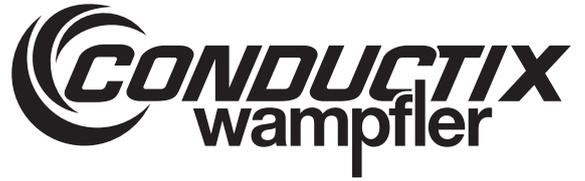
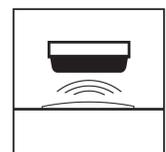
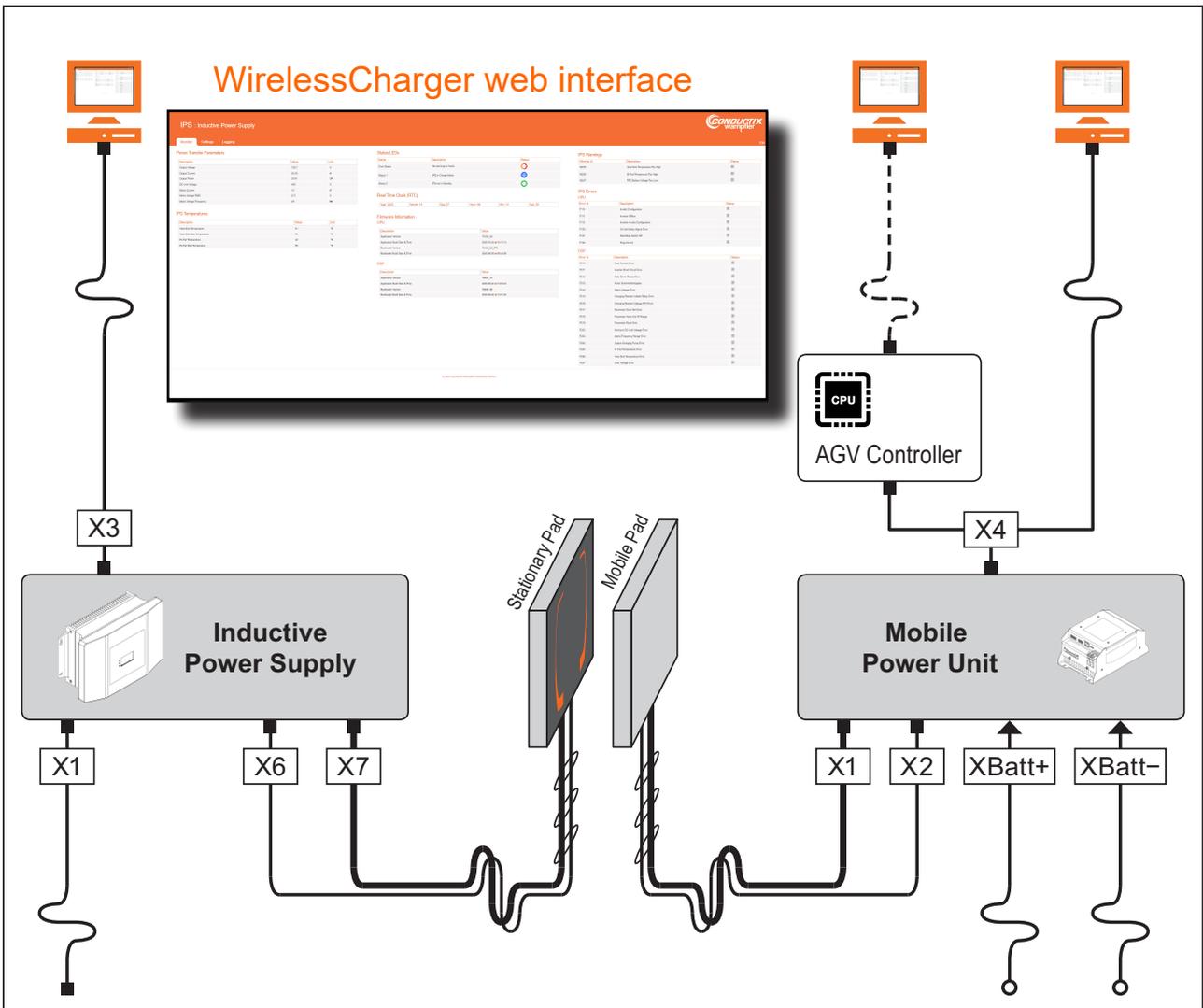


Software description



WirelessCharger 3.0

WirelessCharger web interface



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Table of contents

1	General information	5
1.1	Revision history	5
1.2	Validity	5
1.3	Applicable documents	5
1.4	Abbreviations used	6
1.5	Copyright protection	7
1.6	Illustrations	7
1.7	Brands	7
2	Licence agreement	9
3	Set up network connection	13
4	IPS web interface	17
4.1	Starting and logging in	17
4.2	Setting the language	19
4.3	‘Monitor’ tab	20
4.3.1	Power transfer parameters	21
4.3.2	IPS temperatures	21
4.3.3	Status LEDs	23
4.3.4	Real-Time Clock (RTC)	24
4.3.5	Firmware information	25
4.3.6	IPS warnings	25
4.3.7	IPS errors	27
4.4	‘Settings’ tab	29
4.4.1	Password management	30
4.4.2	Network Configuration	31
4.4.3	Product information	33
4.4.4	Reset changes	34
4.4.5	IPS temperature	35
4.4.6	Real-Time Clock (RTC)	37
4.4.7	Administrator – logout	37
4.4.8	CPU/DSP firmware update	38
4.4.9	IPS configuration file	43
4.5	‘Logging’ tab	46
5	MPU web interface	49
5.1	Starting and logging in	49
5.2	Setting the language	51
5.3	‘Monitor’ tab	52

5.3.1	‘Manual’ charging mode.....	53
5.3.2	‘BMS only’ charging mode.....	54
5.3.3	‘BMS & PLC’ charging mode.....	55
5.3.4	‘PLC only’ charging mode.....	57
5.3.5	MPU Warnings.....	58
5.3.6	MPU Errors.....	58
5.3.7	Power Management.....	60
5.3.8	Measurement.....	64
5.3.9	Battery Management System (BMS).....	65
5.3.10	PLC Controller.....	69
5.3.11	Real-Time Clock (RTC).....	71
5.3.12	Status LEDs.....	72
5.3.13	Software Information.....	73
5.4	‘Settings’ tab.....	75
5.4.1	Password management.....	76
5.4.2	Reset MPU errors & warnings.....	77
5.4.3	Charging Power Management.....	78
5.4.4	Temperature threshold.....	91
5.4.5	Reset changes.....	92
5.4.6	Configuration.....	92
5.4.7	Administrator – logout.....	98
5.4.8	Real-Time Clock (RTC).....	98
5.4.9	Product information.....	99
5.4.10	Firmware restart.....	100
5.4.11	Firmware update.....	101
5.4.12	Factory reset.....	104
5.4.13	MPU configuration file.....	105
5.5	‘Logging’ tab.....	108
6	Customer service and addresses.....	111
7	Index.....	113

1 General information

1.1 Revision history

We reserve the right to make changes to the information present in this document, which result from our constant effort to improve our products.

Version	Date	Comment/reason for change
1	08.2024	First released version (previous version SWB_0021) – Improved web interface

1.2 Validity

These instructions apply to the following firmware and bootloader versions:

Inductive Power Supply (IPS)	CPU	
	Firmware	Bootloader
	75104_04 75104_06	75100_02_IPS

Inductive Power Supply (IPS)	DSP	
	Firmware	Bootloader
	78007_70	78008_06

Mobile Power Unit (MPU)		
	Firmware	Bootloader
	75102_22	75100_02_MPU

1.3 Applicable documents

The documents contained in the project documentation also apply if the device / system is part of a project-specific system plan.

Their own documentation applies to connected devices and components.

Technical documentations

Hardware	Associated description
IPS 3.0 Inductive Power Supply	 TNB_0083_IPS30
ISP 3.0 Inductive Stationary Pad	 TNB_0073_ISP30_IMP30
IMP 3.0 Inductive Mobile Pad	
MPU 3.0 Mobile Power Unit	 TNB_0085_MPU30



The documents are included in the scope of delivery of the respective device or can be downloaded from our website www.conductix.com.

1.4 Abbreviations used

AGV	Automated Guided Vehicle (an unmanned transport vehicle)
BMS	Battery Management System
CAN	Controller Area Network (serial bus system)
CPU	Central Processing Unit (Interface electronics of the Inductive Power Supply)
DHCP	Dynamic Host Configuration Protocol (network protocol for automatic assignment of IP configuration parameters)
DSP	Digital Signal Processor (inverter electronics of the Inductive Power Supply)
IMP IM Pad	Inductive Mobile Pad (mobile charging pad)
IPS	Inductive Power Supply (stationary power supply)
ISP IS Pad	Inductive Stationary Pad (stationary charging pad)
LED	Light-emitting diode
MPU	Mobile Power Unit (mobile power supply)
PLC	Programmable Logic Controller (PLC/system controller)
RTC	Real-Time Clock
SOC	State of Charge
TCP	Transmission Control Protocol
UDP	User Datagram Protocol (minimum network protocol)

1.5 Copyright protection

The contents, texts, drawings, pictures and other illustrations of this description are protected by copyright and subject to intellectual property rights. Any misuse is punishable by law.

Reproduction in whole or in part of this description is only permitted within the limits of the legal provisions of the copyright law. Any modification or shortening of the text is prohibited without the explicit written consent of Conductix-Wampfler Automation GmbH.

1.6 Illustrations

The illustrations that accompany this description have been purposely selected. They are provided for basic understanding and may differ from the actual design. No claims shall be accepted for possible discrepancies.

1.7 Brands

The popular names, trade names, production descriptions, etc. used in this description may constitute trademarks even without special designations and as such may be subject to legal requirements.

2 Licence agreement

Licence agreement regarding the use of software or a software package of Conductix-Wampfler Automation GmbH

End User Licence Agreement (EULA) for the transfer of the present software or software package (hereinafter referred to as "software"). Please read the following software usage agreement carefully before using the supplied software. By downloading and installing the software you agree to respect the regulations stated in these licensing agreements.

