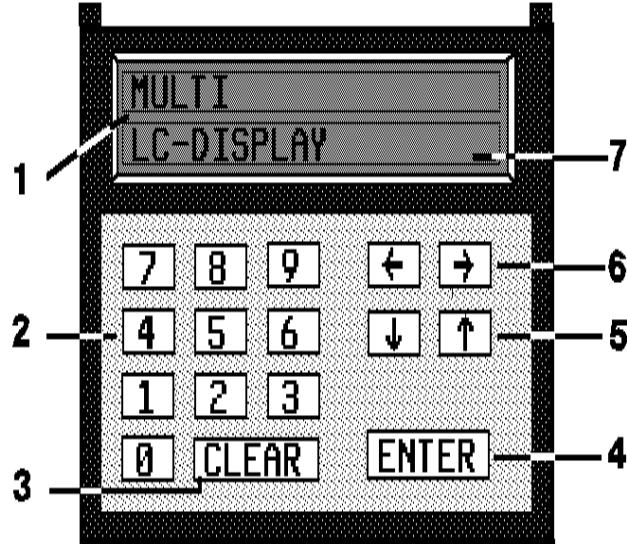


6. Operating elements



- 1 - LED - green
Continuous light: Unit in operation
- 2 - LED - red
Continuous light: Paper supply is running out
Flashing light: Paper end, the unit continues to function but there is no printout.
- 3 - Function key: Status report
- 4 - Function key: Printout of all set up data
- 5 - Function key: Printout of terminal connections
- 6 - Paper feed push button
- 7 - Setting up module release lever
- 8 - Setting up module with keypad and display
- 9 - Paper supply cassette
- 10 - Paper tear off strip
- 11 - Paper cassette removal lever

6.1 Keypad with LC display



1 - 2x16- digit LC display.

2 - Keypad 0 - 9 for direct number selection.

3 - **CLEAR** Key
Operates a return to the previous setting up level.

4 - **ENTER** Key
Has the function of opening a setting up step and acknowledging the set up data via printout.

5 - Position keys
a) Position selection by scrolling backwards or forwards through the various addresses.
b) Selection of numeric or alphanumeric characters.

6 - Cursor keys
Moves the cursor left or right to the required position.

7 - Cursor.

Attention:

Flashing lines or characters (block cursor) can only be changed by using the position keys.

7. Taking into operation

Before switching on please check that the supply voltage corresponds with that indicated on the unit legend plate.

Once the unit has been connected to a power source the green LED on the front plate lights up. The unit then issues one of the following printouts:

After initial delivery

NETZ	EIN	02.05.95
NETZ	AUS	02.05.95

After GB language has been selected

POWER ON	02.05.95
POWER OFF	02.05.95

The date, time as well as all counter values are maintained for approx 1000 hrs. after a power failure. If the unit has been without power for more than the 1000 hrs. it is only guaranteed once the unit has been constantly under power for 2 weeks.

Language change

First the unit security code must be unlocked.

1. Select address 01
Display shows:

01	EINGABE
	GESPERRT

2. Operate ENTER
Display shows:

01	CODE
	0000

3. Using the numbered keypad or position and cursor keys enter the code 6051.

4. Operate ENTER
Display shows

01	EINGABE
	FREI

Control printout: 10:50 EINGABE FREI

Now the language can be changed from German (D) to English (GB). This is done after selecting address 06, operating ENTER, selecting GB using the POSITION keys and then operating ENTER.

8. Setting up / setting up examples

The unit can be set up after sliding the keypad / display out from the front of the printer (positioned under the paper cassette).

Each individual address can be set up separately.

The set up values are accepted by operating the ENTER key. Once this has been done the unit acknowledges by issuing a printout of the selected values. If no data is entered for at least 2 minutes the setting up mode is automatically aborted.

The unit operates on three setting up levels. Level 1 enables address selection. Operating ENTER places the setting up sequence into level 2. Here parameters such as date and time can be changed. Operating ENTER again accesses level 3. Here further values such as event text lines can be entered.

The viewing angle of the LC display can be adjusted by operating one of the cursor keys  in setting up level 1.

Cursor left = Angle upwards
Cursor right = Angle downwards

The following displays are indicated once the unit has been set to operate in English (GB)

1. Select address 01

Display shows:



2. Operate 

Display shows:



3. Using the numbered keypad or  and  enter the code 6051.

4. Operate 

Display shows:



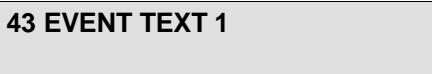
Control printout: 10 : 50 INPUT UNLOCK

8.1 Viewing angle adjustment

8.2 Unlock security code

8.3 Setting up example "EVENT TEXT 1"

a) Direct selection of the two digit address number, eg. 43 by using the NUMERIC keypad. The selected address appears in the display.



The following is displayed if a not available address is selected:



1. LEVEL 1 Select address 43

This error message can be erased by operating the **CLEAR** key. Once this has been done the address previously displayed reappears. Should the **CLEAR** key not be operated the previously displayed address automatically reappears after a time delay of approx. 3 sec.

b) Selection of the required address by using the position  keys

2. Function selection level 2

Open the address by operating the **ENTER** key.
Display shows:

43 CHANNEL	01 - 01
EVENT CHAN. 01	

Select the channel(s) to be set up by using the position keys  . Then acknowledge with **ENTER**.

3. Setting up data level 3

Entering the required values directly by using the numeric keypad and/or the position and cursor keys. Alphanumeric characters can only be selected by using the position and cursor keys.

a) Selection using the numeric keypad

The digit in the cursor position can be changed. Once a digit has been changed the cursor automatically moves right to the next position in the line. Set up data is accepted by operating the **ENTER** key. This is then acknowledged by a control printout.

b) Selection using the position keys

When operating the position key the character in the cursor position scrolls through the internal character set. Once the required character is displayed above the cursor the next position can be selected using the cursor  keys. Set up data is accepted by operating the **ENTER** key. This is then acknowledged by a control printout.

