

Product Manual

123.23.23.90

(WEX300)

Electrical Management Controller.



Original Instructions

Wallgate[®]



- Appliance to be kept out of reach of children.
 - Children shall not play with the appliance.
 - Cleaning and user maintenance shall not be made by children without supervision.
- This appliance can be used by persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.
- If the supply cord is damaged, it must be replaced by Wallgate, its service agents or similarly qualified persons in order to avoid hazard.

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1. Disclaimer & Copyright Notice

Every effort has been made to supply information which is correct. Wallgate Limited and Galvin Engineering will not be liable for any damage or loss that arises if the person installing, operating or maintaining the unit has not read or not complied with the manual.

Wallgate or Galvin Engineering reserves the right to alter, update or improve its product specification at any time without prior notice. This manual is specific to the product that it has been supplied with at the date of supply.

No part of this publication and the information contained may be reproduced, transmitted, stored in a retrieval system, used or disclosed wholly or partly without prior written permission from Wallgate Limited or Galvin Engineering.

Please ensure this manual is passed to the end user. The manual forms an integral part of the product and should be kept for its working life. Additional copies of this and other supporting documents are available by contacting Galvin Engineering or by visiting www.galvinengineering.com.au.

2. Conventions

Certain conventions are used in this manual to make it easier to read and understand. They are given in the sections below.

2.1 Warning

A warning with red text on a white background is used to give information about hazards that can cause injury or death. Read and understand the warnings before you install and commission the WEX300. Failure to heed these warnings can have serious consequences.

WARNING! This is a warning!

2.2 Note

A note with amber text on a white background is used to draw your attention to important and useful information.

NOTE: This is a note.

2.3 Numbered procedures

Steps in procedures are numbered, starting from 1.

1. This is step 1.
2. This is step 2 etc.
- 2.4 Bullet lists

2.4 Bullet lists

- A bullet list is used to give information that is not sequential.

2.5 Tick Bullet lists

- ✓ A tick bullet list is used to imply a checklist of components or actions (not sequential).

2.6 Menu items

Menu items, submenu items and settings, where available, are given in bold.

3 Installation and Commissioning

3.1 Package Contents

Before beginning the installation, make sure that you have the following items:

- ✓ 1 123.20.23.90 Electronic control unit and product manual.
- ✓ 1 x 123.23.23.90 Electronic Control unit and product manual.
- ✓ CAN Bus communications cable.
- ✓ Suitable fixings

3.2 Advice on attaching the unit

- Attached the unit to a vertical surface that is able to support the weight of the unit.
- Attach the unit in dry surroundings above pipes carrying water, away from any possible plumbing leaks.
- Attach the electronic control unit with the 123.20.23.90 where there is easy access.
- Connect the 123.20.23.90 to the 123.23.23.90 using the CAN Bus communications cable.

WARNING! Do not mount the unit upside down

The control box has four holes for attaching the unit to the wall using four round head screws.

3.3 Connect the Electrical Supply

To make the electrical connections to the control unit:

WARNING! The electrical connections must be made by a qualified electrical engineer in accordance with the present nationally approved IEE Regulations.

- 1 Terminate the supply cable into the main supply breaker
- 2 Make sure that the input leads are plugged into the correct sockets
- 3 Complete electrical testing of the installation.

4 Product Summary

The 123.23.23.90 electronic control units are designed to manage the operation of up to 12x Electrical Circuits. The 123.23.23.90 is used in conjunction with the 123.20.23.90 Controller connected using the CAN Bus communication link.

The control unit comprises of a microprocessor that is programmed with a configurable software program that has the following operational features, note the controllers can be part of a networked system or stand-alone devices:

- User friendly Software menu system with security-controlled access.
- Independent control of each electrical circuit.
- Fully configurable precise time control of each electrical circuit operation that is fully adjustable in situ by the installer / customer.
- Piezo touch button, infrared sensor, or tactile capable inputs.
- Auxiliary inputs for remote operation of:
 - Remote circuit switching.
 - Dual point switching.
- Diagnostic test configuration file to assist with fault finding.
- Fault reporting (requires additional sensors)
- CAN Bus communications with 123.20.23.90 with LAN Networking to remotely control Front End or BMS
- Data logging.

