



# EA Technology Method Statement

## I<sup>2</sup>EV ICB Commissioning

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Date	Version	Authors	Notes	Reference Documents
09/07/2014	1	AM		
09/07/2014	2	AM		
10/07/2014	3	AM		
16/07/2014	4	JS	Feedback from session with SSEC	
16/07/2014	5	BL	Feedback from Greg Watson	ICB Commissioning sheet
17/07/2014	6	BL	Feedback from DAR	
23/07/2014	6.1	AM/LM	Included example photos and now linked with commissioning sheet.	
24/07/2014	6.2	AM	Slight change in activity numbering to bring in line with the latest commissioning sheet	
30/07/2014	6.2	DH	Reviewed	
06/08/2014	6.3		Added step to test comms with spare ICB	

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# 1 Introduction

The I<sup>2</sup>EV project aims to test charge-controlling equipment on streets with a high proportion of Electric Vehicles (EVs). The aim is to simulate a 2030 low voltage (LV) network and learn how control of EV charging might mitigate the need for traditional LV infrastructure reinforcement.

*As part of the I<sup>2</sup>EV project, EV charge control equipment is required to be installed on an LV feeder and in participating properties fed from the feeder, which house an electric vehicle.*

*This document outlines the procedure used while carrying out **an installation of an Intelligent Control Box (ICB) Mk2.***

*Start Date: / / , Completion Date : / / .  
Site address:*

*Site contact details including emergency numbers etc:*

*EA Technology contact person: My Electric Avenue Team Liam McSweeney & Andrew Moon  
0151347 2382*

*For additional support: Dave A Roberts 0151 347 2318 / 07595610296*

*Mary Gillie 0151 347 2342*

*Dan Hollingworth 0151 347 2296 / 07718340197*

## 2 Staff

EA Technology personnel carrying out the work are competent and experienced in carrying out **a supervisory role** of this nature and are suitably trained and competent to supervise in **a domestic premises**. The installation work will be carried out by a competent electrician working to instructions from the EA Technology representative on-site. NB the instructions issued on site should align with the information given in this Method Statement and in the installation instructions issued by the ICB Manufacturer, AND Technology Research.

## 3 Equipment

### 3.1 Equipment – ICB Install

*The equipment used in the commissioning of an ICB at a domestic property is as follows:*

- *Intelligent Control Box Mk2;*
- *Mechanical fixing parts;*
- *Electrical tools and ancillaries.*
- *A smart mobile phone with >3MP camera and 3G Connection*

## 4 Procedure

### 4.1 Requirements

*The domestic property must already have an EV charge point (CP) installed to allow insertion of the ICB within the circuit between the consumer unit (CU) and the charge point.*

An ICB should only be fitted indoors if:

- There is no suitable and safe place for outdoor mounting
- The customer objects to outdoor mounting
- Mounting outdoors would involve significant modifications to the existing wiring e.g. replacing a long (>10m) section of cable.

Where the customer is not present, the ICB is to be installed externally next to the charging point, if there is sufficient space and it does not present an obstruction.

