9MA10011

Memory 1000

Multichannel data logger

English

SUMMARY

1. INTRODUCTION

Memory 1000 is a multi-channel, EN 12830 compatible data logger for recess and flush wall-mounting.

Specifications
- Power supply 230V a 50Hz
- Up to 10 analogue/digital inputs
- Relay and buzzer alarm signalling
- RS-485 port to expand inputs via compatible Eliwell Televis controllers
- Graphs and tables printed on integrated printer
- RS-232 port to export data using MS Windows® software (supplied)
- Compatible with RadioAdapter wireless networks
- Real-time measurements on the wide, backlit display
- Available languages:
  - Italian, English, Spanish, German, French
  - Dutch, Swedish, Norwegian, Finnish, Russian
  - Polish, Czech, Slovak, Greek, Turkish.

Pluses
- Easy-to-use
- Controllers connected via RS-485 network or RadioAdapter wireless modules
- Manages all aspects of network controller alarms
- 12-months+ data logging capacity
- A model to fit all application requirements

The Memory 1000 wall-mounted or recessed data logger can manage four separate rooms by means of four analogue plus four digital channels.
The 12+ month data logging capacity makes Memory 1000 the ideal solution for small installations requiring HACCP data recording.
The graphic LCD display allows the status of the inputs to be viewed clearly and provides access to the recorded data.
Memory 1000 can manage two alarm levels for each analogue channel and can manage alarm signalling with configurable relay outputs and buzzers.

Manual use
The screenshots are indicated as follows:

Case A		
* FIRST ACCESS *		↑
Language	English	|
AAAA/MM/GG:	<date>	|
HH:MM:SS:	<hour>	|
Period REC.	min : 000	|
EN12830:	<=24h / 30s	|
Num. of probes used:	8	|
Num. of digits used:	2	↓

Case A
The presence of last column

Case B		
0	PRINTING	
	Interrupted	

indicates that it's necessary to push the UP and DOWN buttons to see all the present items

Case B
The screenshot with hatched edge indicates a partial visualisation of the screenshot itself (the not significant part is omitted)

2. USER INTERFACE AND MENUS

Memory 1000 has a green LCD graphic display with backlit functions, contrast control and on/off modes configurable from parameter.
The display serves as the main user interface and shows various different types of information:
- Default / main views (i.e. values of data read).
- Selection menu.

2.1 Keys

There are 6 keys on the front panel. Each key (see the two tables below) has:
- A "direct" action (marked on the key).
- An "associated" function (marked on the front panel of the device beside the key). In the manual, this is shown in square brackets (e.g. [UP]).

Key	Description Key	Press once (press and release)	Key [associated function]	Menu / Comments
	**UP (UP)**	• Increases a value • Goes to the previous label	**YES (^=YES)** Confirms the selection/change	
	**DOWN (DOWN)**	• Decreases a value • Goes to the next label	**NO (v=No)** Cancels selection/ change	

Key	Description Key	Press once (press and release)	Key [associated function]	Menu / Comments
	**SX (Left)**	• Goes back to previous level		Not enabled in General menu
	**DX (Right)**	• Confirms value / exit and saves new settings • Moves to next level (open folder, subfolder, parameter, value) • Opens state Menu		Not enabled in General menu
		• Silencing Alarm (Alarm Mute)		enabled in General menu ONLY
	**OK Confirm**	• Opens modify value • Confirms value entered		

Key	Description Key	Press once (press and release)	Key [associated function]	Menu / Comments
Only key enabled in *Main Display* 	**Menu**	• Opens general menu • Opens menus • Esc(ape) function – goes back to previous level**		See General Menu **NOTE: if you are asked to confirm changes ^=YES / v=No the key is not enabled
	Timeout	If no *keys* are pressed for more than one minute, the *Main Display* returns. N.B.: any changes/settings will not be saved on exiting: • For a timeout • Using the menu key		

Pages consist of fixed and editable values.
To edit a value, highlight it with the cursor using the Up and Down keys.
After it has been highlighted, press the OK key to enable editing (the field is enabled for editing if the cursor highlighting it flashes.
Use the Up and Down keys to set the required value then confirm this by pressing the OK key again.

2.2 Led and Display

There are 4 icons (LED).

LEDs

Icon		Colour	Permanently on	Blinking
Rec	Jogging data	Red	Data logging ACTIVE	//
	Alarm	Red	Active alarms NOT acknowledged	Active alarms acknowledged
	Alarms acknowledged	Amber	Acknowledge time running	//
	Print	Green	Print suspended / failed	Printing

2.3 Main display

dd/mm/yy	hh:mm	↑
ONBOARD – P1	4.5 ↑	|
ONBOARD – P2	5.0 ↑	|
ONBOARD – P3	18.3 -	|
ONBOARD – P4	20.4 -	|
ONBOARD – P5	18.6 -	|
ONBOARD – P6	18.4 -	|
ONBOARD – P7	2.0 ↓	|
ONBOARD – P8	2.3 -	|
ONBOARD – DI	Not active	|
ONBOARD – D2	Not active	↓

The Main Display on the LCD (when no keys pressed) have been:

- Date and current time (dd/mm/yy and hh:mm formats respectively).
- List of probe values and/or digital input states.
- The following symbols may appear beside the probe value:
  - – value within limits
  - ↑ **High alarm**
  - ↓ **Low alarm**

In the event of an alarm, the relative value will be shown.
The display can be fixed or with automatic scrolling enabled (see section 5.0 Display).
In the example, there are 8 analogue inputs marked with labels P1, P2, ... P8 and 2 digital inputs D1, D2.

2.3.1.1 Analogue inputs display

All analogue inputs are shown with the following information:
- Name of analogue input P1, P2,...P8**.
  - ONBOARD Px if the resource is integrated (see section 4.4 Onboard Resources).
  - Px for Televis network resources (see section 4.5 Network 1).
- Value (2 figures with decimal point indicating tenths of a degree) or Probe Error.
- Unit of measure (C degrees centigrade; Bar pressure in bar; etc.).
- Alarm condition.

2.3.1.2 Digital input display

All digital inputs are shown with the following information:
- Name of digital input D1, D2**.
  - ONBOARD Dx if the resource is integrated (see section 4.4 Onboard Resources).
  - Dx for Televis network resources (see section 4.5 Network 1).
- State (active/not active).
- Alarm condition.

** The number of resources depends on the system settings and model.

2.3.1.3 First switch on

This page appears when the device is switched on for the first time.
After this, you can access this menu from menu 4 - *Standard Configuration* (sub-menu 4.0 First Switch On and "force" the *First Switch On* function.

* FIRST SWITCH ON *		↑
Language	English	|
AAAA/MM/GG:	<date>	|
HH:MM:SS:	<hour>	|
Period REC.	min : 000	|
EN12830:	<=24h / 30s	|
Num. of probes used:	8	|
Num. of digits used:	2	↓

It is highly recommended to configure:
- Date (yy/mm/dd) format and time (hh:mm/ss).
- Recording period, expressed in minutes.

Value REC period	
000	30 seconds
001	1 minute
002	2 minutes
...	...
099	99 minutes
100	100 minutes

Based on the recording period set, line below shows the degree of conformity with UNI EN 12830 in real time.

EN12830	
<=24h / 30s	
<=24h	
<=7dd	
Storage	
> 7 dd	
OUTSIDE EN12380	

Furthermore, if the device has onboard inputs, the following will be displayed:
- The actual number of *Analogue Inputs*.
- The actual number of *Digital Inputs*.

It is also strongly recommended to set the access passwords.

Levels of visibility
Three password levels can be set **exclusively** from the 5.8 *PASSWORDS* menu.

5.8	*PASSWORDS*
PSW REC	0
Standard PSW	0
Advanced PSW	99

- The REC PSW (range 0...255) allows you to protect the start or suspension of data logging.
- The standard PSW (range 0...255) allows you to restrict access to the 'Std. Configuration' menu.
- The advanced PSW (range 0...65535) allows you to restrict access to the 'Adv. Configuration' menu.

N.B.: Default values = 0 for all three passwords.
In the example, the Advanced PSW is set to 99. Obviously the 3 passwords can all be different.
If you prefer, you can restrict access to menu 5 Adv. Configuration with a password. Then only an Advanced PSW holder will be allowed access to be able to modify all three passwords.

2.4 Settings - General Menu

Access to system information is organised into menus.
Access to each individual menu is explained below (or in the sections indicated).

2.4.1 0 – Suspend

0	PRINT	
	Suspended	

The ***0 – Suspend*** menu allows you to suspend a current print job.
Press the OK key to suspend a print job.
The Print LED will switch off if it was on.

