

Original instructions

IHMC6-3



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INSTALLATION AND OPERATING INSTRUCTIONS

General Instructions

Read these instructions carefully before installation and use. Keep this manual for future reference.

The product may only be used as set out in the assembly and operating instructions. The guarantee is only valid if the product is used in the manner intended and in accordance with the instructions.

SPECIFICATIONS

Mains Voltage	400Vac +/- 10% 50 Hz
Max load at 20°C ambient	6 kW (Total)
Number of Channels	3 x 2kW Max
Power Consumption	50mA
IP Rating Power Unit	IP65
IP Rating HMI	IP65
Gland Diameter	Max Cable Entry 2.5mm ²
Operating Temperature	-20°C to 30°C
Max Unit Operating Temperature	65°C
Dimensions Power Unit	W=280mm D=200mm H=80mm 'D' inclusive of Glands
Dimensions HMI Unit	W=118mm D=110mm H=50mm
HMI Cable	4 core (Low Voltage)

It is recommended that installation and maintenance of this equipment should be done with reference to the current edition of the I.E.E. wiring regulations (BS7671) by suitably qualified/trained personnel.

These regulations contain important requirements regarding safety of electrical equipment (for International Standards refer to I.E.C/ directive IEC950).

WARNING

It is important that the IHMC6-3 is not mounted directly to any flammable material i.e. wood. It is recommended that the heatsink be spaced off the mounting wall using pillars to aid in heat dissipation.

Packaging

Packaging materials are chosen with consideration to environment and are therefore recyclable.

Handling of product at end of working life

This product may contain substances necessary for functionality of product but potentially dangerous for the environment. The product should not be disposed mixed with general household waste but delivered to a designated collection point for environmental recycling. Please contact local authority for further details of your nearest designated collection point.

INTRODUCTION

The IHMC6-3 is a microprocessor based power controller which has been designed to offer variable control for 3 separate 2kW loads from a 3-phase supply. The units have been manufactured to offer easy installation and functionality. The system consists of three elements: A HMI unit 1 (Human Machine Interface) which is wired via a low voltage 4-core cable to the main power unit 2, this then allows the operator to vary the output from off and 30% to 100% via a 10 step output. All the HMI functions are also available via the infra-red remote control handset 3.

Additionally you can switch off all the channels or individual channels as required via the HMI. The main power unit which has been built into a smart robust IP65 rated enclosure can be mounted remotely from the HMI unit. The main power unit can also link up to an additional 2 power units allowing you to control 9 individual 2kW outputs or 8 other power units allowing you to control 9 power units (the 3 outputs within each power unit will increase at the same level in this configuration) up to 54kW in total (2kW x3 outputs x 9 Power units)
Note: see installation for output options.

HMI BUTTONS

CHANNEL+	Increment channel selection (1 to 9)
CHANNEL-	Decrement channel Selection (1 to 9)
CHANNEL OFF	Switch off Current Channel
ALL ON/OFF	Switch ON or OFF all channels (Toggle)
POWER +	Increment Current Channel Power Level (0,1,2,3,4,5,6,7,8,9,F)
POWER -	Decrement Current Channel Power Level (0,1,2,3,4,5,6,7,8,9,F)

POWER UNIT CONNECTIONS

SUPPLY INPUT	3 Phase Supply (400V AC +/-10%) (L1,L2,L3,N,E)
LOAD OUTPUTS	Heater Terminations (T1,N,Earth),(T2,N,Earth),(T3,N,Earth)
SW1	4 Way DIL Switch for Channel Configuration Options
HMI Communication	RS485 communication Terminals A & B
HMI Low Voltage Power	Terminals +24V DC & COM
SUPPLY GREEN LED	Power unit supply present
STATUS RED LED	Serial Data Received Acknowledgement

APPLICATIONS

Any application where high inrush current is an issue or control is required. Typical use is for Infrared Heating lamps and Garden lighting.