5 Product Specification

5.1 Supply

1 x 230v AC Mains

5.2 Digital Inputs

20 x Digital input jacks for connection of WDC piezo buttons

5.3 Digital Outputs

20 x Digital outputs for indicating status of inputs

5.4 Relay Outputs

All relay outputs are to a maximum RCBO capability of 10A, however please note the default lighting and mains RCBO's fitted are shown below.

5.5 Monitoring and Safety

1 x Double Pole Main Isolation Breaker

- 2 x C4 RCBO for mains socket protection
- 2 x C2 RCBO for lighting protection

NOTE: The 123.23.23.90 can be specified with MAX 10A per Breaker, please contact Wallgate sales for details.

- 4 x power monitoring channels (optional)
- 4 x zero crossing detection for mains failure detection

5.6 Communications

- 1 x CANBus 2.0 (In and out connector on the same bus)

5.7 Updating and Programming

- 1 x USB 2.0 Mini connector programming and updating the device

6 Connections

The 123.23.23.90 is connected to the peripherals it is controlling through 13 glands located on the top side of the housing. One M25 gland for the incoming power and 12 M20 glands for the socket and lighting circuits. Below in Figure 1 is an overview of the connections to the 123.23.23.90 unit.

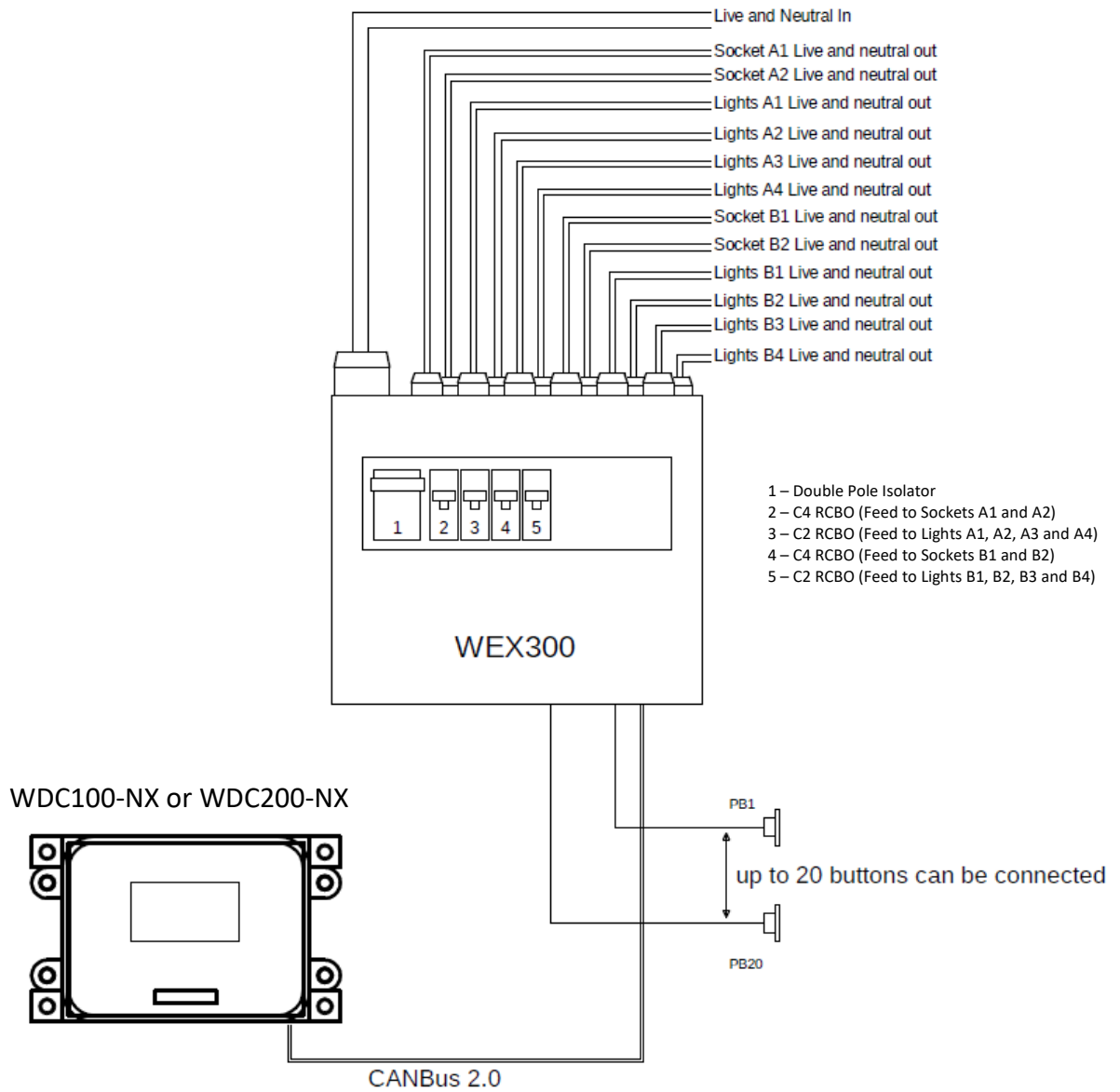


Figure 1 Connection Overview

Power is fed into unit through circuit breaker CB1 in Figure 2 below. A common Live bus is fed through RCBO 1, 2, 3 and 4. The neutrals are monitored by the power monitoring circuitry on PCB000378 (123.23.23.90-MTR) through shunts PM1, PM2, PM3 and PM4 on the neutral lines of the RCBOs.