2.4.2 1 – Rec On/Off

1	REC ON/OFF
1.0	REC on
1.1	Rec off

The ***1 – Rec On/Off*** menu allows you to start or suspend data logging for I/O resources.
The menu is password-protected - see the section on how to set the Password.
NOTE: Some functions/sections in the following menus are not modifiable when data logging is underway.
The following message will appear in this case:

Set REC= Off To modify	

2.4.3 2 – Data
See *Printer* section.

2.4.4 3 – Alarms
See *Alarms* section.

2.4.5 4 – Std. Configuration
See *Standard Configuration* section.

2.4.6 5 – Adv. Configuration
See *Advanced Configuration* section.

2.4.7 6 - System Information

6	SYSTEM INFO
Part numbers	148
Software version	
Release date	dd/mm/yy
Operating System	
Total Memory	Kb
Free memory	%

Menu ***6 - System Information*** is read-only and provides general information on:
- Part numbers.
- Software version.
- Release date of software version, in dd/mm/yy format.
- Version of Operating System.
- Total memory in Kb.
- Total free memory as a percentage.
- Serial number.

3. ALARMS

The ***3-Alarms*** menu provides access to the list of alarms to view, print or reset them.

3	***ALARMS***
3.0	*Active Alarms List*
3.1	----------
3.2	*Print alarm log*
3.3	*Clear log*

3.0 List of active *Alarms*

3.0 *ACTIVE ALARMS*	
Alarm:	001 / 004
| ◄ All	ONBOARD – D1
| ◄ All	ONBOARD – D2
| ◄ HigE	ONBOARD – P1
| ◄ HigE	ONBOARD – P3
ONBOARD RESOURCES	
DD: 02 HH: 05:11:38	

From the **3.0 Active Alarms** menu, you can view a list of all active *alarms*:

- Alarm: indicates the number of the active *alarm* (highlighted) / total number of *active alarms*. In the example 001/004 (1 of 4) active alarms; the highlighted alarm is the onboard digital input 1.
- The list of all active *alarms* follows (if there are more than 4 alarms, use the UP and DOWN *keys* to see them all).
- The last two lines (highlighted) show the type of resource (onboard, network) and the date (DD), hours, minutes and seconds (HH) of the start of the highlighted *alarm*.

3.1 Not used

3.2 Print alarm log

3.2 PRINT *ALARMS*	
Do you want to print ?	
^ =Yes v= No	

Menu from which to print *alarms*.

3.3 Clear log

3.3 RESET STAMPA AL	
PASSWORD	000

Password-protected menu.
Menu to clear (reset) the *alarm* log.
It is highly recommended that you print the full *alarm* list (see 3.2) before doing this. In this way, print 3.2 will only print out the *alarms* that haven't already been printed.

Alarm mute
To mute the alarm press the ">" button (right arrow) when the device shows the main visualization. It is not possible to mute alarms while navigating the menu or while printing.

4. STANDARD CONFIGURATION

From the General menu, use the UP and DOWN keys to select option 5 then press the OK key to open the "**Standard Configuration** menu. The following page will open on the display, after the correct PASSWORD has been entered**:

Example A: data logging underway.

4	STD CONFIGURATION
4.0	- - - - - - - - - - - -
4.1	Clock & Lang
4.2	*Plant*
4.3	- - - - - - - - - - - -
4.4	*Onboard resources*
4.5	*Network 1*
4.6	- - - - - - - - - - - -

Example B: data logging interrupted.
Menu 4.0 is visible in this case only.

4	STD CONFIGURATION
4.0	<First switch on
4.1	Clock & Lang
4.2	*Plant*
4.3	- - - - - - - - - - - -
4.4	*Onboard resources*
4.5	*Network 1*
4.6	- - - - - - - - - - - -

The **4 –Std Configuration** menu allows you to set the functions described below. **The menu is password-protected - see the section on how to set the Password.
We recommend you protect the menu with a password that is known to authorized personnel only; in fact, all three *passwords* and advanced functions and parameters can be modified from this menu.

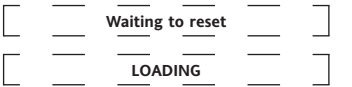
4.0 First switch on

**Menu 4.0 is password-protected - see the section on how to set the Password. For a more detailed description see the User Interface section - First switch on paragraph.
First switch on

*** FIRST ACCESS ***		↑
Language	Italian	|
AAAA/MM/GG:	<date>	|
HH:MM:SS:	<hour>	|
Period REC.	min : 000	|
EN12830:	<=24h / 30s	|
Num. of probes used:	8	|
Num. of digits used:	2	|
Reset system	0000H	↓

NOTE: unlike the first real switch on, from this menu you can also reset the system using the 'Reset System' field.
You are advised to contact Eliwell Technical Support before doing this.

IMPORTANT: if you exit this menu using the Menu key, the device will be automatically rebooted. The following window appears:



IMPORTANT: You will NOT be asked to confirm the recording of any data modified;

4.1 Clock and Language

4.1	CLOCK&LANGUAGE
AAAA/MM/GG:	<data>
HH:MM:SS :	<ora>
Language	Italian

From this menu you can set the date, time and navigation language

4.2 Plant

4.2	*PLANT*
Name of Unit:	
DATA LOGGER	
REC. period	min : 000
EN12830:	<=24h / 30s

From this menu you can set:
- Datalogger name 'Unit Name':
- Record period 'REC. period'
  - 000 indicates a 30-second record period.
  - 001 indicates a 1-minute record period.
  - 002 indicates a 2-minute record period, and so on.
    On changing the recording period, in real time the line below shows the degree of conformity with UNI EN 12830 (see First Switch On).

4.3 Not used

4.4 Onboard resources

4.4	*ONBOARD RESOURCES*
4.4.0	*General Info*
4.4.1	Analogue Inputs
4.4.2	*Analogue Alarms*
4.4.3	Digital Inputs
4.4.4.	*Digital Alarms*
4.4.5	*Print config.*

(*) *Models* with no *printer* Note that menu 4.4.5 is not available

From this menu, you can
- To set the number and features of *Analogue and/or Digital Inputs.*
- Print *Analogue and Digital Input* configuration (*models* with *Printer* only, see Annexe A).

4.4.0 General Info

4.4.0	GENERAL INFO
Number of of probes used:	8
Number of Digitals used	2

4.4.1 Analogue Inputs

This menu shows the list of onboard *analogue inputs*.

4.4.1 ANALOGUE INPUTS		↑
01	ONBOARD-P1	|
02	ONBOARD-P2	|
03	ONBOARD-P3	|
04	ONBOARD-P4	|
05	ONBOARD-P5	|
06	ONBOARD-P6	|
07	ONBOARD-P7	|
08	ONBOARD-P8	↓

Select the required analogue input using the UP and DOWN *keys* and press OK.
A page displaying the following information will open:
(example Index 01 Input, pressure probe).

4.4.1 ANALOGUE INPUTS		↑
Index	1/8	|
Name	ONBOARD-P1	|
Probe type	4..20mA	|
Unit of measure Bar		|
Decimal points	1	|
Value = 04mA	0.0	|
Value = 20mA	30.0	|
Offset	0.7	|
Read	13.3	|
View Text	YES	↓

- **Index**: Input Index***
- **Name**: Name of Input. The default names are **ONBOARD-P1** .. **ONBOARD-P8** and can be modified as required (max. 10 characters)
- Probe type: set automatically between **[4...20mA and NTC 103AT]**
- **Unit of Measure** : see **Units of Measure table**
- **Decimal Points** : values [0...3] for 4..20mA, [0...1] for NTC
- If **Probe Type** = 4...20 mA :
  - **Value = 04 mA**: indicates start of scale
  - **Value = 20 mA** indicates full scale
- If **Probe Type** = NTC :
- Minimum Value***
- Maximum Value***
- **Offset**: Probes Calibration. Note: the modification on the Value Read (see next item) is immediate.
- **Read Value** read in real time***
- **View Text** : if YES then the value is entered in a list of elements to be viewed in Default View.

*** Read-only information.

4.4.2 Analogue alarms

This menu shows the list of onboard *analogue inputs*.