The following software user agreement applies between you – hereinafter referred to as *'the user'* and the company Conductix-Wampfler Automation GmbH, 14478 Potsdam – hereinafter referred to as *'the manufacturer.'* This licence agreement gives you permission to use one piece of software (e.g. from www.conductix.com).

If you disagree to the following licence agreements, you are not allowed to save and/or install the software. If you have already installed the software but disagree to the licence agreement, please delete or uninstall the software immediately.

1. Object of the licence agreement

The object of the licence agreement is the software which you receive either directly or through the website. This software package provides you with various programs, which you support during the commissioning and operation of systems that have components and equipment of the company Conductix-Wampfler Automation GmbH.

2. Geographical restrictions

None

3. Rights of use

All rights of use pursuant to this Agreement are subject to the terms and conditions stated in Section 2 "Geographical restrictions". The software is licensed and may be subject to charges. If a piece of software is marked as "Free" on the website, it contains no automated checking of licences by the manufacturer.

The user can order a limited and non-transferable demo licence of the supplied software, depending on availability. The demo licence is free and time-restricted and/or runs with reduced functionality. The user has the option of purchasing a full licence at the currently applicable prices. He is thereby granted a temporally unrestricted, single and non-transferable user licence for the supplied software.

It is prohibited to edit/alter, modify, disassemble, decompile or to apply other methods of reverse engineering to the provided software, to circumvent its licensing mechanism or to engage third parties to perform these tasks, as far as this is not absolutely necessary for exercising rights resulting from the licences of any included Open Source components.

This software may include components with an Open Source licence. These components are subject to the contents of the respective Open Source licences, as also stated in the software. The list of installed components and their associated licence terms can be seen before purchasing and is included in the software. The licence holder of the Open Source software used is provided with a single right of use by the respective right holders under the conditions provided in the applicable licence terms. These licence terms apply exclusively to those components which are not subject to an Open Source licence.

The manufacturer holds all further rights to the use and implementation of the software.

4. Guarantee

4.1 The manufacturer essentially guarantees the functionality described in the product help or in the data sheet for the installed software. The following limitations apply. There is no specific guarantee that the software meets the requirements of the user, fulfils the purpose of his intention or that it is compatible with all other programs of his choice, unless interfaces to these programs are explicitly agreed to in writing.

4.2 As agreed to and recognized by the user, the current state of knowledge and technology does not permit the creation of software that operates error-free under all application conditions. A negative deviation of the agreed nature of the contractual object only exists if there is a substantial impairment in a normal operating situation. On the other hand, there is no negative deviation of the agreed nature of the contractual object if there is an impairment in an exceptional situation.

4.3 The user must examine the software provided immediately, ensure that it is properly suitable and report all initial or later occurring faults immediately to the manufacturer with enough details to allow the error to be reproduced. He undertakes to provide documentation on the nature and occurrence of the error and thus to assist in isolating and correcting errors. The user assumes all responsibility for the selection, installation, use, and for the intended results.

4.4 The manufacturer accepts no liability for errors caused by the following circumstances:

- **a.** Improper or inadequate maintenance or assignment of parameters
- **b.** Operation outside the software specifications
- **c.** Improper preparation and maintenance of the installation location
- **d.** Compatibility with other hardware and software not approved by the manufacturer.

4.5 The manufacturer shall remedy any software defects (including missing information in the supplied program description) reported by the user in a reasonable time frame. This is done at the manufacturer's discretion by improving or replacing it free of charge.

4.6 The liability and warranty provisions in these licence terms apply to the software as a whole in relation to the manufacturer. The liability and warranty provisions of Open Source licences apply between users and Open Source right holders.

5. Liability

The software can be used for a variety of applications. However, the user has to check himself whether it is also suitable for his intended application. After installation, the user is solely responsible for ensuring that the software functions according to his specifications.

The manufacturer is liable for intent and gross negligence. In case of slight negligence, the manufacturer is only liable for breaching an essential contractual obligation (cardinal obligation), which is essential for the proper fulfilment of the contract and on which compliance the customer may regularly rely on, and for damages arising from injury to life, body and health. The manufacturer owes the diligence customary to its field.

When determining whether the manufacturer is at fault, one has to take into account that technically speaking, no software can be produced without errors. In case of slight negligence, the liability is restricted to a sum reflecting the typical foreseeable damage; however not higher than a maximum total liability of EUR 100,000 from the contractual relationship. The manufacturer is not liable for other damages, consequential damages or damages resulting from lost profits.

The above provisions also apply to agents working on behalf of the manufacturer. Liability as per product liability law remains unaffected. The manufacturer is not liable for loss of data and/or programs if the damage results from the fact that the user failed to keep backups and thus to ensure that lost data can be restored at a reasonable cost. The user must carry out sufficient tests in a safe environment before commissioning the device and launching applications created with the software.

6. Termination of the Agreement

This usage agreement does not require termination, but ends with immediate effect as soon as the user uninstalls the manufacturer's software described here from the device and deletes all existing copies.

7. Governing law

This usage agreement underlies German law under exclusion of the UN purchase law. The place of performance and jurisdiction for all disputes arising from or in connection with this Agreement is 14478 Potsdam, Germany. Each contracting party may also bring claims before its general court of jurisdiction.

8. Severance clause

Should any provision of this Agreement be or become invalid, or should the Agreement contain a loophole, the validity of the remaining provisions shall remain unaffected. The invalid provisions or loophole shall be replaced by an appropriate provision that comes as close as possible to what the contracting parties intended originally or would have intended if they had considered the point.

3 Set up network connection

The devices have a factory-set fixed IP address. Automatically assigned network settings (DHCP) cannot be used for initial access.

To access the IPS or the MPU via the web interface, the network settings must be set manually on the PC or similar device used for this purpose. The network address of the PC must be in the same IP address range as the network address of the IPS or MPU: 192.168.1.XXX.

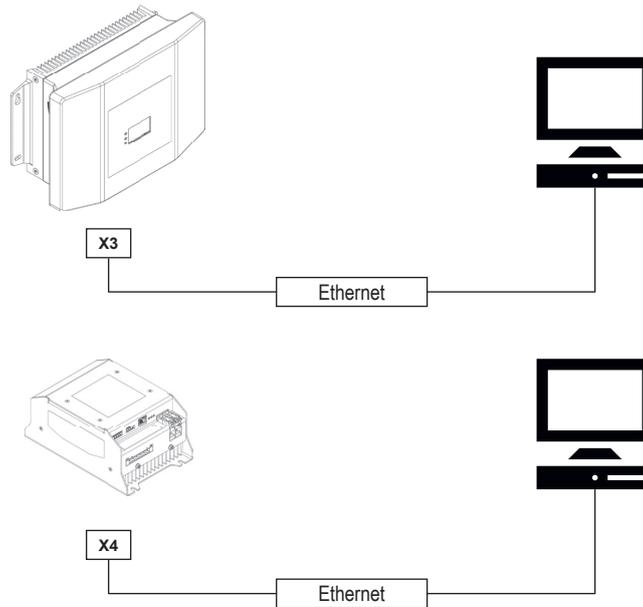


Fig. 1: Setting up a network connection for WirelessCharger

IP addresses

To start the Web interface for IPS and MPU, enter the following IP addresses or names in the address bar of the browser:

Device	IP address *	Hostname ** with trailing slash
IPS	192.168.1.250	ips/
MPU	192.168.1.100	mpu/

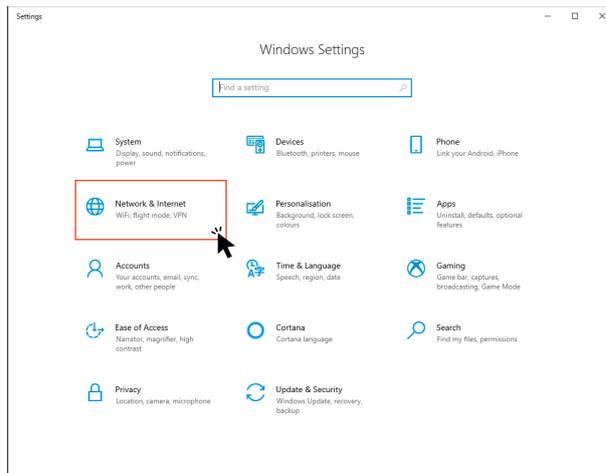
* Factory-set IP addresses. The IP addresses can be changed via the 'Settings' tab in the web interface.

** Factory-set hostnames. The hostnames can be changed via the 'Settings' tab in the web interface.

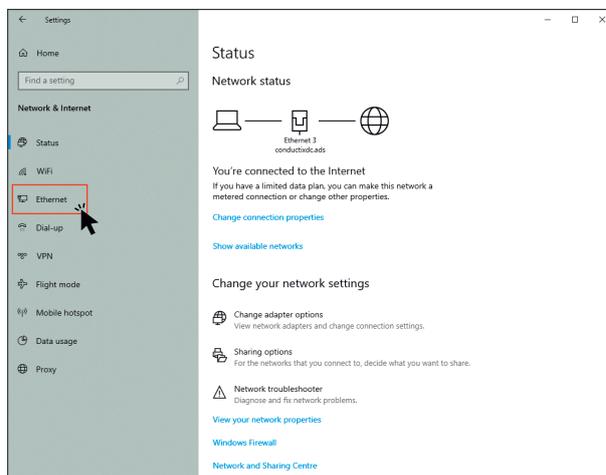
Setting up the network connection on the PC

Procedure on Windows 10 as an example:

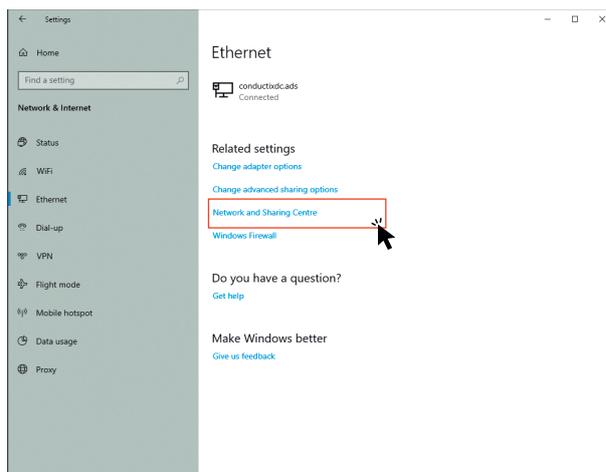
1. ➤ Connect PC to IPS or MPU via Ethernet interface.
2. ➤ Open 'Windows settings'.



