



HPC.30XX.M

User Manual

HVAC-R Control Devices



Warnings

Before using the device, read the user manual carefully and follow the instructions.

Responsibility for damages, losses and personal accidents caused by not following the warnings in the user manual belongs to the user. In this case, the device is out of warranty in case of malfunctions.

The device must be used in accordance with the instructions. There should be no electricity in the connecting cables during assembly. The device must be protected from moisture, vibration and pollution. Attention should be paid to the operating temperature.

Shielded and twisted cord cable should be used for input and output lines that are not connected to the mains. These cables should not be passed near high power lines and devices. The shield line must be grounded at the device side. Installation and electrical connections must be made by technical personnel in accordance with the instructions in the user manual.

Before starting the assembly of the device, it should be visually checked against any damage that may occur during transportation. Installation and commissioning must be done by mechanical and electrical technicians. This responsibility belongs to the buyer.

If there is a danger that may arise from any error or malfunction on the device, turn off the energy of the system and disconnect all electrical connections of the device from the system.

There is no switch on the device to turn off the device's energy. A switch and fuse must be added to the system by

the user to turn off the energy at the supply input of the device.

It is necessary to check the supply voltage range of the device and apply the appropriate supply voltage. This control process will prevent damage to the device or system and possible accidents by applying the wrong supply voltage.

In order to prevent electric shocks and similar accidents, the device and the installation system should not be energized before all connections of the device are completed.

Do not modify or attempt to repair the device. Interventions on the device may cause malfunction of the device, damage to the device and the system, electric shocks and fire.

Never use the device in environments where flammable and explosive gases are present.

Necessary precautions must be taken regarding all parts that may pose a danger to the mechanical part where the device will be mounted. These precautions are necessary for the safety of the personnel who will do the installation.

The device must be mounted on the system with its own fixing parts. Do not assemble the device with unsuitable fixing parts.

In case the device is used for purposes other than those specified in this user manual, all responsibility belongs to the user.

The Warranty period 2 (two) years from the date of purchase of the device.

Functional Features:

- ❖ Wall Mount
- ❖ Time based proportional control with 0-10V source
- ❖ Proportional control with Modbus-RTU (Optional)
- ❖ Ability to set Total Time
- ❖ Max. 15A-25A Phase Break Output

Order Code:

| | |
|------------|--|
| HPC.3015 | Three-Phase 15A Heater Controller Device |
| HPC.3015.M | Three-Phase 15A Heater Controller Device with Modbus-RTU Communication |
| HPC.3025 | Three-Phase 25A Heater Controller Device |
| HPC.3025.M | Three-Phase 25A Heater Controller Device with Modbus-RTU Communication |

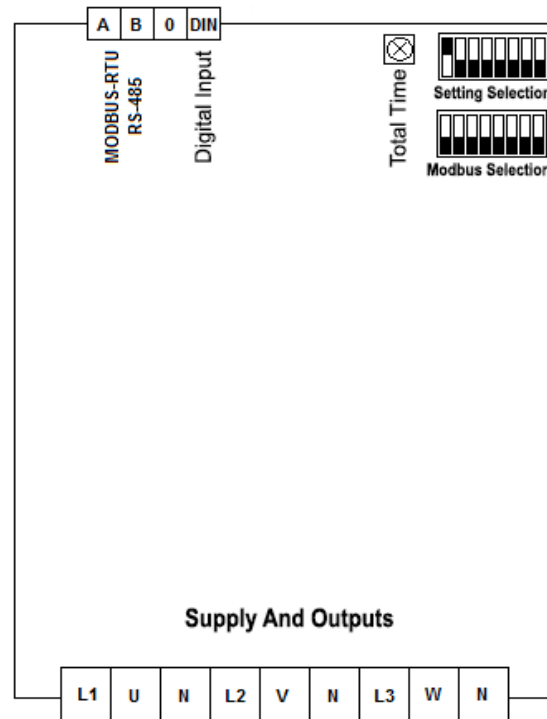


Before starting the installation of the device, carefully read the user manual and the following warnings. Responsibility for damages, losses and personal accidents caused by not following the warnings in the user manual belongs to the user. Do not modify or attempt to repair the device. Interventions on the device may cause malfunction of the device, damage to the device and the system. In case of malfunctions in these cases, the device is out of warranty.