4. Correction of single characters

a) Should a certain position need correcting first the address must be selected and acknowledged by operating the **ENTER** key.

b) The values can then be corrected and when completed acknowledged using the **ENTER** key.

5. CLEAR key

Operating this key effects a return to the next highest LEVEL or back to the previous values.

9. Programming addresses

0 1 EINGABE	FREI	Release setting up (On initial delivery)	Enter code 6051
0 1 EINGABE	GESPERRT	Lock setting up (On initial delivery)	Enter code 9999
0 1 INPUT	ULOCK	Release setting up (Once GB set up)	Enter code 6051
0 1 INPUT	LOCK	Lock setting up (Once GB set up)	Enter code 9999
02 DATE	0 3. 0 5. 95	Set up date	
0 3 TIME	1 2 : 5 5	Set up time	
0 4 ST 2 6.0 3.	02	Set up summer/normal time each year	
NT 2 4.0 9.	03		
0 5 AUTOMATIC	1 HR 1 8 : 0 0	Set time cycle and synchronisation time	Selection: 1, 5, 10, 15, 30 min. 1, 2, 3, 4, 6, 12 hrs.
0 6 SHIFT	AUTOMATIC	Set up shift times	Selection: 3 shift times are available
0 7 W EEK	AUTOMATIC	Set up week day and time. Selections available	Selection: eg. Monday 06:00
0 8 LANGUAGE	GB	Set up language	Selection: D, F, GB, NL, DK
0 9 INTENSITY	6	Set up print intensity.	Selection: 1 to 9
1 0 UNIT NO.	WETZER 0 1	Set up text	Selection: Alphanumeric character set
1 1 SERIAL	BAUDRATE	Select Baudrate	Selection: 300, 600, 1200, 2400

1 2 SERIAL PARITY	Select parity bit	Selection: ODD, EVEN
1 3 SERIAL REF. NO.	Set up serial reference number	Selection: Numeric digits
2 0 MODE CHANNEL	Select channel operation mode.	Selection: Operation time, numerator, OFF
2 1 MODE EVENT PRINT	Select operation type.	Selection: Every, none, every ON signal, every OFF signal
2 2 MODE COUNTER 1	Select channels.	Selection: Measuring period, shift, day, week, month, external, manual, OFF - signals, not active
2 3 MODE COUNTER 2	Select channels:	Selection: Measuring period, shift, day, week, month, external, manual, OFF - signals, not active
2 4 SPECIAL FUNC. CHANNEL 01	Select function	Selection: Print event memory, status report, counter, time synchronisation and not active.
2 5 PRINT FORMAT TIME	Select printout format	Selection: hh:mm, mm:ss, ss:ss/100
2 6 PLOT SELECT.	Select max. 8 channels	
2 7 FEED RATE 4 0 mm/h	Select feedrate.	Selection: OFF, 10, 40, 240, 1200 mm/h
2 8 MODE PLOT	Event printout permitted.	Selection: YES, NO.
2 9 MODE RELAY	Select relays 1 - 3.	Selection: Off, limit, cumulative (C.EV.), single ON (S.EV.), or OFF (O.EV.) events
3 0 MODE EVENT TEXT	Select channel.	Selection: Single or two line
3 1 MANUAL COMMAND	Enter code "54"	Careful!! All counters will reset to zero

4 0 PRESET	Select channel.	Set new counter value.
COUNTER 1		
4 1 PRESET	Select channel.	Set new counter value.
COUNTER 2		
4 2 LIMIT	Select channel.	Set up limit values
4 3 EVENT TEXT 1	Select channel.	Selection: 1st line alphanumeric character set max. 15 digits / line.
4 4 EVENT TEXT 2	Select channel.	Selection: 2nd line alphanumeric character set max. 15 digits / line.
4 5 CONDITION WORD	Select channel.	Selection: Alphanumeric character set, max. 4 digits / condition (ON/OFF)
6 0 COUNTER	Select channel	Selection: Yes, no.
RESET		
6 1 DELETE	Operate ENTER.	Careful: memory will be deleted
MEMORY		
6 5 PRINT	Select channel.	Operate ENTER twice. No zero reset
COUNTER 1 + 2		
6 6 PRINT	Select channel.	Operate ENTER twice. (Position of limits to the 100 % line, in diagrammatic form)
LIMIT GRAPH		
7 0 DISPLAY	Select channel.	Input On/Off indication in sysmbolic form
SWITCH COND.		
7 1 DISPLAY	Select channel	Counter display
COUNTER 1		
7 2 DISPLAY	Select channel	Counter display
COUNTER 2		
9 0 SERVICE	Only for WETZER / E + H service personnel	
LOCK		

10. Operational description

The numbers in the various headings indicate the programming addresses in the display.

Addresses shown with  indicate that an input is required.

Addresses shown with  indicate that the data in this address should be checked and altered if required.

Addresses shown with  indicate that the data shown is only for information (DISPLAY).

01. Programming code lock / unlock:

Refer to page 6 (8.1).

02. Changing the date:

Operate ENTER, change the date and acknowledge by operating ENTER.

03. Changing the time:

Same procedure as for changing the date. The unit automatically starts a new minute once the acknowledgement with ENTER has been completed.

04. Setting summer/winter time changeover:

Function:

Preselecting the changeover times or deactivating this feature.

Example:

Input : ST 27.03.02

Means: The internal clock is advanced by 1 hour at 02:00 on the 27.03.

Input : WT 25.09.03

Means: The internal clock is turned back by 1 hour at 03:00 on 25.09.

Deactivating: In order to deactivate this feature the number 77 must be entered in the last two positions on each input (Both for ST and WT)

Note: The numbers "77" (in the display) indicate either that the changeover has already been done or that this feature has been deactivated. Should the numbers "99" appear in the display, the MULI-EVENT has recorded a year change and the summer/winter time changeover must be reprogrammed. If this is not done the unit will no longer automatically add or subtract the hour.

