



User Manual

Eproms XDM - XDE

Microface E

24VAC

Hiromatic E

ENGLISH

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1 Introduction

1.1 Foreword

This User Manual describes the Microface E Control System. It contains information concerning the architectures of the control systems as well as the settings required to obtain the desired behaviour of the Unit.

In the following sections first the Hardware, and later the Software (Firmware) are explained in detail. The Eprom for Microface E allows the SNMP protocol (See manual cod. 272703 rev. 12.12.05) only for remote monitoring vice versa, the Eprom mounted on Hiromatic E allows using the Hirovisor-IP supervisor system

2 Hardware

2.1 Microface Evolution 24V AC

The Microface Evolution is a microprocessor-based electronic card, which is able to manage the devices and the sensors installed in the unit. Microface E is installed in the electrical panel of indoor-units together with a User-interface module ("LCD Display"), which allows to read/set/reset values, parameters and alarms.

In outdoor- or ceiling mounted units the LCD Display is mounted in a box with extension cable, which allows placing it on a reachable position.

To get access to the Microface E connections and Jumpers the LCD Display (if present) has to be removed from its 4 mounting pins.

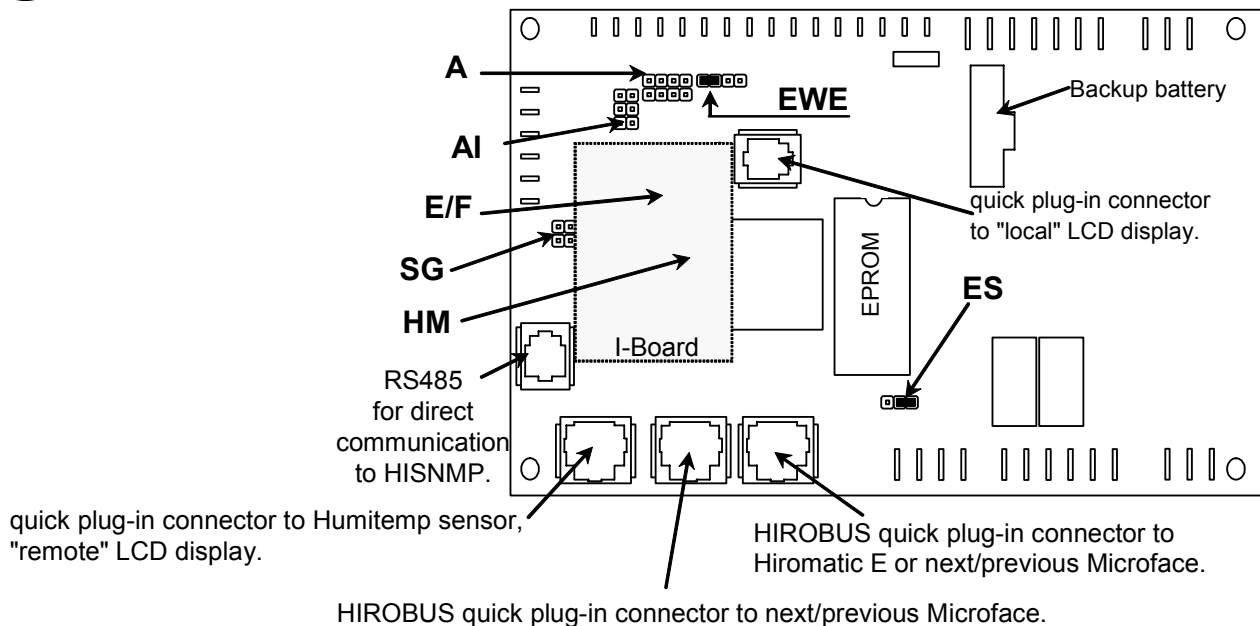


Take care not to pull out the connecting cable when removing the LCD Display!

As the Microface E is the "Heart" of the System, which controls all Functions of the Unit, some Jumpers have to be set in order to set-up the control board according to the requested Functions. Most of these Jumpers are already correctly set in the factory, only the Jumpers for the unit's address ("A") has to be set in the field, during start-up of the Unit.



Never add / remove Jumpers when Microface is under power!



JUMPERS:

- EWE:** EEPROM write enable. Always set this jumper.
- A:** Address setting. See chapter "Networking" for Details. Units, not connected to others: NO Jumper.
- AI:** Analogue Inputs selection. See details on Microface Connection Guide at the end of the manual.
- E/F:** EPROM / Flash memory selection jumper. Set the jumper when EPROM is installed. Do not set this jumper when Flash memory is installed.
- SG:** Subgroup ID setting. See chapter "Subgroup Microfaces"
- HM:** Comb connector for I-Module (present when humidifier is installed).
- ES:** EPROM / Flash memory size selection jumper. Set jumper between middle and right pins for 1 or 2 Mbit size memory devices. Set jumper between middle and left pins for 4 Mbit size memory devices.

Figure 1 – Microface E 24V AC and 24V DC with connectors and jumpers.

2.1.1 Networking between Microfaces

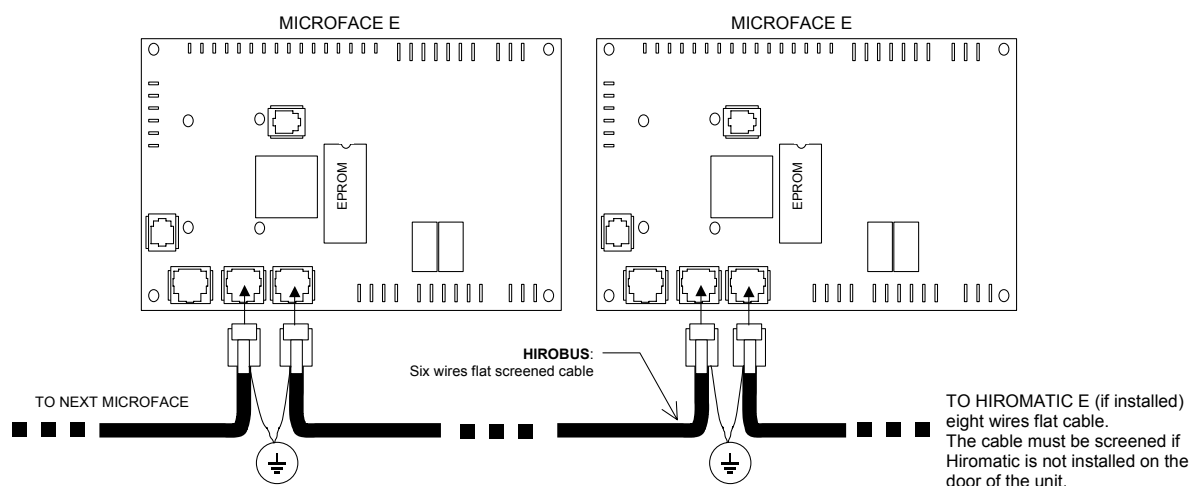
Several units can be connected together via Hirobus for standby and rotation function as well as to keep under control the entire system from one common Hiromatic E.

The maximum number of units to be connected is 16, this number reduces to 8 if a HIROLINK is connected to the common Hiromatic. If a HISNMP is connected directly to the Microface, 16 units can be connected.

The bus-cable must be wired from 1st unit to the 2nd, from 2nd to the 3rd etc. “Star” or “Ring” connections are not allowed at all. The Maximum length of the Hirobus-cable is 300 meters, counting all connection cables together. The single distances are not of interest, as long as the total length of all cables together doesn’t exceed 300 meters



Please note that a wrong connection could cause serious problems to the electronic devices (Microface and Hiromatic); for this reason we strongly recommend you to use only first quality products or to buy the cables directly from your sales reps.. Before connecting the cables to the Microface a check with Cable-Tester (see Spare Parts List, Chapter 2.12) has to be performed.



NOTE : CONNECT THE SCREEN OF THE FLAT CABLE TO THE CLOSEST "PE" (EARTH) OF THE ELECTRICAL PANEL ON BOTH SIDE OF THE CABLE. HIROBUS CABLES MUST BE INSTALLED INSIDE SUITABLE CONDUITS, SEPARATE FROM THOSE OF POWER TRANSMISSION CABLES.

Figure 2 connecting Microfaces. Cables to be used: see Figure on page 9.

2.2 LCD Display

There are two different Displays available:

“Local” Display

“Remote” Display

Both Displays have the same Front-View:

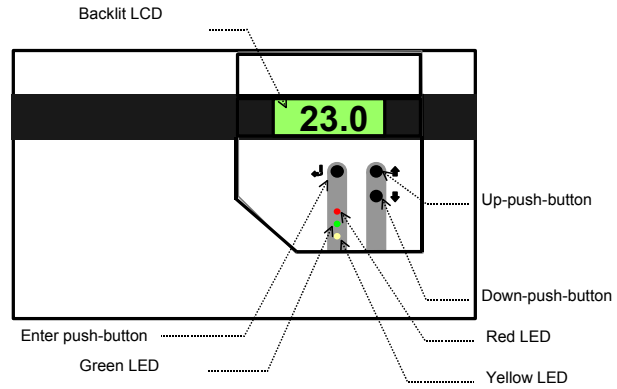


Figure 3 – LCD Display Front View (with plastic cover)

Just the backside connections are different, because of the different connection types to the Microface E: Local or Remote Display.

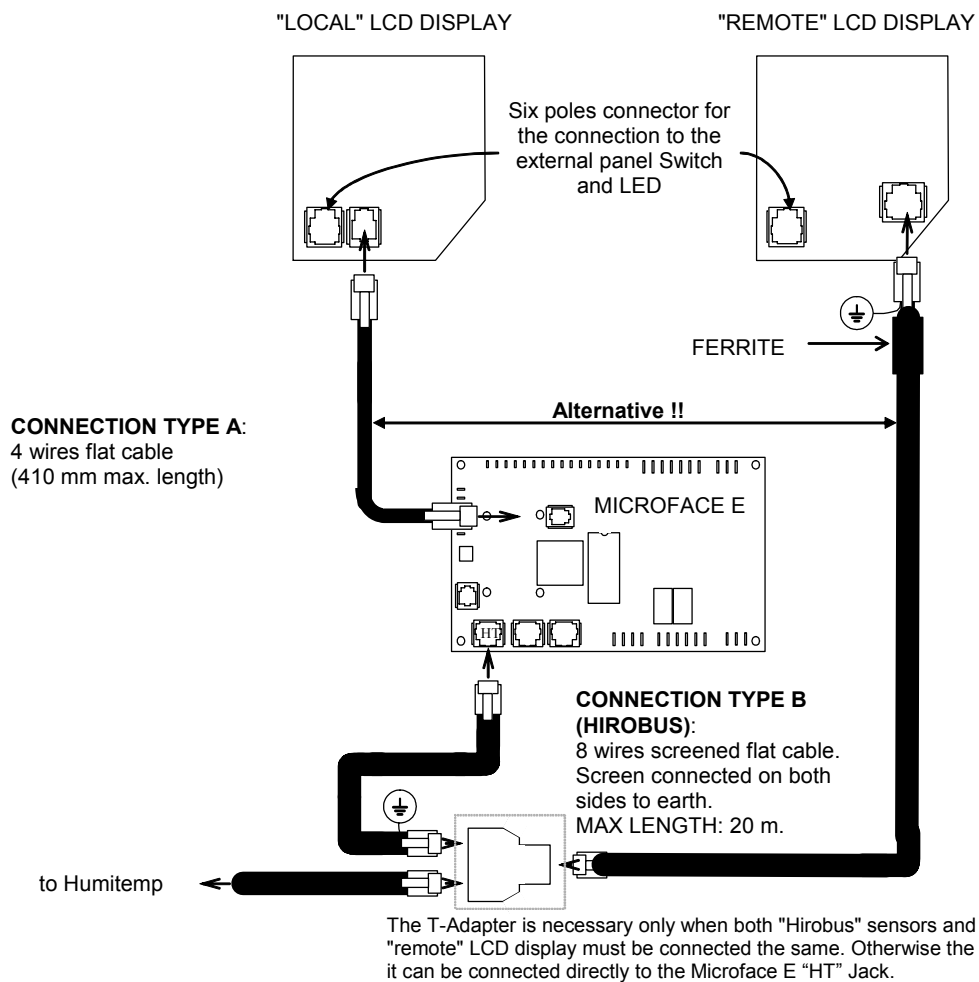


Figure 4 – Local and Remote Display Backside



Never use cables longer than 410 mm (Local Display) or longer than 20m (Remote Display)!