4.4.2 *ANALOGUE ALARMS*		↑
01	ONBOARD-P1	|
02	ONBOARD-P2	|
03	ONBOARD-P3	|
04	ONBOARD-P4	|
05	ONBOARD-P5	|
06	ONBOARD-P6	|
07	ONBOARD-P7	|
08	ONBOARD-P8	↓

Select the required analogue input using the UP and DOWN *keys* and press OK.
A page displaying the following information will open:
(example Index 01 Input, pressure probe)

4.4.2 *ANALOGUE ALARMS*		↑
Index	1/8	|
Name	ONBOARD-P1	|
Alarm Output	1	|
Delay (min)	0	|
Positiv. Emerg.	10.0	|
Positiv. Delay	8.0	|
Negativ. Emerg.	0.0	|
Negativ. Delay	0.0	|
Alarm Hysteresis	0.1	↓

- **Index**: Input Index***
- **Name**: Name of Input***
- **Alarm Output** : 0=none associated; 1=Output 1;
- **Delay (min)**: minutes delay before activating Alarm Output [0...31 min]
- **Positiv. Emerg**: upper threshold and immediate generation of alarm when limit exceeded
- **Positiv. Delay**: upper threshold and delayed generation of alarm when limit exceeded
  - NOTE: Positiv. Emerg. > Positiv. Delay
- **Negativ. Delay**: lower threshold and delayed generation of alarm when lower limit exceeded
- **Negativ. Emergency**: lower threshold and immediate generation of alarm when lower limit exceeded
  - **NOTE**: Negativ. Emerg. < Positiv. Delay
- **Alarm Hysteresis**: Alarm reset hysteresis.

*** Read-only information.

Notice : alarm thresholds and hysteresis values are expressed in the *units* of measure listed above (point 4.4.1 for the Analogue Input).

4.4.3 Digital Inputs

This menu shows the list of onboard digital inputs.

4.4.3 DIGITAL INPUTS	
01	ONBOARD-D1
02	ONBOARD-D2

Select the required digital input using the UP and DOWN keys and press OK.
A page displaying the following information will open:
(example Index 01 Input).

4.4.3 DIGITAL INPUTS	
Index	1/2
Name	ONBOARD-D1
Default state NC	N.C.
Read	Open
View Text	YES

- **Index**: Input Index***
- **Name**: Name of Input. The default names are **ONBOARD-D1 .. ONBOARD-D2** and can be modified as required. (number. 10 characters).
- **Default State** : compressor relay. (Normally Open) or NC (Normally Closed).
- **Read**: Real-time reading of state of input (done before reading is reversed as a result of previous **Default State**)***
  States are: **Closed or Open**.
- **View Text** : if YES then the value is entered in a list of elements to be viewed in Default View.

*** Read-only information.

4.4.4 Digital alarms

This menu shows the list of onboard *digital alarms*.

4.4.2 *DIGITAL ALARMS*	
01	ONBOARD-P1
02	ONBOARD-P2

Select the required digital input using the UP and DOWN keys and press OK.
A page displaying the following information will open:
(example Index 01 Input, pressure probe).

4.4.4 *DIGITAL ALARMS*	
Index	1/8
Name	ONBOARD-D1
Alarm Output	1
Delay (min)	0

- **Index**: Input Index***
- **Name**: Name of Input***
- **Alarm Output** : 0=no output enables or 1= Output 1 , 2= Output 2
- **Delay (min):** minutes delay before activation of Alarm Output.

*** Read-only information.

4.4.5 Print config.

4.4.5 ONBOARD CONFIGURATION	
Do you want to print ?	
^=Yes v=No	

From this menu you can print the configuration of onboard inputs (see *Printer* section).

4.5 Network 1

N.B.: This menu is for use by authorized personnel only. in fact, the network of compatible Televis devices connected via RS485 to Memory 1000 can be modified from this menu.

4.5	***NETWORK 1***
4.5.0	Network Mode
4.5.1	*Self-configuration*
4.5.2	----------
4.5.3	----------
4.5.4	*General Info* *
4.5.5	units
4.5.6	*Print config.* *

Menu available in *models* with *RS485* only.
This menu allows you to configure '*Network 1*' or the network of compatible *Eliwell Televis devices* connected via serial port *RS485* to Memory 1000.

4.5.0 Network Mode

4.5.0	NETWORK 1 MODE
Change data	
Delete	Network configuration
Network type:	Televis
Network address	14:14
Max. units	15

Values modifiable only if REC= Off
- **Network type**: can be **Disabled** or **Televis**
- **Network address**: set network address (MASTER Televis)

4.5.1 Self-configuration

4.5.1	SELF-CONFIGURATION	
Change data		
Delete	*Network configuration*	
Network type:		Televis
Last	Address	0:1
First	Address	0:1

Automatic procedure to recognize compatible *Eliwell Televis devices* connected via the *RS485* serial port to Memory 1000. The procedure may take a few minutes to *self-configure* depending on the number of devices in the network.
- **Last address**: set the value for the first address assigned to devices in the network.
- **First address**: set the value for the last address assigned to devices in the network.

NOTES:
- Network configuration is automatic.
- When adding or removing instruments from the network, repeat the *self-configuration* procedure.
- A number of messages confirming successful or failed network recognition/ configuration, and any error messages will be displayed. Follow the instructions on the display.
- On completion of configuration, menu 4.5.1 will no longer be accessible.

4.5.2 Not used

4.5.3 Not used

4.5.4 General Info

Read-only menu to view the number of devices found in the network and the *Analogue Inputs* read by the network. Example (4 devices and 6 Inputs (3 the first – see *Device Analogue Inputs section*, 2 the second, 1 the third):

4.5.4	***NETWORK 1 GENERAL***
Total no. of units	4
Inputs enabled	6

4.5.5 Units

Menu showing the List of Devices, and giving the names of Compatible Televis Devices configured for Network 1.

4.5.4	**NETWORK 1 UNITS**
00.01	*N1-F.0-D.1*
00.02	N2-F.0-D.2
00.03	N3-F.0-D.3
00.04	*N4-F.0-D.4*

Each element in the List of Devices includes the Name of the Device (example Nx) and the Televis address in format Televis (F:D).
Select the required Device (example 00.01) using the Up and Down keys and press OK.
A menu will open listing the following:

4.5.4	**NETWORK 1 UNITS**
Unit Index	01/04
Address	0:1
Unit managed	SI
Name	
Alarm 1 output	1
Probe info	>>>

Total devices: (read only)
- **Unit Index** : **
- **Address** : ** Televis address in F:D format, resulting from the *self-configuration* procedure.
- **Unit Managed** : ** YES if the *self-configuration* process is able to read data from the device, otherwise NO.
- **Name** (max 10 characters)
- **Alarm Output** : 0=no output enabled, 1=Output 1 or 2=Output 2
- Probe info >>> Next menu (press OK)

4.5.5.1 Device Analogue Inputs

A list of probes is displayed in the next menu, giving the names of the *Device Analogue Inputs*.

4.5.4	NETWORK 1 UNITS
00.01.0	
00.01.1	
00.01.2	

The name is formed by the Televis Address of the device in Televis (F:D) format, by a Progressive Number and by the Probe Name.
Select the input (for example, the first one with index 0) using the Up and Down keys and press OK.
A menu will open listing the following:

4.5.4	NETWORK 1 UNITS
ANALOGUE INPUTS	
Managed	SI
Name	N1f0D1P1--
	1
View text YES	testo

- **Managed** : **YES if the Televis Device makes the value available, otherwise NO.
- **Name** : user name for the analogue input (max 10 characters).
- **View Text**
  - YES: the value will be always be shown in the *Main Display*.
  - NO: the value will not be shown in the *Main Display*.

** Read-only field.
N.B. : Values modifiable only if REC= Off.

4.5.6 Print config.

Print *Network 1* configuration.

4.5.6 *PRINT CONFIGURATION*	
Do you want to print ?	
^=Yes v=No	

4.6 Not used

5. ADVANCED CONFIGURATION

From the General menu, use the UP and DOWN *keys* to select option 5 then press the OK key to open the "Standard Configuration" menu. The following page will open on the display:
NOTE: The menu is ALWAYS static; to see 5.7 and 5.8 click the DOWN key.

5	ADVANCED CONFIGURATION	↑
5.0	View	|
5.1	*Alarms*	|
5.2	*Printer*	|
5.3	*LCD & Buzzer*	|
5.4	*Network 1*	|
5.5	- - - - - - - - - - - - -	|
5.6	*Network 3*	|
5.7	- - - - - - - - - - - - -	|
5.8	*Passwords*	|
5.9	- - - - - - - - - - - - -	↓

Menu **5 –Advanced Configuration** allows you to configure the functions described below; these functions are used and modified less often than those described in the section entitled Standard Configuration.
The menu is password-protected - see the section on how to set the Password.
We recommend you protect the menu with a password that is known to authorized personnel only; in fact, all three passwords and advanced functions and parameters can be modified from this menu.

5.0 View

5.0.0 Static text	Fixed display of all analogue and digital values read. You can scroll this list using the UP and DOWN keys.
5.0.1 Rotating text	Display with automatic scroll of the list of analogue and digital values read.