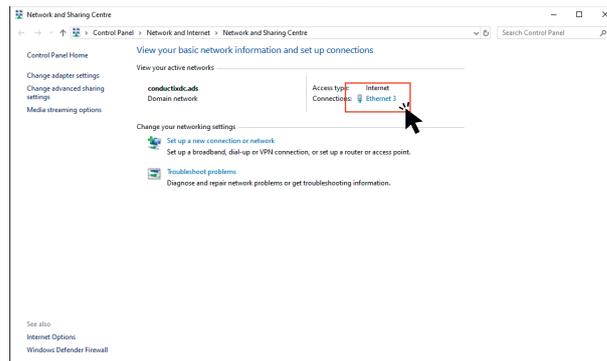
3. Click on *'Network and Internet'*.



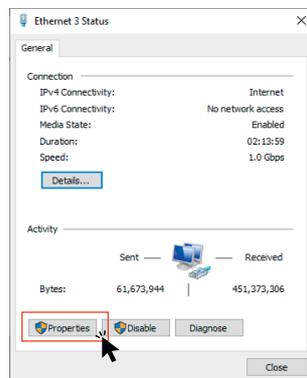
4. Click on *'Ethernet'*.



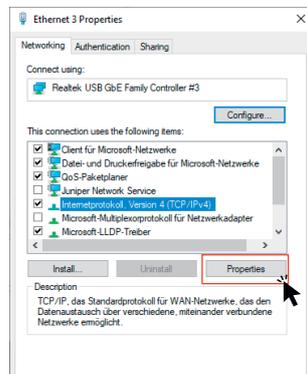
5. Click on *'Network and Sharing Centre'*.



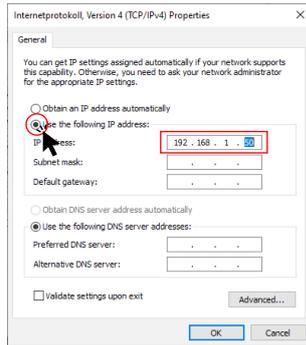
6. Click on the active *'Ethernet'* connection between the PC and the device.



7. Click on the *[Properties]* button. This requires administrator rights.



8. Select *'Internet Protocol, Version 4'* and click on the *[Properties]* button.



9. Select 'Use the following IP address' and enter a new IP address.

The new IP address that needs to be configured must be in the same IP address range as the IP address of the IPS or MPU.

Fixed	Fixed	Fixed	Variable
192	168	1	XXX *

* Must not be 100 or 250.

Example: 192.168.1.50

10. Click on the [OK] button.



11. Click on [OK] to confirm the message about the missing subnet mask and the correct subnet mask 255.255.255.0 will automatically be added to the properties of the Internet protocol.

12. To save all the properties entered for the Internet Protocol, click on the [OK] button in the 'Internet Protocol Properties' prompt.

⇒ The Ethernet connection between the PC and IPS/MPU is configured and set up.



Manual IP address

Once the configuration of the MPU or IPS has been completed, the IP address setting should be reset to DHCP (automatic).

4 IPS web interface

This chapter of the software documentation describes the web interface of the Inductive Power Supply (IPS) and contains specific steps for operation.

To ensure that the Ethernet communication matches the existing Ethernet network, you may need to adjust the network configuration of the IPS via the web interface.

4.1 Starting and logging in

1. ▶ Before launching the web interface, make the appropriate network settings on the PC, see section ↗ *'Setting up the network connection on the PC'* on page 13.
2. ▶ Connect the IPS to a PC via Ethernet and supply power to the IPS as described in the corresponding technical description, see ↗ *Chapter 'Applicable documents'* on page 5.
3. ▶ The static IP address 192.168.1.250 is preconfigured for the IPS at the factory. Open the browser and enter the preconfigured IP address or `ips/` in the address line of the browser and then press Enter.

Below you will find an overview of the inputs that can be used to access the IPS web interface.

Input in the browser's address bar

IP address *	or	Hostname ** with trailing slash
192.168.1.250		ips/

* Factory-set IP address. The IP address can be changed via the *'Settings'* tab in the web interface.

** Factory-set hostname. The hostname can be changed via the *'Settings'* tab in the web interface.

⇒ The IPS web interface is displayed with the *'Monitor'* tab open.

4. ▶ To configure the IPS, click on the 'Settings' tab. A login window appears. To log in as an administrator, enter the following default login data and click on the [Log in] button.

IPS login

User name	Password
ipsAdmin	admin!

- ⇒ The IPS web interface opens the 'Settings' tab.

**Password change after first login**

Change the password under the 'Settings' tab after your first login; please refer to ↗ Chapter 'Password management' on page 30. Choose a new password you can remember and/or do not make it freely accessible.

5. ▶ To log out again as an administrator, see ↗ Chapter 'Administrator – logout' on page 37.

4.2 Setting the language

The web interface is available in English 'EN' and German 'DE'. The current language setting is indicated with a small arrow pointing downwards at the top right under the logo.

1. To change the language setting, hover over the 'DE' or 'EN' at the top right with the mouse pointer.

⇒ A drop-down menu opens.



2. Move the mouse pointer down to the desired language setting abbreviation and click on it.

⇒ The desired language is now set and is displayed at the top right under the logo.

4.3 'Monitor' tab

The *'Monitor'* tab of the IPS web interface shows an overview of the most important values and functions and is divided into the following sections:

The screenshot displays the 'Monitor' tab of the IPS web interface. The interface is titled 'IPS : Inductive Power Supply' and features the 'CONDUCTIX wampfler' logo. The navigation menu includes 'Monitor', 'Settings', and 'Logging'. The main content area is divided into seven sections, each marked with a numbered box:

- Power Transfer Parameters**: A table showing various electrical parameters.
- IPS Temperatures**: A table showing temperatures for different components.
- Status LEDs**: A table showing the status of various LEDs.
- Real Time Clock (RTC)**: A section for setting the system time.
- Firmware Information**: A table showing application and bootloader versions and build dates.
- IPS Warnings**: A table showing active warnings.
- IPS Errors**: A table showing active errors.

Power Transfer Parameters

Description	Value	Unit
Output Voltage	126.9	V
Output Current	22.62	A
Output Power	2856	VA
DC-Link Voltage	400	V
Mains Current	14	A
Mains Voltage RMS	216	V
Mains Voltage Frequency	49	Hz

IPS Temperatures

Description	Value	Unit
Heat-Sink Temperature	66	°C
Heat-Sink Max Temperature	85	°C
IS-Pad Temperature	47	°C
IS-Pad Max Temperature	85	°C

Status LEDs

Name	Description	Status
Error Status	No warnings or faults	Red
Status 1	IPS in Charge Mode	Blue
Status 2	IPS not in Standby	Green

Real Time Clock (RTC)

Year: 2023, Month: 11, Day: 02, Hour: 15, Min: 19, Sec: 35

Firmware Information

Description	Value
Application Version	75104_04
Application Build Date & Time	2023-10-04 # 10:17:13
Bootloader Version	75100_02_IPS
Bootloader Build Date & Time	2023-09-28 # 09:45:59

IPS Warnings

Warning Id	Description	Status
W225	Heat-Sink Temperature Too High	Grey
W228	IS-Pad Temperature Too High	Grey
W227	RTC Battery Voltage Too Low	Grey

IPS Errors

Error Id	Description	Status
F110	Invalid Configuration	Grey
F111	Inverter Offline	Grey
F113	Inverter Invalid Configuration	Grey
F120	24 Volt Safety Signal Error	Grey
F121	Start/Stop Switch Off	Grey
F122	Plug Control	Grey

DSP

Error Id	Description	Status
F210	Over Current Error	Grey
F211	Inverter Short Circuit Error	Grey
F212	Gate Driver Ready Error	Grey
F213	Keine Sicherheitsfreigabe	Grey
F214	Mains Voltage Error	Grey
F215	Charging Resistor Voltage Relay Error	Grey
F216	Charging Resistor Voltage PFC Error	Grey
F217	Parameter Does Not Exist	Grey
F218	Parameter Value Out Of Range	Grey
F219	Parameter Read Only	Grey
F222	Minimum DC-Link Voltage Error	Grey
F223	Mains Frequency Range Error	Grey
F224	Output Charging Pump Error	Grey
F225	IS-Pad Temperature Error	Grey
F226	Heat-Sink Temperature Error	Grey
F227	Over Voltage Error	Grey

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Fig. 2: 'Monitor' tab view

- 1 Power transfer parameters
- 2 IPS temperatures
- 3 Status LEDs
- 4 Real-Time Clock (RTC)
- 5 Firmware information
- 6 IPS warnings
- 7 IPS errors

4.3.1 Power transfer parameters

Description The 'Power Transfer Parameters' show the current IPS data such as input and output values.

Power Transfer Parameters

Description	Value	Unit
Output Voltage	120.7	V
Output Current	23.44	A
Output Power	2839	VA
DC-Link Voltage	399	V
Mains Current	13	A
Mains Voltage RMS	219	V
Mains Voltage Frequency	49	Hz

Fig. 3: Power transfer parameters

Values

Measured values		Value range	
		Typical	Maximum
Output voltage *	Measured value	< 590 V	600 V
Output current	Measured value	< 28 A	63 A
Apparent output power	Calculation	< 4500 VA	5000 VA
DC-Link voltage	Measured value	400–440 V	480 V
Mains current	Calculation	< 16 A	40 A
Mains voltage RMS	Measured value	200–305 V	480 V
Mains voltage frequency	Measured value	47–63 Hz	100 Hz

* The 'Output voltage' refers to the measured voltage before series compensation. The voltage at output connector X7 (ISP Power: Inductive Stationary Pad power) is higher.