2.3 Eprom

The Eprom is the device, which stores the Program; the Microface has to work with. It doesn't store any user-settings; this is done by the Microface itself (in the RAM and the E²Prom). The Version Name and the Number are printed on the Label of the Eprom.

The following Eproms are today in use for Standard XDF Units (the xxx is a placeholder for the actual Version):

XDM-1.60.xxx 4 Mbit flash for Microface E

XDEL1-1.60.xxx 4 Mbit flash for Hiromatic E

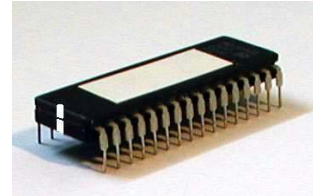


Figure 5 - Eprom



Un-power the Microface before mounting/dismounting the Eprom. Remove Eprom only with special tool; never use a screwdriver. For correct direction of mounting please refer to figure 1 in Chapter 2.1 for Microface, and figure 10 in Chapter 2.7.1 for Hiromatic.

Compare the Mark in the Eprom with the direction in the Drawing.

2.4 Humitemp Evolution

The Humitemp is a combined Temperature / Humidity Sensor. If connected, the Microface will use the values of the Humitemp for control. It is connected to the Microface through Hirobus-Cable (max. length: 25 m).

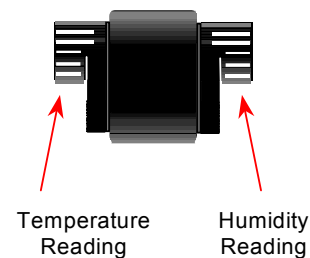


Figure 6 – Humitemp

2.5 PTC Temperature Sensor

PTC Sensors are temperature-sensors, changing the resistance according to the temperature (positive temperature coefficient).

The connection is 2 poles. The length of the cable sensor ranges from 2 to 10 meters.

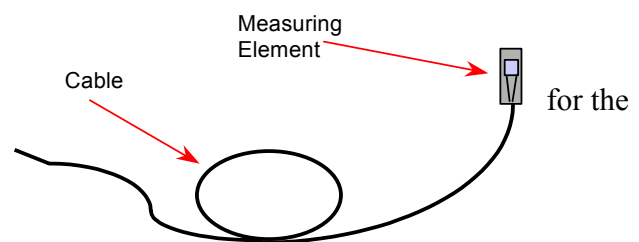


Figure 7 – PTC Sensor

2.6 I-Board / TAM Module

The I-Board for CCAC Units is the current transformer for the Humidifier (cylinder Type). The I-Board consists of one Current Transformer-Coil (one phase of the power supply for the humidifier must be wired through the hole); and 1 output relay.

The I-Board is simply plugged onto the Microface, see figure1 in Chapter 2.1 for the position.

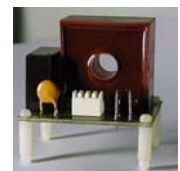


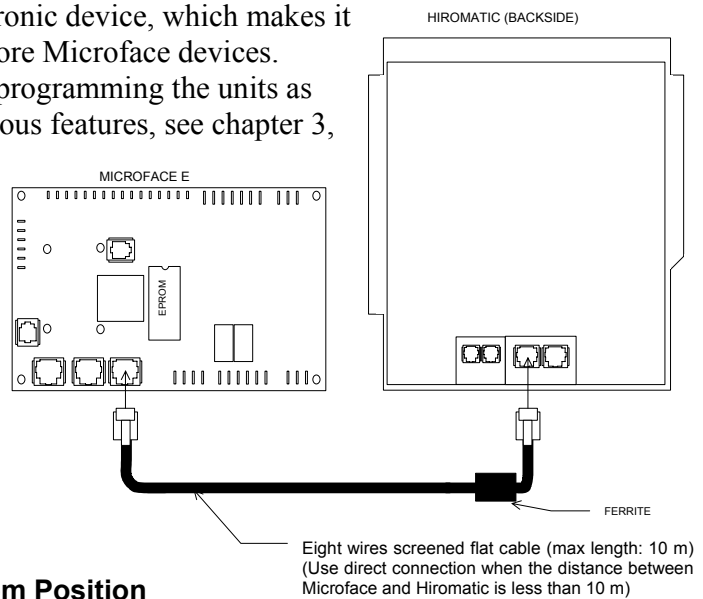
Figure 8 – I-Board

2.7 Hiromatic E

Hiromatic E is a microprocessor-based electronic device, which makes it possible to control the functions of one or more Microface devices. Hiromatic E offers numerous advantages of programming the units as well as to optimise their operation using various features, see chapter 3, Software.

Hiromatic can be fixed on the front panel of the unit, simply connecting the HIROBUS cable as shown in figure 9

Figure 9 – direct Connection between Microface and Hiromatic



2.7.1 Backside View, Jumpers and Eprom Position

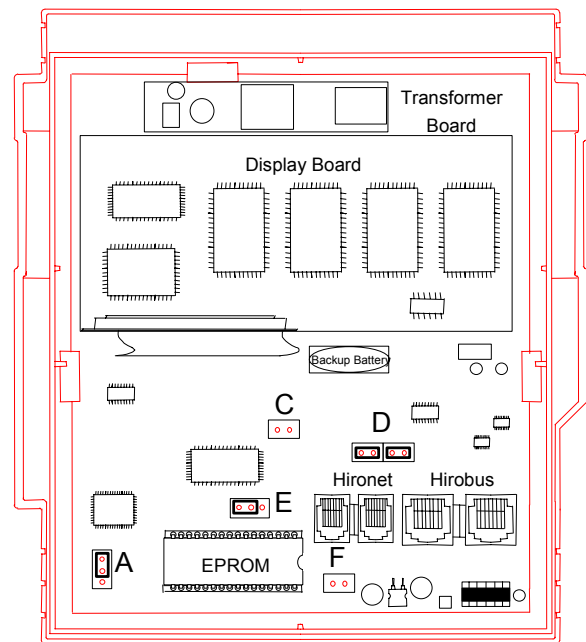


Figure 10 Hiromatic Evolution Backside

Description of the Jumpers:

- | | | |
|----|-------------------------------|---|
| A: | Eprom (2M) / Flash Size (4M): | Middle + Upper Jumper: 2 or 4 MBit (std. setting)
Middle + Lower Jumper: not used. |
| C: | Write Disabling: | do not set this Jumper |
| D: | Interface Selection: | both Jumpers as indicated in Drawing: RS 485 (std. setting)
No Jumpers set: RS 422 |
| E: | Contrast Selection: | Middle + Left Jumper: Variable Contrast
Middle + Right Jumper: Fixed Contrast |
| F: | Flash download: | not supported yet. Do not set this Jumper |

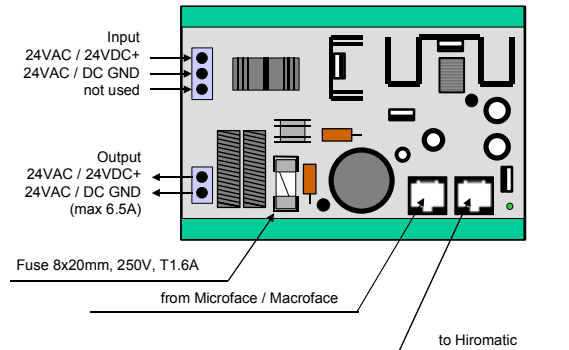


Please take special care about the Jumpers when installing a new (Spare Part) Hiromatic!

2.8 Power Supply Module for Hiromatic E (24V only)

2.8.1 PSM Hardware

Hiromatic E can be supplied mounted in an independent electrical panel containing a power supply module as well (PSM Power Supply Module), if the Distance to the next Microface is more than 10



meters. The PSM Module itself needs a power of 24V AC or 24V DC.

Figure 11 – PSM Module

2.8.2 PSM Connection (24V only)

The connection between Hiromatic E and the PSM is carried out in the factory by means of an eight wires HIROBUS cable. The PSM should be connected to Microface through a six wires screened HIROBUS cable; the screen needs to be grounded in both terminals. When the system consists of more than one unit, Hiromatic can be connected to any unit where Microface has a free HIROBUS connector (usually either the first or the last one of the Microface chain).

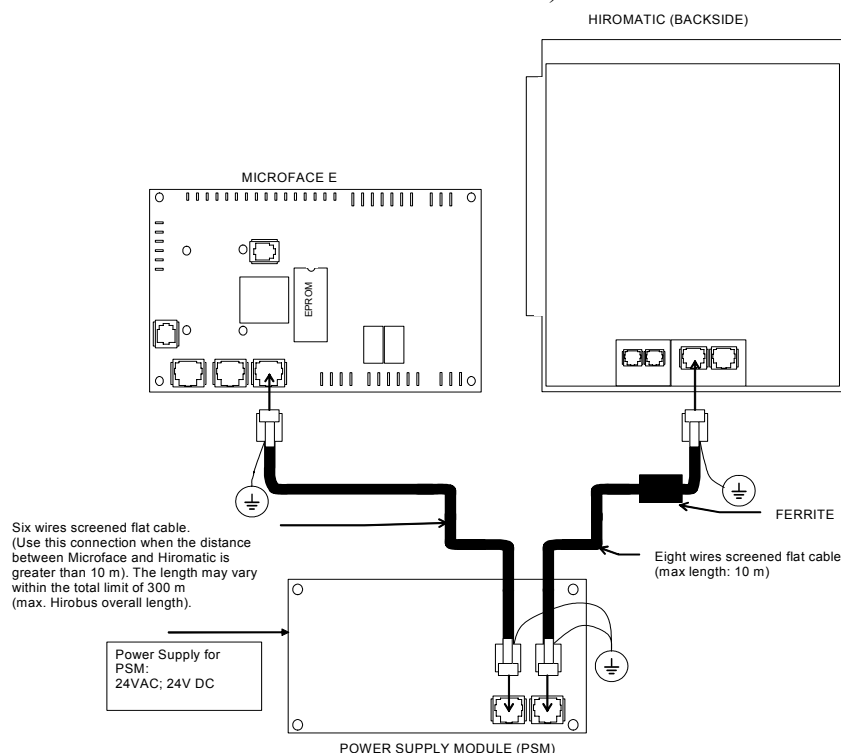


Figure 12 Connection of Microface LAN to Hiromatic E with PSM.