5.1 Alarms

5.1	*ALARMS*
5.1.0	Exclusion times
5.1.1	Buzzer & Leds
5.1.2	Digital output 1
5.1.3	- - - - - - - - - - - - -

From this menu you can set:
- 5.1.0 Alarm exclusion times in minutes
  - On switching on
  - By acknowledging
  - During data logging

5.1.0	EXCLUSION TIMES
Switch on (mins)	1
Acknowledge (mins)	1
REC On (min)	1

- 5.1.1 BUZZER and ALARM LED functions (shown in UPPER CASE)
  - Enable Buzzer (Yes/No)
  - Buzzer off/on during acknowledgment
  - Buzzer off/on if data logging is NOT active
  - ALARM LED on or blinking in the event of active alarms

5.1.1	BUZZER & LEDS
BUZZER	
Disabled	
Switches off when acknowledged	
Off if 'REC' is Of	
LED IN ALARM	
On	

- 5.1.2 Alarm output (Out1)
  - Enable output (Enabled / Not enabled)
  - Output off/off during acknowledgment
  - Output off/on if data logging is NOT active
  - NA or NC contact

5.1.2	DIGITAL OUTPUT 1
Enabled	
Switches off when acknowledged	
Off if 'REC' is Of	
Normally Open	

5.2 Printer

Menu visible in models with integrated printer only.
See *Printer* section.

5.3 LCD & Buzzer

5.3	*LCD & BUZZER*
Illuminated LCD	Si
Light level	3
Polarized level	2
Buzzer	No

From this menu you can set:
- LCD always illuminated (Yes/ No)
- Light level (range 0...7) Default 3
- Contrast level (range 0...7) Default 3
- Buzzer active (Yes/ No)

5.4 Network 1

Definition: Network 1 = RS485 to expand inputs

5.4	NETWORK PARAMETERS	
Time out (mS)		640
Attempts		3
Alarm time (S)		
Network 1 & 2		30

Menu available for *models* with RS485 only
From this menu, you can set the operating parameters for **Network 1**.
See the **self-configuration** procedure too :

- **Timeout (ms)** : value of the timeout for the response from controllers.
- **Attempts** : from 0 to 3 = number of times the Televis slave tries to send data before generating a 'No-Lnk' error (value 0=one attempt, 3=four attempts).
- **Alarm time (s)** *(Network 1 & 2)* : values from 10 to 300 seconds in 10-second steps = sets the frequency with which the Datalogger runs a full network scan of *alarm* states in each resource.

5.5 Not used

5.6 Network 3

Definition: Network 3 = RS232 port to download data

5.6	NETWORK PARAMETERS	
Network type:	Modbus Slave	
Baud Rate	9600	
Slave 210 address		

Menu available for models with RS232 only
From this menu, you can set the communication network for Network 3:
To ensure the data download software runs correctly, leave the original configuration as shown in the example.

5.7 Not used

5.8 Passwords

See user interface chapter

5.9 Not used

6. PRINTER

The print function is available in models with printers only. See Annexe A.

6.1 Keys

There are 2 *keys* on the front panel of the integrated *printer*.

Key	Description Key	Press once (press and release)	Pressione prolungata	Menu / Note
	**Paper Feed**	Paper feed	--	
	Switch ON	Switches the printer on	--	
	**Pause**	Suspends print job (Pause)	--	It is recommended to interrupt the print from: Menu 0-Stop Printing
	Switch OFF	--	Switches the *printer* off	If a print job is underway, it will be suspended (repeat print procedure)

6.2 LEDs

There is a single LED to indicate *printer* status.

Icon		Colour	Permanently on	Blinking
●	*Printer* status	Green	• *Printer* switched on from key • *Printing*	• *Print* job suspended manually from key • No paper • *Printer* error

6.3 Printer Configuration

The format for data entry is defined in ***Menu 5.2 Printer***. See also section 5 *Advanced Configuration*.

5.2	PRINT PROPERTIES
A4	Landscape
Analogue	
Daily	
Start from Sunday	
Rotate print YES	SI

From this menu you can set:
- Paper size (A4 landscape in example). Defaults are A4, B4 landscape/portrait and A3.
- Data type (for Graph print only, see *menu 2.2 Graph Print*).

	PRINT		
	VALUE READ	**ALARM BAND DELAY**	**ALARM BAND EMERGENCY**
Analogue	Yes	No	No
Analogue & Alarm	Yes	Yes	No
Analogue & All & Emer	Yes	Yes	Yes

- Print frequency (weekly or daily).

	Print data interval	**[Start**	**End]**	**Print resolution**
Daily	Data for 1 day	Time 00:00 Selected day	Time 23:59 Selected day	15 min
Weekly	Data for one week	Time 00:00 First day of the week (°)	Time 23:59 Last day of the week (°)	2h 30 sec

- (°) Inizio settimana (se Domenica o Lunedì)
- Stampa ruotata di 180°

6.4 Data Menu

Print jobs can be started/suspended the printer configured from the following menus:

6.4.1 Menu 2.0 Periods

2.0 REC PERIODS	
02/06/07	-> 02/06/07
04/06/07	-> 05/06/07
10/06/07	-> 10/06/07
13/06/07	-> 20/06/07
22/06/07	-> 24/06/07
24/06/07	

*Menu **2.0 Periods*** displays all saved data for print preview purposes along with associated recording intervals.
Start recording time (Rec On) is indicated on the left, and end recording time (Rec Off) on the right.
N.B.: If the device is currently recording data, the last line will have a start recording date but not an end recording date.
Up to 7 recording periods are displayed.

6.4.2 Menu 2.2 Graph Print

2.2 GRAPH PRINT	
2.2.0	*Onboard resources*
2.2.1	*Network 1*
2.2.2	----------

*Menu **2.2 Graph Print*** enables you to print data for an onboard/network resource in graph format.
For example, select the 2.2.0 Onboard Resources menu:

2.2.0 ONBOARD GRAPH	
Start date:	
YYYY/MM/DD	2007/05/24
Analogue	
Day	
	>>>

- Select the start recording date.
- Select the type of data to print.
- For the print period, select from.
  - **Day**: daily; print from 00.00 on the selected date to 23.59 on the same day.
  - **Week**: weekly; print from 00.00 on the first day of the week to 23.59 on the last day of the week.
- >>> Move to the next page to select the input and confirm the print request.

6.4.3 2.3 Print text

Menu ***2.3 Print Text*** allows you to print data for onboard/network resources as text.
Same configuration as menu 2.2 (there is no Type of data to print option -see section **5.2 Printer**).

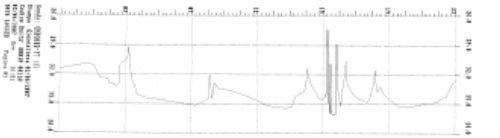
6.5 Examples of prints

N.B.: This is in reverse order compared to a real print, i.e. for Ø 30mm x57mm (integrated printer) thermal paper the print reads from the bottom to the top.

6.5.1 Example of graph

Example of print	Description
DATA LOGGER Page 01 12/02/2007 Time 16:51 Device code 0001H 0001H Daily print 2/06/2007 Probe: ONBOARD P7 (C)	**Print header** The header appears: • at the start of each print; • at the top of each new page. The header includes: • The product name and page number • Start print date and time • The serial number of the device • The type of print (daily/weekly) and start print date (1) Name of probe and unit of measure (2) Timer alarm thresholds (3) Emergency alarm thresholds (4) Acknowledge alarm indicator

Example of graph



Description

Data sampling for graphical print.
When printing in graphical mode, Memory 1000 samples the stored data every 5 minutes for the daily print and every 30 minutes for the weekly print. Fluctuations in the values recorded at higher frequencies are not visible in the graph.
Printing the data in text format or through the Memory 1000 Data Manager software allows to extract the data at the maximum sampling frequency.

Limitation in the Y scale range for graphical print.
Memory 1000 may not print correctly the header of the Y axis when the total number of digits (including the - sign) composing the minimum and maximum limits is greater than 8. E.g.: print is correct with -99.0 ... 99.0 or 0.00 ... 30.00 limits; header may be not readable with -1000 ... 1000 or -50.00 ... 50.00 limits.

