

OVERVIEW

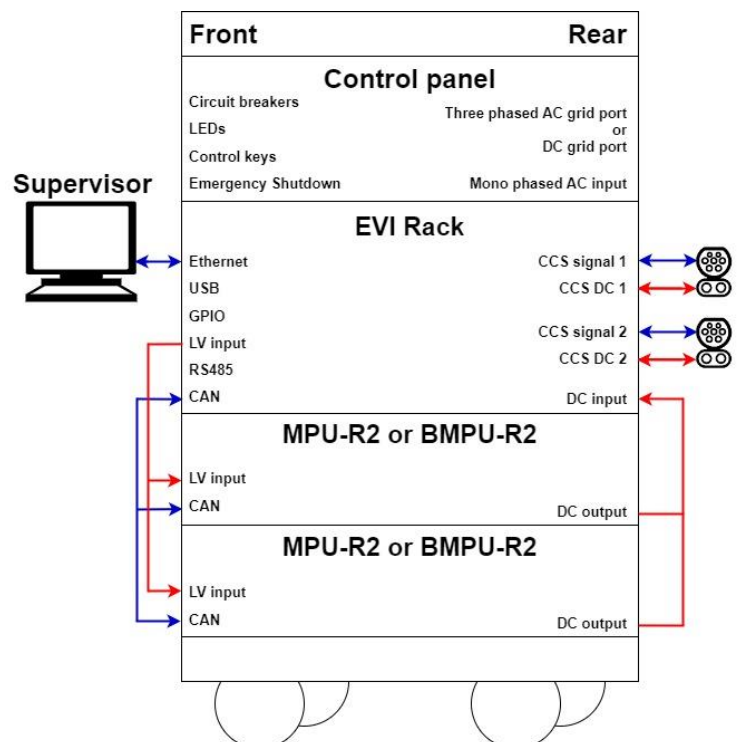
The Starter Kit is a modular mobile cabinet designed to reduce the time between delivery and the first safe and successful charge of an Electric Vehicle (EV) using W&W products in a R&D setup.

FEATURES

- 🔧 Modular and dynamic charging with:
 - 2 CCS charge points managed independently
 - Dynamic Power allocation between charge points
 - Serial & Parallel operations of PUs for 920V charging
- 🔧 Two Power Units (PU)
 - Either unidirectional (MPU) or bidirectional (BMPU)
 - 2 grid type versions available:
 - AC grid 400 VAC, 50 Hz.
 - DC grid 350VDC to 850VDC.
- 🔧 External interfaces
 - OCPP 1.6J, OCPP 2.0.1 interface
 - Modbus TCP interface
 - Web-App Monitoring
 - OTA firmware update
- 🔧 Integrated 920V Insulation Measurement Device (IMD)
- 🔧 Communication ports
 - Ethernet 100Mb
 - USB 2.0 (up to 480Mbps)
 - CAN, RS485 ports



BLOCK DIAGRAM



MECHANICAL PROPERTIES

Dimensions (LxWxH)	Weight
800 x 596 x 1026 [mm]	146 [kg]
31,5 x 23,4 x 40,4 [in]	321,8 [lb]

CONFIGURATIONS

Config.	SK-V1G-AC	SK-V1G-DC	SK-V2G-AC	SK-V2G-DC
Power Units	2 MPU-R2	2 MPU-R2-DC	2 BMPU-R2	2 BMPU-R2-DC



WARNING

This equipment operates at voltages and currents that can result in electrical shock, fire hazard and/or personal injury if not properly handled or applied. Equipment must be used with necessary caution and appropriate safeguards employed to avoid personal injury or property damage.

This board must be used only by qualified engineers and technicians familiar with risks associated with handling high voltage electrical and mechanical components, systems and subsystems.



Disclaimer

It should be noted that the codes and diagrams provided in this datasheet are presented for illustrative purposes only. The given values are susceptible to change without prior notice. The manufacturer of the charging station remains responsible for defining and ensuring compliance with the station's specifications. Watt & Well assumes no liability for any inaccuracies or discrepancies in the provided examples.

Contents

1	Introduction	5
2	Electrical Characteristics	7
3	Hardware specification.....	8
3.1	Starter Kit theory of operation.....	8
3.2	Starter Kit configurations	9
3.3	Power supply.....	10
3.3.1	<i>Power unit power input.....</i>	<i>10</i>
3.3.2	<i>Low voltage input.....</i>	<i>11</i>
3.3.3	<i>DIN Rail appliance and other components</i>	<i>11</i>
3.4	Power Units	11
3.5	EVI Rack 3U.....	12
3.5.1	<i>EVSE Controllers.....</i>	<i>12</i>
3.5.2	<i>Contactors.....</i>	<i>13</i>
3.5.3	<i>Contactor management.....</i>	<i>13</i>
3.6	CCS outputs.....	16
3.7	Front panel command and feedback (AC configuration)	17
3.7.1	<i>LEDs</i>	<i>17</i>
3.8	Front panel other interfaces	19
3.8.1	<i>Ethernet port</i>	<i>19</i>
3.8.2	<i>RS485 port</i>	<i>19</i>
3.8.3	<i>USB port.....</i>	<i>20</i>
3.8.4	<i>Other EVIX-IO front panel connectors</i>	<i>20</i>
4	Software specifications	21
4.1	System communication.....	21
4.1.1	<i>Communication Characteristics.....</i>	<i>21</i>
4.2	Software API for EVIX-IO	21
5	Mechanical specifications	22
5.1	Starter Kit dimensions	22
6	Safety instructions.....	23
6.1	Caution.....	23
6.2	Installation	23
6.3	Hot surface	23
6.4	Touch current	23
6.5	Disconnection	23
6.6	Parts substitution and modifications.....	24
6.7	Environmental condition	24

6.8	Standards.....	24
6.9	Disposal	25
6.10	Security Disclaimer	26
7	Installation	27
7.1	Mechanical installation.....	27
7.1.1	<i>Handling</i>	27
7.1.2	<i>Mounting</i>	27
7.2	Electrical installation	27
7.2.1	<i>Legal installation</i>	27
7.2.2	<i>Power connection (AC configuration)</i>	27
7.3	Protective earth installation.....	28
7.4	Disconnection and storage.....	28
8	Instructions for use	29
8.1	Setting up	29
8.2	Personal protective equipment and security	29
9	Maintenance	30
9.1	Cleaning	30
9.2	Parts replacement	30
10	Ordering information	31
10.1	Products References	31
10.2	Product accessories	31
ANNEXE A.	Wiring schematics AC.....	32
ANNEXE B.	Wiring schematics DC.....	34

1 Introduction

The Starter Kit is a modular mobile cabinet designed for Electric Vehicle Supply Equipment (EVSE) applications R&D teams to :

- develop EVSE supervisor logic
- test V2G applications
- reduce the time to market.

This system includes a variety of Watt & Well equipment such as EVI boards and Modular Power Units.

It includes third party contactors for power management and security equipment.

Finally, it features two CCS2 charging connectors.

EVI is a dual standard Supply Equipment Communication Controller (SECC) that includes the required signals for CCS/Combo (DIN70121, ISO15118-2 and ISO15118-20) to interface an EV.

More information about the EVI can be found on the corresponding datasheet:

<https://wattandwell.com/app/uploads/EVI-Cx-Ax-datasheet.pdf>

The EVIs, extension boards and contactors are packaged in a 19" rack included in the Starter Kit.

Four Power Unit configurations are available for DC charging with the starter kit

- o SK-V1G-AC: 2 MPU-R2 (unidirectional, AC-DC charging setup)
- o SK-V2G-AC: 2 BMPU-R2 (bidirectional, AC-DC charging setup)
- o SK-V1G-DC: 2 MPU-R2 DC (unidirectional charging, DC-DC charging setup)
- o SK-V2G-DC: 2 BMPU-R2 DC (bidirectional charging, DC-DC charging setup).

The Starter Kit allows users to easily monitor and control charging sessions by connecting a computer to the system through Ethernet. It is also possible to connect, monitor and control charging sessions through Wi-Fi, thanks to third party dongles. This grants access on the computer to the supervisor software installed on the embedded Linux of the EVI boards. This supervision can be done fully graphically thanks to the Graphical User Interface (GUI).

