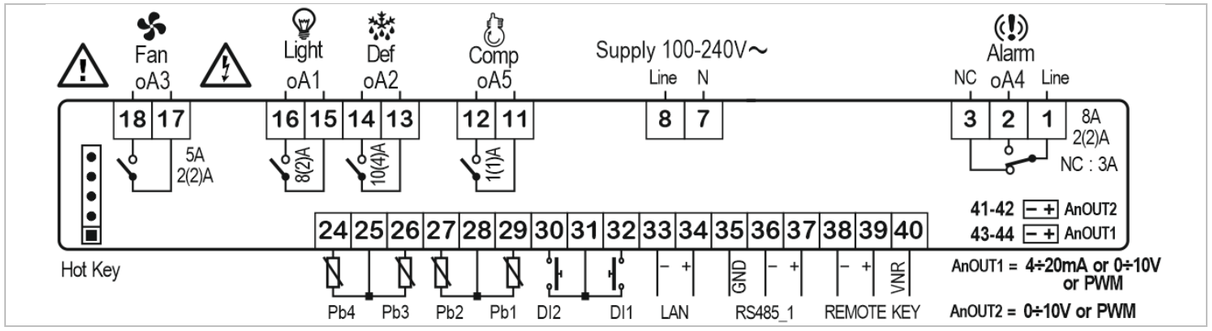
COPELAND

# XM750D and CT760

## 1 ELECTRICAL CONNECTIONS

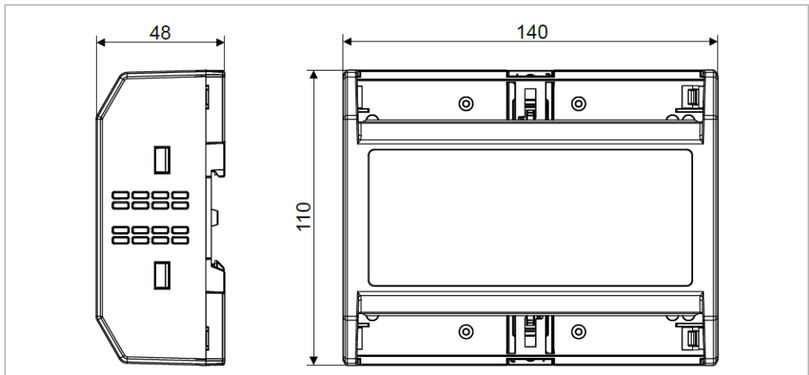



| PIN | Label | Description |
|---|---|---|
| 1 | Line | Digital output 4: Common |
| 2 | Alarm/AUX | Digital ouput 4: normally closed |
| 3 | NC | Digital ouput 4: normally open |
| 4 | | Not Used |
| 5 | | Not Used |
| 6 | | Not Used |
| 7 | N | 100-240V power supply: Neutral |
| 8 | Line | 100-240V power supply: Line; |
| 9 | | Not Used |
| 10 | | Not Used |
| 11 | Comp | Digital output 5: Common |
| 12 | Comp | Digital output 5: normally open |
| 13 | Def | Digital output 2: Common |
| 14 | Def | Digital output 2: normally open |
| 15 | Light | Digital output 1: Common |
| 16 | Light | Digital output 1: normally open |
| 17 | Fan | Digital output 3: Common |
| 18 | Fan | Digital output 3: normally open |
| 19 | | Not Used |
| 20 | | Not Used |
| 21 | | Not Used |
| 22 | | Not Used |
| 23 | | Not Used |
| 24 | Pb4-In | Analogue input 4 (temperature only) |
| 25 | | Ground for analogue input 3 and 4 |
| 26 | Pb3-In | Analogue input 3 (temperature only) |
| 27 | Pb2-In | Analogue input 2 (temperature only) |
| 28 | | Ground for analogue input 1 and 2 |
| 29 | Pb1-In | Analogue input 1 (temperature only) |
| 30 | DI2-In | Digital input 2 (free voltage) |
| 31 | | Ground for digital input 1 and 2 |
| 32 | DI1-In | Digital input 1 (free voltage) |
| 33 | LAN - | Digital output 1: normally open |
| 34 | LAN + | High voltage power supply: Neutral |
| 35 | RS485 (GND) | Ground terminal for RS485 serial port |
| 36 | RS485 (-) | Negative terminal for RS485 (-) serial port |
| 37 | RS485 (+) | Positive terminal for RS485 (+) serial port |
| 38 | Remote key (-) | Negative terminal for Remote keyboard (-) |
| 39 | Remote key (+) | Positive terminal for Remote keyboard (+) |
| 40 | Remote key (VNR) | Supply for remote keyboard |
| 41 | AnOUT2 (-) | Analog output 2 ground |
| 42 | AnOUT2 (+) | Analog output 2 Signal (+) |
| 43 | AnOUT1 (-) | Analog output 2 ground |
| 44 | AnOUT1 (+) | Analog output 2 Signal (+) |