6.5.2 Print text example

Example of print	Description
DATA LOGGER Page 01 12/02/2007 Time 15:38 Device Code 0000H 004CH Daily print 12/02/2007 (1) Probe: N0-P4 (C) (2) Alarm thresholds: -10.0 10.0 (3) Emergency thresholds: -20.0 20.0 (5) Alarm acknowledged	**IPrint header** (see graph print)

Example of print	Description
Date Time (1) (2) (3) (4) (5) 12/02/07 00:00 10.0 . . - . 00:01 10.5 * . - . 00:02 11.4 * . - . 00:03 11.7 * . - . 00:04 11.6 * . - . 00:05 10.9 * . - . 00:06 10.9 * . - . 00:07 11.0 * . - . 00:08 10.7 * . - . 00:09 10.5 * . - . 00:10 10.8 * . - . (continued)	The print columns display (from left to right): • Reading date • Reading time (1) Reading (in the unit of measure selected for the analogue input) (2) An asterisk '*' if the reading is below the negative delayed alarm limit or above the positive delayed alarm limit (3) An asterisk '*' if the reading is below the negative emergency alarm limit or above the positive emergency alarm limit (4) Not used (5) An '*' if the user has performed the alarm acknowledgment function by pressing the key
End of print	At the end the following message appears End of print

6.5.3 Example of Print Onboard Resource Configuration

Example of print	Description
DATA LOGGER Page 01 12/02/2007 Time 13:56 Device Code 0000H 004CH *Print Device Configuration*	Print header The header appears: • at the start of each print; • at the top of each new page. The header includes: • The product name and page number • Start print date and time • The serial number of the device • The type of configuration being printed, which can be either: Onboard Resource or Network 1 • The date and time the print configuration was created/edited
********** Onboard resources ********** Date : 12/02/2007 Time: 13:56:50 ANALOGUE INPUTS Inputs available: 8 Inputs managed: 2 DIGITAL INPUTS Inputs available: 2 Inputs managed: 2 Analogue input : 1 ----------	Print Configuration is organised hierarchically to make it easier to understand: • Total number of analogue inputs available and managed • Settings for Analogue Inputs

Example of print	Description
Connector/Terminal: AI01 Probe type: 4..20 mA Unit of Measure : Bar Decimal Points : 1 Probe name: CONDENSING Min. value : 0.0 Max. value : 30.0 Alarm Output : 1 Delay (m) : 0 Alarm hysteresis: 0.1 Posit. Emerg. : 10.0 Posit. Delay: 8.0 Negat. Delay: 0.0 Negat. Emerg. : 0.0 Analogue input : 2 ---------- Connector/Terminal: AI02 Probe type: 4..20 mA Unit of Measure : Bar Decimal Points : 1 Probe name: SUCTION Min. value : -0.5 Max. value : 7.0 Alarm Output : 1 Delay (m) : 0 Alarm hysteresis: 0.1 Posit. Emerg. : 7.0 Posit. Delay: 6.5 Negat. Delay: 0.0 Negat. Emerg. : 0.0 Digital input : 1 ----------	• ...and for Analogue Alarms

Example of print	Description
Connector/Terminal: AI03 Default State : N.A. Name : N0-D1 Alarm Output : 1 Delay (m) : 0 Digital input : 2 ---------- Connector/Terminal: AI04 Default State : N.C. Name : N0-D2 Alarm Output : 1 Delay (m) : 0	• Settings for Digital Inputs and • Digital alarms
End of print	At the end the following message appears **End of print**

6.5.4 Example of Print Network 1 Configuration

Example of print	Description
	Print header **(same as Onboard Resource)**
Nome Sonda : M1FBD1P3__ Punti Decimali : 1 Unita' di Misura : C Sonda Abilitata : NO ---------- Ingresso Analogico : 3 Nome Sonda : M1FBD1P2__ Punti Decimali : 1 Unita' di Misura : C Sonda Abilitata : SI ---------- Ingresso Analogico : 2 Nome Sonda : M1FBD1P1__ Punti Decimali : 1 Unita' di Misura : C Sonda Abilitata : SI ---------- Ingresso Analogico : 1 Nome Unita' : M1-F.0-D.1 0 - 16bit LE Complemento a 2 Tipo Analogiche : Sottocodice Driver : 2 Codice Driver : 2 Codice Unita' : 1029 Codice UER : 7 Codice MSK : 180 Indir. di Rete: 0:1 Allarmi : 16 Ingressi Abilitati : 2 Ingressi Analogici : 3 Unita' Abilitata : SI ---------- Indice Unita' : 1 ----------	Print Configuration is organised hierarchically to make it easier to understand: • Network 1 Configuration (Type, Network Address, Units Found / Configured, Inputs Enabled, etc.) - Unit 1 Index (unit enabled YES/NO, Analogue Inputs/ Enabled), Alarms, Network Addresses, MSK/VER codes, etc.) • Analogue Input 1 (Probe Enabled YES/NO/UM decimal points, etc.) • Analogue Input 2 • Analogue Input 3 - Unit Index 2 • Analogue input 1 • Analogue Input 2 Etc.

Ingressi Abilitati : 6 Unita' Configurate : 4 Unita' Trovate : 4 Ora : 14:52:06 Data : 26/06/2007 Ultimo Indirizzo: : 8:5 Primo Indirizzo: : 8: 8 Max. Unita' : : 15 Tentativi : 3 Time Out (mS) : 640 Indir. di Rete: 14:14 Tipo Rete: : Televis ---------- Configurazione Rete : 1 ---------- Stampa Configurazione Unita' Codice Unita' 0001H 0027H 27/06/2007 Ore 15:21 DATA LOGGER Pagina 01	
End of print	At the end the following message appears **End of print**

6.5.5 Legibility on thermal paper

N.B.: when the paper length reaches 210mm (the length of an A4 sheet), the *printer* inserts a page break so the print can be photocopied to a sheet of A4 and filed. We recommend you photocopy all data printed if you want to retain a copy for your records; data printed on thermal paper will gradually become illegible.

6.6 Printer Errors

At the start of or during a print job, a number of problems may occur with the *printer*. These have been listed in the table below:

Message	CAUSE	EFFECTS	REMEDY	N.B.
	No data to print	No print		
Printer LED blinking	Out of paper	No print	Replace paper roll	
Printer LED blinking	Printer not connected	No print		*LED permanently on*
Printer LED permanently on	Printer error	No print		
Printer LED permanently on	Print job suspended manually	Print suspended	Take out the paper roll and repeat the print procedure.	

7. MEMORY 1000 DATA MANAGER

7.1 Introduction

Eliwell provides Memory 1000 DataManager software to enable users to access data recorded by Memory 1000 from a PC. The system was designed to enable users to view both real time and historical data and alarms.

7.2 System requirements (Memory 1000)

A Memory 1000 model with RS232 is required. See Annexe A.

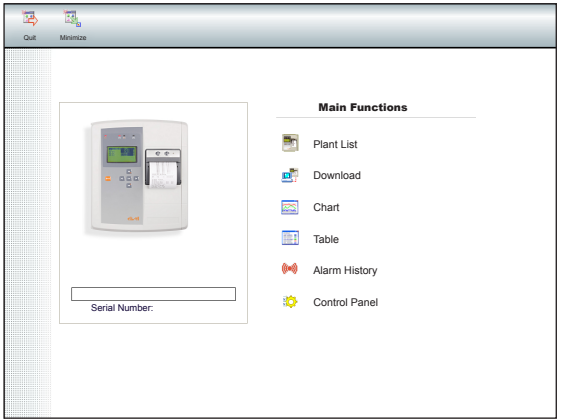
7.3 System requirements

Hardware Minimum configuration	Operating System	CD MEMORY 1000 DATAMANAGER
• Pentium 200 MHz • RAM: 256 MB • Available HDU: 300MB • 1 free COM	• Windows 98 • Windows 2000 • Windows XP PRO Home / Professional	Version 1.0 or later 

7.4 Installing the Memory 1000 DataManager CDROM

	Or:
Insert the CDROM. The CD will start automatically. If it doesn't • Click the Start button • Click the Run button • Write E: "\xxx.EXE" in the text box where "E" is the CD drive	• Click "My Computer" • Click the CD (or DVD) drive (E:) where "E" is the CD/DVD drive. • The following message will appear: Click xxx.EXE

7.5 Opening screen



From the *opening screen*, you can

a) Open the following pages:

- **List of plants** : to choose which plant to download information from.
- **Download data**: to establish a connection between the PC and Memory 1000 (including).
- **Graphs/Tables** : to generate graphs/tables from data downloaded.
- **Historical alarm log** : lists all alarms recorded by Memory 1000 in the selected period.
- **Control panel** : configuration parameters to export data and selection of application language.

b) Exit program

7.6 Barra di navigazione

Icon	Description	Screen
	**Escape** Exit program (Log-out)	starting
	**Minimize** To reduce to an icon	All
	**Go back** Go back to the previous screen	All except from the starting screen
	**Connect** ConnectMemory 1000 to PC	*Serial data*

Icon	Description	Screen
	**Transfer** Data transferred from Memory 1000 to PC	*Serial data*
	**Find** Find Memory 1000 on any of the available COMs	*Serial data*
	**Graphs** Switch to graphic display	Tables
	**Table** Switch to table format	Graphs
	**X,Y values**	Graphs Tables
	**Save profile** View x,y values for graph	Graphs Tables
	**Export** Export data to file .scv (table) in accordance with settings in control panel .bmp (graph)	Graphs Tables

Icon	Description	Screen
	**Print** Print data	Graphs Tables
	**Zoom** To enlarge a portion of the graph (x-axis only)	Graphs
	**Configuration**	Graphs Tables

7.6.1 Control panel

Select language	Export configuration

- Select the application language (Italian, English, Spanish, German, French and Portuguese).
- Select the type of export.