2.9 Hirobus Cables and other Connection Cables

The connections between various Microfaces, Hiromatic, display and sensors are carried out with cables having a different number of wires and different connectors. Following you can find how these cables have to be done. For the type of cable and connectors refer to the spare part list included in this manual.



Please note that a wrong connection could cause serious problems to the electronic devices (Microface and Hiromatic); for this reason we strongly recommend to use only first quality products or to buy the cables directly from your sales reps..

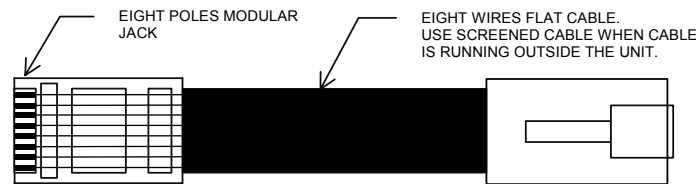


Figure 14 Eight-wires; eight poles connector HIROBUS cable, for Hiromatic E or Humitemp connections; for connection between Microface E and the remote LCD Display

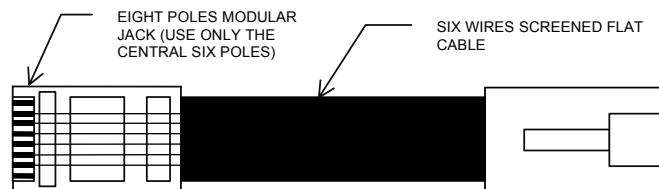


Figure 15 Six-wires (Pin 1 and 8 not connected) HIROBUS cable, for Microface E connections, eight poles connectors. This cable must be screened.

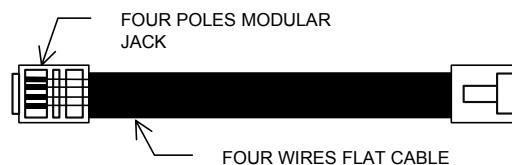


Figure 16 4 wires flat cable for local LCD Display, four poles connectors.

2.10 Microface Addressing

When Microfaces are connected with HIROBUS, it is necessary to assign a different address to each of them, by means of a group of jumpers on the Microface. The jumper position is described in figure 16.



The units must be addressed starting from #1, consecutively. The bus-cable doesn't necessarily need to go in order of the addresses; it could also be wired 1-5-4-2-3, for example.

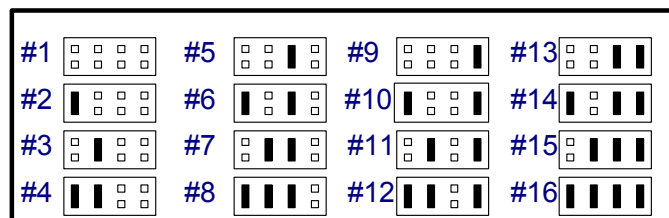
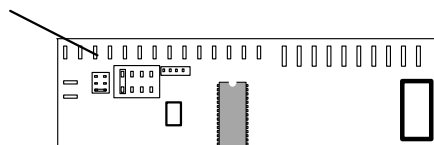


Figure 17 – Address Jumpers



2.11 Hardware, Technical Specification

Microface E 24V AC	
Power Supply	24VAC, $\pm 10\%$; 50 Hz
Digital Out (Triac)	7
Digital Out (Relay)	2 (max. 24V – 1A)
Analogue Out (0-10V)	2
Analogue In (resistive)	8
Analogue In (resistive / 0-10VDC)	3
Storage Temperature	-10 (not condensing) to +65°C
Operating Temperature Range	0 (not condensing) to +55°C
Humitemp E	
Power Supply	10VDC (from Hirobus)
Temperature range	0 to 50°C
Humidity range	20 to 90%
Minimum airspeed required	0,5 m/s
Temperature precision	$\pm 0,5^\circ\text{C}$
Humidity precision (@25°C)	40 to 65%: $\pm 2\%$ r.H. 20 to 90%: $\pm 4\%$ r.H.
PTC Temperature sensor	
Cable length	1,5 m and 10m
Temperature range	-28 to 100°C
Point of calibration	2000 Ω at 25.0°C
Hiromatic E	
Power Supply	10VDC (from Hirobus)
Graphic Display	Backlit, 200 x 64 pixels
Mounting hole	175 x 150mm
Power Supply Module (PSM)	
Power supply	24VAC, $\pm 10\%$; 24VDC, $\pm 20\%$
Output	10VDC (Hirobus, stabilised); 24VAC, $\pm 10\%$; 24VDC, $\pm 20\%$ (filtered)
I-Board (Current transformer)	
Current Range	0 – 30A
Digital Out (Relay)	1 (max. 24V – 1A)

2.12 Spare Parts List

DESCRIPTION	CODE
Switch + Led	255039
Microface E (Evolution) 24 AC board	275297
Local LCD display for Microface	275098
Remote LCD display for Microface	275662
I-Board / TAM Module	275099
Probe temperature PTC	275183
Probe PTC 2 kohm L = 10 m	275155
Probe Temp. + Hum. Humitemp	275181
EPROM Microface E XDM160***	276224
EPROM Hiromatic E XDE-L1 160***	276225
Hiromatic Evolution	275691
LWD (Leakage Water Detector)	275353
Flat cable 8 way M-M L = 1 m	275607
Flat cable 8 way M-M L = 10 m	275610
Flat cable 8 way screened (specify length)	275626
Module PSM 24/24-10 for Hiromatic	275316
Plastic holder for Microface only	270002
Plastic holder for Microface and LCD display	270003
Hirobus / Hironet Cable Tester	480061
Hirobus / Hironet Interface Tester	480060

3 Software

3.1 The LCD Display

The interface module consists of a backlit LCD and of three push buttons that permit an easy access to the unit parameters. Writing access is protected by a password.

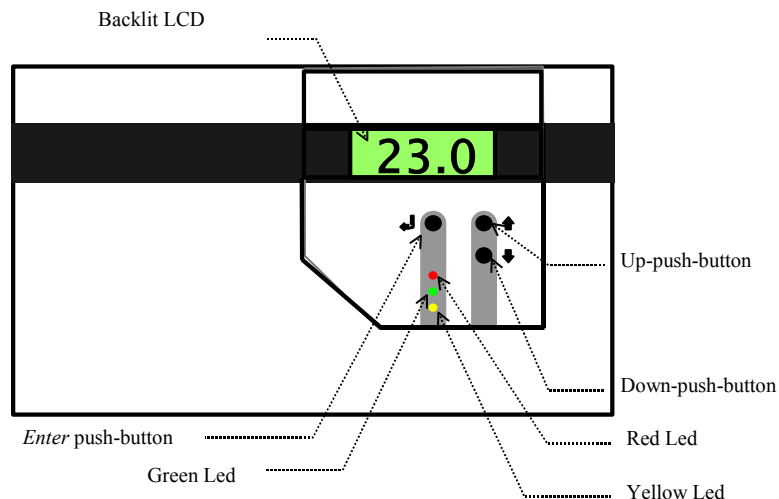


Figure 18 Interface module between Microface and operator (front view).

There are three LED's: the yellow Led to indicate the unit is power supplied, the green one lights up when the unit is in operation and the red one signals either an alarm or a warning condition.

On the LCD the following symbols will be displayed:

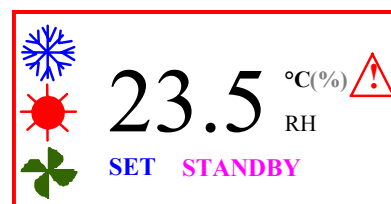
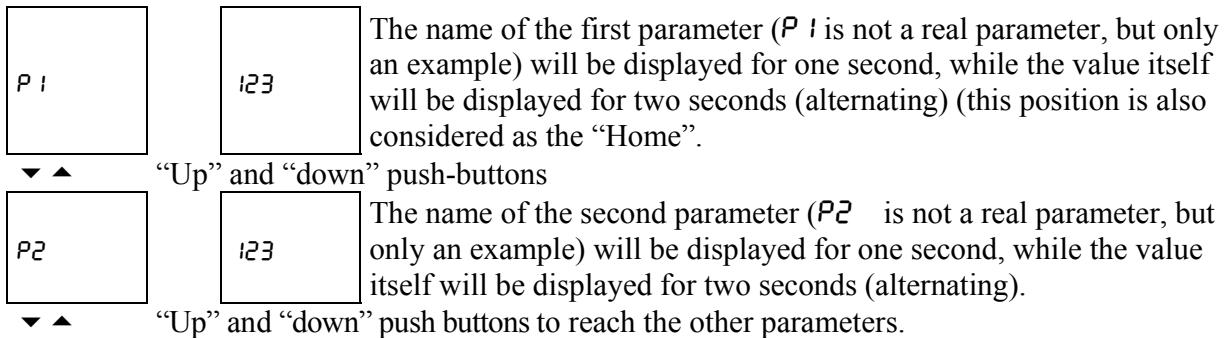


Figure 19 LCD Layout

	The snow symbol is active when the unit is in cooling operating mode.
	The fan symbol is active when the unit is running, that means that the fan is operating.
	The sun symbol is active when the unit is in heating mode
	The alarm triangle is ON when either a warning or an alarm is active
STANDBY	The „STAND BY“ string will be displayed when the unit is in the stand-by mode (not running)
SET	The ‘SET’ string will be displayed after the correct password is entered; the presence of this string on the display confirms the full access to the displayed parameters.
RH %	The „RH“ and “%” strings appear when relative humidity is displayed on the LCD.
°C	The „°C“ string appears when temperature is displayed on the LCD.

3.1.1 How to move through the Values/Parameters of the LCD Display

All Values and Parameters are listed up just one after the other. To jump the next parameter, simply the “down” button has to be pressed.



3.1.2 How to enter the Password (PIN)

Without password or by entering the wrong password, read only access is given, without the possibility to change values.