4.3.2 IPS temperatures

Description The 'IPS temperatures' section shows the current and set maximum temperature of the heat-sink on the IPS as well as the corresponding temperature values of the stationary charging pad connected to the IPS.

IPS Temperatures

Description	Value	Unit
Heat-Sink Temperature	70	°C
Heat-Sink Max Temperature	85	°C
IS-Pad Temperature	56	°C
IS-Pad Max Temperature	85	°C

Fig. 4: IPS temperatures

Values

Measured values/ settings	Meaning	Value range	
		min.	max.
Heat-sink on the IPS			
Heat-sink temperature	Indicates the current heat-sink temperature		
	Measuring range of the temperature sensor	0 °C	100 °C
Maximum heat-sink temperature	Indicates the maximum value set		
	Permissible adjustable temperature limits of the heat-sink	5 °C	90 °C
	Maximum permitted temperature of the heat-sink before an error message appears and the charging process is aborted *		90 °C
Stationary charging pad (ISP)			
ISP temperature	Indicates the current stationary charging pad temperature		
	Measuring range of the temperature sensor	0 °C	100 °C
Maximum ISP temperature	Indicates the maximum value set		
	Permissible adjustable temperature limits of the stationary charging pad (ISP)	5 °C	85 °C
	Maximum permissible temperature of the stationary charging pad (ISP) before an error message appears and the charging process is aborted *		85 °C

* Warning message and start of the derating 5 °C before reaching the (set) maximum temperature.

**Changing values**

The maximum values can be changed under the 'Settings' tab and may not exceed the maximum permissible value specified here (see [Chapter 'IPS temperature' on page 35](#)).

Derating

During the charging process, all connected components warm up. The amount of heat depends on the operating time, the transmitted power, the charging current and the installation conditions (possibility of heat dissipation).

All components are assigned a maximum temperature in the respective configuration settings. If this temperature is exceeded in the event of an error, the charging process is switched off and an error message is displayed.

Derating prevents the charging process from being stopped due to over temperature. The power already goes down at a temperature value below the maximum.

For every K (1 Kelvin \triangleq 1 °C) of temperature increase above the warning value, the power is reduced by 20 %.

Charging process switch-off due to over temperature is excluded by a linear reduction of the permissible maximum current from a warning threshold that is 5 K below the limit temperature.

Temperature		Power reduction	Maximum current
$[T_{max}] - 5$ K	Warning		60 A
$[T_{max}] - 4$ K	Warning	20 %	48 A
$[T_{max}] - 3$ K	Warning	40 %	36 A
$[T_{max}] - 2$ K	Warning	60 %	24 A
$[T_{max}] - 1$ K	Warning	80 %	12 A
$[T_{max}] - 0$ K	Error Charging process switch-off	100 %	0 A

4.3.3 Status LEDs

Description

The depiction of the status LEDs is a mirrored representation of the status LEDs on the device.

Status LEDs

Name	Description	Status
Error Status	No warnings or faults	
Status 1	IPS in Charge Mode	
Status 2	IPS not in Standby	

Fig. 5: Status LEDs

There are three status LEDs next to the display to indicate different operating modes. The LEDs light up in different colours according to the operating mode.

The status LED '*Error*' is lit in red or orange.

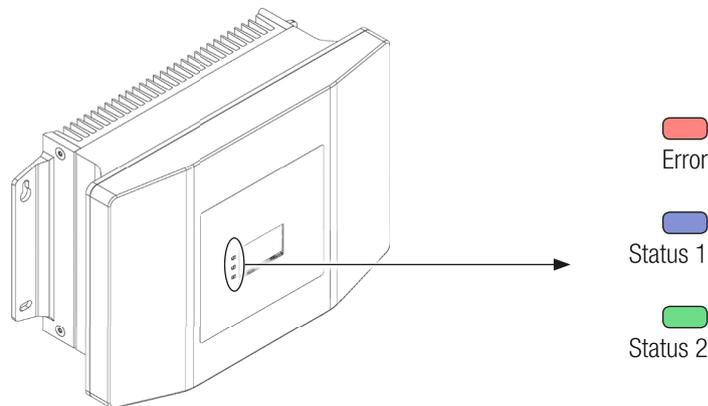


Fig. 6: IPS 3.0 status LEDs

Meaning of colours

LED	Colour		Meaning
Error	■ Red	Flashing	Operation disrupted
	■ Amber	Steady light	Warning pending
Status 1	■ Blue	Flashing	IPS in charging mode
Status 2	■ Green	Steady light	IPS on standby

4.3.4 Real-Time Clock (RTC)

Description The real-time clock displays the current time set on the device.

Real Time Clock (RTC)

Year: 2023	Month: 10	Day: 27	Hour: 13	Min: 55	Sec: 33
---------------	--------------	---------	----------	---------	---------

Fig. 7: Real-time clock (RTC)



Changing values

The time and date information can be changed under the 'Settings' tab, see section [↗ 'Setting the date and time' on page 37.](#)

4.3.5 Firmware information

Description The 'Firmware Information' section shows a list of the firmware and boot-loader versions of the CPU (Central Processing Unit: interface electronics) and DSP (Digital Signal Processor: inverter electronics).
The firmware can be updated via the 'Settings' tab.

Firmware Information

CPU

Description	Value
Application Version	75104_04
Application Build Date & Time	2023-10-04 # 10:17:13
Bootloader Version	75100_02_IPS
Bootloader Build Date & Time	2023-09-28 # 09:45:59

DSP

Description	Value
Application Version	78007_70
Application Build Date & Time	2023-09-22 # 13:23:42
Bootloader Version	78008_06
Bootloader Build Date & Time	2023-09-22 # 13:31:25

Fig. 8: Firmware information

4.3.6 IPS warnings

Description This area contains a list of all warning messages that may be displayed. If any warnings are active, they are highlighted in orange inside the box in the status column
The system can initially continue to operate if warnings are pending. If the warnings become faults, the charging system will stop.

IPS Warnings

Warning Id	Description	Status
W225	Heat-Sink Temperature Too High	■
W226	IS-Pad Temperature Too High	■
W227	RTC Battery Voltage Too Low	■

Fig. 9: IPS warnings

Overview**IPS warnings**

W225	Elevated heat-sink temperature
W226	Elevated ISP temperature
W227	Low RTC battery voltage

**Reference**

The following technical description of the IPS 3.0 contains further information:

- *TNB_0083_IPS30.pdf*

The document is part of the project documentation and can be downloaded from www.conductix.com.

4.3.7 IPS errors

Description This area contains a list of all error messages that may be displayed. If any faults are pending, they are highlighted in orange inside the box in the status column.
The system will stop functioning if faults are present.

IPS Errors

CPU

Error Id	Description	Status
F110	Invalid Configuration	<input type="checkbox"/>
F111	Inverter Offline	<input type="checkbox"/>
F113	Inverter Invalid Configuration	<input type="checkbox"/>
F120	24 Volt Safety Signal Error	<input type="checkbox"/>
F121	Start/Stop Switch Off	<input type="checkbox"/>
F122	Plug Control	<input type="checkbox"/>

DSP

Error Id	Description	Status
F210	Over Current Error	<input type="checkbox"/>
F211	Inverter Short Circuit Error	<input type="checkbox"/>
F212	Gate Driver Ready Error	<input type="checkbox"/>
F213	Keine Sicherheitsfreigabe	<input type="checkbox"/>
F214	Mains Voltage Error	<input type="checkbox"/>
F215	Charging Resistor Voltage Relay Error	<input type="checkbox"/>
F216	Charging Resistor Voltage PFC Error	<input type="checkbox"/>
F217	Parameter Does Not Exist	<input type="checkbox"/>
F218	Parameter Value Out Of Range	<input type="checkbox"/>
F219	Parameter Read Only	<input type="checkbox"/>
F222	Minimum DC-Link Voltage Error	<input type="checkbox"/>
F223	Mains Frequency Range Error	<input type="checkbox"/>
F224	Output Charging Pump Error	<input type="checkbox"/>
F225	IS-Pad Temperature Error	<input type="checkbox"/>
F226	Heat-Sink Temperature Error	<input type="checkbox"/>
F227	Over Voltage Error	<input type="checkbox"/>

Fig. 10: IPS errors

Overview

IPS errors

F110	No configuration / flash memory faulty
F111	Inverter offline
F113	Inverter invalid configuration
F120	24 Volt safety signal error

IPS errors

F121	Start/Stop switch off
F122	Plug control
F210	Over current at converter
F211	Short circuit at converter
F212	Gate driver ready error
F213	Hardware release error
F214	Mains voltage error
F215	Charging resistor voltage relay error
F216	Inrush current limiter error (operation)
F217	Parameter does not exist
F218	Invalid parameter
F219	Parameter read only
F222	Minimum DC-link voltage error
F223	Mains frequency range error
F224	Output charging pump error
F225	ISP temperature error
F226	Heat-sink temperature error
F227	Over voltage error

**Reference**

The following technical description of the IPS 3.0 contains further information:

- [TNB_0083_IPS30.pdf](#)

The document is part of the project documentation and can be downloaded from www.conductix.com.

4.4 'Settings' tab

You must be logged in to open the 'Settings' tab (see [Chapter 'Starting and logging in' on page 17](#)). To prevent unauthorised changes to the settings, please reset the default password (see [Chapter 'Password management' on page 30](#)).

The 'Settings' tab of the IPS web interface allows you to update and change various values and properties. Further information on the corresponding setting options is displayed when the mouse pointer is positioned over an **i** symbol.

The 'Settings' tab is divided into the following sections:

The screenshot shows the 'Settings' tab of the IPS web interface. The interface is divided into several sections, each with a numbered callout (1-9). Section 1: Password Management (fields for Password and Retype Password, Apply button). Section 2: Network Configuration (IP Settings: Connection Type dropdown, IP address, Subnet mask, Default gateway, Hostname, Apply button). Section 3: Product Information (Current Product Information: IPS Serial Number, IPS ID / Name; Edit Product Information: Edit IPS Serial Number, IPS ID / Name, Apply button). Section 4: Reset Changes (Reset unsaved Changes, Reset button). Section 5: IPS Temperature (Temperature Settings table with error and warning values for IS-Pad and Heat-Sink, Apply button). Section 6: Real Time Clock (RTC) (Year, Month, Day, Hour, Min, Sec, New RTC date & time field, Now, Apply buttons). Section 7: Administrator - logout (User: ipsAdmin, EN dropdown). Section 8: CPU/DSP Firmware Update (Firmware Information table, CPU Firmware Update, DSP Firmware Update buttons, Reboot button). Section 9: IPS Configuration File (Choose File, Download, Upload buttons).