05 to 07. Setting the automatic print for measurement reports.

Function: Individual printout cycles with zero reset can be selected in these three addresses. Selection of the two counters per channel within these cycles is done at a later stage (addresses 22 and 23).

Note: Programming addresses 05 to 07 can be ignored if no report printouts are required. Synchronisation times are also set in these addresses. These can then be selected in addresses 22 and 23:

1. Automatic daily print command (the time of the printout is set in address 05)
2. Automatic monthly print command (same time as daily print command, printout on the first of the month)

● 05. Measuring period automatic selection

1. Select time cycle (1 min to 12 hrs)
2. Set start time in hours and minutes.

Input:

Start time + cycle time = Time of the first measuring period report, + cycle time = Time of second measuring period report, and so on (continuously reoccurring).

Function:

The start time is also the time for a daily and monthly printout (if selected in addresses 22 and 23).

Note:

Start time 06:00 = Monthly report on the first of each month at 06:00.

Example:

● 06. Shift automatic selection (shift report)

Select the first shift stop time (hours and minutes), select the second shift stop time (hours and minutes), select the third shift stop time (hours and minutes).

Input:

The preselected counters are printed out and reset to zero at these preset times.

Function:

All three times must be programmed even if only two shifts are required.

Note:

● 07. Week automatic selection (Weekly report)

Select the required week day, operate ENTER;select the required printout time (hours and minutes).

Input:

A weekly report including zero reset is printed on the selected day at the preset time.

Function:

● 08. Language selection

All data is in the language selected.

Function:

Event text and unit functions are not changed.

● 09. Intensity selection

1 = light printout
9 = weak printout

Function:

● 10. Unit identification selection

Program 9 digit text.

Input:

Various printouts are headed with the unit identification text. This text identifies individual units where more than one printer is in operation.

Function:

● 11. Serial Baudrate

Operate ENTER. Using the up/down arrowhead push buttons select the required transmission speed. Accept input by operating ENTER.

Input:

The serial transmission operates using this preset transmission speed.

Function:

● 12. Serial parity

Operate ENTER, Using the up/down arrowhead push buttons select ODD or EVEN. Accept input by operating ENTER.

Input:

● 13 Serial identification number

Set up a four digit number.

Input:

Only information from the selected unit is transmitted to the host computer.

14 to 19. are unused addresses**→ 20. Channel operation mode selection (allocation of counters)**

Allocation of channels to one of the following either singly or in groups:

- Numerator
- Operation timer
- Off

Function:

Numerator	= Contact change on input increases counter + 1.
Operation time	= Contact closure at input, timer runs (timer inoperative when contact open).
	OFF =Channel inoperative(blended out).

Input:

Operate ENTER, select 2 numbers for "from channel.." operate key → , select 2 numbers for "to channel..", operate ENTER, select operational mode using ↑ ↓, acknowledge using ENTER. Repeat this until all channels have been programmed.

Important:

Always select mode "numerator" or "operation time" even for channels not in use as this would completely blend out that channel. Only use "OFF" for non-connected channels. This is indicated in the "Status report" as "-".

Exception:

Select "OFF" for channel 01 if a special function has been selected for this channel (address 24). Operate CLEAR once this has been set up.

● 21. Reaction to contact change selection

Allocation of channels to one of the following possibilities (for event printout) either singly or in groups:

- | | |
|--------------|---|
| Every event; | every contact change initiates a printout. |
| No event; | contact change is ignored as print command. |

Note:

The counters are not influenced, and continue to add.
 ON events: only contact closure initiates a printout
 OFF events: only contact opening initiates a printout
 Operate CLEAR once this has been set up.

● 22. and 23. Operation mode for counters 1 and 2 selection

There are two counters per channel (for intermediate and end sums). These counters operate, in pairs, either as a numerator (counter) or operation timer dependent on how they have been programmed in address 20. Here the counters are allocated to their respective report printout times (Addresses 05 - 07) or to a manual or external print command.

Note:

Counter 1 should operate to a shorter printout cycle than counter 2. (eg. intermediate counter and totaliser).

Important:

The following special features are also available instead of automatic printed reports:

- a) Counters are printed out and reset to zero via an external command (on input channel 1). This is a special feature for channel 1 and can be selected in addresses 22 - 24.
- b) Counters are printed out and reset to zero on a manual print command. (The command is given in address 31, only after the unit has been unlocked.).
- c) Individual counters are printed out and reset to zero on every "OFF" event.

● 22. Operation mode counter 1 selection.

- a) If the counter is used as a numerator it has 6 digits.
- b) If the counter is used as an operation timer it has 2 digits for seconds, 2 for minutes and 3 for hours. Should this counter overrun (after 999h 59m 59s) the counter automatically switches into a 6 digit hour mode.

Hint:

Allocate one of the following modes (report printout - print time) to all counters 1, all channels singly or in groups:

Function:

- **Measuring period (cycles selected under address 05)**
- **Shift (cycles selected under address 06)**
- **Day (daily cycles, dependent on the time selected under address 05)**
- **Week (weekly cycles, dependent on the selection made under address 07)**
- **Month (first of the month, dependent on the time selected under address 05)**
- **External (on contact closure at input 1 special function selectable under address 24. Event channel 1 is lost.)**
- **Manual (via keypad, address 31, release code 54)**
- **OFF - events (on every contact opening for that particular channel)**
- **Not active (counter is blended out and therefore not available)**

Operate CLEAR once this has been set up.

● 23 Operation mode counter 2 selection

- a) If the counter is used as a numerator it has 6 digits.
- b) If the counter is used as an operation timer it has 6 digits for "ON" time hours.

Hint:

← 24. Special function channel 1 deactivation or allocation.