To enter a *password* in Microface, select the “Pin” parameter by pressing the “down” push-button as often as necessary. When pressing “Enter” (↵), a 0 will be displayed as first digit on the left and will be followed by two dashes (a password is made of 3 digits). Change the numeric value by pressing the “up” or “down” push buttons. After having obtained the required numeric value, press “Enter” (↵) to go to the following digit. Pressing “Enter” (↵) after having selected the last *password* digit, the parameter (“Pin”) name will be displayed again. If the correct *Password* is entered, the desired modifications can be made. Reaching the next changeable Parameter, the LCD Display will show a “SET” string, which is the confirmation, that the PIN was entered correctly. Different Password-Levels give different “Rights”:

Level 0	Read only
Level 1	Customer Level
Level 2	Service Low Level
Level 3	Not used
Level 4	Sensor Calibration
Level 5	Service High Level
Level 6	Service contacts



The password is stored, until the first parameter / value (“Home”) of the list is displayed again. Never leave the Unit without jumping back to “home” (pressing “Enter” and “UP” together).

3.1.3 How to change Parameters

To change the value of a parameter (possible only when the Password “PIN” has been correctly inserted), scroll the list using the “up” and “down” push-buttons until the desired parameter is displayed and press “Enter” (↵). By pressing the “up” and “down” push buttons, it is possible to change the corresponding value; after having obtained the required value, press enter (↵) again. The display will show again the name of the parameter alternating with the new value.

3.1.4 How to reset Alarms or Warnings

When an alarm is triggered, the red alarm LED is lit on the LCD Display Module and the corresponding symbol is shown in the Display.

The Alarm section can be reached by pressing the “up” push-button when the first parameter is on the display; alarms are pointed out according to their code order.

After having entered the alarm section, the alarm code is displayed and every second the code is replaced by the coded description.

Pressing the “Enter” key (↵), when an alarm code is displayed on the LCD, all the active alarms will be reset. After the reset operation, all the still active alarms will be shown again. If there are no more active alarms, the first parameter / value of the list will be displayed again.

3.1.5 Tricks

To quickly reach the parameter at the bottom of the list, press “Enter” (↵) together with the “down” push-button. To quickly reach the parameter at the top of the list, press “Enter” (↵) together with the “up” push-button.

3.1.6 The LCD Parameters

See chapter 3.1.1 how to move through the Menu and how to enter the Password. The order of the following table is according the menu-layout of the LCD.

The range of selectable values is available on Hiromatic E Parameters list

LCD	Parameter name	Description	User setting
Ɛ 1	Return Temperature	This value, together with the supply temperature, is used to calculate the speed of evaporator fan within the range defined with the F5 1 and F52 LCD parameters in a delta T (Ɛ2 minus Ɛ 1) of 5-10°K. This function is possible only setting one of the two analogs output as ECFan	Read only
Ɛ2	Supply Temperature	This value is used for cooling and heating control management	Read only
h 1	Return Humidity	This value is used humidification and dehumidification control management	Read only
ƆcƐ	Actual Temperature Set point	Actual temperature set point in use	Read only
ƆcH	Actual Humidity Set point	Actual humidity set point in use	Read only
HP 1	Actual HP1 pressure value	Actual condenser pressure value: this value is used by the control to manage the condenser fan speed	Read only
HP2	Actual HP1 pressure value	Actual compressor discharge pressure: this value is used by the control to manage the compressor power reduction	Read only
dr	Manual Humidifier Drain	If set to ON the humidifier water drain valve will be activated for a time of 30 seconds; the parameter jumps automatically to OFF	---
P in	Password	See 3.1.2. Chapter	---
nƐt	Number of Unit in Network	Number of unit connected in the Hirobus LAN (Local Area Network)	
Stb	Number of StandBy Units	Number of standby units	
rot	Rotation Enabled	Enables the units rotations	
roo	Perform Rotation	Used to force an units rotation	
Aut	Auto Restart	Unit activates its devices (Fan, Compressor, Heating.....) with the delay set every time the unit is powered On. The delay set is multiplied per the Hirobus ID, i.e. if set to 5 the 1 st unit will start with a delay of 5 seconds, the 2 nd unit will start after 10 seconds, the 3 rd after 15 seconds and so on	*
rE	Remote Enabled	If set to no the ON OFF key of Hiromatic E will be disabled, if set to YES it is enabled	*

LCD	Parameter name	Description	User setting
ECO	Backup Cooling Output	The Output 0 is used to inform the Rack that the backup cooling has to be activated. This Output can be set normally closed or normally open in absence of alarm. NOTE: This parameter has to be set to ON on all units that are located between the first and the last units; the parameter has to be set to OFF on the first and last units. In case of two units and one rack only the parameter has to be set to ON.	*
EEO	Backup Cooling Activated By On/Off	If set to ON the Output 0 (see ECO parameter) never will be in alarm condition when the unit is switched OFF by Hiromatic or Local On Off key	*
dPC	Damper Control	If set to YES and the dampers are not in the right position the unit will be forced to OFF	*
SPt	Temperature Set point	This parameter is used to define the needed temperature set point	*
SPH	Humidity Set point	This parameter is used to define the needed humidity set point	*
noc	Number of Compressors	Parameter locked to 1 (Single DX unit)	
EFc	Free cooling Type	Parameter locked to OFF (No free cooling)	
Std	Standard Settings	Forcing this parameter to YES all parameter marked with * symbol will assume the factory settings. The parameter goes automatically to ON as soon as the factory setting is modified	
Pbt	Temperature Proportional Band	Range of values centred on temperature set point used by the control to manage the cooling and heating devices.	*
PbH	Humidity Proportional Band	Range of values centred on humidity set point used by the control to manage the humidification and dehumidification devices.	*
EHS	Electrical Heating Step	Number of electrical heating steps available on unit for heating control	
HdE	Heating Dead Band	Allows to shift the heating band from temperature set point; it is normally used to active the heating at lower temperature. If set a negative value the heating band is shifted over the cooling band	*
HUE	Humidifier Enabled	Enable disable the humidification control	*
HU	Humidifier Type	Defines the type of humidifier mounted on board	
HS	Humidifier Supply	Defines the humidifier supply voltage	
Pro	Humidifier Steam rate	Defines the steam rate production	
PH	Humidifier Control	The humidification control can be done in two different modes: Proportional and On Off. Pro: the steam rate production value changes between the minimum selectable (30%) and the value set according to the humidity deviation from humidity set point (within the humidification band) ON: the humidifier is activated as soon as the humidity deviation reaches the limit of humidity band	
HUC	Humidifier Current	Actual humidity current absorbed value	

LCD	Parameter name	Description	User setting
H _{ud}	Humidity Dead Band	Allows to shift the humidity band from humidity set point	*
dEH	Dehumidification Enabled	Enable disable the dehumidification control	*
ELr	Electrical Re-Heating	Enable the use of electrical heating when the dehumidification is active	*
dHh	Dehumidification Hysteresys	Allows defining when to stop the dehumidification: the value set is considered the deviation from the right limit of dehumidification band	*
ddb	Dehumidification Dead Band	Allows to shift the dehumidification band from humidity set point	*
LSt	Liquistat	If the related sensor is installed is possible to active a warning (unit continue to operate) or an alarm (unit is switched off) in case of water presence	*
L9	Liquistat sensor value	Actual liquistat sensor value	
An1	Analog Output 0	The output will supply a 0-10 volt signal according to the value set: it must be set to ECF the unit is equipped with the EC-Fan	*
An2	Analog Output 1	The output will supply a 0-10 volt signal according to the value set; it has to be set to Con when the unit is equipped with the condenser control	*
FF	Fan Failure	If set as warning only the heating and humidifier are disabled, if set as alarm the unit will be stopped	*
FSS	Fan Speed Standard	If an analog output is set to F5, the speed of the evaporator fan is defined by this parameter	*
F51	Fan Speed Limit 1	Minimum voltage signal value used on evaporator fan speed control when an analog output is set as ECF (see also E2)	*
F52	Fan Speed Limit 2	Maximum voltage signal value used on evaporator fan speed control when an analog output is set as ECF (see also E2)	*
LPd	Low Pressure Delay	Defines the delay time considered by the control before to active the LP event at each compressor start	*
THC	Thermal Compressor	If set to YES the TH1 event will be activated when the compressor protection is active vice versa, it will be ignored. NOTE: in case of Thermal protection the compressor is disabled for a time of 30 minutes	*
cdt	Min. Compressor Power Time	At each compressor start the minimum compressor power is 50 % for the time set	*
Ht1	High Temperature level 1	It defines the first supply temperature limit value; if reached the Ht1 event is activated and the speed of the evaporator fan is forced to the maximum value. The event is ignored for 5 minutes every time the unit is switched to ON then the condition has to persist for a time of 10 seconds minimum. The speed will back under control as soon as the temperature is equal or lower then the temperature set point	*

LCD	Parameter name	Description	User setting
LT1	Low Temperature level 1	First low supply temperature limit value: if the limit is reached and the condition persists for 10 seconds the LT1 event is activated and the compressor will be stopped. Compressor will be activated as soon as the temperature is greater than the temperature set point + cooling band. The event is ignored for 15 minutes every time the compressor switched to ON; any relation from Unit On	*
HH1	High Humidity level 1	First high return humidity limit value: if the limit is reached the HH1 event is activated; this event is ignored for 5 minutes every time the unit is switched to ON	*
LH1	Low Humidity level 1	First low return humidity limit value: if the limit is reached the LH1 event is activated; this event is ignored for 5 minutes every time the unit is switched to ON	*
HT2	High Temperature level 2	Second high supply temperature limit value: if the limit is reached and the condition persists for 10 seconds, the HT2 event is activated and the unit will be forced to OFF ; this event is ignored for 5 minutes every time the unit is switched to ON	*
LT2	Low Temperature level 2	Second low supply temperature limit value: if the limit is reached and the condition persists for 10 seconds, the LT2 event is activated; this event is ignored for 5 minutes every time the unit is switched to ON	*
HH2	High Humidity level 2	Second high return humidity limit value: if the limit is reached the HH2 event is activated; this event is ignored for 5 minutes every time the unit is switched to ON	*
LH2	Low Humidity level 2	Second low return humidity limit value: if the limit is reached the LH2 event is activated; this event is ignored for 5 minutes every time the unit is switched to ON	*
CR1	Supply Temperature Sensor Calibration	Allows to make an offset on supply temperature sensor reading	
CR2	Return Temperature Sensor Calibration	Allows to make an offset on return temperature sensor reading	
CR3	Return Humidity Sensor Calibration	Allows to make an offset on return humidity sensor reading	
EST	Auto Test	If set to YES the unit will be forced on manual mode and all outputs will be activated step by step then the unit goes back to operate in the usual way	