Fig. 11: View 'Settings' tab

- 1 Password management
- 2 Network configuration
- 3 Product information
- 4 Reset changes
- 5 IPS temperature
- 6 Real-Time Clock (RTC)
- 7 Administrator – logout
- 8 CPU/DSP firmware update
- 9 IPS configuration file

4.4.1 Password management

Description The password for accessing the 'Settings' tab can be changed under 'Password Management'. The default user name always remains the same (see [Chapter 'Starting and logging in' on page 17](#)).

Password Management ⓘ

Password :

Retype Password :

Fig. 12: Password management

Change the password



1. Enter the new password in the top input field. The password can be viewed in plain text from when you begin entering it.

Password requirements

The password must be at least 6 characters and not longer than 16 characters.



Recommendation

Choose a memorable password and/or do not make it freely accessible. If the new password is saved and a new login is required for the 'Settings' tab without knowing the new password, only a service technician can perform a reset to the default settings.

2. Repeat the new password in the input field at the bottom. The password can be viewed in plain text from when you begin entering it.
3. Click on the [Apply] button.
 - ⇒ The password has been changed. The new password will be required the next time you log in.

4.4.2 Network Configuration

Description The 'Network configuration' section offers a setting option for the use of dynamic or static network configuration. Operation may be briefly disrupted in the meantime. After making changes, access to the device or the web interface must be tested with the new data.

Network Configuration

IP Settings

Connection Type :	<input type="text" value="Static"/>
IP address :	<input type="text" value="192.168.1.250"/>
Subnet mask :	<input type="text" value="255.255.255.0"/>
Default gateway :	<input type="text" value="192.168.1.1"/>
Hostname :	<input type="text" value="ips"/>
	<input type="button" value="Apply"/>

Fig. 13: Network configuration

IP address pre-sets

The default static network configuration contains the following settings:

IP address default settings

Connection type	Static
IP address	192.168.1.250
Subnet mask	255.255.255.0
Gateway	192.168.1.1
Hostname	ips

Changing IP settings

1. Enter your own valid static network configuration settings in the fields provided in the web interface. When changing the hostname, note that this and the IP address are both relevant for accessing the web interface.
2. To save the settings, click on the *[Apply]* button.
 - ⇒ The values are transmitted to the device; IPS operation may be briefly interrupted.
 - ↳ The current online access is disabled.
3. A message about the connection being terminated appears after the IP address has been changed. Click on the *[OK]* button.
 - ⇒ '(Offline)' is displayed next to the device name at the top left.
4. If necessary, adjust the network configuration on your own PC (see [Chapter 'Set up network connection' on page 13](#)).

5. Test your online access with the newly set data.



After changing the IP address

- To access the device again via the web interface after changing the IP address, enter the changed IP address or *ips/* in the address line of the browser and open the web interface again. The *ips/* entry only works if the hostname has not been changed. If the hostname has been changed, enter the changed name with a trailing slash in the address line of the browser.
- During the CPU's firmware update, the bootloader always reverts to the default IP address *192.168.1.250* of the device. Take this into account when assigning IP addresses in the network (see also ↪ Chapter 'CPU/DSP firmware update' on page 38).



Access to device without knowledge of the IP address

If the IP address of the device is unknown, the following measures may be taken:

- Enter *ips/* in the address bar of the browser, provided the hostname has not been changed, and view the values under 'Network Configuration' in the 'Settings' tab.
- Search for the device on the network using suitable software.
- Request support (the device can be reset to standard settings by the service technician).

DHCP

If the device is connected in a network with a DHCP server, the dynamic network configuration can be selected.



Factory reset

The device is delivered with a static network configuration set to a fixed IP address (see also section ↪ 'IP addresses' on page 13).

Switch device to DHCP

Requirement:

- Direct access exists via static network configuration.
- 1.** Under the 'Settings' → 'Network Configuration' → 'IP Settings' tab, click on 'Static'.
- ⇒ A drop-down menu opens.

Network Configuration

IP Settings

Connection Type :

IP address :

- In the drop-down menu, select and click on *[Dynamic]*.



Hostname

The hostname can be reassigned in the corresponding input field. When changing the hostname, note that this is relevant for opening the web interface if the IP address is assigned dynamically.

- Click on the *[Apply]* button.
 - ⇒ ■ The network configuration is switched over.
 - The device is no longer accessible.
- Connect the device to a local network.
- Enter the hostname with a trailing slash in the address line of the browser. If the hostname has not been changed in the settings, the default entry is `ips/`. Open the web interface again.
 - ⇒ Access is established via the web interface.



After dynamic assignment of IP addresses has been set

- *If the hostname has been changed, enter the new name with a trailing slash in the address line of the browser to open the web interface.*
- *During the firmware update, the bootloader always reverts to the default IP address `192.168.1.250` of the device (see also [Chapter 'CPU/DSP firmware update' on page 38](#)).*

4.4.3 Product information

Description

The device serial number and the unique device ID are displayed under '*Product Information*' and can be edited there.

Product Information

Current Product Information

IPS Serial Number :	LJU0000126017
IPS ID / Name :	IPS-3.0

Edit Product Information

Edit IPS Serial Number :

IPS ID / Name :

Fig. 14: Product information

IPS ID / Name

The ID of the device is used for the IPS communication. The ID is factory-set.



IPS ID

Every IPS has the same ID set at the factory. If the IPS ID is used to identify several devices in the network, the ID must be customised individually for each IPS. However, the IPS ID is not absolutely necessary for recognising different devices in the network.

Changing the 'IPS ID / Name'

1.  Enter the new IPS ID in the input field provided.
2.  Click on the *[Apply]* button.
 - ⇒ The new value is displayed under the 'Settings' → 'Product Information' → 'Current Product Information' tab.



IPS serial number

The IPS serial number entered should match the number on the type label of the hardware.

4.4.4 Reset changes

Description

Entry changes in the 'Settings' tab can be cancelled before they are saved by clicking the *[Apply]* button. Clicking the *[Reset]* button resets any settings that have already been made and not yet saved to the previously saved ones.

Reset Changes

Reset unsaved Changes :

Reset

Fig. 15: Reset changes

4.4.5 IPS temperature

Description

The temperature error values for the ISP and the heat-sink can be viewed and set under 'IPS temperature'. As soon as the maximum values set are exceeded, an error message is triggered and the charging process is disabled. A warning is issued automatically as soon as the temperature is 5 °C below the temperature error value.

IPS Temperature ⓘ

Temperature Settings ⓘ

IS-Pad Temperature Error Value	85 °C
IS-Pad Temperature Warning Value	80 °C
Heat-Sink Temperature Error Value	85 °C
Heat-Sink Temperature Warning Value	80 °C

Temperature Settings ⓘ

IS-Pad Temperature Error Value :

85

Heat-Sink Temperature Error Value :

85

Apply

Fig. 16: IPS temperature

Values

Settings/generated values	Meaning	Default value *
Stationary charging pad (ISP): Temperature error value	Pre-set temperature for triggering the fault or error message and shutting down the charging process	85 °C
Stationary charging pad (ISP): Temperature warning value	Automatically generated value for triggering the warning message and starting the derating function * 5 °C below the temperature error value	80 °C
Inductive Power Supply (IPS): Heat-sink temperature error value	Pre-set temperature for triggering the fault or error message and shutting down the charging process	85 °C
Inductive Power Supply (IPS): Heat-sink temperature warning value	Automatically generated value for triggering the warning message and starting the derating function * 5 °C below the temperature error value	80 °C

* For the maximum permissible temperature values that can be set and a description of derating, see also [Chapter 'IPS temperatures' on page 21](#).



Setting lower values

The values can be set lower than the maximum permissible or default values to prevent components in the environment from heating up unacceptably.



Note before setting the temperature

Apply temperature settings for the stationary charging pad and the heat-sink that are above the current temperatures. The current temperatures can be viewed under the 'Monitor' → 'IPS temperatures' tab. If the temperatures are set too low, it causes temperature errors, which are marked in the 'Monitor' tab under 'IPS Errors'. These temperature errors can only be reset by disconnecting the mains voltage. Adjust the values accordingly beforehand.

Editing temperature settings

1. ➤ Enter the desired and permissible temperature values for fault triggering.
2. ➤ Click on the [Apply] button.
 - ⇒ The values are applied and can be viewed under the 'Settings' → 'IPS temperature' → 'Temperature Settings' tab together with the adjusted warning values.

4.4.6 Real-Time Clock (RTC)

Description The current system time of the device can be adjusted under the 'Settings' → 'Real time clock (RTC)' tab.

Real Time Clock (RTC) ⓘ

Year : 2023 Month : 11 Day : 06 Hour : 11 Min : 11 Sec : 09

New RTC date & time :

2023 11:11

Now

Apply

Fig. 17: Real-time clock (RTC) – setting the date and time

Setting the date and time

1. First enter the date in the order day, month and year in the input field: xx.xx.xxxx. Make sure that the values entered are valid.
2. After entering the full date, press the right arrow key [→] at the end of the year. Then enter the time with valid values and two digits each for hours and minutes. Use the arrow buttons to navigate forwards and backwards as required. If necessary, to clear the digits, select the entered digits and press the [Del] key. Fill out all fields.
3. Click the [Apply] button twice, even if the data is no longer visible in the input field.
 - ⇒ The seconds start counting from the moment the data is transferred.
 - ↳ The current settings of the real-time clock can be viewed on the IPS display via the 'Monitor' and 'Settings' tabs.

