

Vision Digital Programmable Thermostat

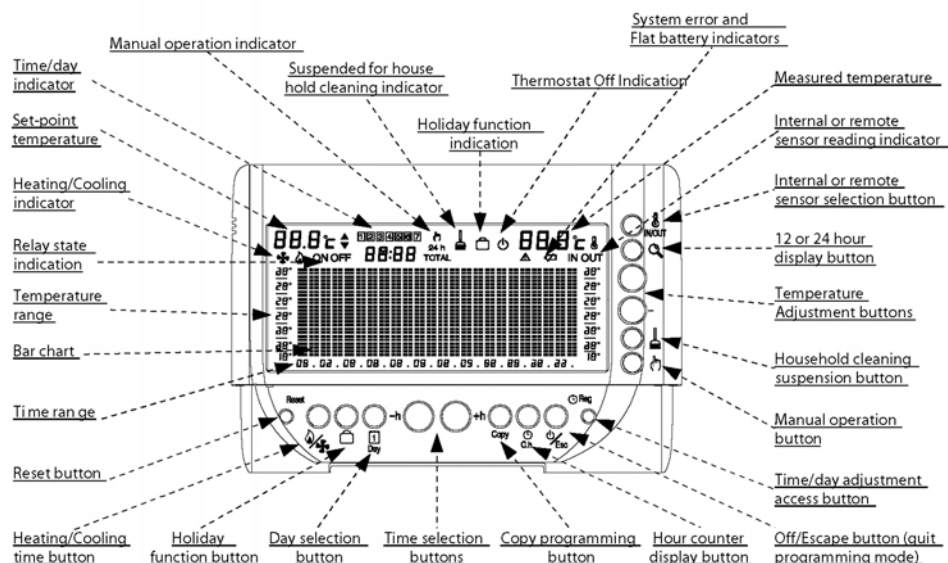
The Vision Programmable Thermostat implements state-of-the-art controls technology. A microprocessor is used to guarantee high reliability and precision. Despite its advanced design the device is easy to use. Complete functions are offered for the best results in terms of comfort (Advanced Time, Stop & Go) and energy saving (Holiday and Household Cleaning programs).

FEATURES

- Graphical LCD display
- Weekly and daily programming of the set-points
- Trend curve of measured temperatures
- Automatic low temperature protection feature
- Zoom functionality
- Hour run counter
- Heating and cooling modes
- Built-in optimizer feature for extra energy savings
- Automatic, manual, manual for 24 hours and holiday operating modes as standard
- Facility for remote sensor (outside temperature sensor)



Model Types	Model	Description
	TCP-CK1-BI	Vision Digital Programmable Thermostat with wide LCD
	STL-OTS-A150	Remote NTC100kOhm Flying Lead Temperature Sensor (Option)
	STS-OS	Remote NTC100kOhm Outside Temperature Sensor (Option)
Technical Data	Power Supply	2 x 1.5V AA type (alkaline)
	Batteries Duration	~ 18 months
	Regulation Range - heating	Automatic: 10°C .. 26°C Manual: 5°C .. 26°C
	Regulation Range - cooling	Automatic: 18°C .. 30°C Manual: 18°C .. 30°C
	Switching Differential	0.2°C asymmetrical (-0.2°C for heating, +0.2°C for cooling)
	Clock Accuracy	+/-1 second per day
	Display	132 x 64 pixels
	Programming	7 day with 30 min intervals (48 settings per day)
	Override Switch	Auto/Manual On/Off modes
	Sensor Type	NTC 100kOhm @ 25°C internal (external sensor option)
	Contacts Rating	5A @ 250V~ SPDT
	Low Temperature Protection Limit	5 .. 26°C
	Storage Temperature	-10°C .. +50°C
	Operating Temperature	0°C .. 40°C
	Protection Class	IP30
	Humidity Limits	20% .. 80% rH (non condensing)
	Enclosure	Material: ABS V0 self-extinguishing
	Colour	Signal white (RAL 9003)
	Size	142W x 99H x 34.5D mm
	Weight	0.31kg



Setting Clock

Proceed as follows to set the clock:-

- Press **Time/day adjustment** button: the time display will start blinking
- Set the hour using the buttons **-h** and **+h**
- Confirm by pressing **Time/day adjustment** button
- Set the minutes using the buttons **-h** and **+h**
- Confirm by pressing **Time/day adjustment** button
- Set the year "A:xx" using the buttons **-h** and **+h**
- Confirm by pressing **Time/day adjustment** button
- Set the month "M:xx" using the buttons **-h** and **+h**
- Confirm by pressing **Time/day adjustment** button
- Set the day "d:xx" using the buttons **-h** and **+h**
- Confirm by pressing **Time/day adjustment** button
- The square indicating the day of the week will be automatically set, according to the values entered in the former steps. In order to quit this programming phase either press **Off/Escape** button or wait for 10 seconds without pressing any key.