3.1.7 The Microface E LCD Display Warnings / Alarms

Num.	Code	Description	Type
001	HP1	High Pressure	Alarm: the event is activated with a delay of 20 seconds; compressor is stopped and the unit is forced to OFF.
002	LP1	Low Pressure	Alarm: the event is activated after the delay set (see LPd parameter); compressor is stopped and the unit is forced to OFF.
005	EHO	Electrical Over Heating	Warning: the event is activated with a delay of 20 seconds; heating is stopped, unit remains ON
006	AF	Fan Failure	Warning: the event is activated with a delay of 100 seconds at each Unit On then the condition has to persist for 10 seconds. Heating and Humidification are disabled when the warning is active; unit remains ON
007	AF	Fan Failure	Alarm: the event is activated with a delay of 100 seconds at each Unit On then the condition has to persist for 10 seconds, unit is forced to OFF
008	CF	Clogged Filter	Warning: the event is activated with a delay of 60 seconds, unit remains ON
009	LE	Water Leakage	Warning: the event is activated with a delay of 25 seconds of delay; unit remains ON
010	LE	Water Leakage	Alarm: the event is activated with a delay of 25 seconds of delay; unit is forced to OFF
013	HFA	Humidifier Failure	Warning: no delay; the event is activated when the "Humidifier Type" parameter is set to EXT and the "User Input 2" parameter is set to LSI. Set "User Input 2" parameter to "Not Used" to remove the warning
014	HHC	Humidifier High Current	Warning: no delay; the event is activated when the current absorbed is higher then 35A or 150% higher then the limit defined by the control according to the humidifier type
015	HF	Humidifier failure	Warning: the event is activated when the measured current is lower then 1A for a time of 15 minutes minimum (no water)
016	HU	Humidifier failure	Warning: no delay; the event is activated when the measured current changes from a certain value to 0 in few seconds
017	HUC	Humidifier Cylinder Worn	Warning: the event is activated when the measured current 50% higher then the value, considered by the control according to the humidifier type, for a time of 48 hours minimum
018	Ht1	High Supply Temperature Level 1	Warning: the event is ignored for a time of 5 minutes at each unit ON then; the condition has to persist for a time of 10 seconds minimum. When the event is active the speed of evaporator fan is forced to 100%. The event is automatically reset as soon as the temperature is equal or lower the temperature set point

Num.	Code	Description	Type
019	Lt1	Low Supply Temperature Level 1	Warning: the event is ignored for a time of 5 minutes at each unit ON then; the condition has to persist for a time of 10 seconds minimum When the event is active the compressor is stopped. The event is automatically reset as soon as the temperature is higher then the temperature set point.
020	HH1	High Return Humidity Level 1	Warning: the event is ignored for a time of 5 minutes at each unit ON
021	LH1	Low Return Humidity Level 1	Warning: the event is ignored for a time of 5 minutes at each unit ON
022	Ht2	High Supply Temperature Level 2	Warning: the event is ignored for a time of 5 minutes at each unit ON then; the condition has to persist for a time of 10 seconds minimum, unit is forced to OFF
023	Lt2	Low Supply Temperature Level 2	Warning: the event is ignored for a time of 5 minutes at each unit ON then; the condition has to persist for a time of 10 seconds minimum; unit remains ON
024	HH2	High Return Humidity Level 2	Warning: the event is ignored for a time of 5 minutes at each unit ON
025	LH2	Low Return Humidity Level 2	Warning: the event is ignored for a time of 5 minutes at each unit ON
026	HE	Conditioner Working Hours Exceeded	Warning: the event is activated as soon as the actual working hours value reaches the limit
027	HC1	Compressor Working Hours Exceeded	Warning: the event is activated as soon as the actual working hours value reaches the limit
028	HH	Humidifer Working Hours Exceeded	Warning: the event is activated as soon as the actual working hours value reaches the limit
029	SSF	Supply Temperature Sensor Failure	Warning: the event is activated with a delay of 15 seconds; unit is forced to OFF when the event is active
030	rSF	Return Temperature and Humidity Sensor Failure	Warning: the event is activated with a delay of 15 seconds; unit is forced to OFF when the event is active
031	SnR	Sensors not Available	Alarm: the event is activated with a delay of 15 seconds; unit is forced to OFF when the event is active
033	SF	Water Presence Sensor Failure	Warning: the event is activated with a delay of 25 seconds; unit remains ON
058	Pt1	Pressure Transducer HP1 Sensor not Available	Warning: the event is activated with a delay of 15 seconds; the condenser fan speed value is locked to 50% when the event is active
059	Pt2	Pressure Transducer HP1 Sensor not Available	Warning: the event is activated with a delay of 15 seconds; the compressor power request is 20% reduced when the event is active
066	noP	No Power Active	Warning: no delay; unit if forced to OFF
070	nEt	No Connection to Unit 1	Warning: 30 seconds of delay; the standby unit is forced to ON
071	tH1	Compressor Thermal Protection	Alarm: the event is activated with a delay of 20 seconds; unit is forced to OFF and the compressor is disabled for a time of 30 minutes. The event is ignored if the “Compressor Thermal Enabled” parameter is set to no

Num.	Code	Description	Type
075	CP _r	Compressor Power Reduction Active	Warning: if the pressure detected by the HP2 sensor persists over the limit set (see parameters on “Condenser control 2/2” Hiromatic E page) the compressor power request is reduced of the 20%
076	dPF	Wrong Damper Position	Alarm: the event is activated with a delay of 20 seconds; unit is forced to OFF (see also dPF parameter). The damper condition is verified on both unit condition: On and OFF

4 Hiromatic E

4.1 Hiromatic E Layout

The front panel of Hiromatic E consists of a backlit graphic LCD, of eight push buttons that permit input function and of two LED.

Cursor Buttons: to move inside the Menu;
Left or Right: To go up to the Main Window or back to the previous window

Push-button to start/stop the system and the units (if enabled).

Help Key: opens Online-Help for the selected Parameter

This LED (orange) will be ON when the unit is power supplied

Alarms and warnings reset.

GREEN when the Unit is in Operation,
YELLOW if the Units is in Warning condition,
RED if the Unit is in Alarm condition

ENTER Button, to set Parameters

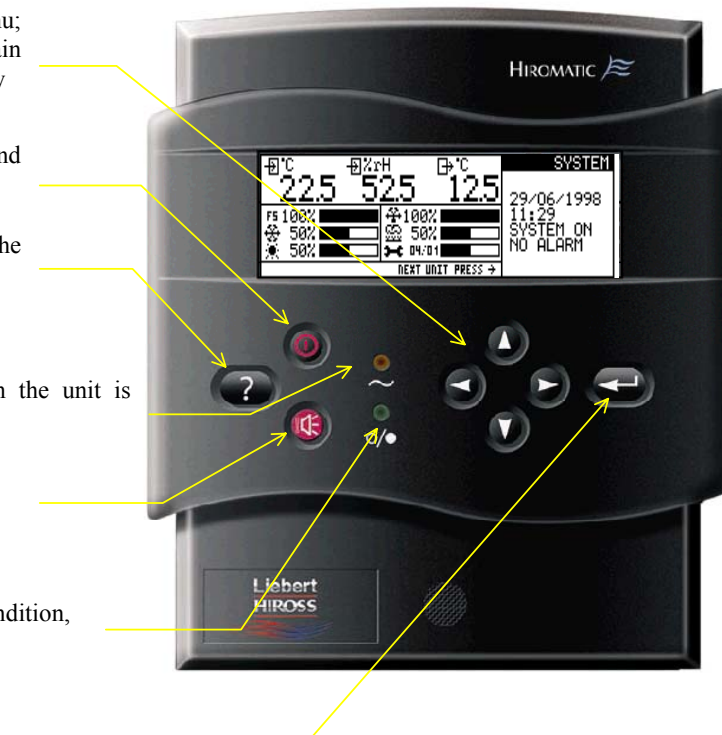


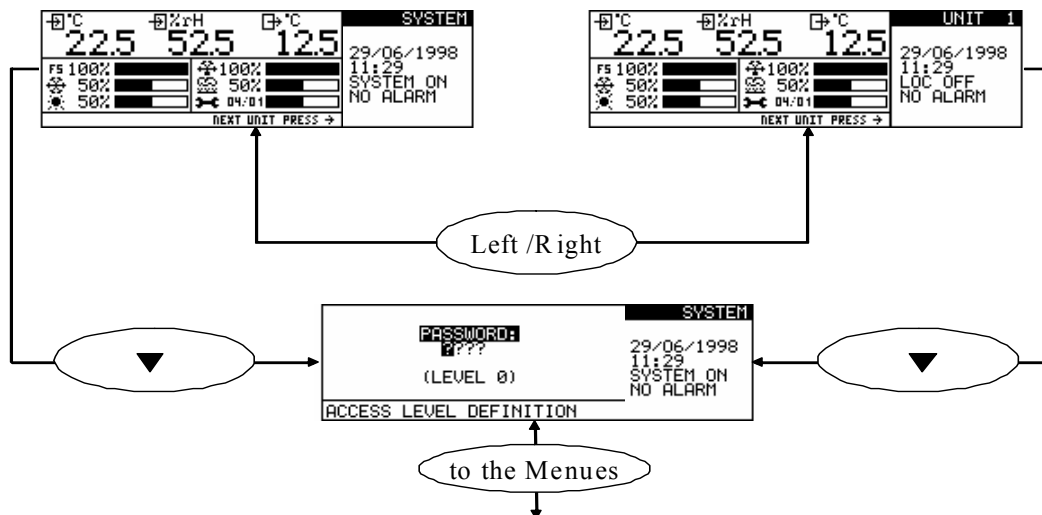
Figure 20 - Hiromatic E Front View

4.2 Meaning of the different Symbols in the Main Window

 °C 22.5	Return Air Temperature (if on the top-right SYSTEM is indicated, it is the average of all units with system on. If UNIT X is indicated, it is the return air temperature of the specific unit. This is valid for all indications in Hiromatic Display.
 %rH 52.5	Return Air Humidity of the System / the Unit.
 °C 12.5	Supply Air Temperature of the System / the Unit
FS 50% 	This Bargraph gives Information about the actual Evaporator Fan Speed, either for the System or for a specific Unit.
 100% 	This Bargraph gives Information about the actual used Cooling-recourses in Operation, either for the System or for a specific Unit.
 0% 	This Bargraph gives Information about the actual used Heating-recourses in Operation, either for the System or for a specific Unit.
 0% 	This Bargraph gives Information about the actual used Dehumidification-recourses in Operation, either for the System or for a specific Unit.
 0% 	This Bargraph gives Information about the actual used Humidification-recourses in Operation, either for the System or for a specific Unit.
 09/01 	This Bargraph gives Information about the next Maintenance time (mm-yy)
	This Field of the Window informs about time, date, the status of the System / Unit.

4.3 How to Move in the Hiromatic Windows

There are two ways to enter the menus: with or without Password. Entering without Password allows reading the values (except Password Menu and Calibration Menu); entering with Password allows also changing Parameters.