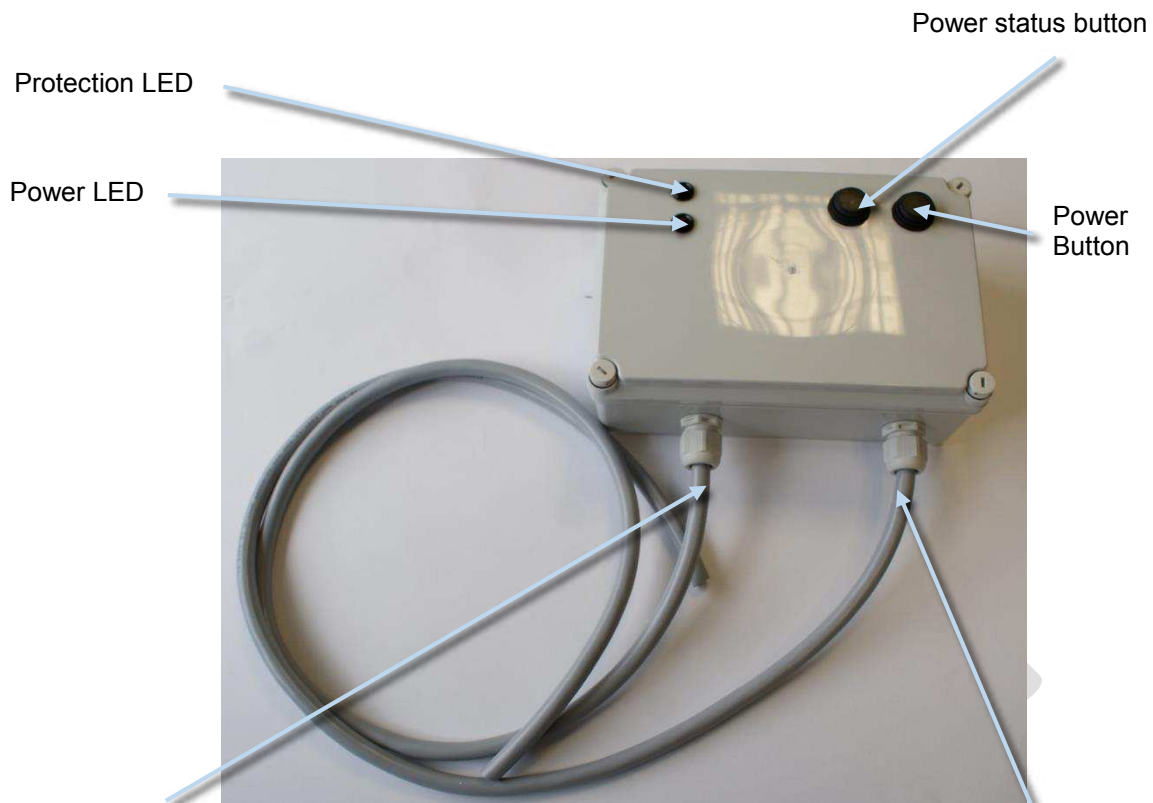
For proposed indoor mounting, the site supervisors (EA Technology) are to be consulted beforehand.

### 4.2 Mounting Orientation

ICBs installed outside MUST be installed in the upright orientation (i.e. label text is correct). There is a drain hole at the bottom of the enclosure which will allow water ingress if installed in any other orientation.

### 4.3 Installation at the domestic Property (specific to 3.1)

The ICB is designed to monitor & control the mains power supply to an Electric Vehicle (EV) charging point. The unit will periodically send data back to a Monitor Controller (MC) unit located at distribution transformer using power-line communications (PLC) & also respond to commands from that unit.



**Cable A: for mains connection from the CU (3-core flex cable & gland)**

**Cable B: for main connection to EV charging point (3-core flex cable & gland)**

*Figure 1. ICB general arrangement.*

The procedure to be followed when installing an ICB is described below:

1. Contact the EA Technology representative on site (if they are not accompanying you) and inform them of the following:
  - The ICB is about to be installed
  - The address
  - The ICB serial number
2. If available, plug in the spare ICB provided at the property, via a 3 pin plug and socket. Once completed, inform the EA Technology representative this has been plugged in and inform them of the serial number. Leave the device plugged in and proceed to step 3.
3. Use the ICB template provided in the AND TR installation guide to determine where the fixing holes are to be drilled; alternatively, remove the lid of the ICB enclosure, taking care with the cables running between the internal circuitry & lid. Also, guard the internal components from debris & moisture once the lid is removed.
4. Position the unit so that holes in the ICB enclosure for the mains connections are facing the securing point i.e. the selected wall for mounting.
5. Use a 4mm screw in each of the four pre-moulded holes to secure the ICB in place. The type & length of screw should be appropriate for the material to which the ICB is being attached to (e.g. wood, plasterboard, masonry, etc.) The minimum length recommended 20mm length.