Normally channel 1 would be required as an event channel therefore this address should be deactivated, (ie. "NOT ACTIVE" must be programmed). Should the message "Channel 1 (MODE) reprogram" appear in the display, select address 20 and reallocate channel 1 to the required features. (see description, address 20)

Hints:

Dependent on selection channel 1 has one of the following special features (when contact is closed at input 1):

Function

- **Status report: The status of all 16/48 channels (ON or OFF) is printed out graphically, in box form. (Channel 1 is shown as an "S" for special feature).**
- **External counter print command: All counters that are programmed to "EXTERN" are printed and reset to zero.**
- **Time synchronisation: An impulse (length >100ms) has the following effect on the internal clock:
Seconds 00-29: seconds reset to zero.
Seconds 30-59: seconds reset to zero and minute increased by 1.**
- **Print out event memory: The complete memory is printed out.**

● 25. Print format time selection:

Input:

Select one of three possible time formats:

- a) hh:mm = hours and minutes
- b) mm:ss = minutes and seconds
- c) ss:ss/100 = seconds and hundredths of seconds

Function:

The selected time format is always printed in the left hand margin opposite the event text. In order to have a complete overview of the times the Multi-Event expands this with the following date and time lines:

- On selection a) Before the next event printout on day change.
- On selection b) Before the next event printout on hour change.
- On selection c) Before the next event printout on minute change

● 26. Selection of up to 8 channels for a graphic "PLOT" printout.

In this address it is possible to display up to 8 of the 16/48 channels graphically. Any of the 16/48 channels can be allocated to any of the 8 "PLOT" channels. Automatic and alarm printouts interrupt the PLOT. Event printouts can interrupt the PLOT, dependent on programming.

Feature:

Allocate the required channel to PLOT channel 1 or select "OFF". Continue for all 8 PLOT channels.

Note:

PLOT channel 1 is printed on the left hand side of the paper and PLOT channel 8 on the right hand side.

◆ 27 Activate "PLOT" and feed rate selection.

One of four feed rates can be selected: 10, 40, 240, 1200 mm/h. If "OFF" is selected the "PLOT" feature is blended out.

Note:

Normally "OFF" is selected in this address. It is however useful in certain cases to observe the changes occurring graphically on important channels over short periods of time.

It is useful to have the event channels already allocated to PLOT channels (address 26). This means that on changeover to PLOT all that is required is to select the feed rate (address 27).

● 28. Selection if events should interrupt the PLOT feature of the unit.

Yes or no.

● 29. Selection of output function for the 3 alarm relays.

Each of the 3 relays can be allocated one of the following 5 functions:

- **C.EV.** = Cumulative events.

Channels allocated to this variation have the effect of switching the relay on a short pulse output (fleeting contact) on every event change. The pulse length is approx. 2 seconds. This is independent of simultaneously arriving changes but is retriggered on events occurring one after the other, if the relay has already changed its state and further events occur within the required 2 seconds, the relay stays in its "ON" state. (This continues until no event has occurred for at least 2 seconds.)

- **S.EV.** = On events.

A fleeting contact change is affected on every "ON" change of the event channel allocated.

- **O.EV.** = Off events.

A fleeting contact change is affected on every "OFF" change of the event channel allocated.

- **LIMIT** = Limit values monitored for infringements.

If these limits (selected and allocated to channels under address 24) are exceeded the relay switches. The type of contact change can be selected as either a fleeting or hold contact (as described in **C.E.V.**). If selected to hold the relay is continuously activated until the counter is reset to zero.

- **OFF** = Relay deactivated. (NO switching)

It is important to select groups of channels with the same alarm functions in the planning stage (eg. Channels 1 - 19 = LIMIT, channels 11 - 13 = O.EV. etc.). The reason for this is that only one group of channels can be allocated to any one relay.

Important:

Select address 29, operate ENTER, select relay 1 - 3 using ↑ ↓ keys, operate ENTER. Select the required function (eg. LIMIT) using ↑ ↓ keys, operate → key.

Input:

Select the first channel in the group to be monitored using ↑ ↓ keys (eg. CH 01), operate → key.

Select the last channel in the group to be monitored using ↑ ↓ keys (eg. - 05), operate → key

Select either fleeting (F) or hold (H) contact using ↑ ↓ keys, operate ENTER.

The first relay is now set up!

Set up the remaining relays in a similar way.

a) Should "OFF" be selected programming of this channel is ended and should be acknowledged by operating the ENTER key.

Note:

b) Fleeting or hold contacts can only be selected if the feature LIMIT has been programmed. All other features operate with a fleeting contact change.

☞ **30. Event text single or double line selection.**

Select channels either singly or in groups and allocate either single or two line event text. (text printed out on change of event).

Input:

31. Manual printout, via keypad with zero reset.

All channels selected to "MANUAL" under address 22 - 23 are printed out and reset to zero when the number "54" is entered.

Function:

32. to 39. not used.

● **40. Preset counter 1**

Preset the counter for each channel to the required number.

Input:

Counters that are required to be at zero can be preset easier under address 60.

Note:

● **41. Preset counter 2**

As in preset counter 1 (address 40)

Input:

● 42. Counter limit selection or deactivating.

An alarm printout is initiated on reaching the preset limit and the relay changes state (if programmed under address 29).

Feature:
Input: Select channel, program limit value for counter 1 followed by counter 2 or if no limit is required select "OFF".
Repeat this for all channels.

● 43 Program text line 1 for each event channel

Enter the required text for either individual or groups of channels.

Note: Time can be saved if groups of channels use the same text.

Example: Pumps are connected to channels 1 - 10.
The printed text is to be PUMP 01 - PUMP 10.

Program as follows: Select channels 01 - 10, operate ENTER.
Set up text PUMP 01, operate ENTER.
By using ↑ select channels 02 - 02, operate ENTER.
Using → set the cursor under "01", using ↑ set the number "02", operate ENTER.
(continue until all 10 pumps have been programmed).
Newly delivered units are preprogrammed with: Meldekanal 1 -16(48)

● 44. Program text line 2 for each event channel.