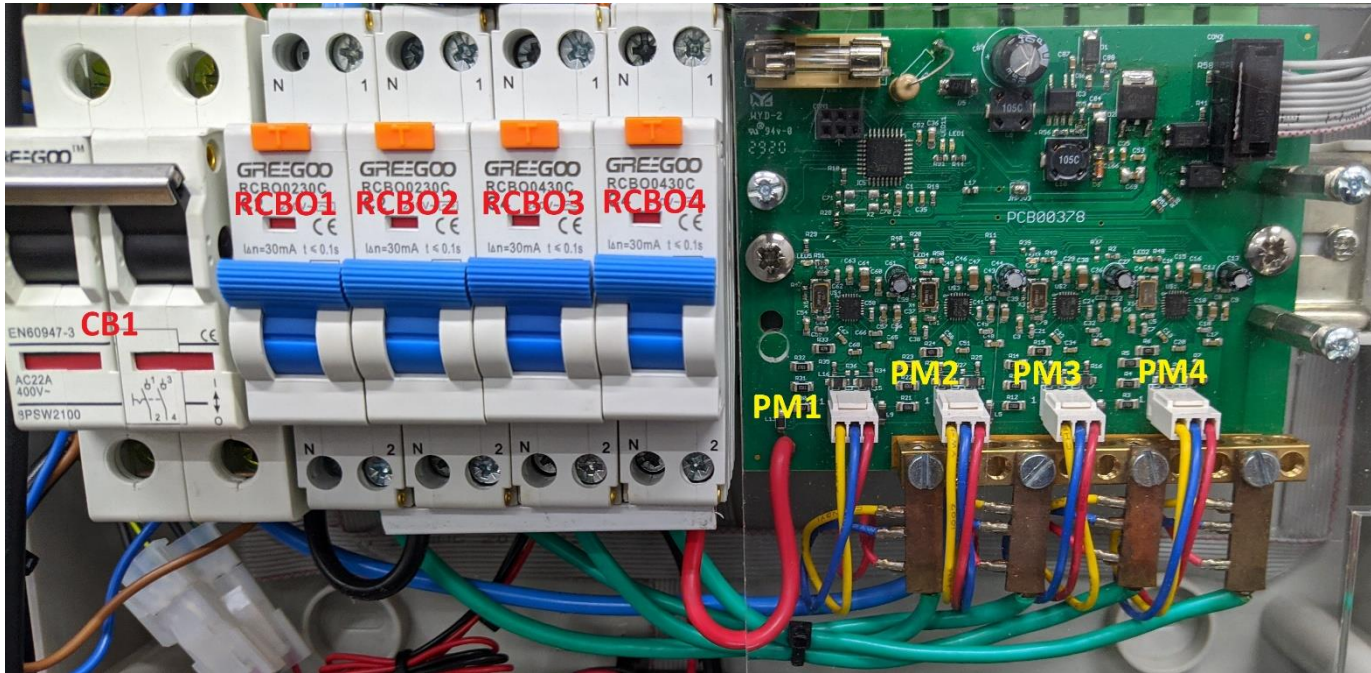


Figure 2 Internal Mains Wiring

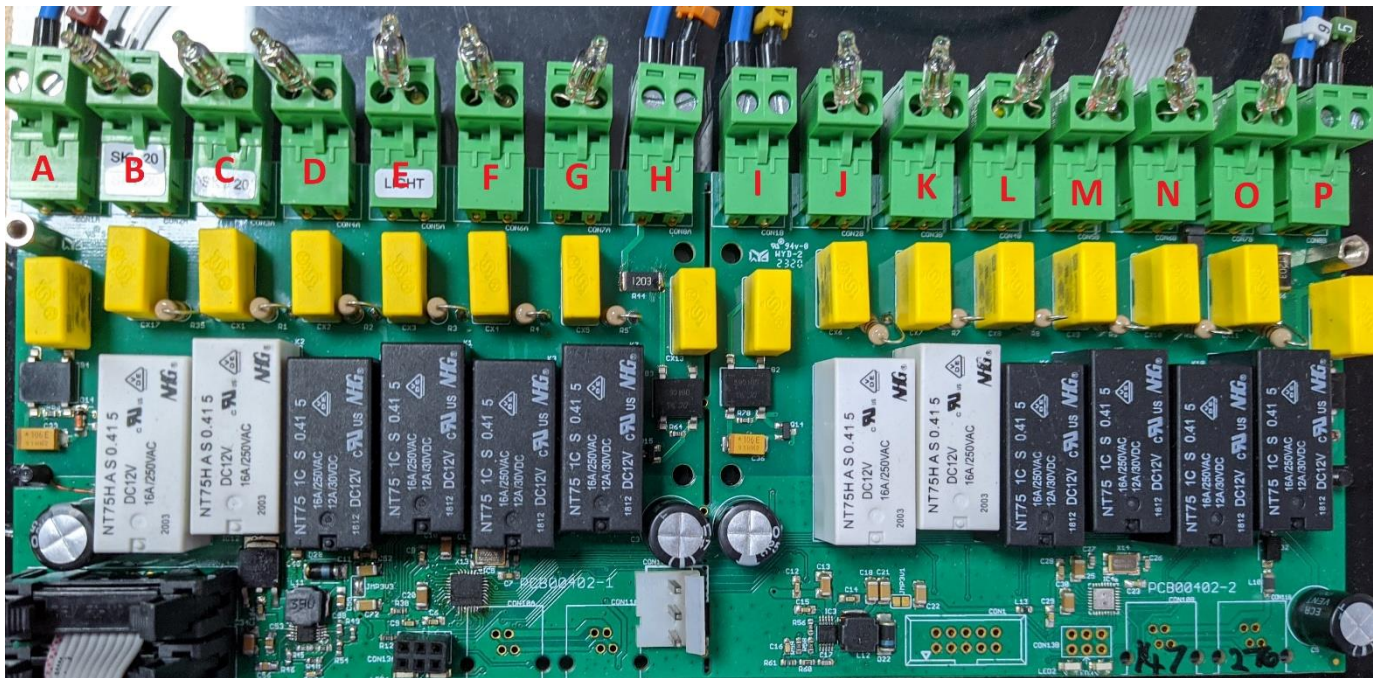


Figure 3 Wiring for Socket and Light Circuits

With reference to Figure 3 above, the wiring is as follows. Neutral is on the left and Live on the Right of each two-way connector.

- A. Feed in for Socket A circuits from RCBO1
- B. Feed out to Sockets A1 circuit
- C. Feed out to Socket A2 circuit
- D. Feed out to Light A1 circuit
- E. Feed out to Light A2 circuit
- F. Feed out to Light A3 circuit
- G. Feed out to Light A4 circuit
- H. Feed in for Light A circuits from RCBO2
- I. Feed in for Socket B circuits from RCBO3
- J. Feed out to Sockets B1 circuit
- K. Feed out to Socket B2 circuit
- L. Feed out to Light B1 circuit
- M. Feed out to Light B2 circuit
- N. Feed out to Light B3 circuit
- O. Feed out to Light B4 circuit
- P. Feed in for Light B circuits from RCBO4

7 System Description