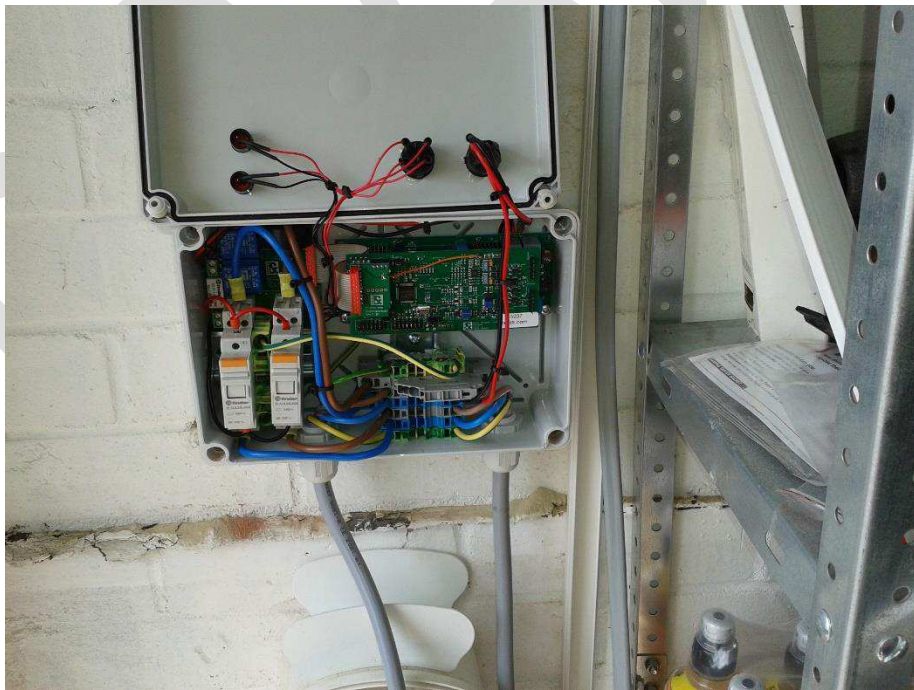


Figure 2. Example photograph of wall secured ICB with lid removed.

6. Once in place, perform tug tests on live, neutral and earth 4mm cables and take a photo ensuring the ICB circuit board serial number is clearly visible.

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7. Complete commissioning sheet activities 1 - 3.
8. Fit & secure the lid of the ICB enclosure.
9. Connect the flexible lead from the ICB, labelled “Charger” directly in to the charging point, using the appropriate size gland. Confirm all connections are suitably tight.



Figure 3. Example photograph of connected charge point.

10. Take photo of open charge point, (lid off) once connections have been completed and complete commission sheet activity 4.
11. Isolate the supply to the ICB at the consumer unit. Secure a terminal box as close to the ICB as possible. Use this terminal box to connect the flexible lead from the ICB, labelled “Supply”, to the supply cable coming from the consumer unit, connected via a suitably rated and secured terminal block. The terminal box should have sufficient IP rating for its mounting point, whether inside or outside. Confirm all connections are suitably tight. Restore the supply to the ICB at the consumer unit.

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12. Take photo of open terminal box, (lid off) once connections have been completed and *complete commission sheet, activity 5.*



Figure 4. Example photograph of connected terminal box.

13. Photograph the installation, showing the location of the charging point, ICB and terminal box and *complete commission sheet, activity 6.*



Figure 5. Example photograph showing the location of the charging point, ICB and terminal box.

14. Send the four pictures to [myelectricavenue@eatechnology.com](mailto:myelectricavenue@eatechnology.com) with the photo file name as the ICB serial number then a hyphen with number. e.g.

- 123456-1.jpg
- 123456-2.jpg
- 123456-3.jpg
- 123456-4.jpg

15. Contact the onsite EA Technology representative informing them the pictures have been sent and the installation is complete to your satisfaction, if not accompanied by an EA Technology representative.

16. Complete and sign off the ICB Mk2 Commissioning Sheet (Questions 7 to 11) and hand it to the EA Technology representative. Follow any instructions from EA representative until they are satisfied installation is complete and satisfactory.

17. Once installation has been confirmed by EA Technology representative, move onto the next address removing spare ICB if available (if not installing at the final site participant address).

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Notes on areas used for connection & commissioning

There are no areas within the ICB that should be used for connection.

## Enclosure material

A light-grey polycarbonate (RAL 7035) plastic enclosure is used to house the ICB's electronics.

## Dimensions

The ICB consists of three main external components; the electronics enclosure, the mains power supply cable & the EV Charging Point mains power supply cable.

## Enclosure & mounting holes

The external dimensions of the ICB are 235x160x92mm.