7.6.2 Serial data

Device name	Data successfully exported

- The first time data is exported, give the Memory 1000 connected a name.
- Click on transfer: data will be downloaded to the PC (this will take a few minutes).

7.6.3 Tables / Graphs

Table	Graphic

- Table or Graph display format.
- Define a Profile in the Filters section, select a report and a view data date.
- Select the resource(s) to be displayed.
- You can zoom on the graph to view the x-y values and configure the scale.
- You can now save the profile, export and print the data.

7.6.4 List of plants

- When more than one plant is managed, you can select the plant that you want to download and save data for.

8. ELECTRICAL CONNECTIONS

8.1 General warnings

IMPORTANT!
Switch off the device before working on the electrical connections.
All electric work must be performed by a qualified electrician.

To ensure proper connections, the following warnings must be observed:

- Power supply.
- Use cables of the right size for the terminals used.
- Separate the cables of probes and *digital inputs* from inductive loads and high voltage connections to prevent any electromagnetic interference. Do not place probe cables near any electric devices (switches, meters, etc.).
- Make connections are short as possible and do not wind them around electrically connected parts.
- Do not touch electronic components on boards to prevent the build up of static electricity.

8.1.1 Power supply - High voltage output (relay).

Do not exceed the maximum permitted current; for higher loads, use a contactor with sufficient power capacity.

Important!
Make sure that power supply is the correct voltage for the device.

8.1.2 Analogue inputs-Probes

Temperature probes
The *temperature probes* have no characteristic insertion polarity and can be extended using standard bipolar cable (note that extending cables can affect the performance of the device in terms of electromagnetic compatibility: take great care with the wiring).

Important!

Pressure probes Humidity probes
Pressure probes have a specific insertion polarity which must be observed.
Signal cables (temperature/pressure/humidity probes, digital inputs) must be cabled separately from high voltage cables.
Eliwell supplied cables are recommended. Contact Eliwell sales department for item availability.

8.1.3 RS485 connection

RS485
Use a shielded and "**twisted**" , twin-conductor 0.5mm2 section cable, plus braiding (i.e. Belden cable model 8762 with PVC sleeve, 2 conductors plus braiding, 20 AWG, nominal capacity between 89pF conductors, nominal capacity between a conductor and 161pF shielding).
See standards relating to EN 50174 data transmission systems for indications on how to lay cables.
Make sure data transmission circuits are well separated from power lines.
A RS-485 network up to 1200m in length featuring a maximum of 15 devices can be connected straight to the device.
This length can be extended and the number of devices for each channel increased using appropriate repeater modules.
See the "Installation of the RS- 485 network" manual for more detailed information.

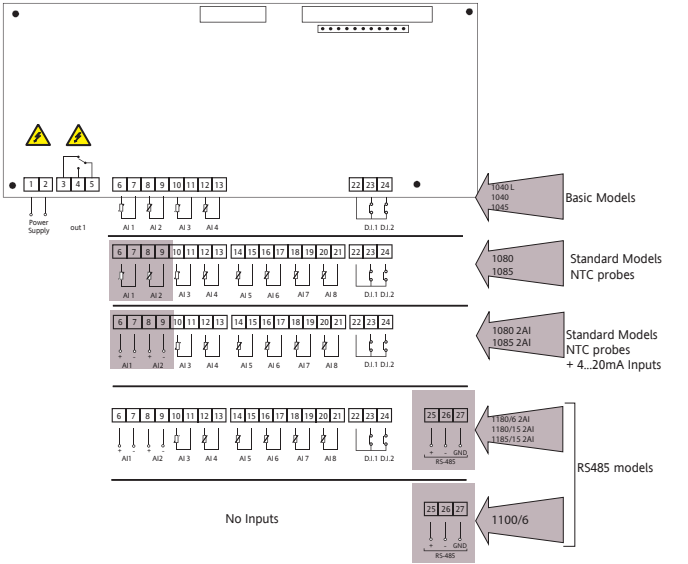
Attach the120 (Ohm) 1/4W resistors between the "+" and "-" terminals on the interface and last device in each branch of the network.

8.1.4 RS-232 serial connections

Use the RS232 DB9-DB9 nullmodem cable provided or equivalent cable to connect to a PC.

8.2 Circuit diagrams

The number of *analogue inputs*, *digital inputs* and alarm outputs depends on the Memory 1000 model (see section Annexe A - *Models* and *Accessories*).

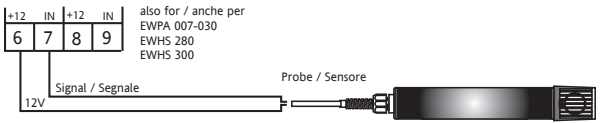


8.2.1 Wiring diagram description

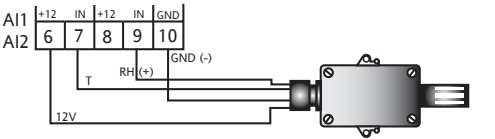
Terminals		Description	*Models*								
			Basic		Standard NTC		Standard NTC / 4..20mA		*RS485*		
			1040 L 1040	1045	1080	1085	1080 2AI	1085 2AI	1180/6 2AI 1180/15 2AI	1185/15 2AI	1100/6 (No inputs)
1 – 2	**Power Supply**	230V~ Power Supply	•	•	•	•	•	•	•	•	•
3 – 4 – 5	**Out1**	Digital output on relay 5(2)A SPDT 250Va	•	•	•	•	•	•	•	•	•
6 – 7 8 – 9	**AI 1** **AI 2**	Input for NTC probe	•	•	•	•					
		4...20mA current input (6= +12V; 7 signal)					•	•	•	•	
10 – 11	**AI 3**	Input for NTC probe	•	•	•	•	•	•	•	•	
12 – 13	**AI 4**	Input for NTC probe	•	•	•	•	•	•	•	•	
14 – 15	**AI 5**	Input for NTC probe			•	•	•	•	•	•	
16 – 17	**AI 6**	Input for NTC probe			•	•	•	•	•	•	
18 – 19	**AI 7**	Input for NTC probe			•	•	•	•	•	•	
20 – 21	**AI 8**	Input for NTC probe			•	•	•	•	•	•	
22 – 23	**D.I. 1**	Digital input D.I.1	•	•	•	•	•	•	•	•	
22 – 24	**D.I. 2**	Digital input D.I.2	•	•	•	•	•	•	•	•	
25 – 26 – 27	***RS485***	Serial port RS-485 25= + 26= - 27= GND							•	•	•
	To Display	Connection to display	•	•	•	•	•	•	•	•	•
	To Printer	Presence of integrated thermal *printer*	•		•		•		•		•

8.2.2 Connections with pressure transducers / humidity probes

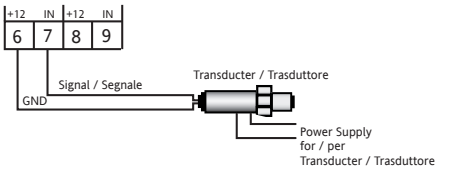
2 wires / 2 fili Power Supply from / da Memory 1000



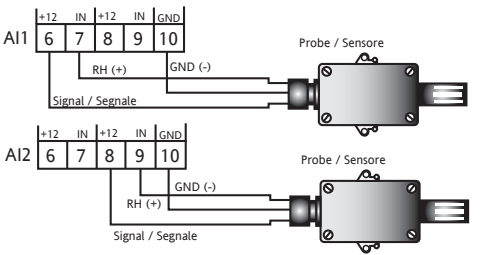
4 wires / 4 fili Power Supply from / da Memory 1000



2 wires / 2 fili External Power Supply for Transducter / Trasduttore



3 wires / 3 fili Power Supply from / da Memory 1000



9. MECHANICAL ASSEMBLY

Memory 1000 was designed for wall or panel-mounting (support brackets not supplied).