Applying current date and current time

1. Click on the [Now] button directly below the input field.
 - ⇒ The current system time of the PC initially appears in the input field.
2. Click the [Apply] button twice, even if the data is no longer visible in the input field.
 - ⇒ The seconds start counting from the moment the data is transferred.
 - ↳ The current settings of the real-time clock can be viewed on the IPS display via the 'Monitor' and 'Settings' tabs.

4.4.7 Administrator – logout

Description Users who are logged in as administrators have access to the 'Settings' tab (see Chapter 'Starting and logging in' on page 17).

You can see from the user name in the top right-hand corner of the 'Settings' tab that the administrator is logged in.



Fig. 18: Logged in administrator

Administrator logout

1. The logout symbol  is also located in the top right-hand corner of the 'Settings' tab, right next to the language code 'EN' or 'DE'.
2. Click on the logout symbol.
 - ⇒ The administrator is logged out and the 'Monitor' tab of the web interface appears. To regain access to the 'Settings' tab, you will need to log in again.

4.4.8 CPU/DSP firmware update

Description

An overview of the firmware and bootloader versions of the CPU and DSP currently installed on the device can be found under the 'Settings' → 'CPU/DSP Firmware Update' → 'Firmware Information' tab and in the 'Monitor' tab.

In the overview under 'CPU Firmware Update' and 'DSP Firmware Update', you have the option of uploading updated firmware versions to the device. New CPU firmware may also update the web interface.

CPU - Interface electronics (Central Processing Unit)

DSP - Inverter electronics (Digital Signal Processor)

CPU/DSP Firmware Update i

Firmware Information i

CPU Application	Version : 75104_04	Built : 2023-10-04 # 10:17:13
CPU Bootloader	Version : 75100_02_IPS	Built : 2023-09-28 # 09:45:59
DSP Application	Version : 78007_70	Built : 2023-09-22 # 13:23:42
DSP Bootloader	Version : 78008_06	Built : 2023-09-22 # 13:31:25

CPU Firmware Update i

Bootloader mode:

Reboot

DSP Firmware Update i

Choose a DSP Firmware .hex file :

Upload

File Name :

File Size :

Progress:

Fig. 19: Overview of installed firmware and update options

CPU Firmware Update

The CPU firmware can be updated in bootloader mode via a bin file provided. During the CPU's firmware update, the bootloader always reverts to the default IP address (192.168.1.250) of the device. Take this into account when assigning IP addresses in the network. IPS operation is interrupted during the update process. The IPS reboots when switching to bootloader mode and during the firmware update.

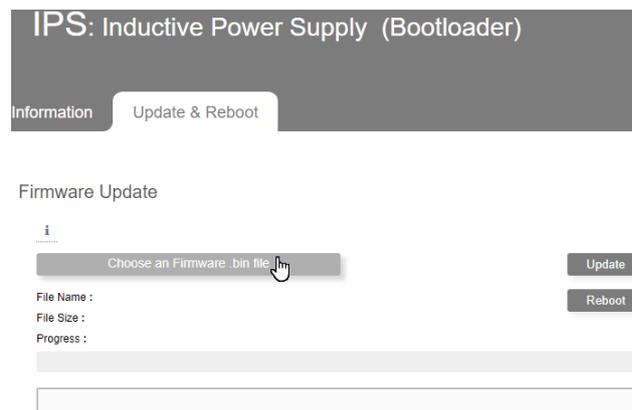
Once the update is complete, the web interface can be used as usual by entering the (factory) configured IP address or the hostname with a trailing slash in the browser. If the default settings are used, it may be sufficient to refresh the website.



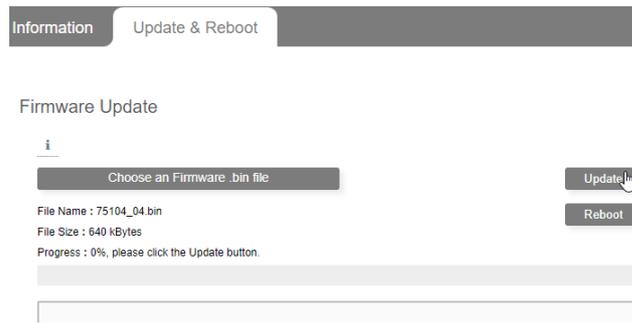
Charging process stops during firmware update

A firmware update can be initiated even when the IPS is in charging mode. Note that the charging process is stopped during the update. Once the process is complete, the IPS returns to charging mode. If the IPS was on standby before starting the update, it will revert to standby after the firmware update.

1. ▶ Under '*CPU Firmware Update*', click on the [*Reboot*] button.
2. ▶ Press [*OK*] to confirm the message asking whether the device should be rebooted in Bootloader mode.
 - ⇒ The notification '*Reboot in progress!*' appears at the top left above the web interface in the browser.
3. ▶ Press [*OK*] to confirm the message about the connection being terminated.
 - ⇒ If necessary, '*Offline*' appears briefly next to the device name. You are immediately redirected to bootloader mode. There, you will find the '*Information*' tab containing information on the processor architecture, firmware and bootloader.
 - ↳ The IPS display is illuminated without indication in the colour that was active before switching to bootloader mode. The '*Error*' status LED flashes red. In Bootloader mode, the IPS will reboot after five minutes of no interaction.
4. ▶ Click on the '*Update & Reboot*' tab.

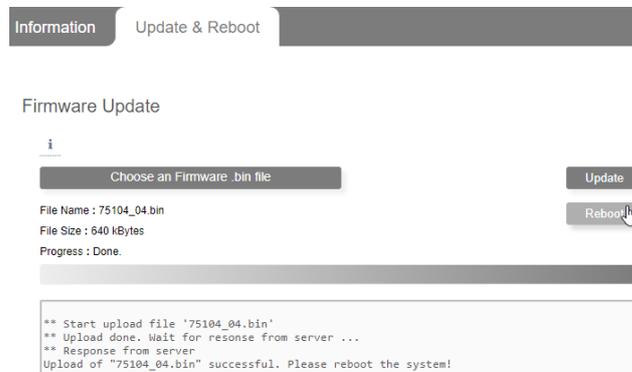


5. ▶ Click on the [*Choose a firmware .bin file*] button.
 - ⇒ The '*Open*' prompt appears.
6. ▶ Choose the bin file saved in the folder structure on the PC and click on the [*Open*] button.



7. In Bootloader mode, the name and size of the selected bin file is displayed under the *[Choose a firmware .bin file]* button. Click on the *[Update]* button.

⇒ The percentage and the progress bar indicate the progress of the process.



8. Further details are shown under the progress bar in the output window. As soon as *'Please reboot the system!'* is displayed, click on the *[Reboot]* button.

⇒ At the top left in the browser, you will see the notification *'Reboot in progress!'*

↳ The *'Information'* tab of the bootloader mode opens.

9. Wait until the IPS is operational again. The last initiated process may not start immediately. The *'Error'* status LED next to the IPS display must no longer flash red. The display must no longer be illuminated in orange. When the IPS is back in charging mode or on standby (LED status 1 or 2), the web interface can be refreshed if the default settings are used or else it can be opened again by entering the IP address or the hostname with a trailing slash in the browser.

DSP firmware update

The DSP firmware can be updated via a hex file provided. IPS operation is interrupted during the update process. The device will be restarted.

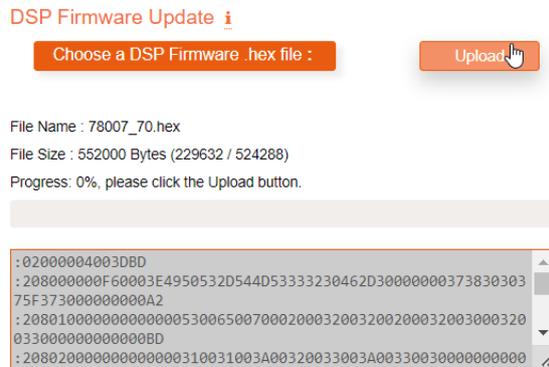
Once the update is complete, the web interface can be used as usual by entering the (factory) configured IP address or the hostname with a trailing slash in the browser.



Charging process stops during firmware update

A firmware update can be initiated even when the IPS is in charging mode. Note that the charging process is stopped during the update. Once the process is complete, the IPS returns to charging mode. If the IPS was on standby before starting the update, it will revert to standby after the firmware update.

1. Under 'DSP Firmware Update', click on the [Choose a DSP Firmware .hex file:] button.
 - ⇒ The 'Open' prompt appears.
2. Choose the Hex file saved in the folder structure on the PC and click on the [Open] button.



3. The name and size of the selected hex file is displayed under the [Choose a DSP Firmware .hex file:] button. Click on the [Upload] button.
 - ⇒ The percentage and the progress bar indicate the progress of the process. The upload process is shown on the IPS display.
4. Press [OK] to confirm the message indicating that a new DSP firmware has been successfully uploaded and an update to the new version is being carried out.
 - ⇒ The following steps are executed one after the other during the update process and displayed in the web interface:

- 'ERASING DSP FLASH'
- 'WRITING TO DSP FLASH'
- 'FINISHING DSP UPDATE'

The IPS is in service mode. The white backlit display shows indicators corresponding to the process.

5. Press [OK] to confirm the message indicating that the DSP firmware has been successfully updated and that a system reset will now be performed.
 - ⇒ Afterwards, you will be notified that the web interface or website is no longer accessible.

6. → Wait until the IPS is operational again. The 'Error' status LED next to the IPS display must no longer flash red. The display must no longer be illuminated in orange. When the IPS is back in charging mode or on standby (LED status 1 or 2), the web interface can be reopened by entering the IP address or the hostname with a trailing slash in the browser.

4.4.9 IPS configuration file

Description Some settings configured for the IPS can also be saved in a configuration file. The configuration file can be downloaded from the device.

The following settings made via the web interface are saved in the downloaded configuration file.

Custom settings saved in the configuration file

- Language settings
- IP settings
- IPS serial number
- IPS ID / Name
- ISP temperature error value
- Heat-sink temperature error value
- Logging function on/off
- Logging speed

You can upload a previously downloaded or compiled configuration file to the device.