Note: The programmable thermostat will automatically switch to summer time and vice versa. Automatic summer/winter change-over can be disabled using a switch on the back of the thermostat as shown in the "Additional functions" paragraph. The thermostat is automatically set to include the February 20th on leap years.

Daily Temperature Programming

The bar chart on the thermostat indicates usually the programmed temperature setting for the current time and for the current day. The squares on the top of the respective column (time) will blink. Press **+°C** or **-°C** to adjust the temperature setting for the current period.

The square will move either upwards or downwards whenever the corresponding adjustment buttons are pressed. The current temperature setting is also shown as a numeric value in the top left corner of the display. Press **-h** or **+h** to go to the next or previous half hour. The entire corresponding bar will start to blink. The selected time will also appear on the display.

Press **Day Selection** button to change the day of the week.

The square around number 1,2,3 etc. will blink indicating the day of the week to which the programming refers to (1=Monday, 2=Tuesday, 3=Wednesday,... 7=Sunday).

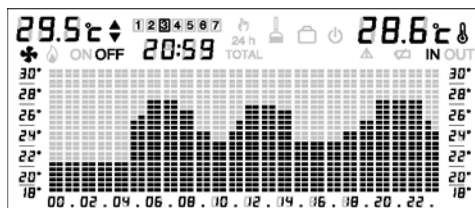
Programming:

- Press **+°C** or **-°C** to adjust the temperature in the current range
- Press **+h** or **-h** to adjust the next or previous half hour
- Press **+°C** or **-°C** to adjust the temperature in the selected range

Proceed as above for each of the 48 settings.

- Press **Day Selection** button to go to the next day of the week.
- Program the required temperatures for the selected range of the day as shown above

Press **Off/Escape** button to go back to the current day and time after programming the various days and respective ranges.



Copying Days:

- Select the day from where the data is copied from.
- Press the **Copy** button; the entire bar chart will blink.
- Press **Day Selection** button to select the day of the week where to copy the selected program (the square indicating day will blink).
- Press the **Copy** button; the bar chart display will stop blinking to indicate that the program has been copied.

Manual / Automatic Operation Selection

The thermostat can be set to operate in manual override mode by pressing **Manual Operation** button. Press this button repeatedly to switch modes from Automatic to Manual 24 Hours, from Manual 24 Hours to Total Manual and from Total Manual back to automatic.

In manual operation modes only the room temperature, relay status, time and day, manual operation symbol, heating or cooling symbol and the set temperature will be displayed. The bar chart is not displayed in the manual modes,

Press **Manual Operation** button once to start the Manual 24 Hour mode; the thermostat will remain in manual mode until 23:59 after which it will revert back to the automatic operation.

Press **Manual Operation** button again to override to Total Manual mode; the thermostat will remain in the manual mode until **Manual Operation** button is pressed again.

The controlled temperature can be increased/decreased by pressing buttons +°C and -°C when the thermostat is in manual mode.

Holiday Operation Mode

You can use the Holiday Mode when you plan to be away from your home for hours or days. This mode allows you to suspend the normal (active) operation mode for the number of hours (from 1 to 99) or days (from 1 to 99) as desired.

At the end of the holiday, the thermostat will return to the operating mode that it was active before activation of the holiday function. The low temperature protection function remains active during the holiday period. The Holiday Function indication will appear on the display along with the countdown of the time remaining until the program is ended.

To start the program:-

- Press Holiday Mode button: the holiday symbol (“luggage”) will appear on the display and “**h 00**” will appear on the display in place of the current time. This will be blinking that you have entered to the programming mode. If holiday is required to be programmed as days, press Holiday Mode button again. “**d 00**” will now be indicating the day programming (press the button repeatedly to switch between time and day programming).
- Press **+h** and **-h** to select the required number of hours or days.
- The set values will be permanently shown on the display ten seconds after the programming has been completed (if no other buttons are pressed).