7.1 Digital Inputs, Outputs and LEDs

The 123.23.23.90 has 20 digital inputs which can be setup in the configuration on the 123.20.13.90 / 123.20.23.90. These inputs are 3.5mm stereo jack plugs to connect to push buttons, optional remote controls and lighting switches and are located on the bottom of the 123.23.23.90 housing. Below is a layout of the connections on the bottom of the 123.23.23.90 unit.

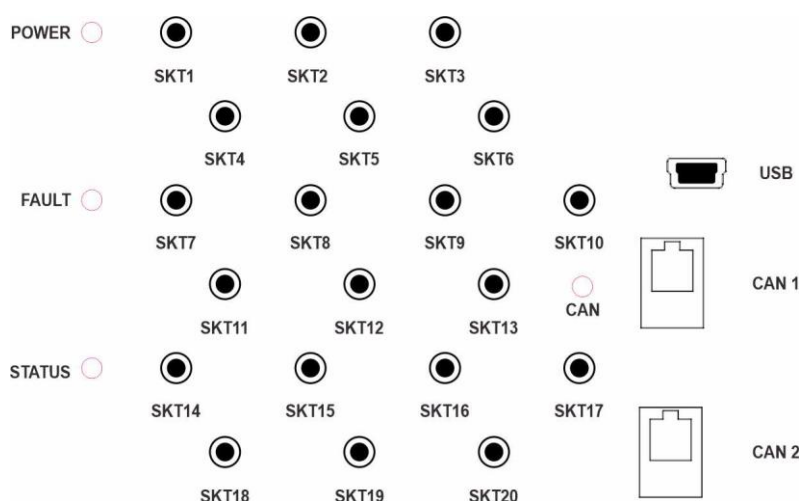


Figure 4 Input Connections

From Figure 4 above SKT1 denotes Jack 1 and the numbering follows this down to SKT20 which denotes Jack 20 in the configuration software. The Tip of the 3.5mm jack is reserved for these input signals and the screen is grounded. The Ring of the jack is reserved for the LED/Digital outputs and are denoted as "LED" in the Configuration software, these are for input status feedback. The behaviour of the LEDs is displayed below in Table 1.