As described in address 43.

Note: A second text line will only appear in the print-out if a two line text has been programmed under address 30. If only a single line text is required then program SINGLE line under address 30. There is now no need to program the second line as it is completely blended out.

● 45. Program switch state identification text

Enter the required text for either individual or groups of channels:
First word (4 digit) for contact closure.
Second word (4 digit) for contact opening.
The units are delivered with the texts "EIN" contact closure and "AUS" contact opening.

Note: The texts appear at the end of each event line(s).

49. to 59. not used.

60. Counter zero reset

If "YES" is selected all counters selected are reset to zero.

Feature: Zero reset of counters either single channel or groups of channels can be selected.

Note: This feature is important when first taking the unit into operation.

61. to 64 not used.

□ 65. Counter printout.

Counter printout of single channels or groups of channels (no zero reset).

Feature:**□ 66. Printout of relationship between actual counter values and limit values.**

Bar chart printout. This shows a percentage relationship of the counter values to the preset limit values.

Feature:**67. to 69. not used.****□ 70. Display of switch conditions.**

The instantaneous switch state can be displayed. Open contacts are shown as □ closed contacts are shown as ■. The display is shown as 8 continuous channels.

Feature:

Operating ↑ scrolls the display to the next 8 channels.

□ 71. Display of counter 1

Each counter per channel can be displayed. Scroll by operating ↑.

Feature:**□ 72. Display of counter 2**

As address 71.

Feature:**90. Service level**

The features of this level are only accessible to Wetzer or Endress+Hauser service personnel.

11. Description of the serial interface

The TTY interface is a current loop interface. The logical "0" or "1" conditions are indicated as defined current values:

- Logic 0 = current signal < 2.5 mA
- Logic 1 = current signal > 11 mA

By using a convertor adaptor it is possible to communicate with units having a V24/RS232C interface.

11.1. Data transmission sequence

The interface will only transmit information to a computer if it has received a complete enquiry. The enquiry must end with EOT.

If the computer (HOST) has received the data correctly then it must acknowledge with ACK, if the data was not received correctly then the computer must use NAK and the Multi-Event will retransmit the complete block starting with an STX.

Once a Multi-Event interface has been activated it needs the control characters ACK or EOT before it can accept a new ENQ.

If the data can never be correctly received then the computer can end communication by transmitting an EOT instead of NAK. This then resets the Multi-Event.

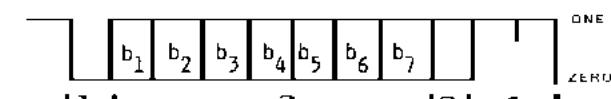
If during communication (Multi-Event → computer) the computer transmits an EOT this aborts all transmission and the Multi-Event is reset.

Should there be a power failure and consequently transmission breakdown at the Multi-Event the computer must restart the enquiry with an ENQ (Multi-Event is reset on power return). This means that EOT, ACK and NAK are ignored by any Multi-printer that is not being communicated with.

Should there be a power failure and consequently transmission breakdown at the computer, the transmission must first be aborted correctly before a new enquiry can be initiated. This means that the computer must first transmit an EOT before the first ENQ.

Should the connection between the Multi → computer be broken so that the Multi transmits after receiving an ENQ but the computer does not receive, the computer must transmit an EOT before the next ENQ.

11.2 Character format



1 = Start bit

2 = 7 data/information bits (b₁-b₇)

3 = Parity bit

ODD = Non linear

EVEN = Linear

4 = Stop bit

The Baudrate can be set in the following steps: 300, 600, 1200, 2400 Baud.

11.3 Special characters

Special characters that do not comply to the 7 Bit ASCII format are transmitted as a Question mark "?".

STX (02 Hex) = Feeds a text or part of text into the unit

ENQ(05 Hex) = Enquiry and control characters

Possible enquiries:

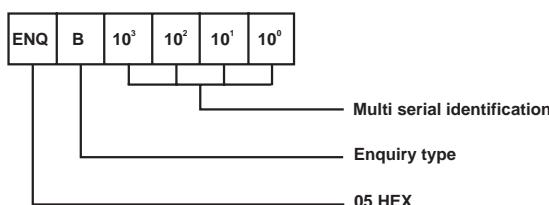
- A = Test sequence.
- B = Memory from the time of the last serial readout and transmission.
- C = Complete memory transmission.
- D = Zero reset of the serial interface memory.

<u>ETX (03 Hex)</u>	=	End of text
<u>EOT (04 Hex)</u>	=	End of transmission
<u>ACK (06 Hex)</u>	=	Positive reply
<u>NAK (15 Hex)</u>	=	Negative reply

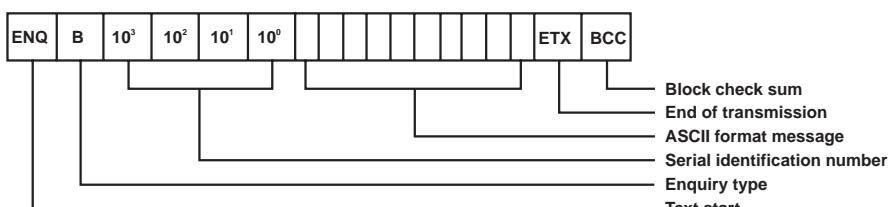
BCC = Block check character, contains the characters from the unit number to ETX. It is constructed in an exclusive order thereby giving a linear length parity.

All events and alarm messages on limit infringement are transmitted including the channel identification and time of occurrence. On day change an additional message "Day change" is stored in the memory.