Press **Holiday Mode** button during the holiday period to return to the programming mode and to cancel the previous operation.

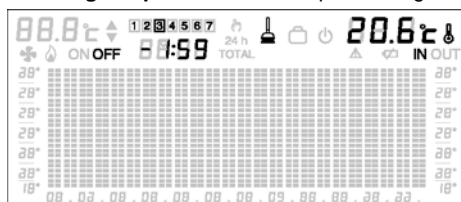
Press **Off/Escape** button at any time to cancel programming mode and go back to the operating mode prior to the countdown (automatic or total manual).

Household Cleaning Programme

This program is particularly useful during household cleaning when the windows are opened and heating is therefore unnecessary.

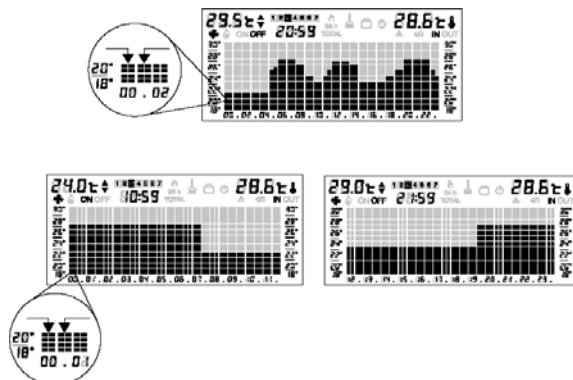
In these conditions the relay is blocked in the off position for up to two hours. Press **Household Cleaning Suspension** button to start the program. Household cleaning icon will appear on the display and the countdown showing the remaining time will appear instead of clock.

The previous operating mode will be restored either after two hours or when the **Household Cleaning Suspension** button is pressed again.



Zoom Function

Press **12 or 24 Hour Zoom** button to display 12 or 24 hours on the screen.



The day is split into two periods: the first period goes from 00:00 to 11:59 a.m. (at 12:00 noon the clock switches to the next 12 hour period); the second period goes from 12:00 noon to 11:59 p.m. (at 00:00 midnight the clock switches to the next 12 hour period). The current time will appear on the display when switching from 24 hours to 12 hours (e.g. at 10a.m. programming from 00:00 midnight to 11:59 a.m. will appear; at 11 p.m. programming from 12:00 noon to 11:59 p.m.) Both in 24 hour and 12 hour mode, the bar chart usually shows the programmed temperature for the current time on the display. The squares on the top of the respective column will blink.

Viewing Counters and Temperature Logs

Press **Hour Counter Display** button; the number of hours of the relay operation during the previous 24 hour period will appear on the display instead of the current time.

The temperature trend measurement over the past 24 hour will appear on the bar chart.

Press **Hour Counter Display** button again; the display will view the total number of hours of relay operation during the calendar year.

Press **Day Selection** button and then **Hour Counter Display** button while displaying the total count to manually reset the counter. Either press **Off/Escape** button or wait for 10 seconds without pressing any buttons to automatically quit counter display.

Viewing Outside Temperature

Press **Internal or Remote Sensor Selection** button to read the outside temperature if an optional outside sensor is fitted. The temperature will appear in the top right of the display along with the message **OUT**. Message '---' will appear if the remote sensor is not connected or is faulty.

You can decide whether to use the indoor or remote sensor for adjusting the temperature by means of a bit switch on the back of the thermostat.

See "Additional Functions" for further instructions.

Either press **Internal or Remote Sensor Selection** button or wait for 10 seconds to go back to the ambient temperature reading.

Temperature Offset Correction

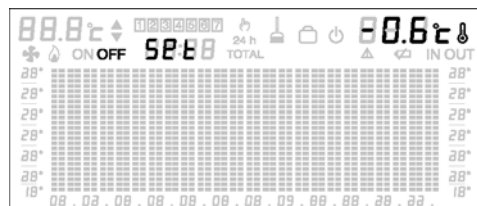
The temperature read by the thermostat can be corrected by +/-2°C. This is useful when the thermostat is installed in a location where it cannot effectively read the ambient temperature (e.g. near window or near a heat source) and where a remote sensor cannot be used.

