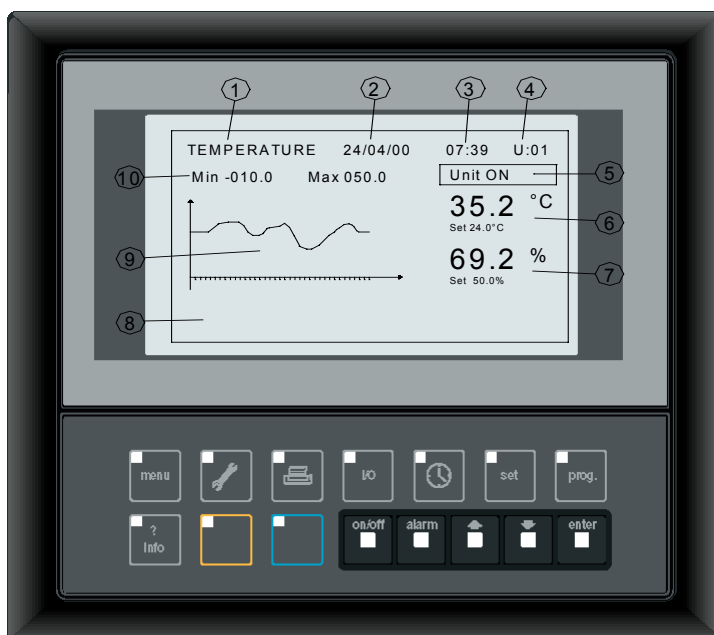


DATALogic Guide



advanced
conditioning
solutions

Introduction

The Hirotec Air Conditioner DATALogic Controller is a Microprocessor based programmable logic controller consisting of a terminal (user interface) located on the front of the air conditioner and a input/output board located in the switchboard.

The terminal displays a 20×4 character LCD Display with function keys for the operation and maintenance of the unit.

Display

Unit Number
Date, time
Room Temperature, Room Humidity (ACTUAL)
Room Temperature, Room Humidity (SET)

Operating Modes

Cooling
Heating
Humidification
De-Humidification

Features

- Auto-restart after power failure with adjustable delayed start
- Lead/lag compressor operation (automatic).
- 3 steps heating on larger models (optional)
- Temperature control priority over humidity.
- Fan “Run On” after unit is switched off (adjustable)
- Fault indication selected as “ALARM” or “WARNING”
- Fans operate when condenser water failed.
- Humidifier capacity is adjustable between 30% and 100%.

Status LED's

<i>Yellow</i>	Power On	ENTER Button
<i>Green</i>	Unit Operational	ON/OFF Button
<i>Red</i>	Alarm Active	ALARM Button



Approximately 5 minutes after pressing any of the buttons on the keypad the system goes back to the “Main” screen where the value of the room temperature and humidity plus the unit status are shown. (also accessible with the “MENU” button).

LOCAL ALARMS (Visual and Audible)

- High Return Air Temperature
- Low Return Air Temperature
- High Return Air Humidity
- Low Return Air Humidity
- Loss of Air
- Fan Motor Overload
- Compressor HP
- Compressor LP
- Element overheat
- Temperature probe faulty
- Humidifier low water
- Humidifier fault
(NO CURRENT)
- Humidifier high current
- Loss of Condenser water
- Loss of Power terminal loss
- Supply air temperature
(Option)
- Clogg Filter (Option)
- Water under floor (Option)

Non-critical signals (Local Alarms) may be selected as a “Warning” rather than an “Alarm”. As a Warning the indication of the fault is activated and recorded, however the air conditioner continues to operate.

Dual circuit units have separate H.P. and L.P. Alarms for each refrigeration circuit.

Note: High/Low temperature and High/Low humidity alarms may be adjusted so they are inoperable

Running – Standby Management

The Controller is able to manage a total of (16) units in a network with (3) units in a standby situation. Where more than (3) units are required to operate in standby mode, it is then necessary to have (2) or more networks,.

Units in a local network are rotated to share the operational time OR brought into operation in the event of an **ALARM** being activated in (1) of the operating units.

Master Slave

Master Slave permits the connection of up to (16) units in a Network where up to (3) units may be selected in “SLEEP MODE”.