More information on how to use the GUI can be found on the corresponding user manual:

<https://wattandwell.com/app/uploads/EVI-GUI-user-manual.pdf>

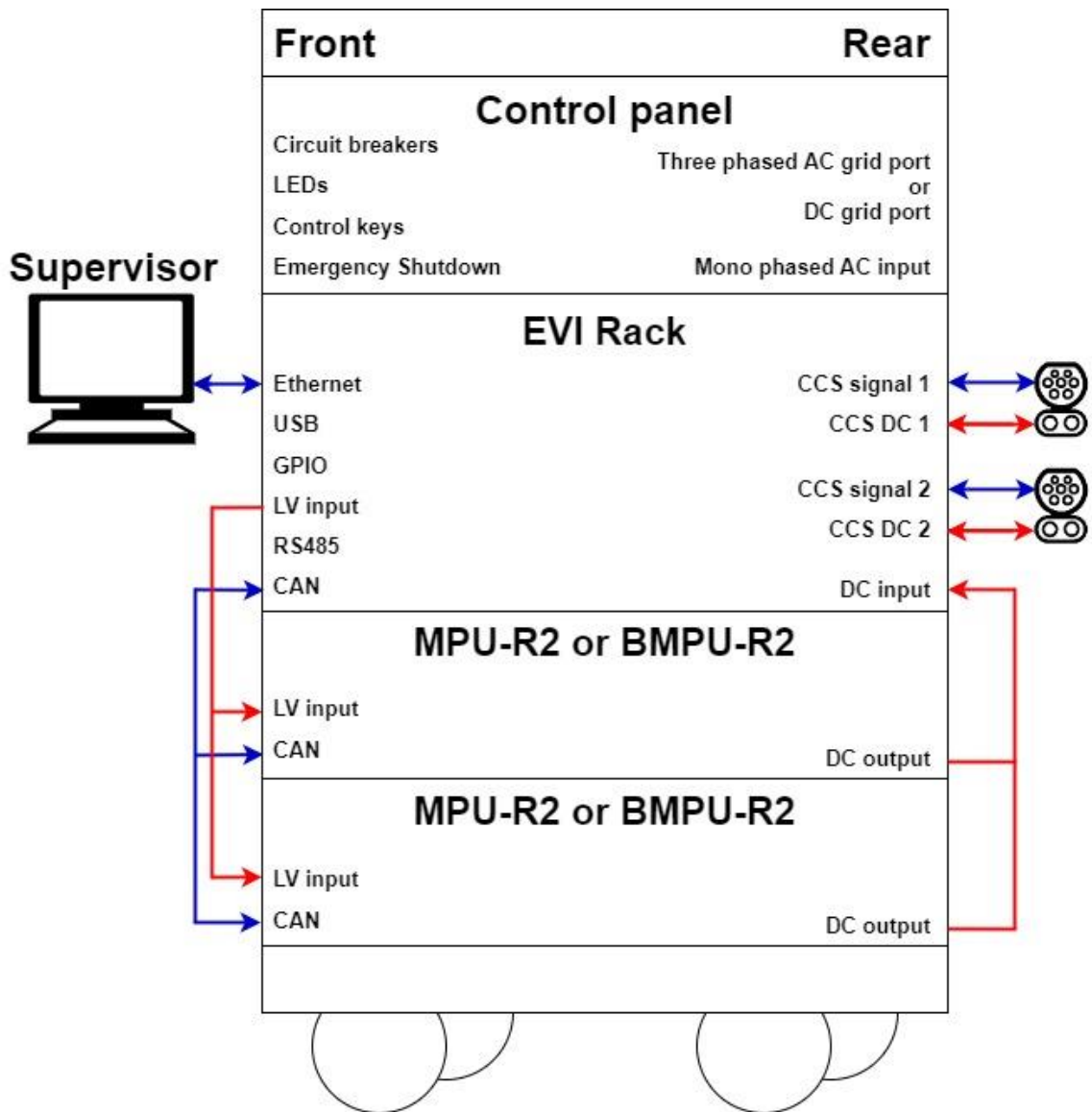


Figure 1: Starter Kit black box bloc diagram

2 Electrical Characteristics

Table 1: Electrical characteristics

PARAMETER	CONDITION	VALUE			UNITS
		MIN	TYP	MAX	
HV DC Measurement for IMD					
Voltage measurement range				920	V
Voltage measurement accuracy	Full range		5	10	V
CAN communication					
CAN baud rate			500		Kbps
CAN common mode range		-7		7	V
Auxiliary AC grid					
Supply voltage		207	230	253	V _{RMS}
Input current			6	16	A
HV SK-VIG-AC					
Supply voltage (phase to neutral)		119.5	230	305	V _{RMS}
Input current (per phase)		0		63	A _{RMS}
Output voltage (battery)		200		920	V
Output current (battery)				100	A
Input power				44	kW
HV SK-V2G-AC					
Supply voltage (phase to neutral)		85	230	305	V _{RMS}
Input current (per phase)		-32		32	A _{RMS}
Output voltage (battery)		150 (G2V) ; 250 (V2G)		1000	V
Output current (battery)		-64		60	A
Input power		-22		22	kW
HV SK-VIG-DC					
Supply voltage		350	700	890	V
Input current		0		100	A
Output voltage (battery)		200		920	V
Output current (battery)				100	A
Input power				60	kW
HV SK-V2G-DC					
Supply voltage		110	700	800	V
Input current		-64		64	A
Output voltage (battery)		150		1000	V
Output current (battery)		-64		60	A
Input power		-22		22	kW

All specifications are given for the full temperature range unless otherwise noted.

3 Hardware specification

3.1 Starter Kit theory of operation

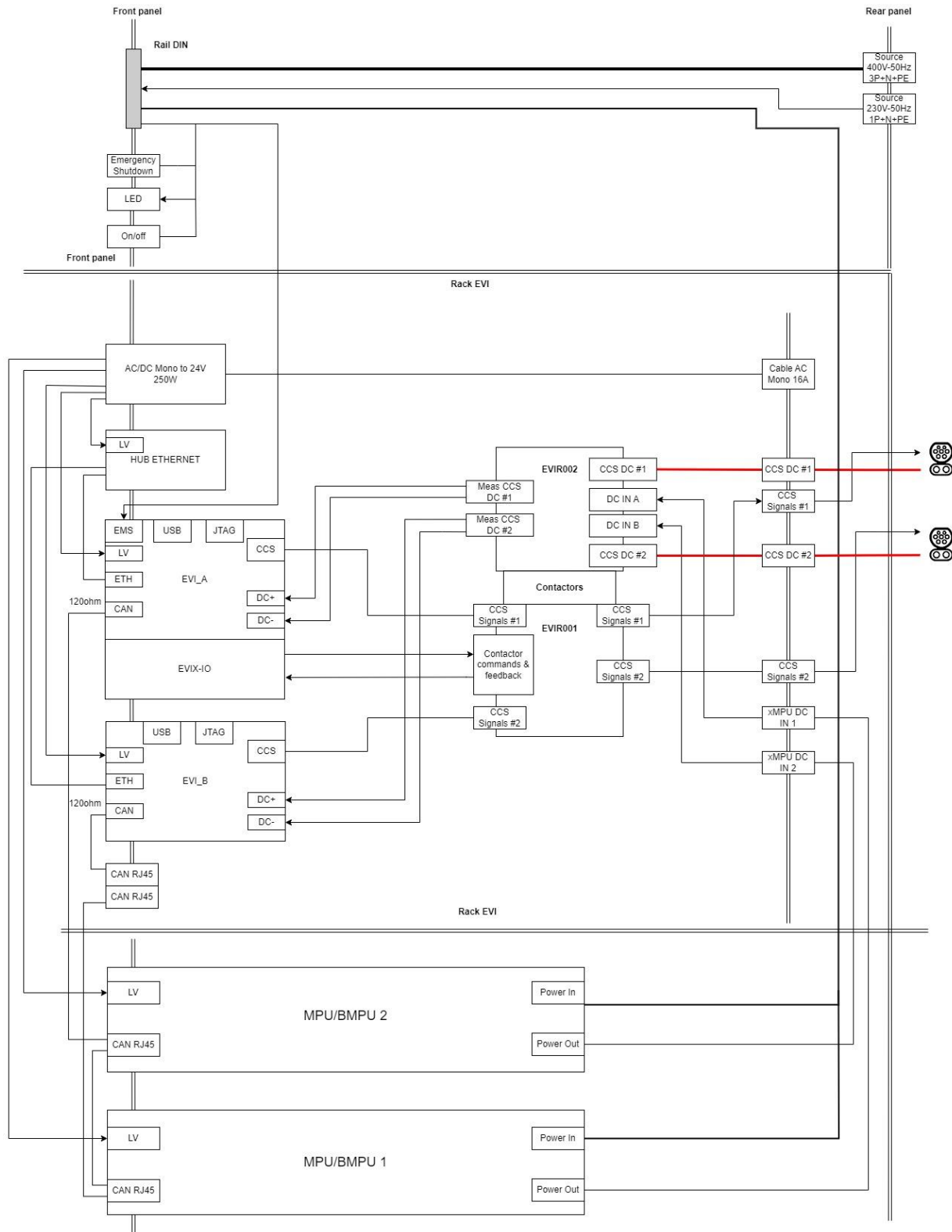


Figure 2: Starter Kit block diagram

The Starter Kit includes 2 SECCs, EVI_A and EVI_B which manage two CCS charge points. The plugs of these charge points are labelled, #1 for the one managed by EVI_A and #2 for the one managed by EVI_B.