FEATURES

Soft Start	Up to 30% extended life of Lamp
Variable Control	Ability to find comfort level
Remote Control	Ease of use
HMI	Vary output and switch channels on and off
IP Rated	HMI and IHMC6-3 are IP65 rated, suitable for outdoor installation
Additional Channels	Multiple units can be added and function from 1 off HMI

SET UP

CAUTION! Ensure the 3 phase supply is disconnected before proceeding.

Connect the 3 phase supply 415VAC with Neutral and Earth to the terminals marked 'L1, L2, L3 Neutral and Earth' ensuring the phase rotation is correct, so connect the leads like this:

Brown (L1) Black (L2) Grey (L3)

Connect the 3 X 2KW Lamp Loads to the terminals marked 'T1, T2, T3, star connected to Neutral'.

Configure the oscilloscope to measure AC mains voltage and connect one of the scope's channels across a lamp load.

Connect the HMI unit to the main controller using four core twisted cable (included) to the terminals marked A, B, 24v. COM on both units.

Set DIP SW1 to 1000 this sets the controller to operate on channels 1,2 and 3 using either the handset or HMI unit, see Table A and B on the right hand side of the control pcb.

TEST

CAUTION! Beware of hazardous voltages while testing!

Switch on the 3 phase supply to the IHMC6-3 and verify the green 'POWER' LED is lit and the HMI digits are lit. When the main power controller is sending data back to the HMI unit the red 'STATUS' LED will pulse.

Using the HMI push buttons step through the channels and power levels indicated by the UP and DOWN arrows on the fascia.

Leave all three channels powered up to three different output levels, press the ALL ON/OFF button once this will turn all three channels off, press the button again this will reinstate the outputs to the power levels previously selected.

Pressing the CH OFF button turns the indicated channel off, to turn it on again use the POWER up button.

Switch off the mains power to the controller and wait a few seconds then re-apply the mains power, all the controller outputs will be in the off state, when the ALL ON/OFF button is pressed the previously selected channels and output levels will be re-instated.

These tests can also be done using the handset, with the handset the channels can be selected individually by pressing the buttons numbered 1, 2 and 3.

With the DIP switch code set to 1000 the HMI unit will scroll around channels 1 2 and 3, with the code set to 1100 the HMI unit will display and scroll around channels 4, 5 and 6. With the code set to 1110 channels 7, 8 and 9 will be activated in the same manner.

Next set the controller to three phase three channel tracking where all three outputs are controlled as one channel this mode is selected by setting the DIP switch code to 0001.

With DIP switch code set to 0001 channel 1 will be selected and displayed on the HMI unit. Adjusting the POWER up and down buttons will result in all three phases having the same output levels through 0 to F. Check that the HMI unit does not respond to any other channel selection.

After testing return the DIP SW1 code to 1000.

Switch off the 3 phase 415VAC mains supply and disconnect the IHMC6-3 - the test is now complete.

SYSTEM PARTS

HMI

The HMI allows the user to control up to 9 individual BHC4002-ER units either via the push buttons on the HMI or via the Remote Handset and depending on selected configuration control the outputs by varying the settings from 1 to 10. All together you can preset 6 individual outputs with a maximum rating of 36kW dependant on configuration. The HMI can switch off all the outputs together or on an individual basis. When the units are switched back on they resume the setting previously set.

The power unit

The IHMC6-3 is designed to accept a 230V one phase supply. The unit has a 2 stage supply filter to meet EMC legislation and comes in an IP65 rated enclosure complete with glands. A 4 core low voltage cable is required to wire the Power unit to the HMI allow it to be mounted neatly away from the main installation



The Interface unit is designed to be used with the Remote handset, however you can also control all the heaters directly from this unit.

Channel Indicator

This indicates which channel you are controlling. The maximum number of channels available are 9.