In the Master Slave operation, one unit is selected as the Master Unit, and all other units in the Network are prevented from operating in a mode opposite to the Master Unit. The units selected as “SLEEP MODE” only become operational if the active units are unable to maintain room conditions.

Sequential/Cascade Operation (FORCE/STANDBY)

Cascade operation is also possible in which case an additional unit is brought into operation to assist the operating unit in maintaining room conditions under high load conditions. The support unit begins operating when required, and ceases operation when conditions are achieved.

Remote Unit Indication

The terminal of the DATALogic controller may actually be removed from the unit that it controls and located up to 50 metres from the unit. Alternatively an additional terminal may be installed as a “shared terminal”. This “shared terminal” has the capability to monitor the operations and alarms of other controls in the local network, also set points and other adjustments may be made from the “shared terminal”.

Printer

A serial port printer can be connected to the DATALogic controller if a "print card" is installed, a status report can be printed by pressing the print key. The unit will also automatically print the current status when an alarm is activated.

Time Zones

Time zones may be programmed into the DATALogic controller. Time zones may be used for the purpose of changing the temperature and or humidity set point at a particular time during the day or night depending on room requirements.

Remote Connections

- Unit Stop Start
- High Level interface to BMC's via RS485 or RS232 Serial board (OPTION)
- Common Alarm (voltage free contacts)

Optional remote outputs are available on request

These include:-

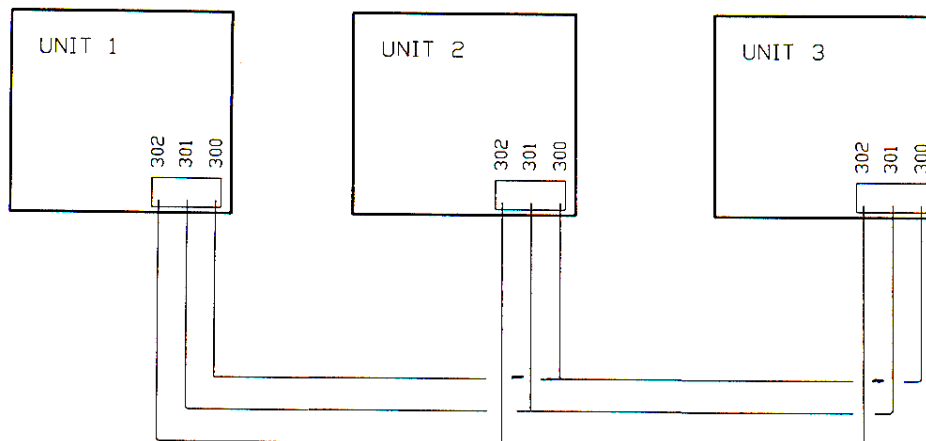
- Power (Available at unit)
- Fan Operational
- Cooling
- Heating
- Humidification
- Dehumidification

Control Parameters

- Temperature control may be proportional (P) or proportional plus integral (P+I)
- Humidity control is only proportional with humidification variable from 30% to 100%
- Dead band the area where no operation takes place

Note: The maintenance section of the programme allows limits to be set to prevent detrimental settings of temperature and humidity setpoints

Local Network Wiring Arrangement



Note: Terminal 302 is a shielded earth connection

KEY PAD OPERATION

ON/OFF	Turns unit on and off	T/0	Pressing this button accesses the first information screen of inputs and out puts status
ALARM	Pressing once, it silences the alarm buzzer and the relevant alarm appears on the screen. If there are no alarms “No Active Alarm” appears on the screen.	CLOCK	Pressing this button permits the setting of date and time
SET	Allows access to the screen to change temperature and humidity setpoints.	PROG	Pressing provides access into user parameters (password protected)
MENU	Press to display, Temperature, Humidity, Unit No., Date and Time. Pressing the Enter button displays the unit working mode-cooling heating, humidification and de-humidification.	MAINT	Pressing provides access into maintenance parameters (Password protected)
ENTER	When in the set screen, pressing the enter button moves the cursor to the first field to change. Pressing the enter button again confirms the setting and moves the cursor into the next field		
UP/DOWN	With the cursor in a numerical field, pressing the button will increase or decrease the value, or in a selection field, alternates between yes and no. When the cursor is positioned at the top left of a screen, these buttons scroll through the screens.		