Remove the screw caps on the right side of the door, pressing lightly on the points indicated by the arrows in Figure 1. Take out the screws and open the door. Drill holes in the backplate at the top or bottom to pass the wires through. See the example in figure 2:

Fig. 1

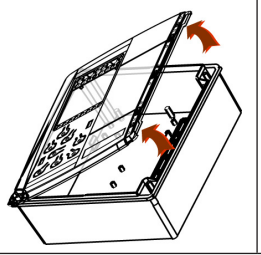
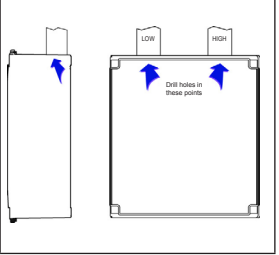
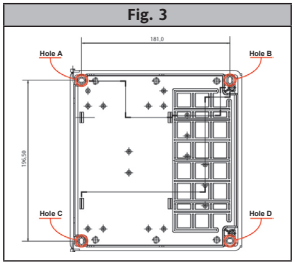


Fig. 2



Screw the backplate to the wall using 4 screws (not supplied) to match the holes illustrated in figure 3.

Fig. 3



Shut the door by securing it with 2 screws (provided). Replace the screw caps removed earlier from the door (see point 1).

10. SPECIFICATIONS

General ***specifications***

	Standard	Min.	Max.
Supply voltage	230V~	±10%	
Supply frequency	50Hz/60Hz	---	---
Power draw – printer not in use	5VA	---	---
Power draw – printer in use	20VA	---	---
Insulation rating	2	---	---
Ambient operating temperature	---	0°C	40°C
Ambient operating humidity (non-condensing)	---	10%	90%
Storage temperature	---	-20°C	+70°C
Ambient storage humidity (non-condensing)	---	10%	90%

I/O features

Type	Label	Description	*Models*	N.B
High voltage digital outputs	**Out1**	1SPDT 5(2)A 250V~ relay for alarm output	**All** *models*	
Digital inputs	**DI1 DI2**	2 no-voltage digital inputs 5mA contact current	**All** *models*	**Excluded Memory 1100/4**
Analogue inputs 4...20mA	**AI1 AI2**	2 4...20 mA current inputs 1% full scale accuracy 0.1°C/bar resolution	**Memory 1080 2AI Memory 1180/6 2AI Memory 1180/15 2AI Memory 1085 2AI Memory 1185/15 2AI**	**Current inputs marked with 2AI**
Analogue inputs NTC		2 NTC 103AT temperature inputs 10kΩ / 25°C , measurement range -45 °C ÷ +50.0 °C; 1% full scale accuracy Resolution 0.1°C	**Memory 1040 L Memory 1040 Memory 1080 Memory 1045 Memory 1085**	
Analogue inputs NTC	**AI3 AI4**	2 NTC 103AT temperature inputs 10kΩ / 25°C , measurement range -45 °C ÷ +50.0 °C; 1% full scale accuracy Resolution 0.1°C	**Memory 1040 L Memory 1040 Memory 1045**	***Models with 4 analogue inputs***

Type	Label	Description	*Models*	N.B
Analogue inputs NTC configurable as digital	**AI3** **AI4** **AI5** **AI6** **AI7** **AI8**	6 NTC 103AT temperature inputs10kΩ / 25°C , measurement range -45 °C ÷ +50.0 °C; 1% full scale accuracy Resolution 0.1°C or If the analogue input is listed as not present n temperature inputs + m digital inputs Where n+m=6	**Memory 1080** **Memory 1085** **Memory 1080 2AI** **Memory 1085 2AI** **Memory 1180/6 2AI** **Memory 1180/15 2AI** **Memory 1185/15 2AI**	
Buzzer			**All** *models*	
Terminals		Removable screw connector pitch 5.0mm	**All** *models*	
Container		PC+ABS plastic resin with V0 flammability rating	**All** *models*	
Serial	***RS485***	1 RS 485 serial	***Modelli* con *RS485*** **Memory 1180/6 2AI** **Memory 1180/15 2AI** **Memory 1185/15 2AI**	
	RS232	1 RS 232 serial	***Models with printer***	

Printer

Print type		Impact thermal printer	***Models* with *printer***
Roll		Thermal paper Ø 30mm x57mm	
Horizontal resolution		384pt	

Mechanical dimensions

	Length (L) mm	Height (H) mm	Depth (d) mm	
Total dimensions	210	245	90	(+0.2mm)
Drilling template	202	212	70	

11. APPLICABLE STANDARDS

11.1 European Community Directives

The product complies with the following *European Community Directives*:
• Council Directive 2006/95/EC
• Council Directive 2004/108/EC
and complies with the following harmonised regulations: EN 61010-1 & EN 61326-1

Eliwell monitoring systems in the Memory 1000 family:
Can be used in EN 12830-compliant applications.

11.1.1 EN12830 compatibility

Memory 1000 is capable of recording temperatures as per EN12830 regulation at the following conditions:
• recording interval must be set <= 30 minutes
• onboard probes must be performed with Eliwell NTC probes
• Televis network resources must be provided with Eliwell NTC probes
NOTE, FOR *PRINTER* ENABLE *MODELS* ONLY: recording of the temperatures from resources in the Televis network is suspended while printing. In order to guarantee the recordings according to EN12830 it is suggested to operate as following: set a recording interval of 15 minutes and, after a print process is terminated, wait at least 20 minutes before running a new print process.

11.1.2 Limitation to the recording frequency for the Televis network resources

In case of recording intervals shorter than 15 minutes, the history of the resources in the Televis network may present missing recording due to communication errors (e.g. for disturbances to the communication line independent than Memory 1000) or because of the recordings are suspended during the print processes.

11.2 Application information sheet

11.2.1 Type of data logging

Suitable for storage.

11.2.2 General Requirements

Measurement range
• Onboard probes: -40...+ 50°C.
• Network devices: Use only class II rated devices (Eliwell).

Protection rating provided by outer casings
• IP 20.

Supply voltage and frequency
• 230V a +10% 50/60 Hz ±3Hz.
• 230V a -15% 50/60 Hz ±3Hz.

Power failures
Non-volatile internal memory, 10-year duration.

11.2.3 Requirements for metrological characteristics

Maximum permissible errors, and temperature measurement resolution and error
- Onboard probes: Class I -40...+ 50°C NTC INPUTS ONLY.
- Network devices: Depends on Class II network devices.

Recording frequency
Configurable AUTO SAVE (30'').
N.B.: See *table A*.

Recording time
To save hard copy of data (see section 6.5.4)
- Minimum value of 30''.
- Maximum value of 1 year.

N.B.: See *table A*.

Maximum relative time measurement error and time recording error
<0.1%.

Response time
30'.

Type A climatic environment and influence of ambient temperature.

Type A climatic environment and temperature test under data logger storage and transport conditions.

Electrical disturbances and radiated electromagnetic field susceptibility compliant with EN 61326-1.

11.2.3.1 TABLE A

STANDBY TABLE FOR EACH MODEL AND FOR VARIOUS RECORDING TIMES
- RECORDING TIME EXPRESSED IN: **MINUTES**.
- STAND-BY EXPRESSED IN: **DAYS**.
- AVERAGE NO. OF PROBES PER DEVICE: **2**.

STANDBY TIMES IN DAYS ARE APPROXIMATE.

RECORDING PERIOD	1	15	60
Memory 1040 L	85	1276	5104
Memory 1040	85	1276	5104
Memory 1080	52	788	3155
Memory 1040 2 AI	52	788	3155
Memory 1100/6	50	761	3044
Memory 1180/6 2 AI	25	379	1517
Memory 1180/15 2 AI	12	180	720
Memory 1045	85	1276	5104
Memory 1085	52	788	3155
Memory 1085 2 AI	52	788	3155
Memory 1185/15 2 AI	12	180	720

DOUBLING THE DEFAULT VALUES MAY REDUCE STANDBY BY:
- FOR 1 MINUTE 1%.
- FOR 15 MINUTES 0.07%.
- FOR 60 MINUTES 0.01%

12. USE

This product was designed to acquire, log and print data.

For safety reasons, the device must be installed and used according to the instructions provided. In particular, parts carrying dangerous voltages must not be accessible in normal conditions.
The device must be adequately protected from water and dust according to the application, and must also only be accessible using tools (with the exception of the front panel).

13. RESPONSABILITY AND RESIDUAL RISKS

Eliwell Controls srl shall not be liable for damage resulting from:
- installation/uses other than those specified and, in particular, which do not comply with the safety requirements set out in the regulations and/or stated herein;
- *use* on panels that do not provide adequate protection against electric shock, water or dust when assembled;
- *use* on panels that allow access to dangerous parts without having to *use* tools;
- installation/*use* on panels that do not comply with the current standards and regulations.