	ON (colour)	OFF
Power	123.23.23.90 is receiving healthy power (Orange)	123.23.23.90 has no power
Fault	Communications has been lost with the Relay or Metering card. (Red)	123.23.23.90 has healthy communications to its slave cards
CAN	CAN packet received (Green)	No CAN communications

Table 1 LED Indicators

7.2 Relay Outputs

The 123.23.23.90 has relay outputs which are used to switch the Socket and Lighting circuits. The relay board is divided into two sections often referred to as Room1 and Room2 or Cell 1 and Cell 2. Each room is allocated two relays for sockets and four relays for lights this is displayed below in Figure 5. Neutral to all circuits is common and the Live is switched.

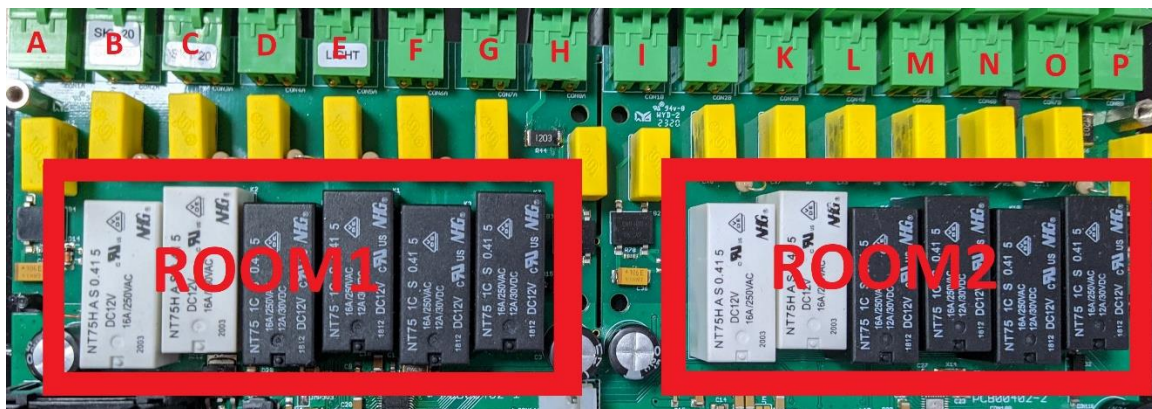


Figure 5 Relay Outputs Sections

7.3 Communications

The 123.23.23.90 is a slave device and is controlled by a 123.20.13.90 / 123.20.23.90 via CANbus. The CAN is connected via a 4way RJ11 connector. Within the 123.23.23.90 there are three boards which also need to communicate, the control board, the metering board, and the relay board, this is done via RS-232. The three boards are connected via IDC connectors and ribbon cable.

7.4 Mains Voltage Devices

The 123.23.23.90 is a mains connected device and therefore caution must be taken when wiring. Below in FIGURE is the section of the relay board which is Live, elsewhere below the indicated zone is a maximum voltage of 12V DC.