Press **Internal or Remote Sensor Selection** button for 5 seconds to correct the offset. The temperature offset will appear on the display instead of the ambient temperature and the message **"OFFset"** will blink.

Press **+°C** or **-°C** to adjust the temperature offset from -2°C to +2°C in 0.1°C steps.

Either press **Off/Escape** button or wait for 10 seconds without pressing any buttons to quit the programming mode.

The thermostat us set to an offset of 0.0°C by default.



Turning Off and Low Temperature Frost Protection

Press **Off/Escape** button for approximately 3 seconds; the thermostat will be switched on if it is on and off if it is on.

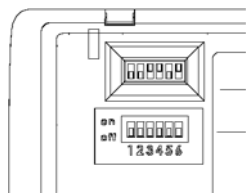
The thermostat switches to heating mode with low temperature frost protection function on when it is switched off (also in cooling mode).

Press **+°C** or **-°C** to increase or decrease the low temperature protection temperature limit between **+°C** and **+26°C**.

The thermostat will resume the prior condition when it is switched back on (i.e. heating, cooling, 24hour manual or total manual).

Additional Functions

There is a slit in the bottom of the thermostat which allows you to access 6 bitswitches so that you can modify the operation of the thermostat itself.

**Bit Switch Functions:****Bit Switch 1 (default OFF):****Indoor/remote sensor selection.**

If positioned down (off), the thermostat will use the internal sensor. When bit switch is up (ON), the remote sensor will be used (only set the bit switch if remote sensor is installed).

Bit Switch 2 (default OFF):**Advanced time function (Optimized Start):**

The advanced time (bit switch is set ON) function makes it possible to activate heating or cooling in advance with respect to the programmed time as to obtain the set temperature at the programmed time. In this way the thermostat calculates the time needed to reach the desired temperature and, as a result, brings the programmed start forward by enough time to reach the set temperature.

The advance is calculated on the basis of the average gradient in the last 24 hours with maximum advance of 60 minutes.

Bit Switch 3 (default OFF):**Stop & Go Function (Proportional Time):**

The Stop & Go function (in the ON position) controls switching on and off according to thermal inertia of the system and the environment to keep the ambient temperature as close as possible to the original setting.

Bit Switch 4 (default OFF):**Pump Anti-Blocking Function:**

The boiler pump anti-block function (in the ON position) energises the relay for three minutes every day from 12:00 to 12:03 noon, regardless of the state of the thermostat at the time.

Bit Switch 5 (default ON):**Automatic Summer/Winter Changeover:**

Set to off position to prevent automatically switching to summer time and vice versa.

Bit Switch 6 (default OFF):**Selecting Telephone Interface Control Type (remote volt-free contact):**

Switch to OFF for tone telephone interface controls.

Thermostat ON control = closed

Thermostat OFF control = open

Switch ON for pulse telephone controls

Thermostat OFF control = 800ms

Thermostat ON control = 1600ms

Note that the bit switch 6 can also be used with other equipment to control the operating mode of the thermostat.

Error Conditions	<p>Error conditions may occur in certain circumstances e.g. when a window or door is left open or when the climate control system is started after a long period of inactivity and if the thermostat has been installed in a position where it cannot measure temperature changes in a timely fashion, or if the circulation pump, the solenoid valve or the boiler is broken, etc.</p> <p>Vision is capable of detecting these situations thanks to a special measurement system. System Error indicator will blink whenever the temperature does not vary by at least 0.5°C after the system has been running for at least 30 minutes (ON icon is lit).</p>
Optional Sensor	<p>It is possible to connect an external temperature sensor to the thermostat as an option instead of internal one. The sensor must be of type NTC100kOhm +/-2% at 2°C. Suitable sensors are for example, STL-OTS-A150 and STS-OS.</p> <p>Connect the remote sensor at terminals 3 and 4, and then move the bitswitch 1 up.</p> <p>Note: If you install remote sensor and do not activate it, it is possible to use the thermostat to indicate the outdoor temperature. See paragraph "Viewing Outside Temperature".</p>
Remote Activation	<p>The thermostat can be activated even when the user is not at home, taking advantage of dedicated input for an external volt free voltage contact. External contact (typically a relay) must be wired to terminals 1 and 2.</p> <p>Whenever the contact is closed the thermostat is activated i.e. it will be switched into the operating mode it had before it was turned off (automatic or manual mode).</p> <p>This operating mode is indicated on the display with the flashing Thermostat Off Indicator.</p>

INSTALLATION

To ensure maximum comfort, the thermostat requires reliable information as it measures and transmits all the variations which occur around its location. It must therefore be installed in the reference room and in a position where it can carry out real measurement of the temperature without being influenced by external factors such as heat generated by occasional sources such as irons, television sets, cookers, or by sources of cold such as external walls.