Introduction

The Hirotec DATALogic Graphic Controller is a microprocessor based programmable Logic Controller consisting of a graphic terminal (user interface) located on the front of the air conditioner and an input/output board located in the switchboard. The terminal display is a 12cm x 6cm fluorescent display with function keys for the operation and maintenance of the unit.

Display

Unit number
 Date and Time
 Room temperature, room humidity (actual)
 Room temperature, room humidity (set)

Operating modes

Fan operating
 Cooling 1, Cooling 2
 Heating 1, Heating 2
 Humidification
 Dehumidification

Auto/Off/Manual Operation
 Battery Charge
 Alarm Icon

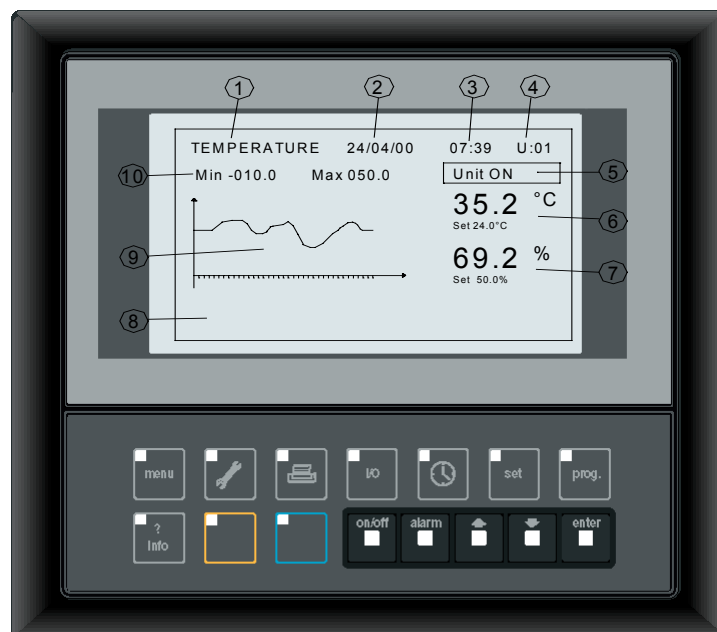
Features

- Auto-restart after power failure with adjustable delayed start
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- 3 step heating on larger models (optional)
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- Fault indication selected as "ALARM" or "WARNING"
- Fans operate when condenser water failed
- Humidifier capacity is adjustable between 30% and 100%

Status LED's

Yellow	Power On	Enter button
Green	Operational	On/off button
Red	Alarm Active	Alarm button

15 minutes after the last button is pressed the screen illumination switches off.



DYNAMIC ICONS **Represent Operating Status**



FAN

Main Fan is operating



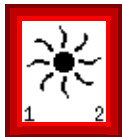
DEHUMIDIFICATION

This function represents the dehumidification function



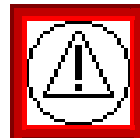
COOLING

The numbers represent the operating steps 1 and 2



HEATING

The numbers represent the operating steps 1 and 2



ALARM

Unit Alarm



(Automatic – Off – Manual)
Icon always displayed



HUMIDIFICATION

This function represents humidification

NOTE !

IF THE COOLING ICON IS BLINKING ON THE DISPLAY THEN COOLING IS BEING CALLED BY THE CONTROLLER BUT NOT OPERATING BECAUSE OF A TIME LOCKOUT

SCREEN ADJUSTMENTS

DATALogic Graphic Microprocessor Controller

The HIROTEC GRAPHIC CONTROLLER SCREEN has (30) different settings to adjust the screen contrast and brilliance to ensure good viewing in all lighting conditions. The screen automatically goes into a saver mode 15 minutes after the last key is pressed.