14. DISCLAIMER

15. ANNEXE A – MODELS AND ACCESSORIES

15.1 Models

Model	Total no. of inputs	4..20mA inputs	NTC inputs	*Digital inputs*	Integrated thermal *printer*	RS485 serial to expand inputs	Serial data *download* via RS232
Standard *models* with no serial for data download							
1040 L	**6**	**-**	**4 (1)**	**2**	**YES**	**-**	**-**
Standard *models* with no *printer*							
1045	**6**	**-**	**4 (1)**	**2**	**NO**	**-**	**YES**
1085	**10**	**-**	**8 (1)**	**2**	**NO**	**-**	**YES**
1085 2AI	**10**	**2**	**6 (2)**	**2**	**NO**	**-**	**YES**
Standard *models* with *printer*							
1040	**6**	**-**	**4 (1)**	**2**	**YES**	**-**	**YES**
1080	**10**	**-**	**8 (1)**	**2**	**YES**	**-**	**YES**
1080 2AI	**10**	**2**	**6 (2)**	**2**	**YES**	**-**	**YES**
RS485* expandable *models* with or without *printer							
1100/6	**-**	**-**	**-**	**0**	**YES**	**6 controllers**	**-**
1180/6 2AI	**10**	**2**	**6 (2)**	**2**	**YES**	**6 controllers**	**YES**
1180/15 2AI	**10**	**2**	**6 (2)**	**2**	**YES**	**15 controllers**	**YES**
1185/15 2AI	**10**	**2**	**6 (2)**	**2**	**-**	**15 controllers**	**YES**

NOTES
(1) 2 fixed NTC, the rest can be configured as NTC/digital from parameter.
(2) Configurable as NTC/digital from parameter.

15.2 Accessories

	Name	Part number	Description	NOTE
Paper roll				
	Paper roll (Paper Roll)	RC444444	Paper roll for integrated *printer*	
Temperature probes				
	*TEMPERATURE PROBES (1) (2)*	SN691150	NTC 103AT 1.5m probe, (plastic cap, 2-wire cable);	
		SN691300	NTC 103AT 3m probe (plastic cap, 2-wire cable);	
		SN691600	NTC 103AT 6m probe (plastic cap, 2-wire cable);	

	Name	Part number	Description	NOTE
Pressure transducers				
	EWPA 030	TD200130	EWPA 030 4...20mA 0/30bar pressure transducer with male connector	*Set the following parameters:* for 04mA=0 for 20mA=30 See par **4.4.1**
		TD200030	EWPA 030 4...20mA 0/30bar pressure transducer with female connector	*Set the following parameters:* for 04mA=0 for 20mA=30 See **par 4.4.1**
	EWPA 007	TD200107	EWPA 007 4...20mA -5/8bar pressure transducer with male connector	*Set the following parameters:* for 04mA=-0.5 for 20mA=7 See **par 4.4.1**
		TD300008	EWPA 007 4...20mA -5/8bar pressure transducer with female connector	*Set the following parameters:* for 04mA=-0.5 for 20mA=7 See **par 4.4.1**
Humidity transducers				
	EWHS 280	SN560000	Relative humidity transducer (measurement range 15%...90%)	*Set the following parameters:* for 04mA=20 for 20mA=100 See **par 4.4.1**

	Name	Part number	Description	NOTE
	EWHS 300	SN520000	Relative humidity transducer (measurement range 0%...100%)	*Set the following parameters:* for 04mA=0 for 20mA=100 See **par 4.4.1**
	EWHS 310	SN510000	Humidity (range 0%...100%) and temperature (Range -30°C... +70°C) transducers	*Set the following parameters:* for 04mA=20 for 20mA=100 See **par 4.4.1**
***RS485* connectivity modules**				
	130 TTL RS485 bus adapter	BA1125ON3700	Communication interface TTL/RS-485 12V aux. output for power supply to device TTL cable, L = 1m (2)	
	150 TTL RS485 bus adapter	BA10000R3700	Communication interface TTL/RS-485 TTL cable, L = 1m (2)	

	Name	Part number	Description	NOTE
Wireless connectivity modules				
	Radio Adapter /S	BARF0DS00NH00	Wireless connectivity modules RS485 or TTL / IEE802.15.4 converter	
	RadioKey	CCA0B0T01T000	Wireless network configuration key	

	Name	Part number	Description	NOTE
Software Tools				
	Memory 1000 DataManager	5555966	It comes with MS Windows compatible data logging software to export, save and view data in table and graph format.	

(1) Various items available. Contact Sales Department.
(2) Various lengths can be requested.

GENERAL NOTES:
- Eliwell can also supply a variety of different NTC probes depending on the cable type (PVC or silicon) and length.

16. ANNEXE B – ELIWELL INSTRUMENTS

16.1 Eliwell devices

Part number	Item	MSK	VER	Number of inputs	Input	Relay outputs	Power supply	Notes
IC11CI0XCD700	IC 912LX/C PTC 230V	131	24	1	PTC/NTC*	1	230V~	Heating / Cooling
IC11CI0XCD300	IC 912LX/C PTC 12V	131	24	1	PTC/NTC*	1	12V~/c	Heating / Cooling
IC11ZI0XHD700	IC 912LX/H PT100/ TC 230V	104	25	1	Pt100 / Thermocouples*	1	230V~	Heating / Cooling
IC11ZI0XHD300	IC 912LX/H PT100/ TC 12V	104	25	1	Pt100 / Thermocouples*	1	12V~/c	Heating / Cooling
IR11I00XUD700	IC 912LX/R U %RH 230V 4/20mA	132	23	1	4...20mA / 0...10V*	1	230V~	Heating / Cooling
IR11I00XUD300	IC 912LX/R U %RH 12V 4/20mA	132	23	1	4...20mA / 0...10V*	1	12V~/c	Heating / Cooling
IC12CI0XCD700	IC 915LX/C PTC 230V	131	24	1	PTC/NTC*	2	230V~	Heating / Cooling / Neutral Zone
IC12CI0XCD300	IC 915LX/C PTC 12V	131	24	1	PTC/NTC*	2	12V~/c	Heating / Cooling / Neutral Zone
IC12ZI0XHD700	IC 915LX/H PT100/ TC 230V	104	25	1	Pt100 / Thermocouples*	2	230V~	Heating / Cooling / Neutral Zone
IC12ZI0XHD300	IC 915LX/H PT100/ TC 12V	104	25	1	Pt100 / Thermocouples*	2	12V~/c	Heating / Cooling / Neutral Zone
IR12I00XBD700	IC 915LX/R H/D %RH 230V 4/20mA	132	23	1	4...20mA / 0...10V*	2	230V~	Heating / Cooling / Neutral Zone
IR12I00XBD300	IC 915LX/R H/D %RH 12V 4/20mA	132	23	1	4...20mA / 0...10V*	2	12V~/c	Heating / Cooling / Neutral Zone
ID32DF0XCD300	ID 983LX C NTC 12V	180	7	2	NTC / PTC*	2	12V~/c	For refrigeration, with clock

Part number	Item	MSK	VER	Number of inputs	Input	Relay outputs	Power supply	Notes
ID32DF1XCD300	ID 983LX CK NTC 12V	180	8	2	NTC / PTC*	2	12V~/c	For refrigeration, with clock and link
ID34DF0XCD300	ID 985LX C NTC 12V	180	8	3	NTC / PTC*	4	12V~/c	For refrigeration, with clock
ID34DF1XCD300	ID 985LX CK NTC 12V	180	8	3	NTC / PTC*	4	12V~/c	For refrigeration, with clock and link

NOTE * Configurable from parameter.

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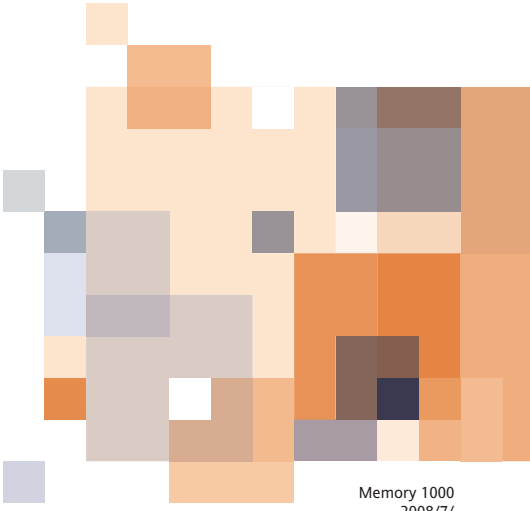
ISO 9001



Memory 1000
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Cod: 9MA10011