For proper operation thermostat must be installed on an internal wall opposite to the heating devices and at a height of about 1.5 meters from ground. It is preferable not to install near shelving or recesses, doors or windows, on the outer walls exposed to sun radiation or cold air streams, or on indoor walls that hot water pipes.

After selecting the position of the thermostat proceed as follows to install it.

- Detach the brackets as shown in the drawing (see fig. 1)
- Remove the terminal protection cover (see fig. 2)
- Fix the support bracket on a flush mounting box or directly on a wall (by means of two plugs). Pass the connection cables through the hole on the mounting plate.
- Make the wiring connections as shown in the diagram (see fig. 3)
- Insert the terminal protection cover by clicking it on
- Insert the batteries observing the polarity
- Fasten the thermostat to the upper two pins and push the lower part to clip the device onto the bracket.

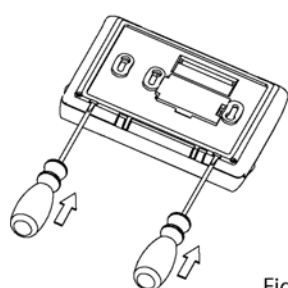


Fig. 1

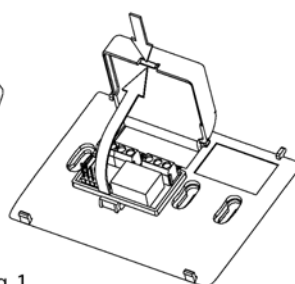


Fig. 2

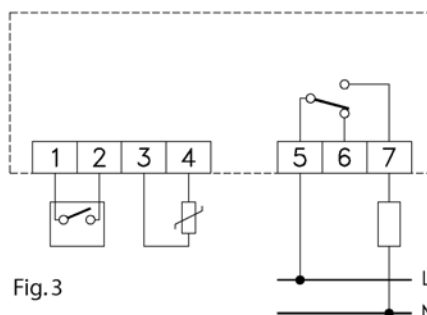
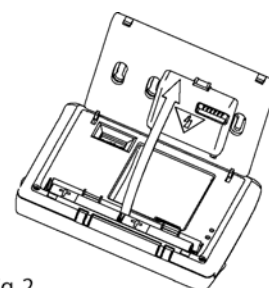


Fig. 3

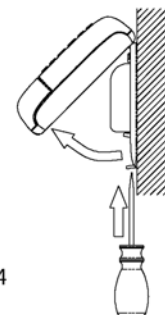


Fig. 4

Fitting and Changing Batteries

The thermostat runs on two 1.5V batteries, type LR6 (IEC) AA. For correct operation only alkaline batteries must be used with one year operation.

Proceed as follows to fit the batteries:

- Remove the thermostat from the bracket (see fig. 4)
- Put in the batteries observing the polarity
- Fasten the thermostat to the upper two pins and push the lower part to clip the device onto the bracket.

If necessary, reset and/or adjust the clock. The batteries must be replaced when the **Flat Battery Indicator** blinks on the display.



Note: The batteries are a cause of pollution, and must not be thrown away. Dispose them in the appropriate battery collection bins.

WARNING !

- To adjust properly room temperature, install the thermostat far from heat sources, air streams or particularly cold walls (thermal bridges). When the remote sensor is used in conjunction with the thermostat, then this note is to be applied to the remote sensor location.
- The appliance must be wired to the electric mains through a switch capable of disconnecting all phases compliant to the current safety standards and with a contact separation of at least 3 mm in all phases.
- Installation and electrical wiring of this appliance must be made by qualified technicians and in compliance with the local safety standards.
- Before wiring the appliance be sure to switch the mains power off.

Notes: In the view of a constant development of their products, the manufacturer reserves the right for changing technical data and features without prior notice. The consumer is guaranteed against any lack of conformity for 24 months from the time of delivery, according to the European Directive 1999/44/EC. The full text of warranty is available on request from the seller.