An EVIX-IO board, plugged on the EVI_A and a contactor box allow hardware modularity for the allocation of the two power units on the charge points.

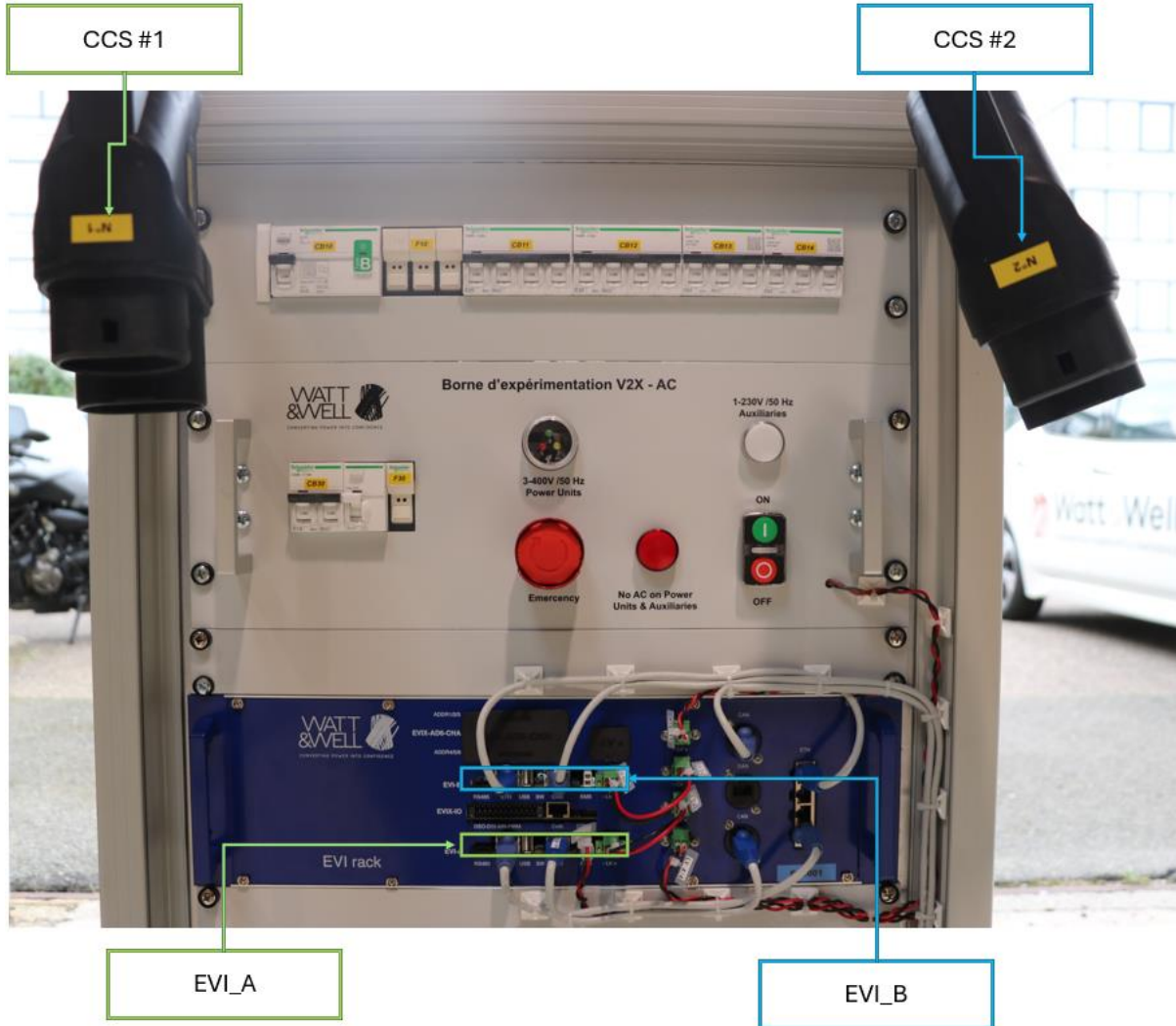


Figure 3: Starter Kit SECCs with their corresponding charge point

3.2 Starter Kit configurations

Table 2: Starter Kit configurations

Starter Kit	Conversion	Bidirectional	Power units
SK-VIG-AC	AC-DC	no	2 MPU-R2
SK-V2G-AC	AC-DC	yes	2 B MPU-R2
SK-VIG-DC	DC-DC	no	2 MPU-R2 DC
SK-V2G-DC	DC-DC	yes	2 B MPU-R2 DC

3.3 Power supply

3.3.1 Power unit power input

The three-phase AC power input is used to supply power to the two AC-DC xMPUs of the SK-VxG-AC configurations of this product.

The connector reference is Legrand 053844: straight plug Hypra - IP44 - 380/415V~ - 63A - 3P+N+E - plastic

https://assets.legrand.com/pim/DOCUMENT/cm222600_0098-0099.pdf

Recommended mating connector:

Legrand 053774: Panel appliance inlet Hypra - IP44 - 380/415V~ - 63A -3P+N+E - plastic

Table 3: Pinout AC 3P+N+E AC connector

PIN	FUNCTION	Preferred wiring color
P1	Phase 1	Brown
P2	Phase 2	Black
P3	Phase 3	Grey
N	Neutral	Blue
PE	Protective Earth	Green and Yellow striped



Figure 4: straight plug Hypra - IP44 - 380/415V~ - 63A -3P+N+E - plastic

Two heavy duty terminal blocs are used to supply power to the DC-DC configurations of the Starter Kit.

The connector reference is Phoenix Contact 3247976: Bolt connection terminal block RBO 10-HC 25-150mm² -309A

https://www.phoenixcontact.com/product/pdf/api/v1/MzI0Nzk3Ng?_realm=fr&_locale=fr-FR&blocks=commercial-data%2Ctechnical-data%2Cdrawings%2Capprovals%2Cclassifications%2Cenvironmental-compliance-data%2Call-accessories

Recommended mating connector: 2x 25mm² wires with ring terminals adapted to your DC setup.

Pinout DC to be completed.

3.3.2 Low voltage input

The AC power input is used to supply power to the control panel, internal power supply and very low voltage inputs of the subsystems of this product.

The connector reference is Legrand 050114: straight outlet screw terminal plug, 2P+T, 16A.
Ref Legrand 050114

<https://assets.legrand.com/pim/NP-FT-GT/F01040FR-01.pdf>



Figure 5: straight outlet screw terminal plug, 2P+T, 16A

3.3.3 DIN Rail appliance and other components

More info in Annex A and B: wiring schematics.

To be completed.

3.4 Power Units

The starter Kit features two Watt & Well Power Units.

Depending on the Starter Kit configuration, the two power units are:

- SK-V1G-AC: 2 MPU-R2-920-100-FD (unidirectional, AC-DC charging setup)
- SK-V2G-AC: 2 BMPU-R2-500-32 (bidirectional, AC-DC charging setup)
- SK-V1G-DC: 2 MPU-R2-DC-920-100 (unidirectional charging, DC-DC charging setup)
- SK-V2G-DC: 2 BMPU-R2-500-32-DC-HV (bidirectional charging, DC-DC charging setup).