LOCAL ALARMS

(Visual and Audible)

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- Low Return Air Humidity
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- Compressor HP
- Compressor LP
- Element overheat
- Temperature probe faulty
- Humidifier low water
- Humidifier fault (NO CURRENT)
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- Supply air temperature (Option)
- Clogg Filter (Option)
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Time Zones

Time zones may be programmed into the DATALogic Graphic Controller, Time Zones may be used for the purpose of changing the temperature and or humidity setpoint at a particular time during the day or night depending on room requirements.

Remote Connections (low level digital outputs)

- Unit Stop Start
 - High level interface via RS485 or RS232 connection to BMC's with some protocols requiring a gateway
 - Common Alarm (VFC)
 - Unit 'ON' (VFC)
 - High or Low Temperature (VFC)
 - High or Low Humidity (VFC)
 - Flood Indication (VFC)
- VFC = Voltage Free Contacts

Optional remote outputs are available on request.

These include:-

- Power (Available at unit)
- Fan Operational
- Cooling
- Heating
- Humidification
- Dehumidification

ALARM HISTORY

A history of past events is logged in the controller memory so that the events may be viewed for evaluation.

Events such as :

- UNIT ON
- UNIT OFF
- ACTIVE ALARM
- ALARM CANCELLED
- POWER ON
- POWER OFF

The Last 100 events **are** kept in memory

LCD contrast

Press the Menu and "Up" key at the same time to increase the contrast, or the Menu and "Down" key to lower the contrast.

Access to parameters

Bear in mind that unauthorised modification of parameters will automatically render the guarantee null and void, and could compromise unit operation.

General Information

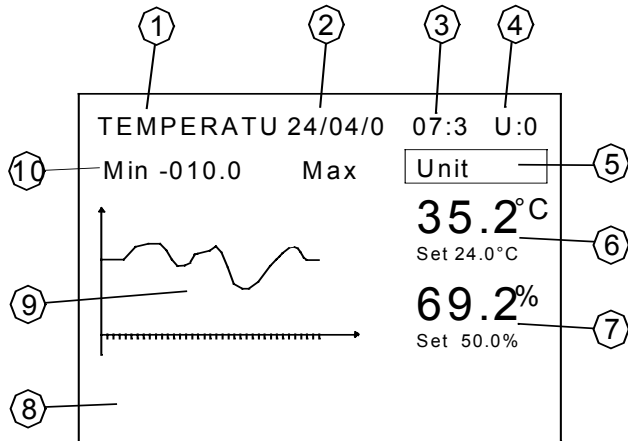
The SAMPLING FREQUENCY can be selected from a range with a minimum of 10 to a maximum of 300 seconds. The graph to be displayed can be selected for periods of 1h, 12h, 1 day (24 hours), a Week (168 hours). This value is altered through the zoom in / zoom out function.

GRAPH RESET erases all graph data stored to date.

Graph Display

Different graphs can be displayed by pressing on the "Up" and "Down" arrow keys in the main screen. Press the "enter" key once to move the cursor to the first screen, twice to display the graph trend. Use the "up" and "down" arrow keys to change the selection.

GRAPHIC DISPLAY TERMINAL



1. Graphic Parameter: TEMPERATURE or HUMIDITY
2. Date
3. Time
4. Number of the unit in the PLAN network
5. Unit operating status
6. Current temperature and temperature setting
7. Current humidity and humidity setting
8. Dynamic icon display space
9. Graphic curve of parameter selected in point (1)
10. Minimum and maximum values (modifiable) of graph axes.

Graph parameters

The Graphic Controller provides the facility to view past temperature and humidity conditions within the conditioned space via the screen graph.

The Graph may be modified by both time and range, to better display a particular event in the logged data,

To access the “graph” parameters, press the red and light blue keys at the same time; set the “graphs” password. Confirm the password by pressing the “enter” key. The arrow keys can now be used to scroll the pages in the section.

Graph page sequence:

GRAPH
PASSWORD
0000

Represents the access to pages for setting Graphs

The password is set by means of the arrow keys.