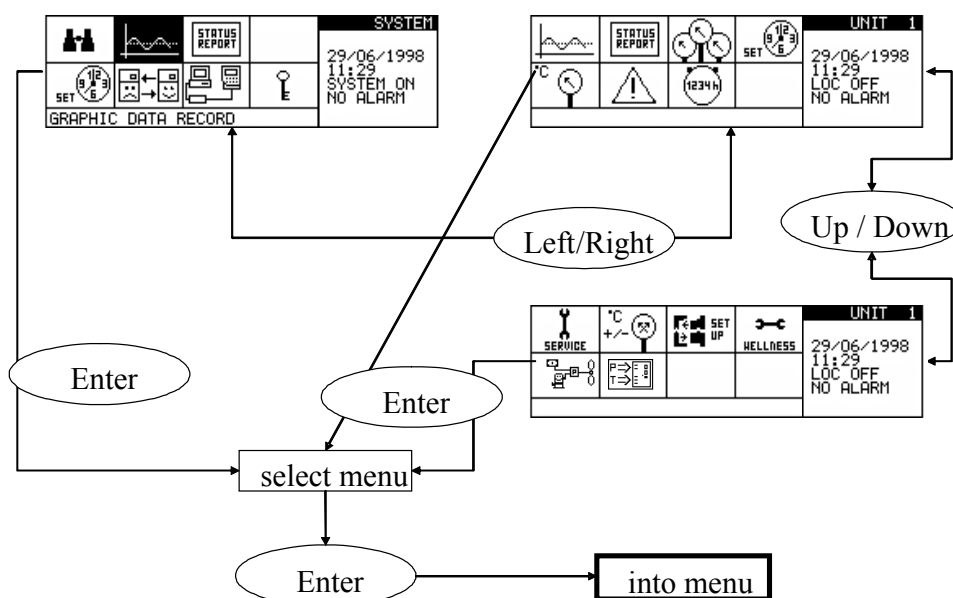


Without Password: Press ENTER or DOWN; press DOWN once more, and then ENTER.

With Password: Press ENTER or DOWN; ENTER to select first digit of Password; select with UP or DOWN, press RIGHT for the next Digit; UP or DOWN to select, etc. After having selected the correct Password, press ENTER.

Press DOWN to select the Enter-String, and press ENTER to jump into the Menu-Icons. Depending on the Password Level some of the Menus will be read/write, some of the read only.

Select the Window with LEFT-RIGHT-DOWN, Press ENTER to select the first Icon, Press LEFT-RIGHT-UP-DOWN to select the Icon (The Menu), and press ENTER to get in.



4.3.1 Hiromatic E Icons

Units Status Overview	
	This Window gives Information about the number of connected units and the status of each unit. The String “UNIT” appears only for those Units, which are configured in the Parameter: “Number of Units”. If beside the “UNIT” String no Status appears, it means that the unit was disconnected from the Hirobus
Graphic Data Records	
	For the System, as well as for each single unit an 8-days Graphic Data Record as well as a 24-hours Record for both Temperature and Humidity are available. The temperature/humidity scale can be adjusted (Enter- UP/DOWN). The Records are stored also after power off
Status Report	
	The Status Report contains the last 200 events in order of appearance, which occurred to the System, as well as to each single unit. From the System-Status-Report (a collection of events of all units) it is possible to reach the Unit-Status-Report (a collection of events for the selected unit only) of the single units by pressing the RIGHT key
Service Contacts	
	Allows defining the needed information to contact the local area service assistance. The relative information regarding the closest local service assistance is automatically showed according to the selected country. This message is showed every time that the event registration is accessed or easier pushing the “Help on Line” button
System Settings	
	Allows defining the language as well as the date and time of Hiromatic E
Standby Settings	
	Allows defining the rotation and standby rules
System Setup	
	Allows defining the number of units connected on HIROBUS network and the HIRONET communication for Hirovisor IP
Graphic Data Records	
	For each single unit an 8-days Graphic Data Record as well as a 24-hours Record for both Temperature and Humidity are available. The temperature/humidity scale can be adjusted (Enter- UP/DOWN). The Records are stored also after power off
Status Report	
	The Status Report contains the last 3 events in order of appearance, which occurred to the single unit. From the System-Status-Report (a collection of events of all units) it is possible to reach the Unit-Status-Report (a collection of events for the selected unit only) of the single units by pressing the RIGHT key
Unit Overview	
	The actual Temperatures and humidity as well as the actual set points values are shown
Unit Settings	
	Unit auto restart and SNMP addresses settings
Control Parameters	
	Temperature set point, Humidity set point and evaporator fan speed settings

Warning and Alarms	
	High and Low Temperature And Humidity warnings settings
Working Hours	
	Working hours limit settings
Service	
	Manual operation and status of Microface E Board input are available
Calibration	
	Allows performing a sensors offset if required
Unit Configuration	
	All parameters used for Temperature and humidity control are available
Next Maintenance Calculation	
	For service personnel only: all information about working hours, numbers of alarms, numbers of starts are available for each device. The Wellness bar graph indication is built according to the unit working condition
Condenser Control	
	For service personnel only: condenser control as well as compressor power reduction settings
Navigator Board	
	Auxiliary board for refrigerant pressure reading

4.3.2 Hiromatic Parameter List

The value indicated on the “std. set” column is the factory setting; the value can be modified in order to have the unit’s correct operation in relation to the installation type. We advised to transcribe the unit configuration parameters into the “User Set” column and keep the manual inside the unit

Parameter Name	Nr.	R/W	Range	Res.	Std.Set	User Set.
System Main window						
Return Temperature	-	R	-28.0 – 100.0	0.1(°C)	-	-
Return Humidity	-	R	0 – 100.0	0.5(%rh)	-	-
Supply Temperature	-	R	-28.0 – 100.0	0.1(°C)	-	-
Unit Main window						
Return Temperature	-	R	-28.0 – 100.0	0.1(°C)	-	-
Return Humidity	-	R	0 – 100.0	0.5(%rh)	-	-
Supply Temperature	-	R	-28.0 – 100.0	0.1(°C)	-	-
Contacts						
Country	-	W	None, Austria, Switz.D, Switz.F, Benelux D, Benelux F, Germany, France, UK, Hungary, Italy, Poland, Spain	-	-	
Line 1	-	W	Web Contatc	-	-	
Line 2	-	W	Phone Number	-	-	
Line 3	-	W	Service Contact	-	-	
Line 3	-	W	Service email	-	-	
System Settings						
Piezo Frq.	001	W	Off , On / 0.1 – 2.0	-	-	
Language	002	W	English	-	-	
Time	003	W	mm:hh	-	-	
Date	004	W	dd:mm:yy	-	-	
Contrast	005	W	0 – 127	1	-	
Display Backup Off after	006	W	5 – 60	1 (min)	5	
StandBy Settings						
Number of Standby Units	011	W	0 – 1	1	0	
Rotation Frequency	012	W	No, Daily, Mon, Tue, Wed,Thu, Fri, Sat, Sun	-	No	
Rot. Performed At	013	W	hh:mm	-	00:00	
Rotate Once	014	W	Yes, no	-	No	
System Setup						
Number of Units	021	W	0 – 16	1	1	
HM ID Number	022	W	1 – 99	1	1	
Baudrate	023	R	19200 – 20833	-	-	
Communication	024	W	No, Yes	-	Yes	
HM Eprom V. XDE-160*.*	025	R	-	-	-	
Unit Overview						
Supply Temperature	-	R	-28.0 – 100.0	0.1(°C)	-	-
Return Temperature	-	R	-28.0 – 100.0	0.1(°C)	-	-
Return Humidity	-	R	0 – 100.0	0.5(%rh)	-	-
Supply Temperature	-	R	-28.0 – 100.0	0.1(°C)	-	-
Actual HP1 Pressure Value	-	R	-7.5 – 31.0	0.1(bar)	-	-
Actual HP1 Pressure Value	-	R	-7.5 – 31.0	0.1(bar)	-	-
Actual Set Point	-	R	-	°C / %rh	-	-

Parameter Name	Nr.	R/W	Range	Res.	Std.Set	User Set.
Unit Settings						
Autorestart	102	W	0 – 999	1	0	
HM On/Off Enabled	103	W	No, Yes	-	Yes	
IP Address	104	W	0 – 255	1	-	
Listen Port	105	W	0 – 2000	1	-	
Control Parameters 1/2						
Temperature Setpoint	111	W	5.0 – 40.0	0.1(°C)	20.0	
Humidity Setpoint	112	W	No, 20 – 80	1(%rh)	40	
Humidity Compensation	113	W	No, Yes	-	No	
Control Parameters 2/2						
FanSpeed Standard	121	W	No, 30 – 100	1(%)	No	
Min. EC-Fan Speed	122	W	60 – 100	1(%)	60	
Max. EC-Fan Speed	123	W	60 – 100	1(%)	90	
Damper Control	124	W	No, Yes	-	Yes	
Sensors Warnings level 1						
High Temperature	132	W	No, 1 – 99	1(°C)	25	
Low Temperature	133	W	No, 1 – 99	1(°C)	12	
High Humidity	134	W	No, 1 – 99	1(%rh)	No	
Low Humidity	135	W	No, 1 – 99	1(%rh)	No	
Sensors Warnings level 2						
High Temperature	142	W	No, 1 – 99	1(°C)	28	
Low Temperature	143	W	No, 1 – 99	1(°C)	No	
High Humidity	144	W	No, 1 – 99	1(%rh)	No	
Low Humidity	145	W	No, 1 – 99	1(%rh)	No	
User Input 2	147	W	nHumi, NComp, Warning, Alarm 2 nd Setp, NoPower, Not used, LSI	-	LSI	
Working Hours						
Fan	162	W	0 – 32000	1	-	
Fan	162	W	0 – 32000	1	32000	
Fan	162	W	0 – 32000	1	-	
Comp	163	W	0 – 32000	1	-	
Comp	163	W	0 – 32000	1	32000	
Comp	163	W	0 – 32000	1	-	
Heat	164	W	0 – 32000	1	-	
Heat	164	W	0 – 32000	1	32000	
Heat	164	W	0 – 32000	1	-	
Hum	165	W	0 – 32000	1	-	
Hum	165	W	0 – 32000	1	32000	
Hum	165	W	0 – 32000	1	-	
Dehum	166	W	0 – 32000	1	-	
Dehum	166	W	0 – 32000	1	32000	
Dehum	166	W	0 – 32000	1	-	
Service (Manual Operation 1/3)						
Manual	191	W	Off, On	-	-	
Fan	192	W	Off, On	-	-	
Comp	103	W	Off, On	-	-	
Heat	104	W	Off, On	-	-	
Hum	105	W	Off, On	-	-	
Drain	106	W	Off, On	-	-	
Dehum	191	W	Off, On	-	-	
Al. Relay	192	W	Off, On	-	-	
Ana 0	193	W	0 – 100	1(%)	-	
Ana 1	194	W	0 – 100	1(%)	-	