## 2 SAFETY INFO

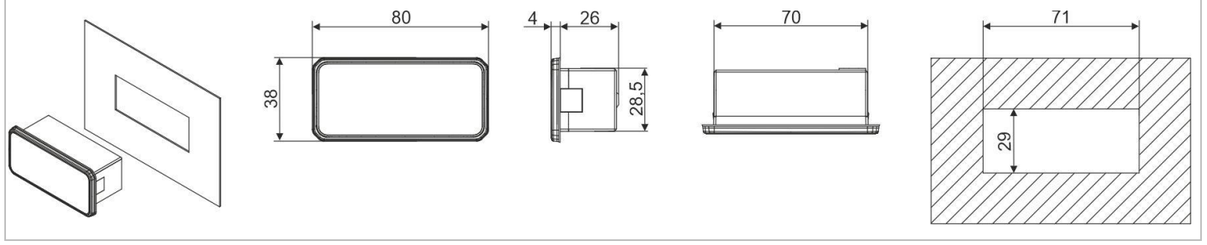
- This manual is part of the product and should be kept near the instrument for easy and quick reference.
- The instrument shall not be used for purposes different from those described hereunder. It cannot be used as a safety device.
- Copeland Controls S.r.l. reserves the right to change the composition of its products, even without notice, ensuring the same and unchanged functionality.
- In case of failure or faulty operation contact the local distributor or Copeland Controls S.r.l. with a detailed description of the fault.
- Strictly follow the safety instructions before opening the box.
- Check the application limits and the correct power supply voltage before proceeding.
- Do not expose to water or moisture: use the controller only within the operating limits avoiding sudden temperature changes with high atmospheric humidity to avoid condensation.
- Warning: disconnect the power supply and all other electrical connections before any kind of maintenance.
- Observe the maximum current value which can be applied to each relay (see Technical Data).
- Ensure that the wires for probes, loads and the power supply are separated and far enough from each other, without crossing or intertwining.

## 3 DIMENSIONS AND MODUNTING

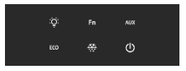



Manuals on Copeland Controls S.r.l. website:

CONTACT: dixell.service@copeland.com




## 4 USER INTERFACE

| SCREEN | APPEARANCE | SCREEN | APPEARANCE |
|---|---|---|---|
| Home |  | Status Visualization |  |
| Virtual Keyboard |  | Temperature Set Point |  |
| Programming Mode |  | Parameter Menu - ALL |  |
| Parameter Menu - X9 |  | Parameter Menu - Groups |  |
| Upload Parameters |  | Download Parameters |  |
| Device Locked |  | Info Menu |  |

| SCREEN NAME | DESCRIPTION |
|---|---|
| **Home** | Show temperature value, measurement unit and active alarms only. It is the first screen after power on or after exit from other status. |
| **Status Visualization** | This screen shows activated functions and regulation outputs (compressor, ventilators) overlapped with temperature and/or humidity value |
| **Virtual Keyboard** | This screen shows available functions. Activated function will blink when this screen is visualized. |
| **Temperature Setpoint** | This screen enables the modification of the Temperature Set Point value. |
| **Programming Mode** | This screen enables the modification of parameters: **ALL**, **GrP** or "**X9**" mode can be used. |
| **Hotkey Management** | **UPL** = upload parameters from device to HOTKEY, **doL** = download parameters from HOTKEY to device |
| **Info Menu** | To scroll all I/O variables and status (probes, digital inputs, digital outputs, etc.) |
| **Device Locked** | V-Swipe from Home screen to lock or unlock the device |