5. Technical Specifications

| | | |
|---------------------------|--------------------------------|---|
| Electrical Data | Supply | AC230V \pm 10% |
| | Power consumption | Max. 3VA |
| | Connection | 1,5mm ² Connector |
| Functions | Control Outputs | 3 Phase (Time Based) Voltage Output |
| | Digital Inputs | 1pcs Digital Output |
| | RS-485 | Modbus-RTU 9600 bits, 8n1 |
| Physical Data | Dimension | HPC.3015: G115xY135xD72 mm HPC.3025: G124xY150xD107 mm |
| | Weight | HPC.3015: 682 gr HPC.3025: 1756 gr |
| Environmental Data | Operating, Storage Temperature | 0... +40°C/0... +70°C (Without Icing and Condensation) |
| | Protection Class | IP00 according to EN 60529 standard |

Device Description:



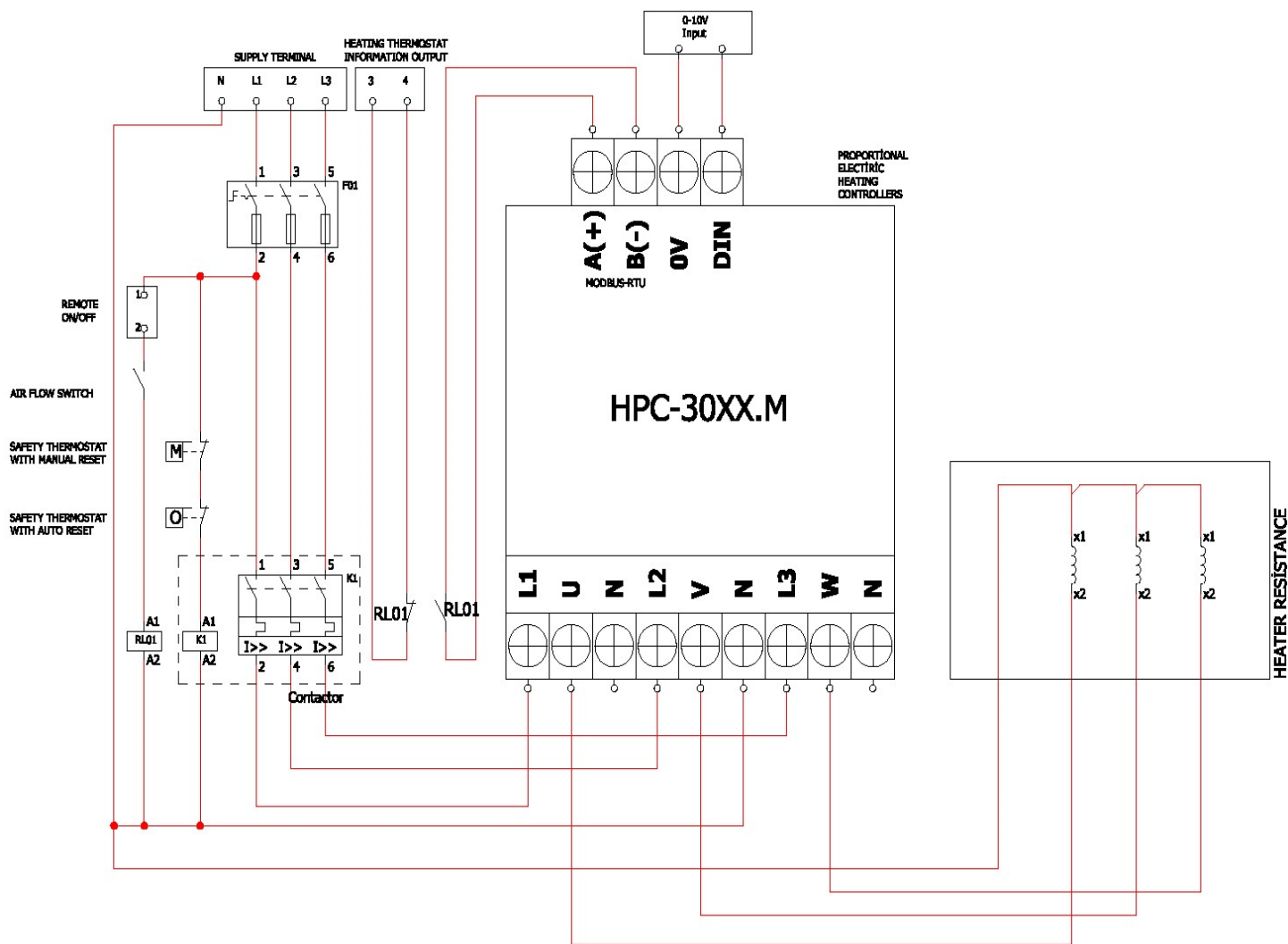
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|-----------------------------|---|
| Supply: | The device works with 220V/50Hz supply. |
| L1,L2,L3: | Phase Supply Connection |
| N: | Neutral Supply Connection |
| GND: | Ground Supply Connection |
| U,V,W: | Device Phase Cut Voltage Output (Strictly do not connect phase or neutral to these terminals.) |
| GND: | Ground Output Connection (Connect to the ground cable on the motor.) |
| M: | Load Output Connection |
| M: | Load Output Connection |
| RS485: | Available in HPC.3015.M/HPC.3025.M models. |
| A(+): | RS-485 Line A Positive Connection |
| B (-): | RS-485 Line B Negative Connection |
| 0 | RS-485 Line Cable Shield Connection |
| Digital Input: | Dry Contact Input (Do not energize these terminals.) |
| Trimpots: | |
| Total Time Trimpots: | It is the trimpot that adjusts the acceleration time of the voltage output. (It can be adjusted between 0-10 seconds.) |
| Led Indicators: | |
| Supply Led: | LED indicating that there is energy in the device. |
| Fault Led: | The LED displayed when there is a malfunction on the device. (If the digital input terminals are closed, the output is closed. And the Fault led lights for 1 second and goes off for 1 second.) |
| Connection Led: | LED indicating that there is communication. In HCP.3015.M/HCP.3025.M models, if the device communicates with Modbus Master, this led lights up. If there is no communication for 30 seconds, the LED turns off. |
| Selection Switches: | Switch that enables the device to select the modbus communication speed, modbus address and control type. Available in HCP.3025.M models. |