Parameter Name	Nr.	R/W	Range	Res.	Std.Set	User Set.
Service (Inputs Information 2/3)						
Remote On Off	211	R	On, Off	-	-	
Damper SX	212	R	Open, Closed	-	-	
Damper DX	213	R	Open, Closed	-	-	
Filter	214	R	Ok, Wa	-	-	
Airflow Switch	215	R	Ok, Al	-	-	
No Power	216	R	Off, Act	-	-	
Service (Inputs Information 3/3)						
HP	221	R	Al, Ok	-	-	-
LP	222	R	Ok, Al	-	-	-
TH	223	R	Ok, Al	-	-	-
TSR	224	R	Ok, Al	-	-	-
LSI	225	R	Off, On	-	-	-
Calibration						
Return Temperature	312	W	-9.9 / +9.9	0.1(°C)	-	
Return Humidity	313	W	-9.9 / +9.9	0.1(%rh)	-	
Supply Temperature	314	W	-9.9 / +9.9	0.1(°C)	-	
Unit Configuration 1/6						
Unit Type: Compressors	251	R	1 (Single DX)	-	1	
Unit Type: FC	252	R	None	-	None	
Standard Settings	253	W	No, Yes	-	Yes	
Temp. Prop.	254	W	1.0 – 30.0	0.1(K)	8.0	
Temp. Int.	254	W	No, 5 – 15	1(min)	No	
Hum. Prop.	255	W	2 – 60	1(%rh)	40	
Hum. Int	255	W	No, 5 – 60	1(min)	No	
Unit Configuration 2/6						
Heating steps	261	W	0, 1	1	-	
Heat Dead Band	262	W	0.0 – 30.0	0.1(K)	1.0	
Unit Configuration 3/6						
Humidifier Enabled	271	W	No, Yes	-	No	
Model	272	W	21L, 53L, 53H, 93L, 93H, d3H HT2, HT5, HT9, EXT	-	-	
Supply	272	W	230V, 400V, 375V, 465V, -	-	-	
Steam Rate	273	W	No, 30 – 100%	1(%)	-	
Control	274	W	On/Off, Prop	-	-	
Amps Nom. / Actual	275	R	-	0.1(A)	-	
Dead Band	276	W	0 – 50.0	0.1(%)	0	
Unit Configuration 4/6						
Dehum. Enabled	281	W	No, Yes	-	No	
El. Reheat Enabled	282	W	No, Yes	-	No	
Dehum. Hysteresis	283	W	25 – 75	1	50	
Dead Band	284	W	0 – 50.0	0.1(%)	0	
LWD	285	W	No, Wa, Al	-	No	
LWD Input	285	R	-	(V)	-	
Unit Configuration 5/6						
Analog Output 1	291	W	AlarmB, Supers, Cooling1, Cooling2, EC-Fan Humid, Heating, FanSpeed, Ret.Temp, up.Temp, HT.Humi, HeaterB, RadCool, SupCont, Heat 33% 3P.Act1, 3P.Act2, Metric, I-Variex, D.Scroll	-	EC-Fan	

Parameter Name	Nr.	R/W	Range	Res.	Std.Set	User Set.
AnalogOutPut 2	292	W	AlarmB, Supers, Cooling1, Cooling2, EC-Fan Humid, Heating, FanSpeed, Ret.Temp, Sup.Temp HT.Humi, HeaterB, RadCool, SupCont, Heat 33% 3P.Act1, 3P.Act2, Metric, I-Variex, D.Scroll	-	I-Variex	
BackUp Cooling Output	293	W	NO, NC	-	NC	
BackUp Cooling Activated By On/Off	294	W	No, Yes	-	YES	
Unit Configuration 6/6						
Fan Failure	301	W	Warning, Alarm	-	Alarm	
Low Pressure Alarm Delay	302	W	0 – 5	1(min)	3	
Fan Failure Alarm**	303	W	Enabled / Disabled	-	Enabled	
Compressor Thermal Enabled	304	W	No, Yes	-	Yes	
Next Maintenance Calc. (General Maintenance 1/5)						
Maint. Frequency	-	W	No, 1 -4	1(M)	No	
Max. Bonus	-	W	0 -12	1(M)	0	
Max. Penalty	-	W	0 -12	1(M)	0	
Last Maintenance	-	W	mm:yy	-	-	
By: / Reset	-	W	Editable text / Yes, No	-	-	
Calc. Next Maintenance	-	R	mm:yy	-	-	
Next Maintenance Calc. (Fan Settings / Diagnostic 2/5)						
Number of Starts	-	R	0 – 32000	1	-	
Working Hours	-	R	0 – 32000	1	-	
AV. Working Time	-	R	C	1	-	
Starts/Day / Opt/Wor	-	W	No, 1 – 240	1	1	
Starts/Day / Opt/Wor	-	W	No, 1 – 240	1	1	
Number of Alarms	-	R	0 – 32000	1	-	
Actual bonus	-	R	0 – 24	1	-	
Next Maintenance Calc. (Comp. Settings / Diagnostic 3/5)						
Number of Starts	-	R	0 – 32000	1	-	
Working Hours	-	R	0 – 32000	1	-	
AV. Working Time	-	R	C	1	-	
Starts/Day / Opt/Wor	-	W	No, 1 – 240	1	1	
Starts/Day / Opt/Wor	-	W	No, 1 – 240	1	1	
Number of HP/LP/TH	-	R	0 – 32000	1	-	
Actual bonus	-	R	0 – 24	1	-	
Next Maintenance Calc. (Heat. Settings / Diagnostic 4/5)						
Number of Starts	-	R	0 – 32000	1	-	
Working Hours	-	R	0 – 32000	1	-	
AV. Working Time	-	R	C	1	-	
Starts/Day / Opt/Wor	-	W	No, 1 – 240	1	1	
Starts/Day / Opt/Wor	-	W	No, 1 – 240	1	1	
Number of Alarms	-	R	0 – 32000	1	-	
Actual bonus	-	R	0 – 24	1	-	
Next Maintenance Calc. (Hum. Settings / Diagnostic 5/5)						
Number of Starts	-	R	0 – 32000	1	-	
Working Hours	-	R	0 – 32000	1	-	
AV. Working Time	-	R	C	1	-	
Starts/Day / Opt/Wor	-	W	No, 1 – 240	1	1	
Starts/Day / Opt/Wor	-	W	No, 1 – 240	1	1	
Number of Alarms	-	R	0 – 32000	1	-	
Actual bonus	-	R	0 – 24	1	-	

Parameter Name	Nr.	R/W	Range	Res.	Std.Set	User Set.
Condenser Control 1/2						
Condenser Set Point	-	W	5.0 – 22.0	0.1(bar)	16.0	
Condenser Band	-	W	1.0 – 10.0	0.1(bar)	4.0	
Dead Band	-	W	0 – 80	1(%)	50	
Cut Off	-	W	5.0 – 15.0	0.1(bar)	12.0	
Reset Cut Off At +	-	W	0 – 5.0	0.1(bar)	05	
Min. Cond. Fan Speed	-	W	0 – 5.0	0.1(V)	2.5	
Max. Cond. Fan Speed	-	W	5.0 – 10.0	0.1(V)	8.0	
Condenser Control 2/2						
HP Warning 1 / 2	-	W	10.0 – 30.0	0.1(bar)	20.0/24.0	
Part. Time / Hysteresys	-	W	10.0 – 30.0	0.1(bar)	20/3.0	
Actual Condenser Pressure	-	R	-6.0 – 30.0	0.1(bar)	-	
Actual Condenser Fan Speed	-	R	0 – 100	1(%)	-	
Filter	-	W	0.2 – 10.0	0.1(%)	0.5	
Condenser Control	-	W	Auto, Manual	-	Auto	
I-Variex Active	-	W	No, Yes	-	Yes	
Navigator Board (Pressure Transducer Calibration)						
Refrigerant Type	491	W	R22, R407c	-	-	
HP1	492	W	Sensor Offset	-	-7,5 / 31.0	
HP2	493	W	Sensor Offset	-	-7,5 / 31.0	
Actual HP1 Value	494	R	-7.5 – 31.0	0.1(bar)	-	
Actual HP2 value	495	R	-7.5 – 31.0	0.1(bar)	-	

** The Fan Failure Alarm can be deactivated for maintenance reasons and only when the unit is in MANUAL MODE; it is automatically ignored when the unit is operating in AUTOMATIC MODE

4.3.3 Hiromatic Messages / Warnings / Alarms table

Code	Description	Type
0	General Alarm	Reset, Acknowledge
1	Compressor High Pressure	Alarm
2	Compressor Low Pressure	Alarm
5	Electrical Heater Overheated	Alarm
6	Fan Failure	Warning
7	Fan Failure	Alarm
8	Clogged Filter	Warning
9	Water Leakage	Warning
10	Water Leakage	Alarm
13	Humidifier Failure	Warning
14	Humidifier High Current	Warning
15	Humidifier Failure	Warning
16	Humidifier Failure	Warning
17	Humidifier Cylinder Worn	Warning
18	High Supply Temperature Level 1	Warning
19	Low Supply Temperature Level 1	Warning
20	High Return Humidity Level 1	Warning
21	Low Return Humidity Level 1	Warning
22	High Supply Temperature Level 2	Warning
23	Low Supply Temperature Level 2	Warning
24	High Return Humidity Level 2	Warning
25	Low Return Humidity Level 2	Warning
26	Conditioner Working Hours Exceeded	Warning
27	Compressor Working Hours Exceeded	Warning
28	Humidifier Working Hours Exceeded	Warning
29	Supply Temperature Sensor Failure	Warning
30	Return Temperature and Humidity Sensor Failure	Warning
31	Sensors Not Available	Alarm
33	Water Sensor Presence Failure	Warning
34	Network Failure	Warning
36	Unit ON	Message
37	Unit OFF	Message
39	Standby Mode	Message
40	Power ON Unit Login	Message
41	Power OFF	Message
42	Unit 1 Disconnected	Warning
43	Unit 2 Disconnected	Warning
44	Unit 3 Disconnected	Warning
45	Unit 4 Disconnected	Warning
46	Unit 5 Disconnected	Warning
47	Unit 6 Disconnected	Warning
48	Unit 7 Disconnected	Warning
49	Unit 8 Disconnected	Warning
50	Unit 9 Disconnected	Warning

Code	Description	Type
51	Unit 10 Disconnected	Warning
52	Unit 11 Disconnected	Warning
53	Unit 12 Disconnected	Warning
54	Unit 13 Disconnected	Warning
55	Unit 14 Disconnected	Warning
56	Unit 15 Disconnected	Warning
57	Unit 16 Disconnected	Warning
58	Pressure Transducer HP1 not Available	Warning
59	Pressure Transducer HP2 not Available	Warning
64	ON OFF Hiromatic Not enabled	Message
66	No Power	Warning
67	Power ON	Warning
70	No connection to Unit 1	Warning
71	Compressor Thermal Protection	Alarm
74	Out of Memory	Warning
75	Compressor Power Reduction Active	Warning
76	Dampers Position failure	Alarm
77	Network Ping	Message
83	Maintenance Done	Message
84	Maintenance Should Be Done	Message
85	Unit Synchronization	Message
88	Heater Working Hours Exceeded	Warning

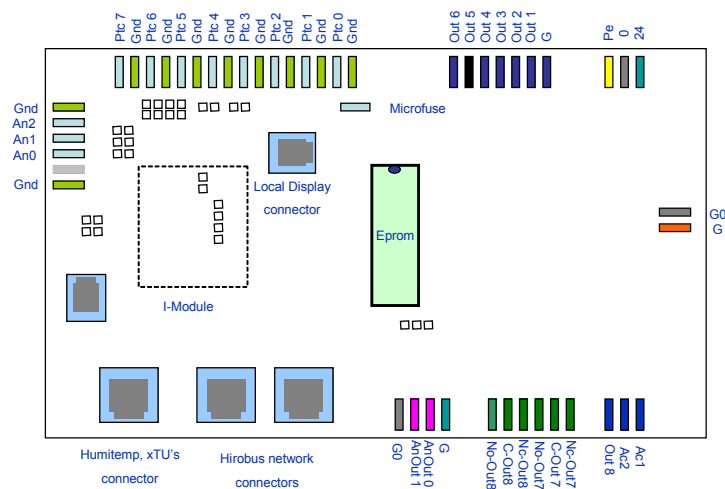
5 Connection Guide

The following gives information about the inputs and outputs of Microface E board; it is not an electrical drawing but, general information about how the inputs and outputs have to be used. For detailed information please refer to the electrical diagram of the unit.