## 5 USER INTERACTION

| HOME NAVIGATION | SET POINT TEMPERATURE | PROG MENU | PROG MENU - ALL |
|---|---|---|---|
|  |  |  |  |
|  H-SWIPE |  TAP ANYWHERE |  TAP ANYWHERE |  TAP ANYWHERE |
|  |  |  |  |
|  H-SWIPE |  V-SWIPE |  H-SWIPE |  H-SWIPE |
|  |  |  |  |
|  H-SWIPE |  TAP SET TO SAVE |  H-SWIPE |  TAP ANYWHERE |
|  |  |  |  |
|  H-SWIPE | |  H-SWIPE |  V-SWIPE |
|  | |  |  |
| | | |  TAP SET TO SAVE |
| | | |  |

| GESTURE | HOW-TO | DESCRIPTION |
|---|---|---|
| ONE TAP | Press a specific area of the screen with a finger for 1 sec | **Switch ON / Switch OFF:** when in Virtual Keyboard, use this to turn on/off a specific function. When in Programming mode, use this to select a parameter or a parameter value. |
| TAP and HOLD | Press anyplace of the surface with a finger for more than 3 sec | **Enter / Save:** use this to enter programming mode or parameter menu and to save modifications. When in Virtual Keyboard, use this on the "ONOFF" to switch OFF and ON the device. |
| H-SWIPE | Drag a finger across surface, from left to right or from right to left | **Browse:** use horizontal swipe (right to left or left to right) to browse through HOME, Virtual Keyboard and Info View. When in Programming menu: use horizontal swipe to browse through parameter menu. |
| V-SWIPE | Drag a finger across surface, from top to bottom or from bottom to top (overlapping only one of the digits) | **Modify:** use vertical swipe (from top to bottom or bottom to top) to change a parameter value. |

## 6 TECHNICAL SPECIFICATIONS

| CT760 - KEYBOARD | DESCRIPTION | | |
|---|---|---|---|
| Housing | Self-extinguishing polycarbonate | | |
| Dimensions | Front 80x38mm, case depth 26mm | | |
| Mounting device | Panel, 71x29 mm panel cut-out; panel thickness 0.7 ÷1.0mm; Insertion force: 40-60N | | |
| Degree of Protection | EN 60529 | Rear Housing: IP20 | Front panel: IP54 |
| Power Supply | From XM750D power module, 3 wires, 0,5-2.5mm² | | |
| Display | 3 digits, red LED, 20,4 mm high | | |
| Buzzer | Internal, always present | | |
| Max distance between controller and keyboard | 10m | | |

| XM750D – MAIN CONTROLLER | DESCRIPTION | |
|---|---|---|
| Housing | Self-extinguishing polycarbonate | |
| Dimensions | 140x110x48mm (w x h xd) | |
| Mounting device | DIN Rail | |
| Degree of Protection | EN 60529 | IP20 (whole controller) |
| Power Supply | 12VAC/DC SELV (class 2) source ; 230VAC or 115VAC or 100 to 240VAC ±10%, 50/60Hz | |
| Overvoltage Category | III | |
| Rated Power | 12VAC/DC SELV (class 2) source - 5VA<br>230VAC 50/60 Hz or 110VAC 50/60 Hz : 10VA<br>100-240VAC 50/60 Hz : 10VA | |