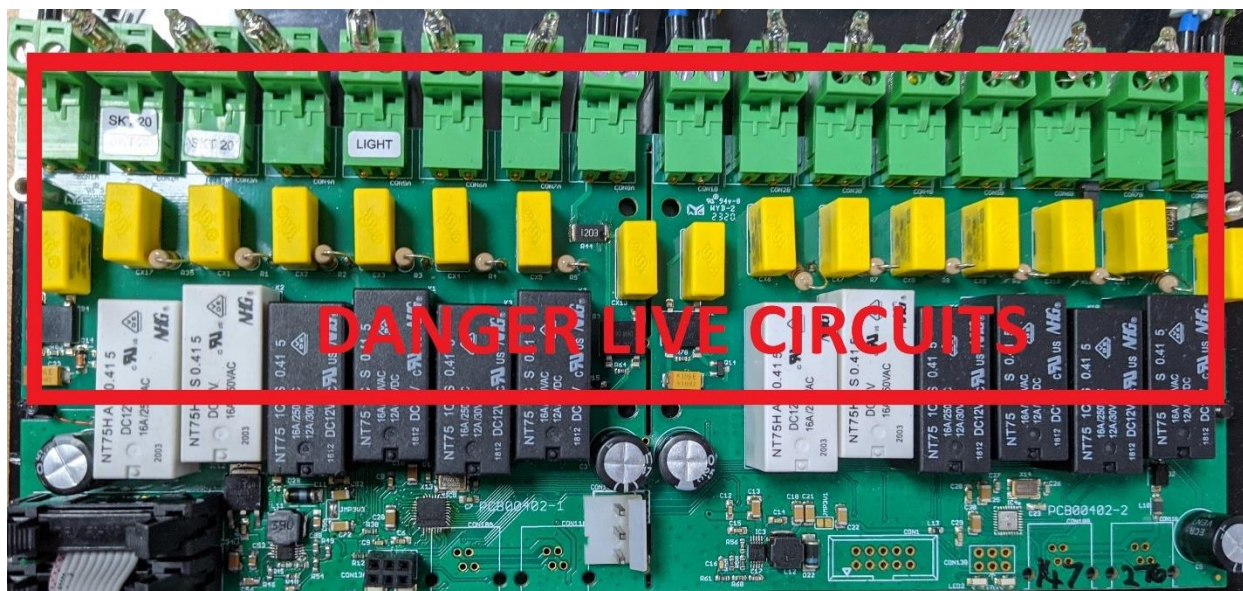


Figure 6 Live Area of Relay Board

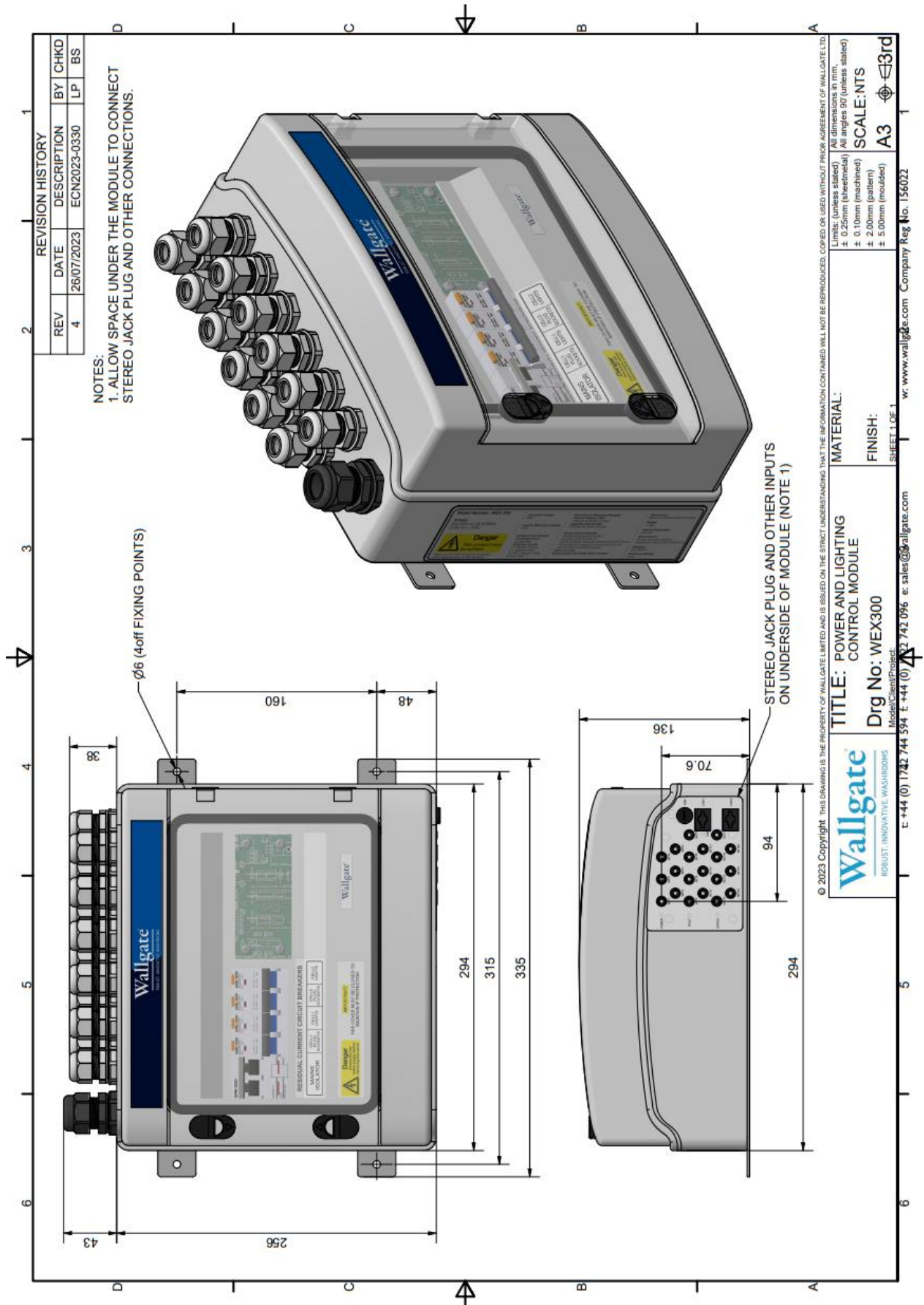
Majority of the Metering board is Live and is covered by a transparent plate to avoid contact. Take care to isolate the devices correctly when connections are being made.