More information about these products can be found on the corresponding datasheets:

[MPU-R2-920-100-FD](#)

[BMPU-R2-500-32](#)

[MPU-R2-DC-920-100](#)

[BMPU-R2-500-32-DC-HV](#)

3.5 EVI Rack 3U

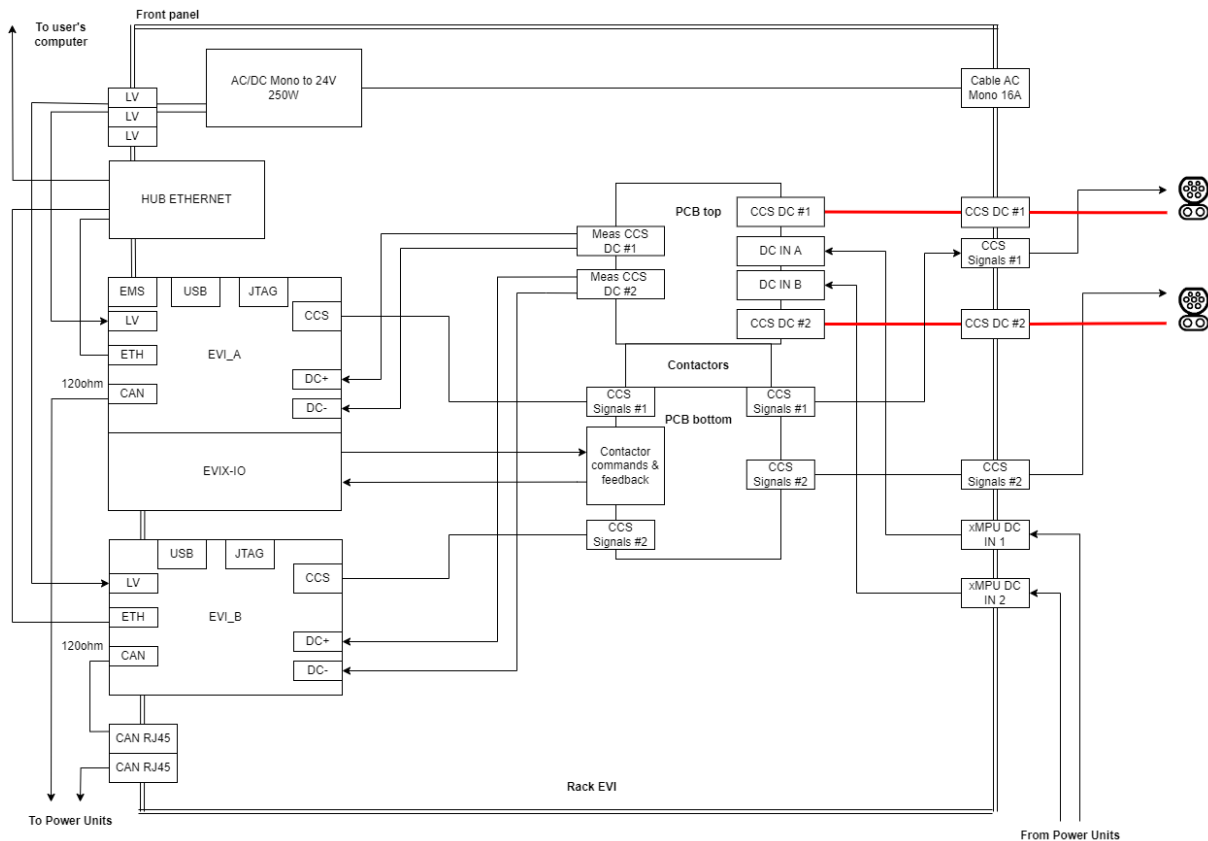


Figure 6: EVI Rack block diagram

The EVI Rack included in the Starter Kit contains:

- 2 EVIs for managing two charge points
- an EVIX-IO and custom PCBs to manage 9 contactors, allowing modular serialization and parallelization of the Power Units on the charge points.
- LV alimentations for the Starter Kit subsystems
- An ethernet hub
- An RJ45 splitter for the CAN bus.

3.5.1 EVSE Controllers

The 2 controllers (SECC) in the Starter Kit are [EVI-C2-O](#).

This version of the SECC is compliant with V2G, V2L applications. It is also compatible with OCPP for communication with a Charging Station Management System (CSMS).

The EVIX-IO is an extension board of the EVI series. It is plugged on the EVI_A board of the Starter Kit. It grants additional GPIOs, analog inputs, PWMs and more.

For more details on this product please consult the [datasheet](#).

3.5.2 Contactors

The EVI Rack includes 9 contactors (K1 to K9) arranged as shown in **Figure 7: contactor wiring schematic**.

These contactors are driven thanks to the DSO_PWR digital outputs of the EVIX-IO.

The reference of the contactors is Sanyou SEC150Y-1000MFL3

<https://sanyourelay.oss-cn-shenzhen.aliyuncs.com/upload/file/20220226/5732621b2ec34261b15e0cb1333d4c8e.pdf>

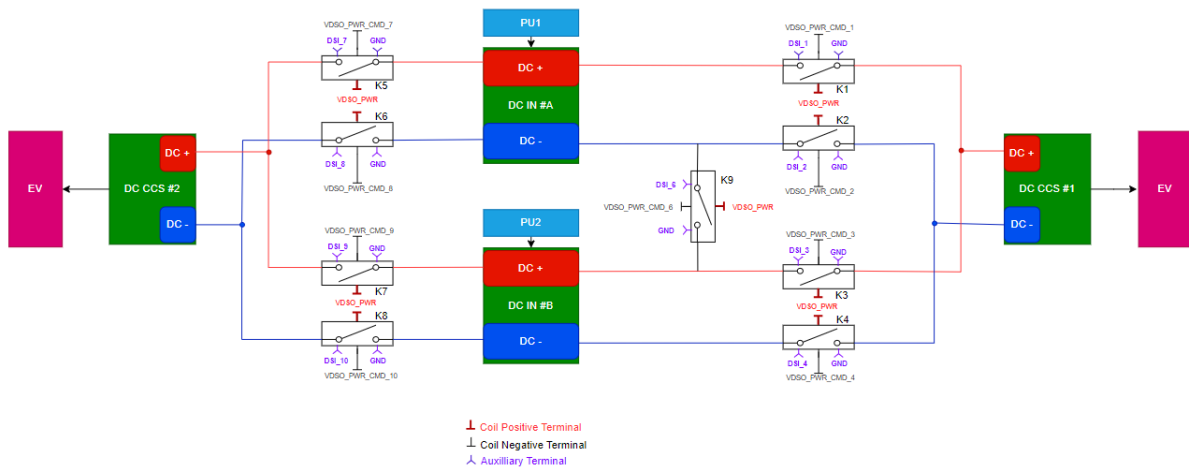


Figure 7: contactor wiring schematic

3.5.3 Contactor management

Thanks to the EVI_A and the EVIX-IO connected to it, the contactors may be individually switched.

But Watt an Well strongly advise users to always follow the contactor configurations detailed in **Table 4: Single output** and **Table 5: Dual output**.

To help with the configuration of the contactors, Watt & Well will provide configuration files. These configuration files can easily be uploaded thanks to the GUI. An EVIX-IO panel is available on the GUI of the EVI_A.

As shown in **Figure 8: Contactors and charge points management through the GUIs**:

- the GUI of EVI_A is used to supervise charges on CCS charge point number 1 and to manage contactors for charge points number 1 and 2
- the GUI of EVI_B is used to supervise charges on CCS charge point number 2.

It is also to be noted that the SK-V2G-AC is the only Starter Kit configuration where the two power units can be serialized on the same charge point. Serialization is forbidden for SK-VIG-AC, SK-VIG-DC and SK-V2G-DC.

Finally, all contactor configuration that would allocate a power unit to two charge points is forbidden.