11.5 Data sets read out



11.6 Enquiry command format HOST computer to Multi

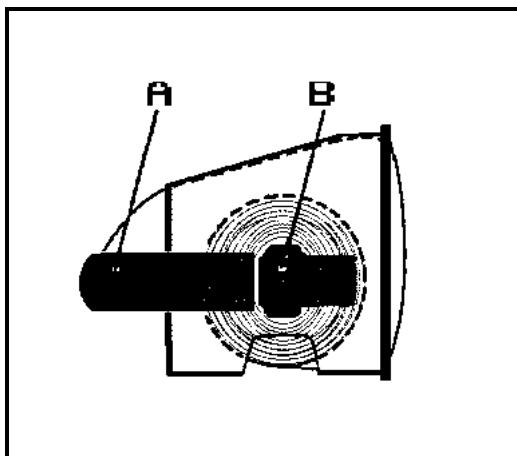


11.7 Multi-Event to HOST computer

The received data set must always be acknowledged with an ACK or NAK. Dependent on the enquiry type the serial identification number is always transmitted back to the Multi.

12. Paper change, maintenance, guarantee

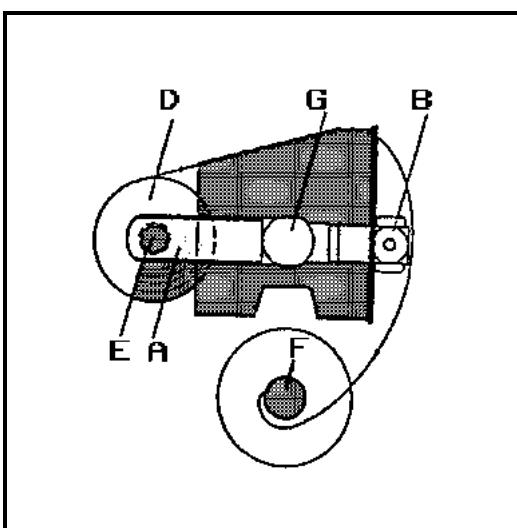
Push the cassette release lever downwards and pull the cassette out of the printer front panel.



Pull lever "A" outwards (towards the reader) and remove the empty paper spool.

Lift retainer "B" and pull to the right.

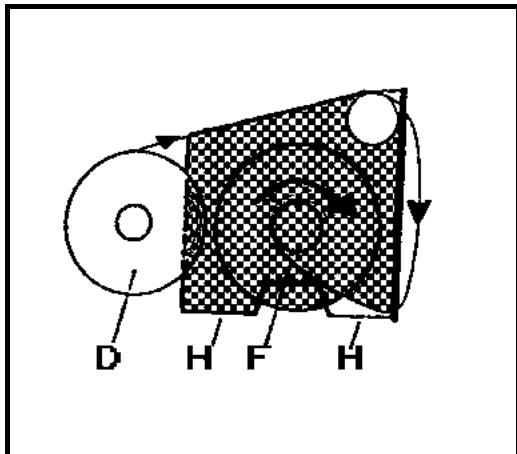
Remove printed paper from the wind up spool.



Slide the new paper roll "D" onto the hinged axle "E".

Return axle "E" into position until it is re-engaged by the lever "A"

Feed the paper round the cassette in the direction shown by the arrow and slide the paper end into the wind up spool "F" and manually wind on a couple of turns.



Place the wind up spool "F" back into the cassette inset "G" and push the spring lever back into position.

Turn the wind up spool a couple of times in the direction shown by the arrow.

Should the paper be fed incorrectly the mechanism will operate but nothing will be printed.

Return the cassette into the printer housing ensuring that the rail "H" is placed onto the base of the cassette base in the printer.

Push the cassette evenly back into place until it clicks into position.

Important:

Only use E+H Wetzer thermal paper and store this in a dry, cool and dark area.

All components used are maintenance free.

Maintenance

It is recommended that after using approx. 50 rolls of paper, the printhead should be cleaned using a soft cloth dampened with alcohol. It is sufficient to wipe down the front of the printhead.

The guarantee becomes invalid if the unit has been mishandled (wrong connection, misuse and unqualified attempted repairs).

Guarantee

For further details please consult our "Conditions of Sale".

13. Multi-Event character set

Attention:

Please note that the characters under the following numbers from the printout do not correspond with the display 17, 33, 61, 94, 114, 115, 117, 118 and 119.

<u>Display</u>	<u>Printout</u>	<u>Display</u>	<u>Printout</u>	<u>Display</u>	<u>Printout</u>	<u>Display</u>	<u>Printout</u>
1.	Space	36.	C	72.	g	107.	Γ'
2.	!	37.	D	73.	h	108.	X
3.	"	38.	E	74.	i	109.	Ω
4.	*	39.	F	75.	j	110.	ñ
5.	\$	40.	G	76.	k	111.	ñ̄
6.	¤	41.	H	77.	l	112.	x
7.	&	42.	I	78.	m	113.	÷
8.	,	43.	J	79.	n	114.	√
9.	(	44.	K	80.	o	115.	±
10.	)	45.	L	81.	p	116.	Square
11.	*	46.	M	82.	q	117.	Cubed
12.	+	47.	N	83.	r	118.	Low 2
13.	>	48.	O	84.	s	119.	Low 3
14.	-	49.	P	85.	t	120.	Infinite
15.	.	50.	Q	86.	u	121.	□
16.	/	51.	R	87.	v	122.	→
17.	Ø	52.	S	88.	w	123.	↔
18.	1	53.	T	89.	x	124.	↑
19.	2	54.	U	90.	y	125.	↓
20.	3	55.	V	91.	z	126.	^
21.	4	56.	W	92.	€	127.	◊
22.	5	57.	X	93.	ı	128.	▽
23.	6	58.	Y	94.	}	129.	-
24.	7	59.	Z	95.	~	130.	□
25.	8	60.	[	96.	█	131.	█
26.	9	61.	\`	97.	§		
27.	:	62.	]	98.	§		
28.	:	63.	^	99.	§		
29.	<	64.	-	100.	§		
30.	=	65.	\`	101.	§		
31.	>	66.	*	102.	§		
32.	?	67.	b	103.	§		
33.	¤	68.	c	104.	§		
34.	À	69.	d	105.	§		
35.	฿	70.	e	106.	μ		
		71.	f				

14. Technical data

Version A:

19" rack mounting unit
Front plate 128,5 mm x 26 TE
Basic model for panel mounted conversion and wall mounted housing

Version B:

19" rack mounting unit
Front plate 128,5 mm x 28 TE
with fixing holes

Version C:

19" rack mounting unit
Front plate 132,5 mm x 28 TE
with slotted holes

Accessories to version A:

Conversion kit for 144 x 144 mm panel mounting
Conversion kit for 144 x 144 mm panel mounting including door and latch
Conversion kit for 144 x 144 mm panel mounting including door and lock
Wall mounted housing

Construction / system:

Microprocessor controlled system. Data is preserved for approx 1000 hours after power failure. The programmed data is stored indefinitely. Internal quartz clock with automatic leap year control, printout of power failure occurrence. No recording or printing during power failure.