8 Data Logging

Data logging records the events of all functionality. The data logs are stored locally on the 123.20.23.90 and can be exported to a PC or laptop. The download data is in the form of a csv file and can be viewed via WDCMS or exported to an external database.

9 Technical Specifications

Power supply	220-240V AC, 50/60Hz Single phase, (UK, Europe, Australasia)
Enclosure IP Rating	IP44
Weight	3.8Kg.
Dimensions	294 mm x 299 mm x 136 mm depth. 335 mm x 299 mm x 136mm depth (with mountings).



10 Operation

Use the main isolation switch provided by the installer to switch the unit on or off. The main isolation switch is located near to the electronic control box. If unit is faulty, switch off the control unit until the fault is repaired by a qualified engineer.

WARNING! Risk of electric shock, serious injury and death. Only trained and qualified personnel should remove the cover of the electronic control box.

11 Maintenance

We offer a comprehensive service package, details of which can be obtained from our customer service department. A spare parts service is also available.

The electronic control unit does not have any user serviceable parts. In the event of a fault, switch off the electrical supply and contact an authorised electrician to replace the unit.

Any service or repair work must be carried out by a qualified engineer. During the warranty period, the service or repair must only be done by a qualified engineer or appointed service agent.

12 Related Documentation

- Product Manual / User Operation for 123.20.23.90 & 123.23.23.90
- Product Manual for WDCMS optional software for networking WDC units to a PC / BMS

13 Warranty

The warranty set forth herein is given expressly and is the only warranty given by the Galvin Engineering Pty Ltd. With respect to the product, Galvin Engineering Pty Ltd makes no other warranties, express or implied. Galvin Engineering Pty. Ltd. hereby specifically disclaims all other warranties, express or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.

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The remedy described in the first paragraph of this warranty shall constitute the sole and exclusive remedy for breach of warranty, and Galvin Engineering Pty Ltd shall not be responsible for any incidental, special or consequential damages, including without limitation, lost profits or the cost of repairing or replacing other property which is damaged if this product does not work properly, other costs resulting from labour charges, delays, vandalism, negligence, fouling caused by foreign material, damage from adverse water conditions, chemical, electrical or any other circumstances over which Galvin Engineering has no control. This warranty shall be invalidated by any abuse, misuse, misapplication, improper installation or improper maintenance or alteration of the product.

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