| XM750D – MAIN CONTROLLER | DESCRIPTION | | | |
|---|---|---|---|---|
| Rated Impulse Voltage | 4000V | | | |
| Software Class | A | | | |
| Terminal blocks / Terminal Connections | **Low voltage signals:**<br>Screw or Disconnectable terminal block, wire section between 0,5 and 2,5 mm², max tightening force: 0.4 N/m<br>**High Voltage signals:**<br>Plug-in or Screw terminal block, wire section between 1,5 and 2,5 mm²; max tightening force: 0.5 N/m | | | |
| Data Storing | **Real Time Clock:** data maintenance up to 6 months with removable non-rechargeable lithium battery<br>**Other parameters:** internal flash | | | |
| Type of Action | 1.B | | | |
| Pollution Degree | 2, non-condensing humidity | | | |
| Ambient Operating Temperature and Humidity | **IEC/EN:** 0T50°C; 20-85 rH% (non-condensing humidity)<br>**UL/CSA:** -10T50°C; 20-85 rH% (non-condensing humidity) | | | |
| Shipping and storage temperature | -40T85°C; 20-85 rH% (non-condensing humidity)<br>-20T70°C; 20-85 rH% (non-condensing humidity) – controller with RTC | | | |
| Resistance to heat | UL 94 V-0 | | | |
| Measurement range | **NTC, NTC_US:** -40T110°C, resolution 0.1°C or 1°C (selectable)<br>**PTC:** -50T150°C, resolution 0.1°C or 1°C (selectable)<br>**PT1000:** -100T150°C, resolution 0.1°C or 1°C (selectable) | | | |
| Accuracy | **NTC, PTC, PT1000:** ±1% compared to the full scale | | | |
| Inputs | Up to 6 NTC, NTC_US, PTC or PT1000 (configurable); max distance 10m<br>Up to 2 voltage free contacts; max distance 10m<br>1 4-20mA or 0-5V; max distance 10m | | | |
| Relay Outputs | **OUTPUT** | **TERMINALS** | **RATING UL 60730** | **RATING IEC/EN 60730** / **RATING IEC/EN 60335** |
| | **oA5** | 11-12 | Resistive load 1A, 230Vac, 30K cycles<br>Pilot duty D300, 30K cycles<br>Motor load 1FLA/6LRA, 230Vac, 30K cycles | 1(1)A, 230Vac, 100K cycles / 1(1)A, 230Vac, 100K cycles |
| | **oA3** | 17-18 | Resistive load 5A, 230Vac, 100K cycles<br>Motor load 1/2HP, 230Vac, 30K cycles<br>Pilot duty B300, 6K cycles | 5A, 230Vac, 60K cycles<br>2(2)A, 250Vac, 100K cycles / 5A, 230Vac, 100K cycles<br>2(2)A, 250Vac, 100K cycles |
| | **oA4 (NO)** | 1-2 | Resistive load 8A, 230Vac, 100K cycles<br>Motor load 1/2HP, 230Vac, 30K cycles<br>Pilot duty B300, 6K cycles | 8A, 230Vac, 60K cycles<br>2(2)A, 230Vac, 100K cycles / 8A, 230Vac, 100K cycles<br>2(2)A, 230Vac, 100K cycles |
| | **oA4 (NC)** | 1-3 | Resistive load 3A, 230Vac, 30K cycles<br>Pilot duty B300, 6K cycles | 3A, 230Vac, 30K cycles / 3A, 230Vac, 30K cycles |
| | **oA2** | 13-14 | Resistive load 10A, 230Vac, 100K cycles<br>Motor Load 10FLA/60LRA, 230Vac, 30K cycles<br>Pilot Duty B300, 30K cycles | 10(4)A, 230Vac, 100K cycles / 10(4)A, 230Vac, 100K cycles |
| | **oA1 (standard relay)** | 15-16 | Resistive load 8A, 230Vac, 100K cycles<br>Motor Load 8LA/48LRA, 230Vac, 30K cycles<br>Pilot Duty B300, 30K cycles | 8(4)A, 230Vac, 100K cycles / 8(4)A, 230Vac, 100K cycles |
| | **oA1 (inrush relay)** | 15-16 | Resistive load 8A, 230Vac, 50K cycles<br>Motor Load 8FLA/48LRA, 230Vac, 30K cycles<br>Pilot Duty B300, 30K cycles | 8(2)A, 230Vac, 100K cycles / 8(2)A, 230Vac, 100K cycles |
| Analogue Outputs | **1Ao** | **Frequency output:** Supply voltage=12Vdc; Max supply current=5mA; duty cycle 50%; 0 to 166 Hz<br>**Accuracy:** ±1Hz compared to the full scale<br>**Current output:** 4-20mA; Max load 100 ohm<br>**Voltage output:** 0-10Vdc; Max supply current=5mA; Min load 2 K ohm<br>**Accuracy**: ±2% compared to the full scale | | |
| | **2Ao** | **Frequency output:** Supply voltage=12Vdc; Max supply current=5mA; duty cycle 50%; 0 to 166 Hz<br>**Accuracy:** ±1Hz compared to the full scale<br>**Voltage output:** 0-10Vdc; Max supply current=5mA; Min load 2 K ohm<br>**Accuracy**: ±2% compared to the full scale | | |
| I/O port | **HOT-KEY:** Output voltage is 5 VDC<br>**DO NOT CONNECT ANY EXTERNAL POWER SUPPLY.** | | | |
| Purpose of control | Operating control | | | |
| Construction of control | Electronic automatic Incorporated Control, intended to be used in Class I or Class II equipment | | | |
| Approvals | R290/R600a: relays tested according to IEC EN60079:0 and IEC EN60079:15<br>IEC 60730-1; IEC 60730-2-9<br>Additionally evaluated to: clauses 22, 24, 29, 30 Annex N of 60335-2-40 and IEC 60335-2-89 in conjunction with IEC/EN 60335-1 | | | |

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