Operation:

Setting up in various languages via slide out keypad. LC-display and printer indicate the values set up.

Character set:

ASCII character set, alphanumeric plus special characters

Summer/normal time changeover

Presettable summer / winter time changeover

Automatic print intervals:

Time intervals of: 1, 5, 10, 15, 30 minutes, 1, 2, 3, 4, 6, 8, 12 hours, shift, daily, weekly, monthly

Inputs:

16 or 48 for:
a) potential free contacts (+12 V auxiliary voltage from printer).
b) External voltage source: $V_{IL}=0 \dots +3 V$;
 $V_{IH}=8 \dots +24V$
Input impedance: approx. $8 K\Omega$
Minimum impulse length: 10 ms.

Data memory (Serial interface):

The last 500 events are continuously stored including date and time

Counters per channel:

Two 6 digit counters for counting the ON events or recording operational time.

Event printout:

Time, text (selectable 1 or 2 line) and switch condition per channel.

Report printout:

Time intervals (see automatic print interval)

Printout of date, time, text, event and operation time counters (with eventual zero reset).

Graphic operation:

Maximum 8 channels with presettable feedrate, channel identification and times.

Synchronous input:

Selectable to synchronise internal clock

Channel 1 is inoperative as an event channel).

Limits:

One counter presettable per channel.

Outputs:

- a) 3 relay outputs for limit monitoring and event retransmission (relays 2 to 4)
- b) 1 relay output for paper reserve alarm, power failure and faults (relay 1).
- c) Serial interface.
- d) Internal auxiliary voltage approx. 12 V / 250 mA

Printer mechanism:

Linear array thermal print head 150 dots/line =
25 characters / line with presettable intensity.Z

Character format:

5x9 dot matrix, dot size Ø=0,3 mm

Line separation:

4,33 mm

Print principle:

Burning of characters onto heat sensitive paper during movement of the paper.

Print speed:

approx. 500 ms/line

Expected life of printing mechanism:

MTBF 1x10⁶ lines

Paper:

Thermal paper (black print), width 60mm, length 30m

Paper holder:

Internal paper roll and wind up mechanism. Front removable cassette for paper change.

Paper end alarm:

- a) Via red LED on front plate
- b) Potential free changeover contact 24 V/0,5 A. (relay 1)
 - De-activates on:
 - paper reserve at approx. 3 m
 - power failure
 - fault

Power supply:

230 V, 50/60 Hz, +10% / -15%
 Options: 115 V AC, 50/60 Hz, 24 V AC, 50/60 Hz, 24 V DC

Power connection:

2 terminals, 1 earth (ground) connection,
 Cable cross section area 0,5 -2,5 mm²

Power consumption:

approx. 30 Watt

Safety:

To EN 61 010-1/VDE 0411 Part 1

Protection class : I

Over voltage classification: II

Unit fuse:

220 V, 0.315 A slow blow

Ambient temperature range:

+5° C.....+50° C (without condensation)

Storage temperature range:

-20° C.....+70° C

Weight:

approx. 5 kg

Technical alterations reserved !**15. Fault messages****a. RESET**

After every power failure the unit initiates a self check and tests the **RAM**.
 Should errors or faults be recognised an automatic **RESET** is initiated:
 All counters are reset to zero
 The unit prints out the message **RESET DONE**

b. PRESET

Should faulty data be recognised in the **EEPROM** the unit automatically initiates a **PRESET**.
 The preset operational data is deleted and standard work settings are loaded.
 The unit prints out the message **PRESET DONE**

16. Multi-event 18/50 core adapter cable colour coding

16 Channel version

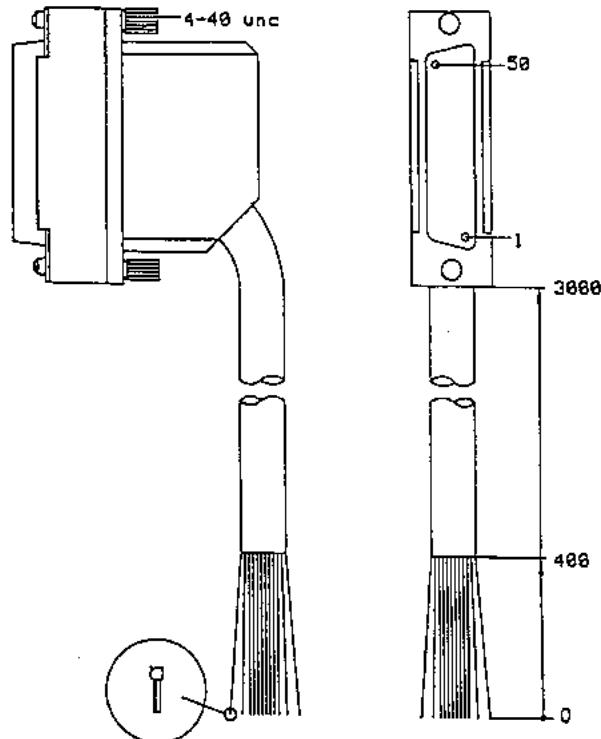
1	white	24	brown - red
2	brown	25	white - black
3	green	26	brown - black
4	yellow	27	grey - green
5	grey	28	yellow - grey
6	pink	29	pink - green
7	blue	30	yellow - pink
8	red	31	green - blue
9	black	32	yellow - blue
10	violet	33	green - red
11	grey - pink	34	yellow - red
12	red - blue	35	green - black
13	white - green	36	yellow - black
14	brown - green	37	grey - blue
15	white - yellow	38	pink - blue
16	yellow - brown	39	grey - red
17	+12 V DC white - grey	40	pink - red
18	GND grey - brown	41	grey - black
		42	pink - black
		43	blue - black
		44	red - black
19	white- pink	45	yellow -black - green
20	pink - brown	46	brown - black - green
21	white - blue	47	white - black - green
22	brown - blue	48	red - black - blue
23	white - red	49	+12 V DC grey - black - pink
		50	GND white - black- brown