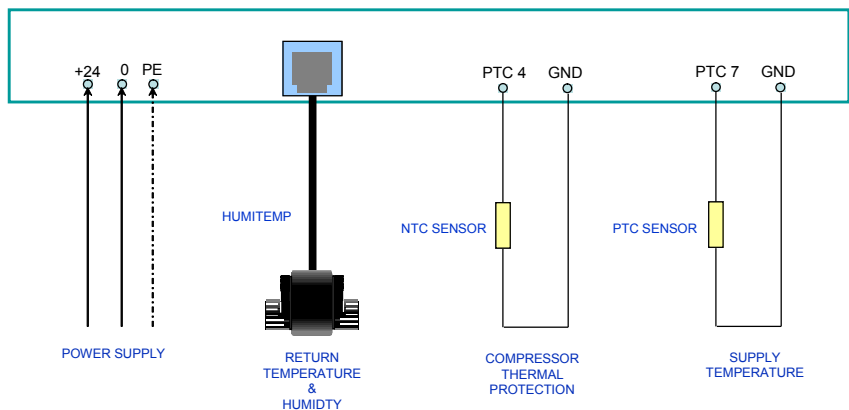
Inputs and outputs table

Inputs	Description
PTC 0	Remote ON OFF
PTC 1	Clogged Filter and Air Flow Switch
PTC 2	No Power
PTC 3	High Pressure and Low Pressure
PTC 4	Compressor Thermal Protection
PTC 5	Electrical Heating Overheated
PTC 6	LSI
PTC 1	PTC Supply Temperature Sensor Reading
AN0	Damper SX Status
AN1	Damper DX Status
AN2	LWD
Output	Description
OUT 0	Emergency Output
OUT 1	Compressor
OUT 2	Compressor Power Control
OUT 3	Electrical Heating
OUT 4	Not Used
OUT 5	Humidifier Fill Valve
OUT 6	Humidifier Drain Valve
OUT 7	General Warnings/Alarms
OUT 8	Fan
OUT 9	Humidifier
ANA 0	EC-FAN
ANA 1	I-Variex

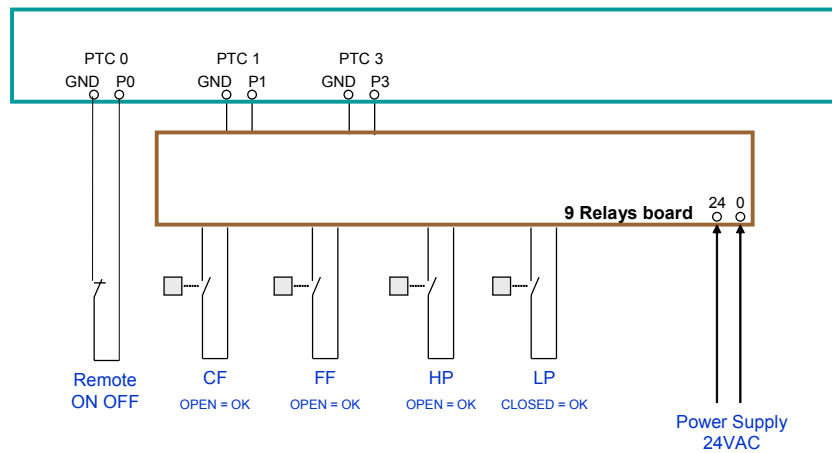
Microface E (Layuot)



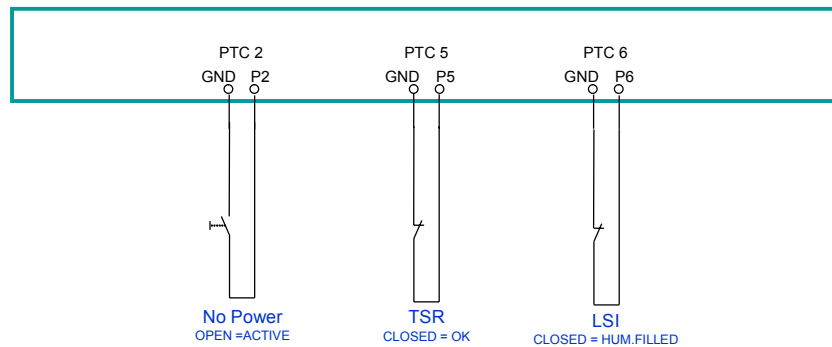
Microface E (temperature sensor)



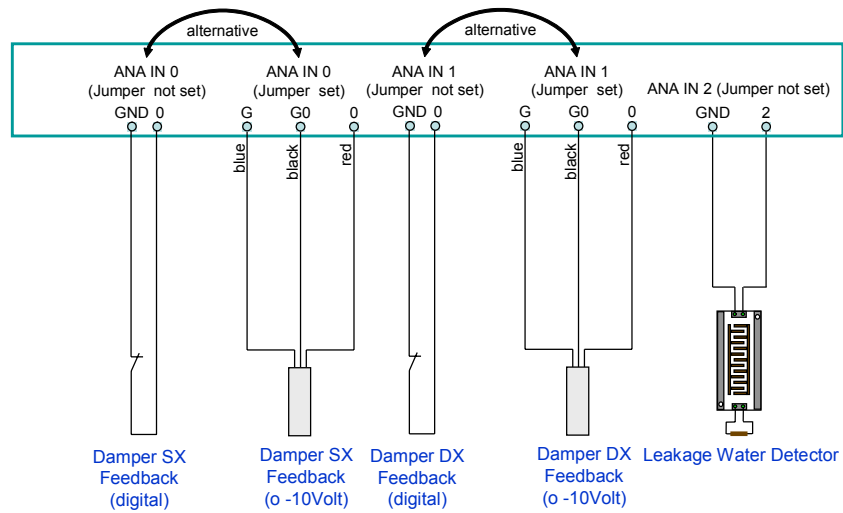
Microface E (PTC inputs)



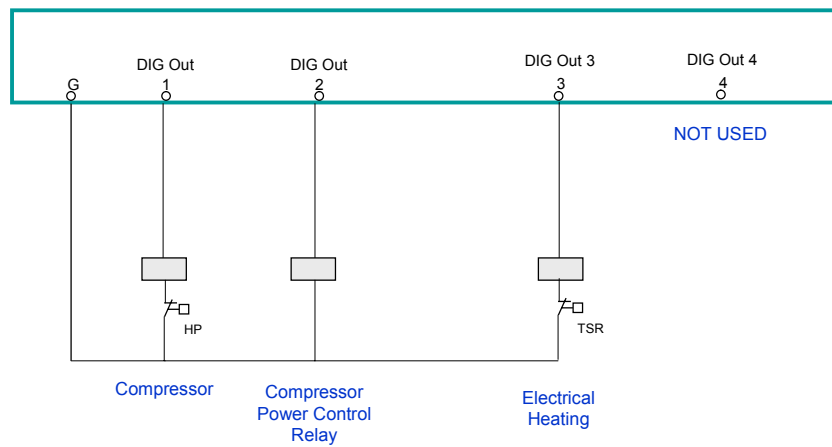
Microface E (PTC inputs)



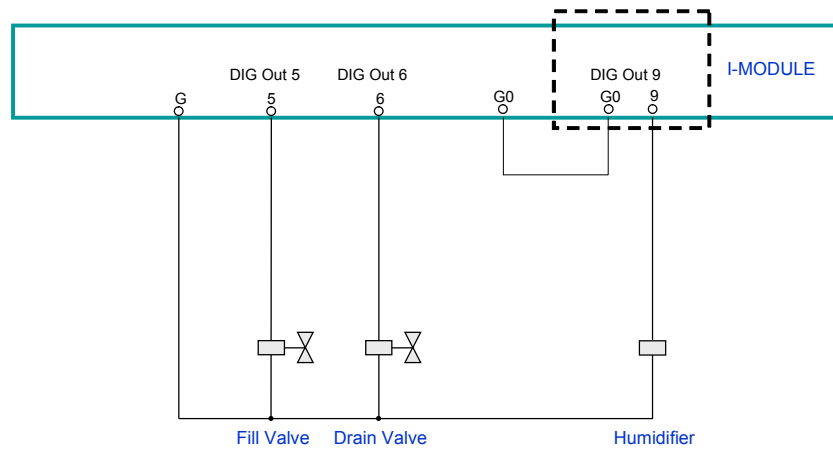
Microface E (Analog inputs)



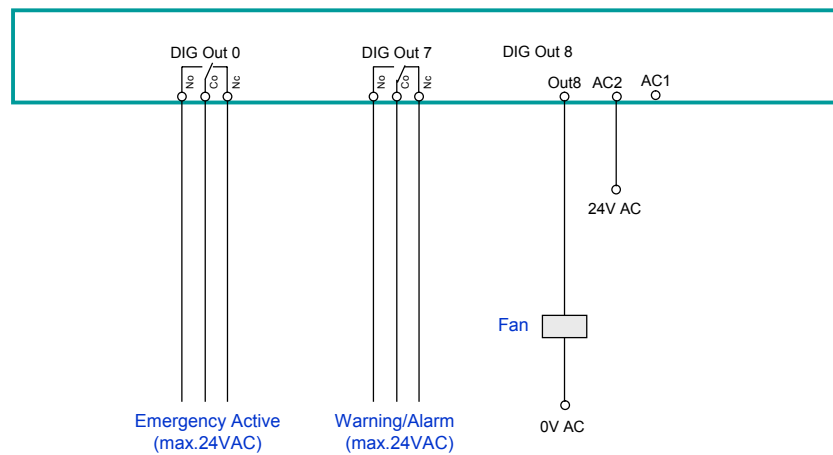
Microface E Digital Outputs



Microface E Digital Outputs



Microface E Digital Outputs



HiSNMP, Hiromatic E and Local Display