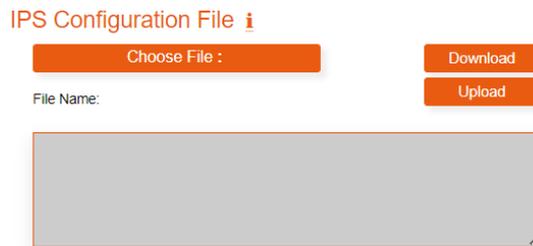


Fig. 20: Configuration file

Downloading configuration files

1. → Click on the [Download] button.
 - ⇒ A configuration file (ipsCONFIG_XXXX_XX_XX_XXXXXX.json) is created and saved locally in the Downloads folder on the PC by default.

2. ▶ If the browser is set accordingly, the 'Save as' prompt may also appear before the file is saved.
Select a storage location in the folder structure of the PC and click on [Save].
⇒ A configuration file (`ipsCONFIG_XXXX_XX_XX_XXXXXX.json`) is created and stored in the previously selected folder.
3. ▶ Save the file elsewhere if necessary.

Uploading configuration files

IPS operation is interrupted while the configuration values are being updated. The device will be restarted.

Once the update is complete, the web interface can be used as usual by entering the (factory) configured IP address or the hostname with a trailing slash in the browser.



The charging process is stopped while the configuration file is being uploaded

It is also possible to upload a configuration file when the IPS is in charging mode. Note that the charging process is stopped during the update. Once the process is complete, the IPS returns to charging mode. If the IPS was on standby before the configuration file was uploaded, it will revert to standby after the update.

1. ▶ Click on the [Choose File:] button.
⇒ The 'Open' prompt appears.
2. ▶ Select the `ipsCONFIG_XXXX_XX_XX_XXXXXX.json` JSON file saved in the folder structure on the PC and click on the [Open] button.
⇒ The file name appears under the [Choose File:] button.

IPS Configuration File ⓘ



3. ▶ Click on the [Upload] button.
4. ▶ Click [OK] to confirm the warning message indicating that a new IPS configuration is about to be uploaded and that the IPS parameters will be updated with the new configuration values.
5. ▶ Click [Close] to confirm that the new IPS configuration has been uploaded and a system reset will be performed.
⇒ Afterwards, you will be notified that the web interface or website is no longer accessible.

6.  Wait until the IPS is operational again. The *'Error'* status LED next to the IPS display must no longer flash red. The display must no longer be illuminated in orange. When the IPS is back in charging mode or on standby (LED status 1 or 2), the web interface can be reopened by entering the IP address or the hostname with a trailing slash in the browser.

4.5 'Logging' tab

The '*Logging*' tab of the IPS web interface allows you to log the current values of the IPS and is divided into the following sections:

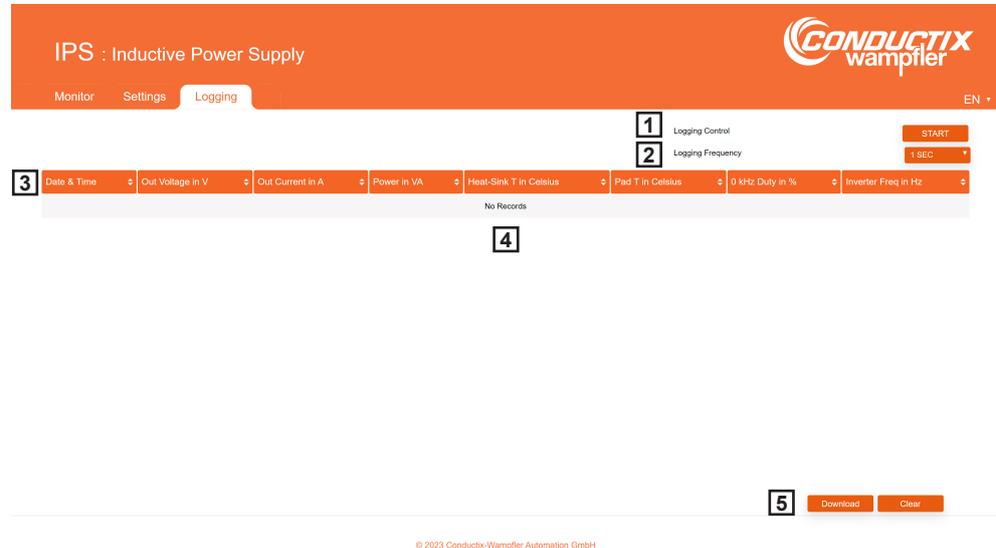


Fig. 21: 'Logging' tab view

- 1 Logging control
- 2 Logging speed
- 3 Values recorded
- 4 Log area
- 5 Download and clear log

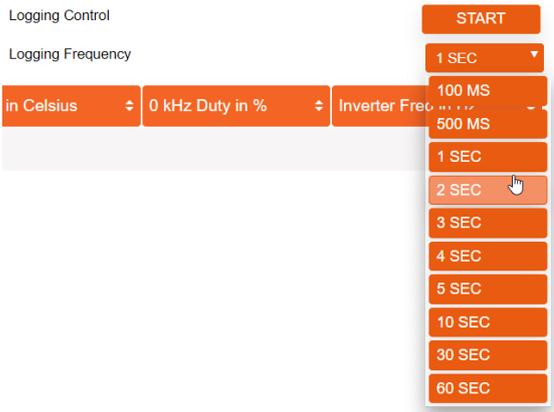
Description

The logging function, which can be executed in the '*Logging*' tab, takes place on the client side. Client-side logging enables the active recording of current values. The following values are recorded:

- Date & time of the terminal device (PC)
- Output voltage of the IPS in V
- Output current of the IPS in A
- Output apparent power of the IPS in VA
- Heat-sink temperature in °C
- Temperature of the stationary charging pad (ISP) in °C
- 10 kHz cycle in %: Feedback signal from the MPU to the IPS
- Converter frequency (inverter frequency) in Hz

Recording is started and stopped manually. The recorded values can be downloaded as a CSV file.

Starting logging



1. The 'Logging speed' is factory-set to [1 SEC]. The current selection is indicated with a small arrow pointing downwards next to 'Logging speed'.

If a time interval other than one second is required for the recording, you can also select [100 MS], [500 MS], [2 SEC], [3 SEC], [4 SEC], [5 SEC], [10 SEC], [30 SEC] or [60 SEC] in the drop-down menu.

To select a different time interval, use the mouse pointer to touch the field with the default value [1 SEC] and the arrow pointing downwards. Move the mouse pointer down to the desired value in the drop-down menu and click on it.

⇒ The selected value appears as the current selection with a small arrowhead pointing downwards next to 'Logging speed'.

2. Under 'Logging Control', click on the [Start] button.

⇒ Data logging is started and continuously records the values in the time interval set in the log area.

Stopping logging



→ The [Stop] button appears under 'Logging Control' while recording is in progress. Click on the [Stop] button.

⇒ Data logging is stopped.

↳ To view logged values that are out of the visible section, scroll the vertical scroll bar.

SWB_0025, 1, en_GB



Sorting the log values

By clicking on the small arrowheads  in the column headings, you can sort the respective logged values within the column in ascending or descending order.

Downloading logging data

1.  The *[Download]* button is located next to the *[Clear]* button at the bottom right of the tab. You might need to scroll the vertical scroll bar to make the button visible on the monitor. Click on the *[Download]* button.
 - ⇒ A CSV file with the currently sorted sequence is created and saved locally in the Downloads folder on the PC by default.
2.  If the browser is set accordingly, the 'Save as' prompt may also appear before the file is saved.

Select a storage location in the folder structure of the PC and click on *[Save]*.

 - ⇒ A CSV file with the currently sorted sequence is created and saved in the folder selected beforehand.
3.  Save the file elsewhere if necessary.

Clearing logging data

-  The *[Clear]* button is located next to the *[Download]* button at the bottom right of the tab. You might need to scroll the vertical scroll bar to make the button visible on the monitor. Click on the *[Clear]* button.
 - ⇒ The data log will be deleted and cannot be restored. The log area now contains no records.

5 MPU web interface

This chapter of the software documentation describes the web interface of the Mobile Power Unit (MPU) and contains specific steps for operation.

To ensure that the Ethernet and CAN communication correspond to the existing Ethernet network or CAN bus, the relevant parameters must be set via the web interface.



Ethernet and CAN protocols

Ethernet and CAN commands for communication between the devices are defined. Only use defined commands for communication. Documentation material on Ethernet and CAN protocols is provided in digital form. Please request it from your Conductix-Wampfler representative.

5.1 Starting and logging in

1. ➤ Before launching the web interface, make the appropriate network settings on the PC, see section ↗ 'Setting up the network connection on the PC' on page 13.
2. ➤ Connect the MPU to a PC via Ethernet and supply power to the MPU as described in the corresponding technical description, see ↗ Chapter 'Applicable documents' on page 5.
3. ➤ The static IP address 192.168.1.100 is preconfigured for the MPU at the factory. Open the browser and enter the preconfigured IP address or `mpu/` in the address line of the browser and then press Enter.

Below you will find an overview of the inputs that can be used to access the web interface.

Input in the browser's address bar

IP address *	or	Hostname ** with trailing slash
192.168.1.100		mpu/

* Factory-set IP address. The IP address can be changed via the 'Settings' tab in the web interface.

** Factory-set hostname. The hostname can be changed via the 'Settings' tab in the web interface.

⇒ The MPU web interface is displayed with the 'Monitor' tab open.

4. ▶ To configure the MPU, click on the ‘Settings’ tab. A login window appears. To log in as an administrator, enter the following default login data and click on the [Log in] button.

MPU login

User name	Password
mpuAdmin	admin!

- ⇒ The MPU web interface opens the ‘Settings’ tab.

**Password change after first login**

Change the password under the ‘Settings’ tab after your first login; please refer to ↗ Chapter ‘Password management’ on page 76. Choose a new password you can remember and/or do not make it freely accessible.

5. ▶ To log out again as an administrator, see ↗ Chapter ‘Administrator – logout’ on page 98.

5.2 Setting the language

The web interface is available in English 'EN' and German 'DE'. The current language setting is indicated with a small arrow pointing downwards at the top right under the logo.