48 channel version

19	white- pink	46	brown - black - green
20	pink - brown	47	white - black - green
21	white - blue	48	red - black - blue
22	brown - blue	49	+12 V DC grey - black - pink
23	white - red	50	GND white - black- brown

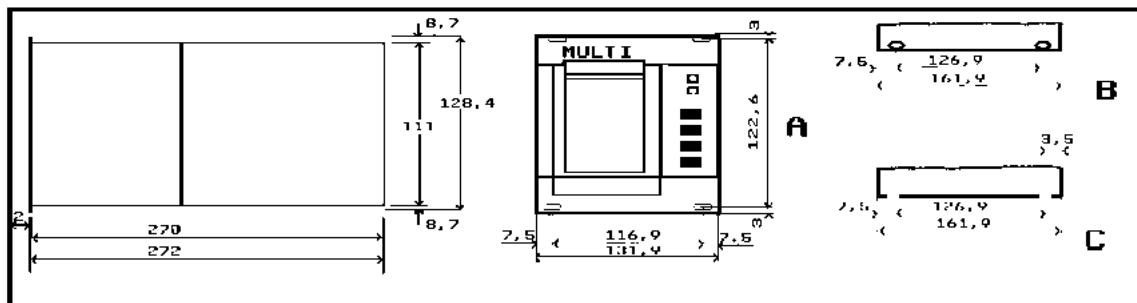
SUB-D 50 pin plug
Female contacts with crimp connection

Cable type: LiYY 50 x 0.14mm²
unscreened.
Cores with:
- Crimps or
- Soldered

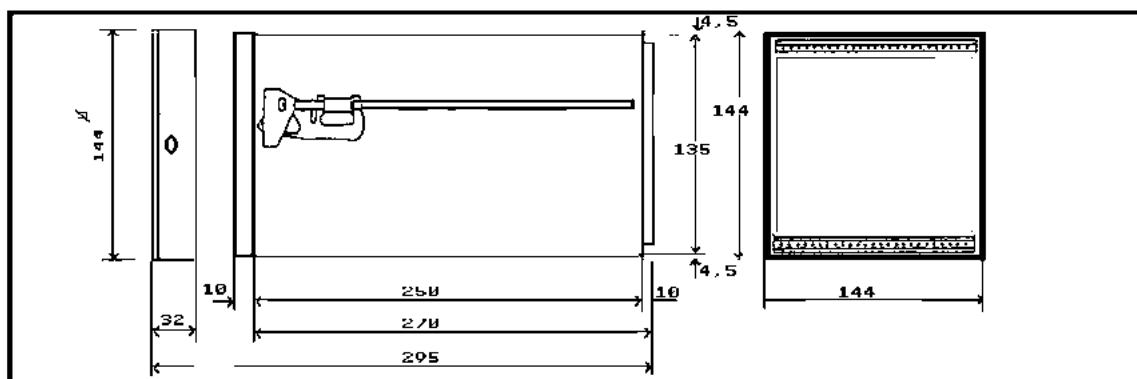


17. Dimensions

MULTI



144 x 144mm conversion kit



18. Works programmed standard values.

Shown are values for a 16 channel unit before changing the language to GB. Once language has been changed operate the front panel push button "B" to obtain an English printout. Then glue a photocopy over the data displayed below.

27.03.90 10:01 WETZER 01
PROGRAMMIERTE DATEN

DATUM 27.03.90
UHRZEIT 10:01
SOMMERZEIT 00.00. 99
NORMALZEIT 00.00. 99
AUTOMATIK 1 STD 00:00
SCHICHTAUTOMATIK
ZEITEN 00:00 00:00 00:00
WOCHEAUTOMATIK
MONTAG 00:00
SPRACHE D
INTENSITAT 6
GERATEBEZ. WETZER 01

BAUDRATE 2400
PARITAT EVEN
KENNZIFFER (SERIELL) 0001

BETRIEBSART KANAL
KA. 01-48 AUS

BETRIEBSART MELDEDRUCK
KA. 01-48 EIN-MELDUNG

BETRIEBSART ZAEHLER 1
KA. 01-48 NICHT AKTIU

BETRIEBSART ZAEHLER 2
KA. 01-48 NICHT AKTIU

BETRIEBSART EXTERN
AUSLOSUNG NICHT AKTIU

DRUCKBILD
UHRZEIT SS:mm

PLOTAUSWAHL

PLOTKANAL 01	AUS
PLOTKANAL 02	AUS
PLOTKANAL 03	AUS
PLOTKANAL 04	AUS
PLOTKANAL 05	AUS
PLOTKANAL 06	AUS
PLOTKANAL 07	AUS
PLOTKANAL 08	AUS

VORSCHUB 40 mm/h

BETRIEBSART PLOT
MELDEDRUCK ERLAUBT? JA

BETRIEBSART RELAIS
RELAIS 1 AUS
RELAIS 2 AUS
RELAIS 3 AUS

BETRIEBSART MELDETEXT
KANAL 01-48 EINZEILIG

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