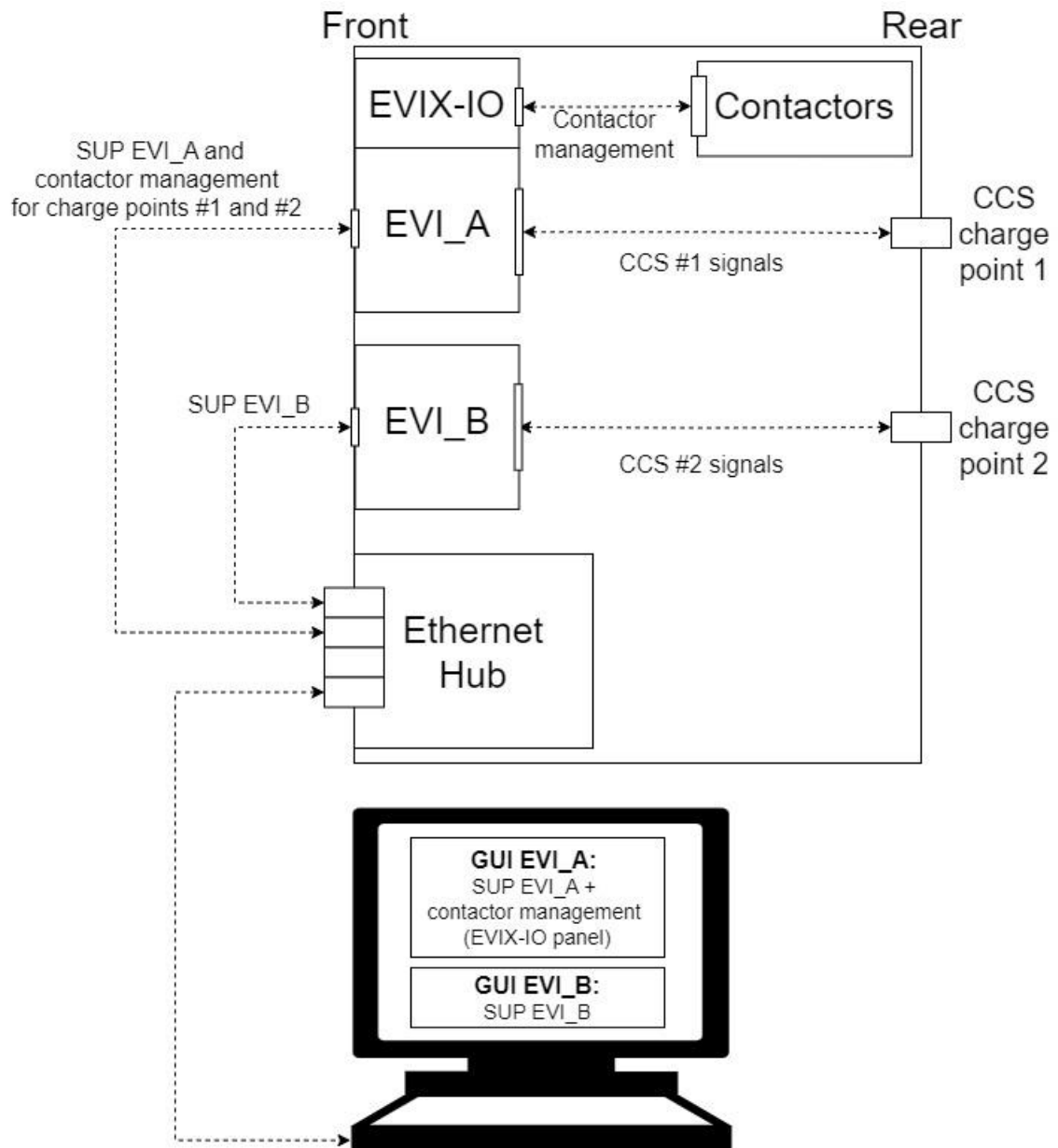


Figure 8: Contactors and charge points management through the GUIs

Table 4: Single output

Output	Configuration	DSO_PWR_1 = K1	DSO_PWR_2 = K2	DSO_PWR_3 = K3	DSO_PWR_4 = K4	DSO_PWR_6 = K9	DSO_PWR_7 = K5	DSO_PWR_8 = K6	DSO_PWR_9 = K7	DSO_PWR_10 = K8
CCS1	Parallel	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
CCS1	Series	ON	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
CCS1	PU1	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
CCS1	PU2	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
CCS2	Parallel	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON
CCS2	Series	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	ON
CCS2	PU1	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF
CCS2	PU2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON

Table 5: Dual output

CCS1 PU	CCS2 PU	DSO_PWR_1 = K1	DSO_PWR_2 = K2	DSO_PWR_3 = K3	DSO_PWR_4 = K4	DSO_PWR_6 = K9	DSO_PWR_7 = K5	DSO_PWR_8 = K6	DSO_PWR_9 = K7	DSO_PWR_10 = K8
PU1	PU2	ON	ON	OFF	OFF	OFF	OFF	OFF	ON	ON
PU2	PU1	OFF	OFF	ON	ON	OFF	ON	ON	OFF	OFF

3.6 CCS outputs

The DC power outlets are CCS plugs.

The CCS outlets cable length is 5m and they each weigh 10kg.

The reference of these outlets is Phoenix Contact EV-T2M4CC-DC150A-5,0M35ESBK11.

<https://www.phoenixcontact.com/fr-fr/produits/cables-de-charge-dc-ev-t2m4cc-dc150a-50m35esbk11-1095767>



Figure 9: Phoenix Contact EV-T2M4CC-DC150A-5,0M35ESBK11

3.7 Front panel command and feedback (AC configuration)

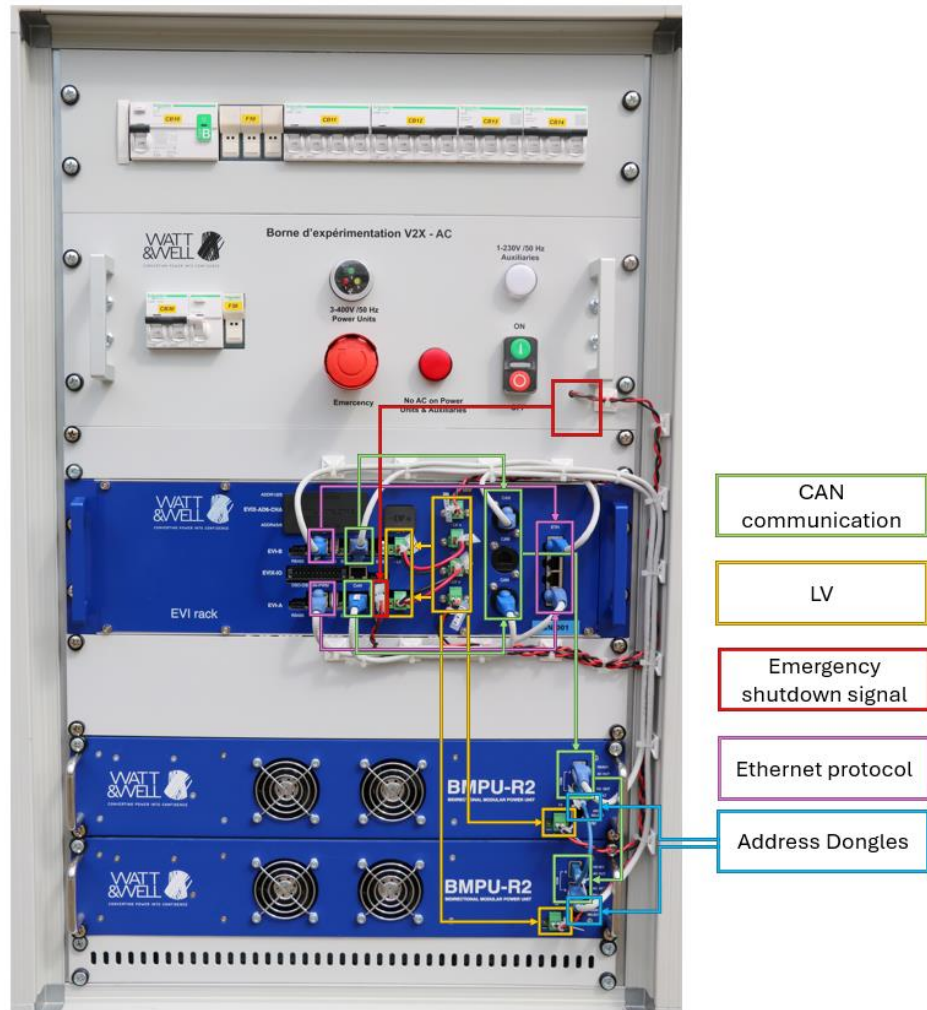


Figure 10: Starter Kit block front panel interfaces

3.7.1 LEDs

The Starter Kit front panel includes 3 sets of LEDs:

Table 6: Front panel LEDs

LEDs	FUNCTION
Triplet of LEDs	Presence of the three-phase AC input
White LED	Presence of the single-phase AC input
Red LED	Three-phase AC input contactor open

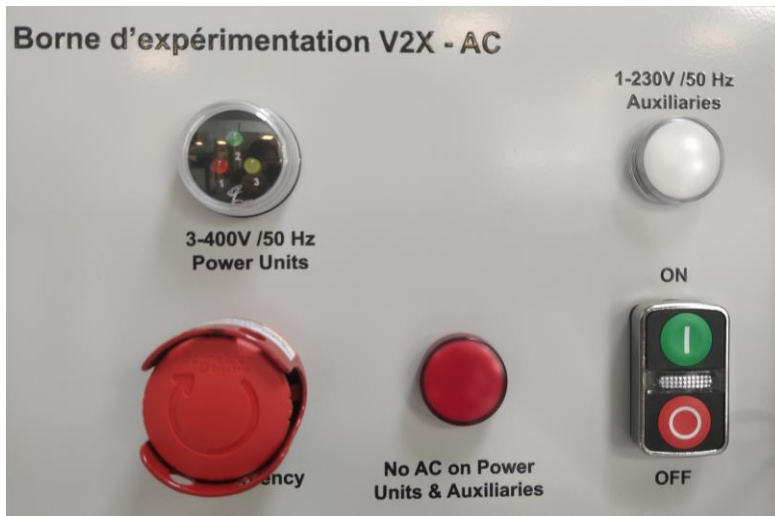


Figure 11: Starter Kit LEDs

3.8 Front panel other interfaces

3.8.1 Ethernet port

An Ethernet 100Mbit RJ45 port connected to embedded Linux is available on EVI.

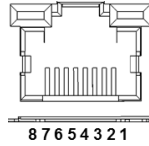


Figure 12: Ethernet connector

Table 7: Ethernet connector pinout

PIN	FUNCTION	DESCRIPTION
1	ETH1_TX_P	Ethernet TX Differential Output (plus)
2	ETH1_TX_N	Ethernet TX Differential Output (minus)
3	ETH1_RX_P	Ethernet RX Differential Input (plus)
4	ETH1_VIO_SWITCHED	Analogue power supply Output to magnetics
5	ETH1_VIO_SWITCHED	
6	ETH1_RX_N	Ethernet RX Differential Input (Minus)
7	Unused	-
8	Shield = PE	Shield is connected to PE

3.8.2 RS485 port

EVI provide RS485 half-duplex port for interface with external devices.
 Connector Reference (board side): Molex 436500312

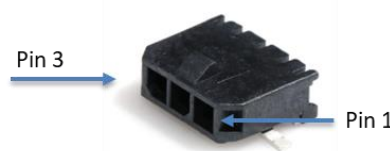


Figure 13: Molex – 436500312

Table 8: RS485 connector pinout

PIN	FUNCTION	DESCRIPTION
1	RS485_A	Half duplex RS485, Signal A
2	GND	Ground
3	RS485_B	Half duplex RS485, Signal A

Recommended mating connector: [Molex 1718500300](https://www.molex.com/products/molex-1718500300)



Figure 14: Molex – 1718500300

3.8.3 USB port

USB port is an USB A standard type.

They are not designed to handle any mechanical effort. Any force exerted on them beyond their designed limits can result in damage to the device.

To avoid damaging USB connectors, please:

- Do not force the connector into the port. Make sure it is aligned correctly before plugging it.
- Keep your USB cables organized. Avoid tangling them to prevent unnecessary stress on the connector.
- Avoid exposing the connector to extreme temperatures, water, dust, or any other contaminants.

3.8.4 Other EVIX-IO front panel connectors

For more information about the EVIX-IO front panel connectors, please refer to the section 4.12 of the EVI datasheet:

<https://wattandwell.com/app/uploads/EVI-Cx-Ax-datasheet.pdf>

4 Software specifications

The following paragraphs explain the overall architecture and communication of a Starter Kit. A step-by-step example as well as all the CAN Bus interfacing information can be found in the “EVI-AN005-Technical Reference Manual” document.

4.1 System communication

4.1.1 Communication Characteristics

Communication between the system devices is based on CAN communication following the CAN open protocol with the following characteristics:

4.1.1.1 CAN configuration

- CAN 2.0A
- 500 kbit/s
- Little endian byte order

4.1.1.2 Node IDs and heartbeats

Each node has a unique Node ID and Heartbeat ID. It automatically transmits its communication state at regular intervals as evidence of its communication ability. All CAN devices in the system have a specific Node ID in accordance with to the following table:

Table 9: CAN addressing of the devices in the bus

Board	Description	CAN ID (base 10)	CAN ID (base 16)	Heartbeat ID (base 16)
Diag GUI	Diag GUI	1	0x1	0x701
Supervisor#1	Supervisor#1	2	0x2	0x702
Supervisor#2	Supervisor#2	3	0x3	0x703
EVIS A	Charge point manager on side A	16	0x10	0x710
EVIS A	ISO15118 & DIN70121 stack manager on side A	17	0x11	0x711
EVIS B	Charge point manager on side B	32	0x20	0x720
EVIS B	ISO15118 & DIN70121 stack manager on side B	33	0x21	0x721
MPU 0	Power unit 1	80	0x50	0x750
MPU 1	Power unit 2	81	0x51	0x751
BMPU 0	Bi-directional power unit 1	94	0x5E	0x75E
BMPU 1	Bi-directional power unit 2	95	0x5F	0x75F

4.2 Software API for EVIX-IO

Please refer to document “EVI-AN005-Technical Reference Manual”.

5 Mechanical specifications

5.1 Starter Kit dimensions

- Length: 800 cm
- Width: 596 cm
- Height: 1026 cm
- Weight: 146 kg

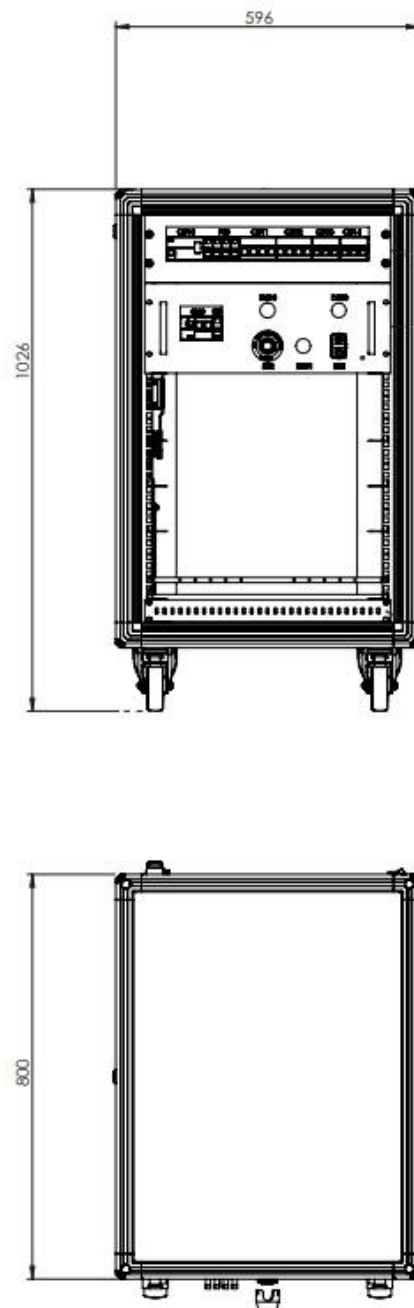


Figure 15: Starter Kit dimensions

6 Safety instructions

6.1 Caution

The following safety instruction must be observed during all phases of operation, service and repair of this equipment. Failure to comply with the safety precautions or warnings in this documentation violates safety standards of design, manufacture and intended use of this equipment and may impair the built-in protections within. Watt & Well shall not be liable for users to comply with these requirements.

6.2 Installation

The Starter Kit contains live circuits involving high voltage that can result in electrical shock, fire hazard and/or personal injury if not properly handled or applied.

This product is a safety Class I instrument. To minimize shock hazard, the instrument chassis must be connected to the grounding copper bus bar.