Power Indicator

This indicates the power output

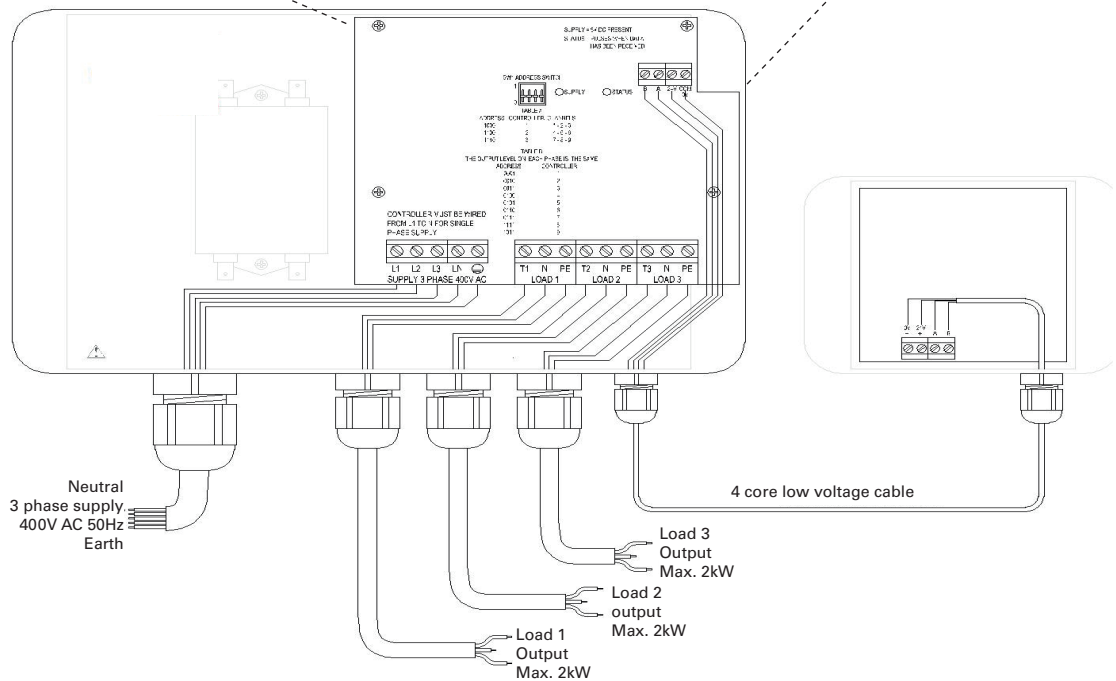
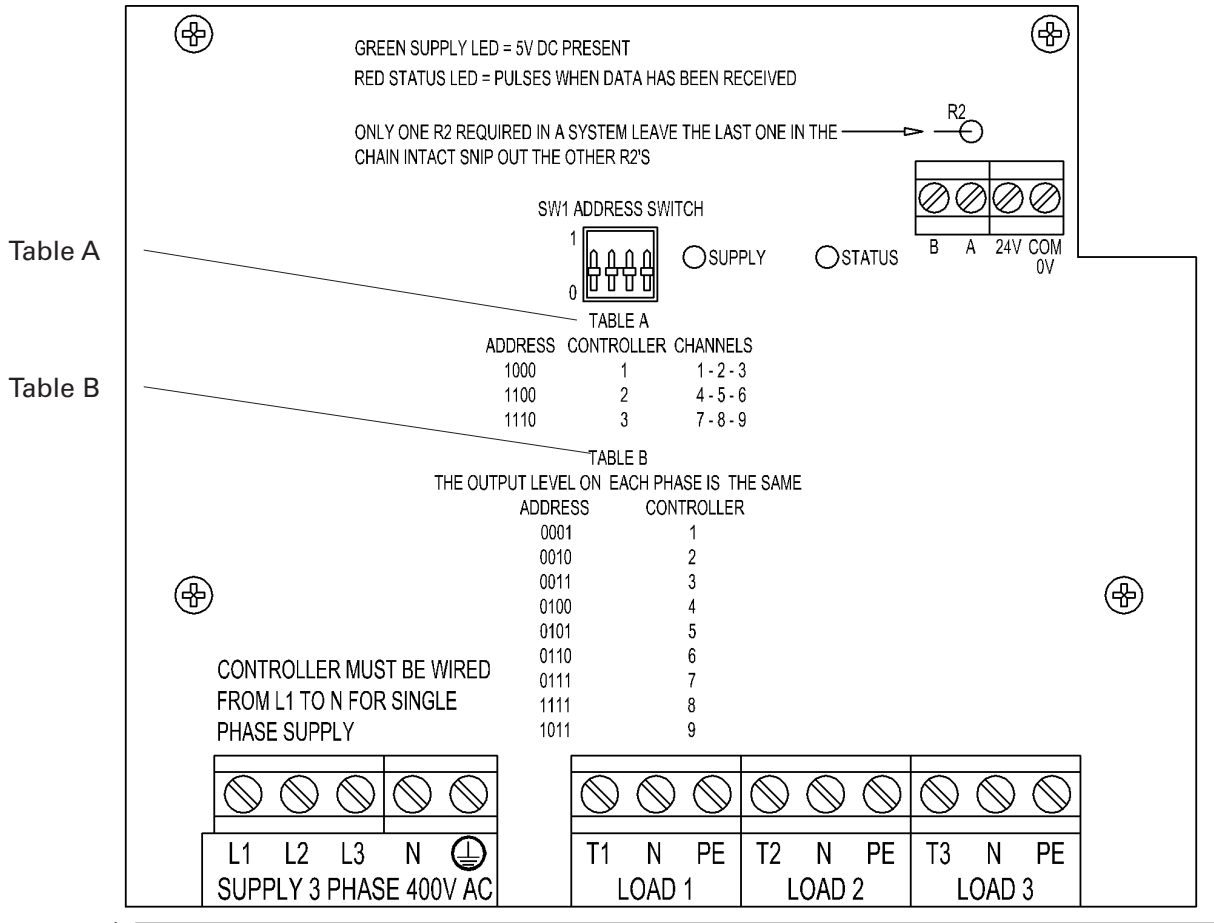
CH OFF