GRAPHS

Humidity	N
Delivery Air	N
Delivery Water	N
Sampling	010s
Time Base	1h
ZOOM	ZOOM OUT
CANCEL GRAPHS	
WARNING!	ALL
GRAPHS	
WILL BE ERASED!	No

This screen selects the graph to be displayed

Enable the humidity graph only when probe present Yes/No.
Enable supply air graph when probe present Yes/No

Enable inlet water/outdoor air graph only when probe present Yes/No

(seconds)

ZOOM LIMITS				
		MAX	MIN	
Return Air	Out	35.0	00.0	°C
	In	25.0	10.0	°C
Delivery Air	Out	35.0	00.0	°C
	In	25.0	10.0	°C
Inlet water/out air	Out	35.0	00.0	°C
	In	25.0	10.0	°C
Outlet water	Out	35.0	00.0	°C
	In	25.0	10.0	°C
Humidity	Out	95.0	00.0	%
	In	80.0	25.0	%

In this screen the graph limits are set to display the information required.

Out = ZOOM OUT Limits
In = ZOOM IN Limits

The Values displayed are the default values.

GRAPH DISPLAY
Room Temperature
Room Humidity
Supply Air Temperature
Water Delivery Temperature
Temperature Inlet water/outdoor air

Always displayed.

Displayed when graph enabled

Displayed when Graph enabled

Displayed when Graph enabled

Displayed when graph enabled

ACCESSORIES

RS485 or RS232 serial board (optional)

The serial board is used to interface to an RS485 or RS232 data network.

19200 baud (Configured by software) are available.

The RS232 serial board interfaces with a standard HAYES modem. The following hardware signals can be controlled.

- On output. The “request to send” (RTS) in parallel with the “data terminal ready” (DTR)
- On input, the “direct carrier” (DC)

PRINTER SERIAL BOARD (Optional)

A Printer is connected by a serial cable for 9-pole printer (terminal) – 25 pole (printer)

Characteristics and settings of the printer serial port:

- RS232 serial interface
- Baud rate 19200;
- Stop bit 1 or 2
- Data bit 8;
- Handshake hardware protocol

FLOOD DETECTOR (Optional)

An Electronic Flood Detector may be located in the unit switchboard and a total of up to (20) sensors maybe connected in series to the detector, (1) sensor is supplied as standard with the detector. The detector is also wired to the unit terminal strip to provide a remote voltage free normally open indication of the presence of water around the sensor/s. Single or multiple sensors are available on request.

CABLE SENSING SYSTEM (Optional)

Available as an option to the electronic point detector system is the cable sensing system which is designed to pinpoint liquid over the area covered by the distributed sensing cable. The unique cable system is provided in various lengths and configurations, capable of providing an audible and visual alarm. The option of a visual display panel indicating liquid pinpoint sensing over the area covered by the cable is also available.

CLOGG FILTER SENSOR (Optional)

The Clogg Filter Sensor is located in the airflow plenum adjacent to the filter and is factory pre-set to detect when the filter requires changing.

The Clogg Filter Sensor is wired to the unit terminal strip to provide a remote voltage free normally open indication of the filter condition. (Additional Option)



ON/OFF Key

Press to set the unit on or off



ALARM Key

Press the key once to silence the alarm buzzer, twice to display the alarm message, three times to eliminate the alarm.

If there are no alarms, the message "No Alarm" will be displayed when this key is pressed. In the event of an alarm, press the "up" and "down" arrow keys to scroll through the sequence of the alarm messages.



**UP/DOWN
Arrow Keys**

Press to scroll through screens or to change settings when in a modifiable field



ENTER Key

Press to access fields with modifiable parameters, press a second time to confirm modifications.



MENU Key

Press when in any screen to return to the first menu or main screen



SET Key

Press to access operating setting section



I/O Key

Press to access the status of digital and analogue inputs and outputs.



? INFO Key

Press to access the unit information



PROG Key

Press to access the user section.
Access is by user password only



CLOCK Key

Press to access the clock section
Access is by clock password only



PRINT Key

Press to access printer configuration.
(only if printer card is installed)



MAINTENANCE Key

Press to access the maintenance and assistance section. Access is by maintenance password only.



**MENU +
PROG
Keys**

Press both keys at the same time to access this manufacturers section.
Access is by manufacturer password only.



**"RED" &
"BLUE"
Keys**

Press both keys at the same time to access the graph configuration.
Access is by graph password only.
Press the blue key to advance, the red key to go back.