Connection:

Havkon HCP.3025.M is a panel type controller. The device must be used in accordance with the instructions. There should be no electricity in the connecting cables during assembly. The device must be protected from moisture, vibration and pollution. Attention should be paid to the operating temperature. Shielded and twisted cord cables should be used for signal, communication input and output lines that are not connected to the network. These cables should not be passed near high power lines and devices. The shield line must be grounded at the device side. Installation and electrical connections must be made by technical personnel in accordance with the instructions in the user manual. **Fuse value and cable thickness should be selected according to the load current at the output of the device.**

- ❖ Supply cables must comply with the requirements of IEC 60227 or IEC 60245.
- ❖ In accordance with the security rules, the mains switch must be in a position that the operator can easily reach and there must be a sign indicating that the switch is related to the device.

Sample Wiring Diagram:



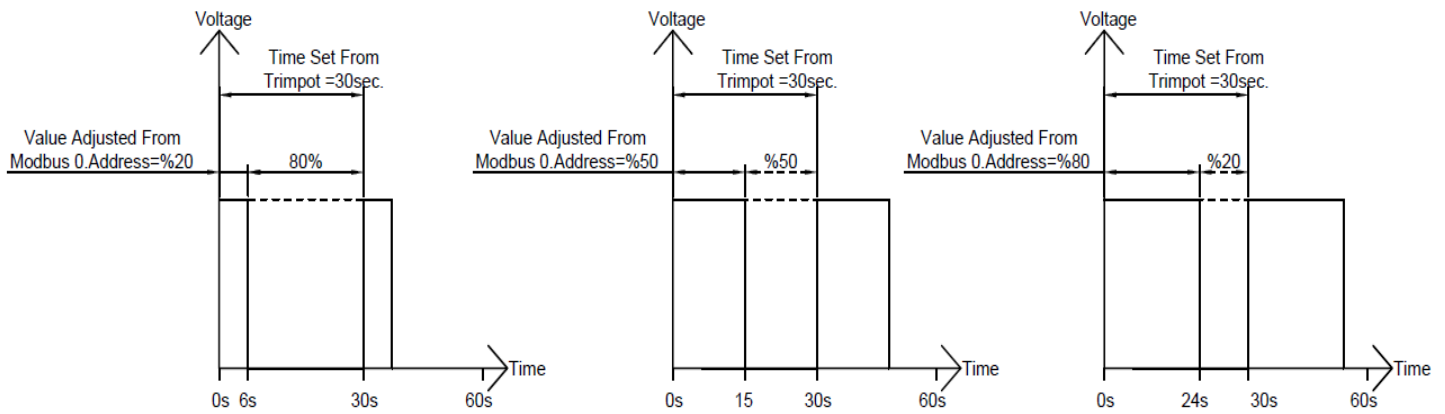
You must connect the device in accordance with the instructions and connection diagram and connect a safety thermostat and contactor. Otherwise, HAVKON is not responsible for all dangers and malfunctions that may occur.