This allows you to switch off an individual channels

ALL ON/OFF

This allows you to switch the output off to all the channels

INSTALLATION CIRCUIT



CONFIGURATION OPTIONS

The IHMC6-3 has been designed and tested to allow each controller to be mapped to either 2 channels (2 power level settings per 2 outputs) or 1 channel (1 power level setting per 2 outputs).

Please note that no mapped channels should appear with the same channels numbers.

Here are some examples using 3x IHMC6-3 on a 1 phase supply.

Example 1

Control 1	Control 2	Control 3
Switch setup 1000	Switch setup 1100	Switch setup 0111
Mapped channels 1,2,3	Mapped channels 4,5,6	Mapped channels all 7
TABLE A	TABLE A	TABLE B

Example 2

Control 1	Control 2	Control 3
Switch setup 1000	Switch setup 0100	Switch setup 0101
Mapped channels 1,2,3	Mapped channels all 4	Mapped channels all 5
TABLE A	TABLE B	TABLE B

Option 1
18kW



1 2 3



4 5 6



7 8 9

Option 1 shows 3 Power units offering 9 individual channels of 2kW that can be varied from 1 to 10.

Option 2
54kW



Option 2 shows 9 Power units offering 9 channels which can vary from 1 to 10 (note all 3 channels within the power unit vary at the same output level)



Main office

Frico AB
Industrivägen 41
SE-433 61 Sävedalen
Sweden

Tel: +46 31 336 86 00

mailbox@frico.se

www.frico.net

**For latest updated information and information
about your local contact: www.frico.net.**