The protective earth terminal must be connected to the safety electrical ground before another connection is made. Any interruption of the protective ground conductor, or disconnection of the protective earth terminal will cause a potential shock hazard that might cause personal injury.

Subsystems included in the Starter kit are designed to be accessible only for trained staff operators in restricted access locations. Please refer to their respective manuals before handling.

The Starter Kit is only approved for lab purposes with trained and certified staff.

6.3 Hot surface

Surface of the Power Unit subsystems could be hot during and after operation. To reduce the risk of burns, use adequate protection before handling these subsystems.

6.4 Touch current

CAUTION: A touch current > 3.5 mA AC RMS is possible in case of a fault condition of loss of electrical continuity of the earthing conductor in IT earthing systems. The minimum size of the protective earthing conductor shall comply with the local safety regulations.

6.5 Disconnection

To avoid injuries, always disconnect the power supply and remove external voltage sources before touching components.

For more information on this subject, please consult the **Maintenance** sections of the Starter Kits subsystems datasheets. They should include information about discharge times and safe operation.

6.6 Parts substitution and modifications

Parts substitutions and modifications are allowed by authorized Watt & Well service personnel only. For repairs or modification, the unit must be returned to Watt & Well's After Sale Service. Contact After Sale Service (aftersaleservice@wattandwell.com) to obtain RMA number.

WATT & WELL
 After Sale Service
 121 Rue Louis Lumière, 84120 PERTUIS, FRANCE

6.7 Environmental condition

Starter Kit safety approval applies to the following operating conditions:

- Maximum relative humidity : 95% at 30°C
: 23% at 60°C non-condensing
- Altitude : up to 2000m
- Pollution degree : 2¹
- IP code : IP2X



Protective ground conductor terminal.



Frame or chassis grounding terminal.

6.8 Standards

Starter Kit subsystems have been designed to be compatible with the following norms and charging protocols (see datasheets of products for details):

Table 10: Standards

Standards	Title	Topic
IEC 61851-1	Electric vehicle conductive charging system – Part 1: General requirements	General requirements for EV charging devices.
IEC 61851-23	Electric vehicle conductive charging system – Part 23: DC electric vehicle charging station	Requirements for DC EV charging devices.

¹ Attention should be paid to avoid ingress of water, metallic or conductive particles, dust or corrosive atmospheric that may cause early failures of equipment.

DIN SPEC 70121	Electromobility – Digital communication between a DC EV charging station and an electric vehicle for control of DC charging in the Combined Charging System	Specifies the DC specific communication between EV and EVSE.
ISO 15118	Road vehicles -- Vehicle to grid communication interface	Defines vehicle to grid communication interface for bi-directional charging/ discharging of EVSE.

For bidirectional applications, Watt & Well BMPUs are compliant with several grid codes. Please refer to the corresponding datasheets for more information:

- [BMPU-R2-500-32](#)
- [BMPU-R2-500-32-DC-HV](#)

It is the user’s responsibility to ensure that Starter Kit is installed and used in compliance with all local country laws and regulations.

6.9 Disposal



(Mandatory application within the European Union)

Do not dispose of electronic tools together with household waste material. In accordance with WEEE European Directive (2012/19/UE), Electric material that have reach the end of their life must be collected separately and returned to an environmentally compatible recycling facility. Please contact Watt & Well for any questions about WEEE.

6.10 Security Disclaimer

This product is designed to be connected to and to communicate information and data via a network interface. It is Customer's sole responsibility to provide and continuously ensure a secure connection between the product and Customer network or any other network (as the case may be). Customer shall establish and maintain any appropriate measures (such as but not limited to the installation of firewalls, application of authentication measures, encryption of data, installation of antivirus programs, etc) to protect the product, the network, its system and the interface against any kind of security breaches, unauthorized access, interference, intrusion, leakage and/or theft of data or information.

In particular, the default password should be changed on first use by the Customer.

7 Installation

The unit must be properly assembled in accordance with the assembly instructions before it is used.

Do not use or install product in case of visible physical damage.

7.1 Mechanical installation

7.1.1 Handling

Overall weight of 146 kg.

EVI 19" Rack, BMPU and MPU weigh respectively 12 kg, 14.7 kg and 22 kg.

The Starter Kit is mounted on four casters. Two of these are directional and have caster brakes.

For correct handling of these subsystems, follow instructions below:

- The product and its subsystems must be handled flat.
- For operator safety use personal protective equipment.
- Do not stack units (each unit should be self-supported and secured with the front and rear brackets, as received).

7.1.2 Mounting

The Starter Kit should be delivered fully mounted apart from the four handles of the product. These handles are provided with the product and should be fixed to the top panel corners. They can be used to handle the Starter Kit and to hang the Power Cables for easier handling.

7.2 Electrical installation

7.2.1 Legal installation

Electrical installation shall comply with international standards such as IEC or the requirements in national standards of each country.

7.2.2 Power connection (AC configuration)

Plug the single-phase power input.

The white indicator should light up, it shows the presence of 230V AC input.

Plug the three-phase power input.

The bubble with a set of 3 LEDs (Red, Green, Yellow) should light up to show the presence of each phase.

Never invert polarity of the connectors. Never force to insert a connector. Use only approved manufacturer parts for electrical or mechanical connections.

It is strongly recommended to fix the cables to avoid any stress on the connection. All high-power connectors must be screwed to avoid any disconnection.

Be careful if other devices are connected, there is a risk of electrical charge transfer.

7.3 Protective earth installation

Electrical installation shall comply with international standards such as IEC or the requirements in national standards of each country.

The protective earth (PE) terminal must be connected to the safety electrical ground before another connection is made. Any interruption of the protective ground conductor, or disconnection of the protective earth terminal will cause a potential shock hazard that might cause personal injury. Use conductive material and/or ensure that chassis where Starter Kit is installed is grounded to ensure correct connection.

7.4 Disconnection and storage

Disconnect every CCS plugs from the rear panel.

Wind the CCS cables around the handles on the top rear corners. One CCS cable per handle.

Disconnect every peripheral, computer, or other equipment connected to the front panel of the Starter Kit.

Disconnect the three-phase AC input.

Wind the CCS cable to one of the remaining top corner handles.

Disconnect the single-phase AC input.

Wind the CCS cable to the remaining top corner handle.

Release the caster brakes and push the Starter Kit to its storage space.

The storage space should be indoors. In a dry place between -30 and 70°C.

Once at its storage space, lock in the caster brakes.

8 Instructions for use

8.1 Setting up

Choose an indoor location where you can have access to the equipment and vehicles required for your test. The vehicle can be outdoors with the CCS cables going from indoor to outdoor.

Move the Starter Kit in this location. The access to the front panel must stay easily accessible for the whole testing session. This front panel includes circuit breakers and the EMS push button. No obstructions should impact the accessibility of these elements while using the Starter Kit.

Once the Starter Kit is positioned and its casters locked, plug the power inlets as described in section 8.2.2.

Once these steps have been done, you will be able to connect a computer to the Ethernet port of EVI_A to launch a first charge.

The document *Starter Kit – From delivery to first charge* will provide all the necessary instructions for an easy and safe first use of the Starter Kit:

<https://wattandwell.com/app/uploads/Starter-kit-From-delivery-to-first-charge-guide.pdf>

8.2 Personal protective equipment and security

When handling subsystems of the Starter Kit such as Power Units, other PPE such as security shoes or boots is mandatory.

9 Maintenance

No Hardware maintenance is required on this product.

Early based maintenance packages are recommended to provide software updates, engineering support, Service Level Agreement, and interoperability tests.

For further details, please get in touch with contact@wattandwell.com

9.1 Cleaning

Use a soft cloth for cleaning the external parts of the device. Do not use cleaning agent. Internal dust can be removed with dry air cleaning.

9.2 Parts replacement

Parts substitutions and modifications are allowed by authorized Watt & Well service personnel only.

For repairs or modification, the unit must be returned to Watt & Well's After Sale Service. Contact After Sale Service (aftersales@wattandwell.com) to obtain a return merchandise authorization (RMA) number.