MODBUS-RTU Communication:

HPC.3015.M/HPC.3025.M Modbus-RTU Control Addresses

| PLC Register | Parameters ID | Parametre Name | Read/Write | Minimum / Maximum | Detail |
|--------------|---------------|-------------------------|------------|---------------------------|---|
| 40001 | 0 | Set Value | W/R | Min: %0 Max:%100 | 0: Output Off 1: Maximum Output (See Chart) |
| 40002 | 1 | Safety Thermostat Input | R | On:0 Off:1 | On:0 Off:1 |
| 40003 | 2 | Instant Output Status | R | 0: Çıkış Yok 1: Çıkış Var | Shows Instant Voltage Output Status |
| 40004 | 3 | Trimpot Time Value | R | Min: 0 Max:100 | Trimpot Percentage Value |
| 40005 | 4 | Total On/Off Time | R | 6-60 | The total time can be set between 1 and 60 seconds. |



As seen in the table, it is adjusted in the range of 6-60s via the trimpot. It is controlled between 0-100% from 0.address via Modbus-RTU. For example, when we set the second to 30 on the trimpot, if we set the 0th address to 20 from Modbus-RTU, it will be 20% On and 80% Off.

| Setting Selection Switch | | | | | | | | | Communication Speed |
|--------------------------|-----|-----|-----|-----|-----|-----|-----|-----|---------------------|
| 0 | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | 1200bps,8,n,1 |
| 1 | OFF | OFF | OFF | OFF | OFF | OFF | OFF | ON | 2400bps,8,n,1 |
| 2 | OFF | OFF | OFF | OFF | OFF | OFF | ON | OFF | 4800bps,8,n,1 |
| 3 | OFF | OFF | OFF | OFF | OFF | OFF | ON | ON | 9600bps,8,n,1 |
| 4 | OFF | OFF | OFF | OFF | OFF | ON | OFF | OFF | 19200bps,8,n,1 |
| 5 | OFF | OFF | OFF | OFF | OFF | ON | OFF | ON | 38400bps,8,n,1 |
| 6 | OFF | OFF | OFF | OFF | OFF | ON | ON | OFF | 57600bps,8,n,1 |