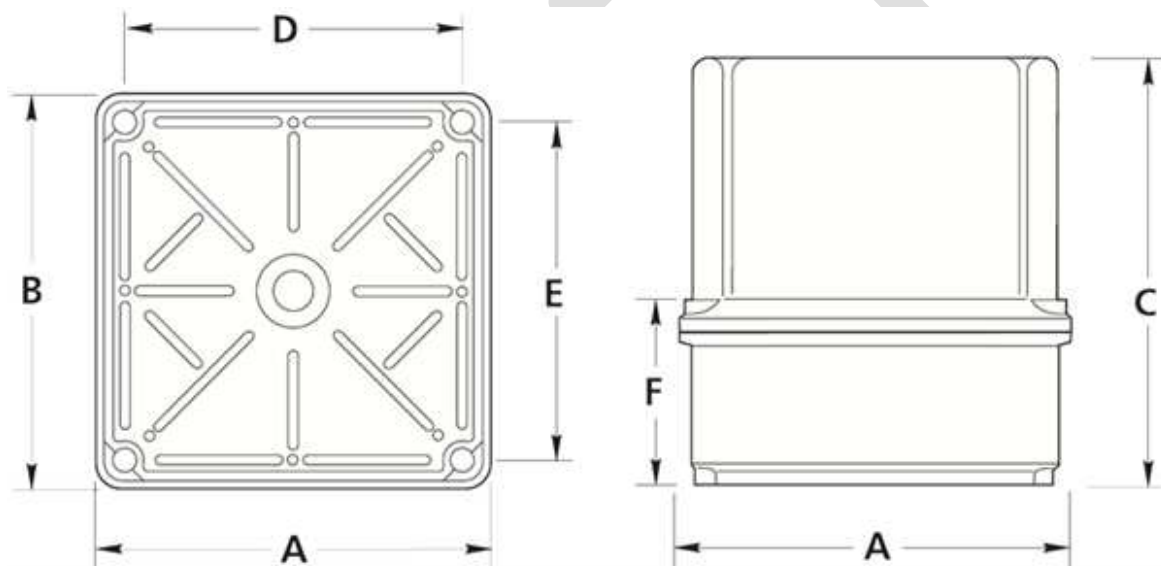


Figure 6. Esprit Intelligent Control Box (v1.2) mechanical drawing with mounting points highlighted.

A	235mm	C	92mm	E	140
B	160mm	D	215mm	F	69m

Two sets of pre-moulded 5mm diameter mounting holes are located internally at opposite ends of the enclosure's width for mounting the unit (see red arrows in image above). These holes are also used to secure the lid of the enclosure.



*Figure 7. Esprit Intelligent Control Box (v2.0) pre-moulded mounting hole.*

## **Mains power supply cable**

The ICB is supplied via a discrete sub-circuit from the consumer unit, the sub-circuit is to be wired in accordance with the IET Code of Practice for Electric Vehicle Charging Equipment Installation and the Wiring Regulations. The sub-circuit will terminate in the termination box where it will be connected to the “Supply” cable from the ICB.

## **EV charging point mains power supply cable**

The EV charging point is to be wired in accordance with the IET Code of Practice for Electric Vehicle Charging Equipment Installation (the ICB is connected in series with the charging point) and the Wiring Regulations.

## 5 Safety

The following sections should consider any generic safety information or procedures relevant to the work

- *Site Access and Egress – only those persons who are aware of the hazards on entering domestic premises will be allowed access to domestic premises. Staff attending from SSE Contracting will operate under their own risk assessment. All electricians should be suitably qualified for domestic electrical wiring work and work to BS 7671.*
- *A maximum number of 4 people from the installation/commissioning team will be in the property at any given time in order to ensure safe access and egress.*

### 5.1 General

- EA Technology staff will work within any guidelines issued by the authorised customer engineer provided that EATL safety policy and procedures are not contravened.
- The **ICB installation** will be performed by a competent fully qualified Electrician.

### 5.2 Personal Equipment

- Staff will be equipped with foul weather clothing, fire retardant overalls, safety footwear, safety glasses and safety helmets as appropriate.

Approved By:

\_\_\_\_\_

Responsible Person

\_\_\_\_\_

Date

\_\_\_\_\_

Senior Responsible Person

\_\_\_\_\_

Date

\_\_\_\_\_

Client Representative (if required)

\_\_\_\_\_

Date