WATT & WELL After Sale Service
121 Rue Louis Lumière, 84120, PERTUIS, France

10 Ordering information

10.1 Products References

Starter Kit product:



Ordering Configuration: **SK-VxG-xC**

Table 11: Order code description

Configuration	Description
V1G	Charge only
V2G	Bidirectional charging towards grid or other application
AC	AC grid to DC charging
DC	DC to DC charging

10.2 Product accessories

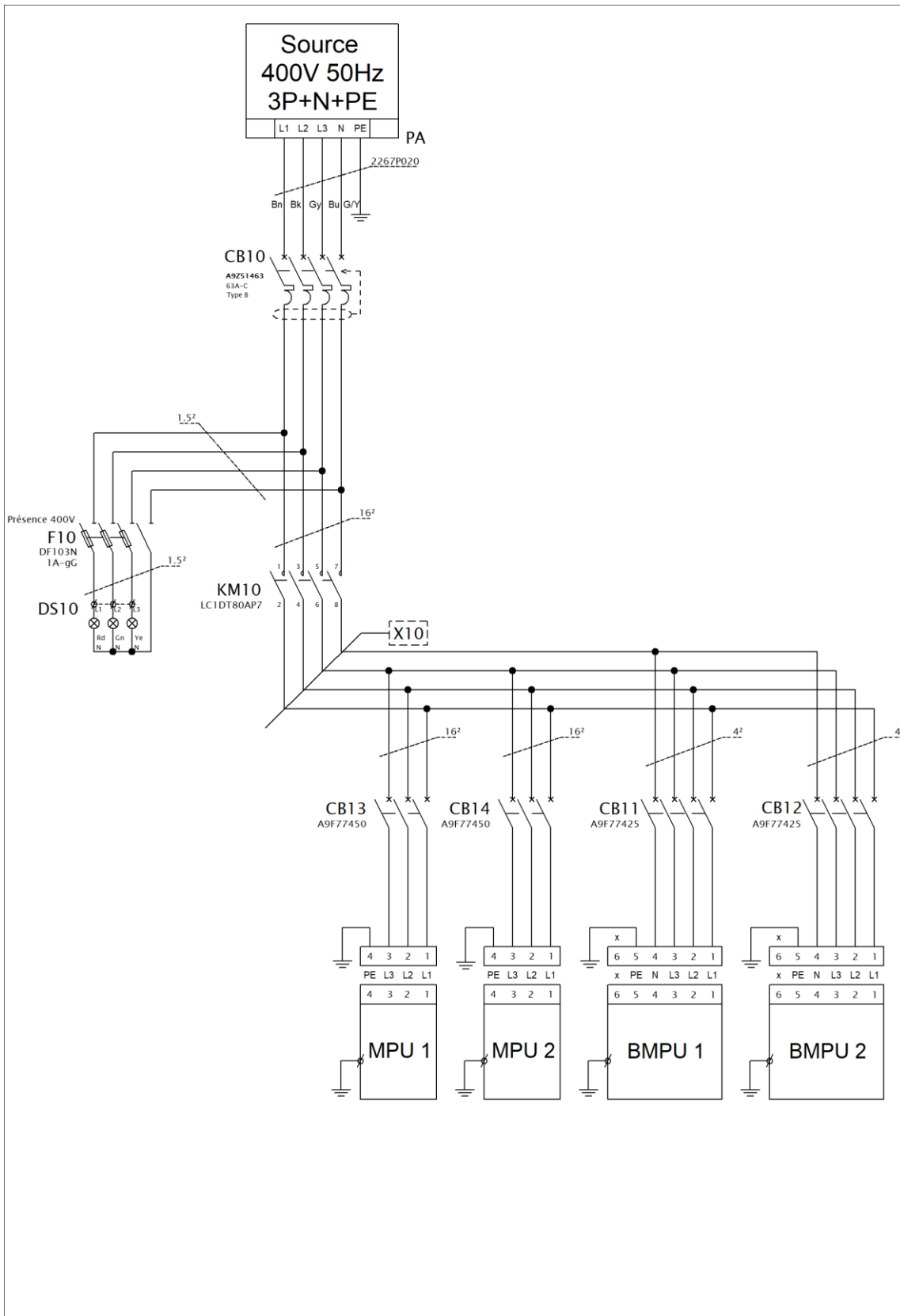
Table 12: Product accessories

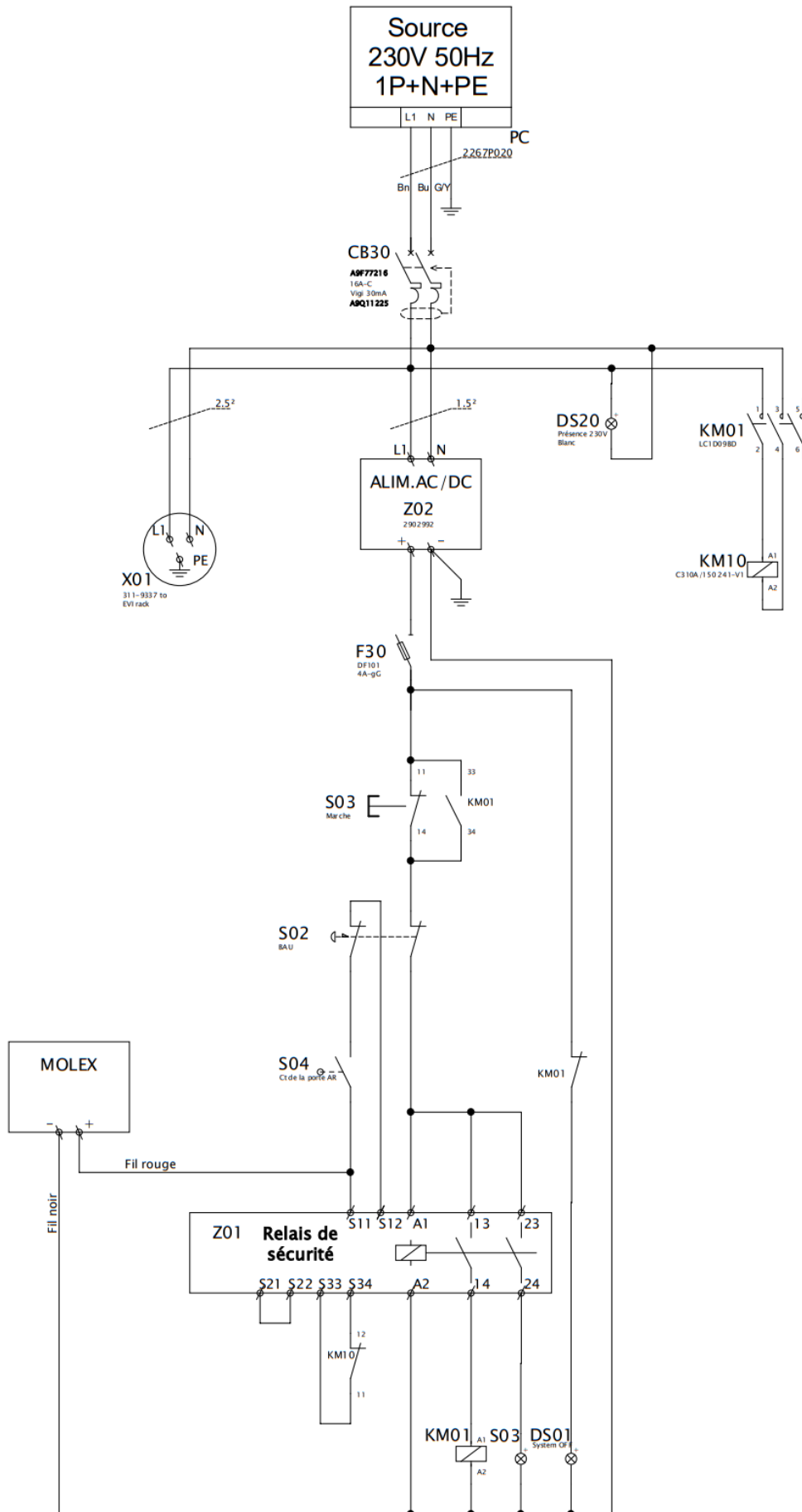
WA007 – CAN bus adaptor from RJ45 to DB9 Including: - 120 Ω termination resistance	
WA009 – USB to CAN transceiver (Kvaser) Compatible with MPU Monitor (versions from 2019 onwards)	

contact@wattandwell.com

+33 1 75 5 11 50

ANNEXE A. Wiring schematics AC





ANNEXE B. Wiring schematics DC