| Modbus Selection Switch | | | | | | | | | Modbus ID |
|-------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----------|
| 0 | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | 0 |
| 1 | OFF | OFF | OFF | OFF | OFF | OFF | OFF | ON | 1 |
| 2 | OFF | OFF | OFF | OFF | OFF | OFF | ON | OFF | 2 |
| 3 | OFF | OFF | OFF | OFF | OFF | OFF | ON | ON | 3 |
| 4 | OFF | OFF | OFF | OFF | OFF | ON | OFF | OFF | 4 |
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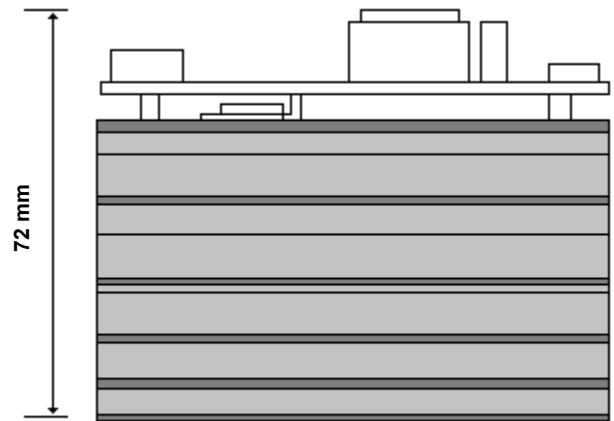
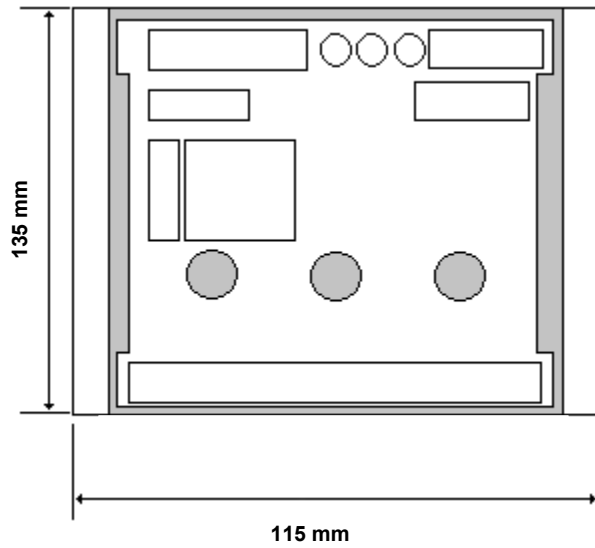
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| 224 | ON | ON | ON | OFF | OFF | OFF | OFF | OFF | 224 |
| 225 | ON | ON | ON | OFF | OFF | OFF | OFF | ON | 225 |
| 226 | ON | ON | ON | OFF | OFF | OFF | ON | OFF | 226 |
| 227 | ON | ON | ON | OFF | OFF | OFF | ON | ON | 227 |
| 228 | ON | ON | ON | OFF | OFF | ON | OFF | OFF | 228 |
| 229 | ON | ON | ON | OFF | OFF | ON | OFF | ON | 229 |
| 230 | ON | ON | ON | OFF | OFF | ON | ON | OFF | 230 |
| 231 | ON | ON | ON | OFF | OFF | ON | ON | ON | 231 |
| 232 | ON | ON | ON | OFF | ON | OFF | OFF | OFF | 232 |
| 233 | ON | ON | ON | OFF | ON | OFF | OFF | ON | 233 |
| 234 | ON | ON | ON | OFF | ON | OFF | ON | OFF | 234 |
| 235 | ON | ON | ON | OFF | ON | OFF | ON | ON | 235 |
| 236 | ON | ON | ON | OFF | ON | ON | OFF | OFF | 236 |
| 237 | ON | ON | ON | OFF | ON | ON | OFF | ON | 237 |
| 238 | ON | ON | ON | OFF | ON | ON | ON | OFF | 238 |
| 239 | ON | ON | ON | OFF | ON | ON | ON | ON | 239 |
| 240 | ON | ON | ON | ON | OFF | OFF | OFF | OFF | 240 |
| 241 | ON | ON | ON | ON | OFF | OFF | OFF | ON | 241 |
| 242 | ON | ON | ON | ON | OFF | OFF | ON | OFF | 242 |
| 243 | ON | ON | ON | ON | OFF | OFF | ON | ON | 243 |
| 244 | ON | ON | ON | ON | OFF | ON | OFF | OFF | 244 |
| 245 | ON | ON | ON | ON | OFF | ON | OFF | ON | 245 |
| 246 | ON | ON | ON | ON | OFF | ON | ON | OFF | 246 |
| 247 | ON | ON | ON | ON | OFF | ON | ON | ON | 247 |
| 248 | ON | ON | ON | ON | ON | OFF | OFF | OFF | 248 |
| 249 | ON | ON | ON | ON | ON | OFF | OFF | ON | 249 |
| 250 | ON | ON | ON | ON | ON | OFF | ON | OFF | 250 |
| 251 | ON | ON | ON | ON | ON | OFF | ON | ON | 251 |
| 252 | ON | ON | ON | ON | ON | ON | OFF | OFF | 252 |
| 253 | ON | ON | ON | ON | ON | ON | OFF | ON | 253 |
| 254 | ON | ON | ON | ON | ON | ON | ON | OFF | 254 |
| 255 | ON | ON | ON | ON | ON | ON | ON | ON | 255 |

Technical Dimensions:

HPC.3015/HPC.3015.M



HPC.3025/HPC.3025.M