1. To change the language setting, hover over the 'DE' or 'EN' at the top right with the mouse pointer.

⇒ A drop-down menu opens.



2. Move the mouse pointer down to the desired language setting abbreviation and click on it.

⇒ The desired language is now set and is displayed at the top right under the logo.

5.3 'Monitor' tab

The *'Monitor'* tab of the MPU web interface shows an overview of the most important values and functions. Further information on the corresponding faults is displayed when the mouse pointer is positioned over a black **I** symbol **i**.

The areas displayed in the centre column change depending on the charging mode set. The various sections are described in the respective sub-chapter. The charging modes can be selected under the *'Settings'* tab (see [Chapter 'Charging Power Management' on page 78](#)).

The *'Monitor'* tab is divided into the following sections when *'Manual'* charging mode is set:

The screenshot displays the MPU web interface with the following sections and data:

MPU Warnings (1)

Warning Id	Description	Status
W325	Heat-Sink Temperature	<input type="checkbox"/>
W326	IM-Pad Temperature	<input type="checkbox"/>
W327	RTC Battery Low Voltage	<input type="checkbox"/>
W328	Invalid Command	<input type="checkbox"/>

MPU Errors (2)

Error Id	Description	Status
F310	Power Good	<input type="checkbox"/>
F311	Over Current	<input type="checkbox"/>
F312	Over Temperature	<input type="checkbox"/>
F313	Fan Fault	<input type="checkbox"/>
F314	Heat-Sink Temperature	<input type="checkbox"/>
F315	IM-Pad Temperature	<input type="checkbox"/>
F316	RTC Battery Voltage	<input type="checkbox"/>
F317	EEPROM Read/Write	<input type="checkbox"/>
F318	MRAM Read/Write	<input type="checkbox"/>
F320 i	CAN Communication	<input type="checkbox"/>
F321	Over Voltage	<input type="checkbox"/>
F322 i	Ethernet Communication	<input type="checkbox"/>
F323	Short Circuit	<input type="checkbox"/>

Power Management (3)

Description	Value	Unit
Mode		
Charging mode	Manual	-
Set values		
Current	60	A
Voltage	57	V
Power	3.42	kW
Output		
Current	60	A
Derating reason	None	-
Power transfer	Enabled	-
PWM duty cycle	54	%
Fan		
Duty Cycle	0	%

Real Time Clock (RTC) (5)

Year: 2024 Month: 5 Day: 21 Hour: 15 Min: 20 Sec: 22

Status LEDs (6)

Name	Description	Status
CAN Status	CAN bus is deactivated.	<input type="checkbox"/>
Operation	Charging process active.	<input checked="" type="checkbox"/>
Error	No warnings or faults.	<input type="checkbox"/>

Measurement (4)

Description	Value	Unit
Battery		
Current	59.809	A
Voltage	50.228	V
Power	2.994	kW
DC-Link		
Voltage	50.271	V
Temperature		
Heat-Sink	69	°C
IM-Pad	57	°C
Frequency		
Rectifier phase U	97.204	kHz
Rectifier phase W	97.206	kHz
Misc		
Fan voltage	0.123	V
RTC battery voltage	3.27	V

Real Time Clock (RTC) (5)

Status LEDs (6)

Software Information (7)

Bootloader

Description	Value
Version	75100_02_MPU
Build Date & Time	2023-09-22 10:56:31

Firmware

Description	Value
Version	75102_22
Build Date & Time	2024-05-21 13:20:25

Fig. 22: 'Monitor' tab view with 'Manual' charging mode set

- 1 MPU Warnings
- 2 MPU Errors
- 3 Power Management
- 4 Measurement
- 5 Real-Time Clock (RTC)
- 6 Status LEDs
- 7 Software Information

5.3.1 'Manual' charging mode

If 'Manual' charging mode is selected, the charging power is controlled via the web interface. This mode is suitable for test purposes.

The 'Manual' charging mode can be set and configured under the 'Settings' tab [Further information on page 80](#).



The 'Manual' charging mode comes factory set on delivery of the MPU. Communication via Ethernet and/or CAN is required for the other charging modes. To achieve this, you have to adjust the network configuration, Ethernet interface configuration and CAN parameters in the "Settings" tab of the web interface.

Charging takes place constantly from switching on to switching off with the values set via the web interface. The charging current is adjusted by the MPU during the charging process. The adjustment is made depending on previously set specifications and taking measurands such as voltage, current and temperature into account. No communication with the battery takes place in this case.

In the centre column of the 'Monitor' tab, you will see the 'Power Management' and 'Measurement' sections:

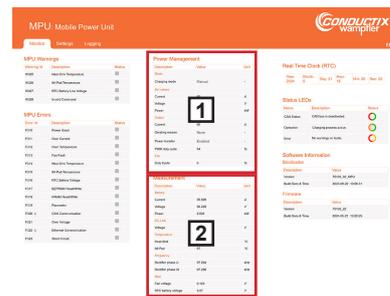


Fig. 23: 'Monitor' tab: 'Manual' charging mode

- 1 Power Management
- 2 Measurement

5.3.2 'BMS only' charging mode

If the 'BMS only' charging mode is selected, the charging power is controlled by the BMS (battery management system).

'BMS only' charging mode can be set and configured under the 'Settings' tab ↪ *Further information on page 82.*

The charging current is adjusted during the charging process. The charging process is monitored from switch-on to switch-off by the BMS connected upstream of the MPU and controlled by commands sent to the MPU. The MPU communicates with the connected battery management system via the CAN interface. The configuration settings are specified by the BMS.

In the centre column of the 'Monitor' tab, you will see the 'Battery Management System (BMS)', 'Power Management' and 'Measurement' sections:

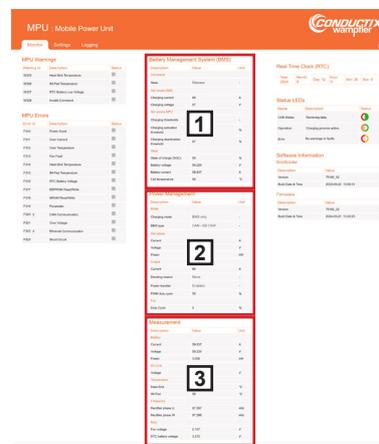


Fig. 24: 'Monitor' tab: 'BMS only' charging mode

- 1 Battery Management System (BMS)
- 2 Power Management
- 3 Measurement

5.3.3 'BMS & PLC' charging mode

If the '*BMS & PLC*' charging mode is selected, the charging power is controlled by the BMS and a control unit.

'*BMS & PLC*' charging mode can be set and configured under the '*Settings*' tab  *Further information on page 84.*

The charging current is adjusted during the charging process. The charging process is monitored from switch-on to switch-off by the control units upstream of the MPU (BMS and vehicle control or system controller) and controlled by commands sent to the MPU.

The MPU is connected via Ethernet/network or CAN to the control system of the AGV (Automated Guided Vehicle), the vehicle control system, or with the PLC (Programmable Logic Controller), the system controller. The MPU communicates with the connected battery management system via the CAN interface. The configuration settings are requested by the BMS and can be modified with the connected control unit.



Ethernet and CAN protocols

Ethernet and CAN commands for communication between the devices are defined. Only use defined commands for communication. Documentation material on Ethernet and CAN protocols is provided in digital form. Please request it from your Conductix-Wampfler representative.

In the centre column of the '*Monitor*' tab, you will see the '*PLC Controller*', '*Battery Management System (BMS)*', '*Power Management*' and '*Measurement*' sections:

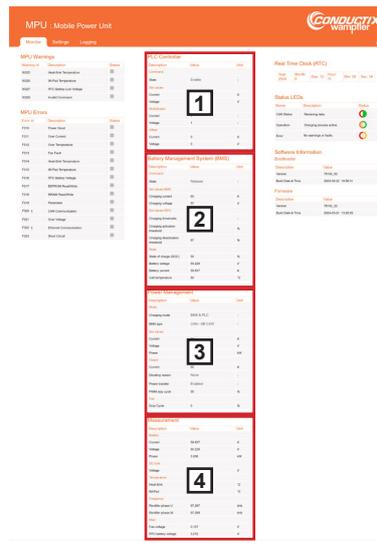


Fig. 25: 'Monitor' tab: 'BMS & PLC' charging mode

- 1 PLC Controller
- 2 Battery Management System (BMS)
- 3 Power Management
- 4 Measurement

5.3.4 'PLC only' charging mode

If the '*PLC only*' charging mode is selected, the charging power is controlled by the control unit.

'*PLC only*' charging mode can be set and configured under the '*Settings*' tab  *Further information on page 87.*

The charging current is adjusted during the charging process. The charging process is controlled from switch-on to switch-off by a control system (AGV control system or PLC) upstream of the MPU and controlled by commands sent to the MPU.

The MPU is connected to the vehicle control system (AGV control system) or the PLC (system controller) via Ethernet/network or CAN. The charging current is adjusted depending on the specifications set in the control system. No communication with the battery takes place in this case.



Ethernet and CAN protocols

Ethernet and CAN commands for communication between the devices are defined. Only use defined commands for communication. Documentation material on Ethernet and CAN protocols is provided in digital form. Please request it from your Conductix-Wampfler representative.

In the centre column of the '*Monitor*' tab, you will see the '*PLC Controller*', '*Power Management*', and '*Measurement*' sections:

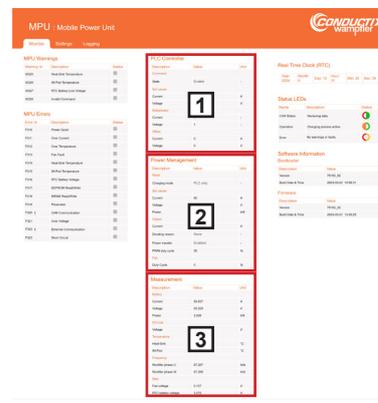


Fig. 26: '*Monitor*' tab: '*PLC only*' charging mode

- 1 PLC Controller
- 2 Power Management
- 3 Measurement

5.3.5 MPU Warnings

Description This area contains a list of all warning messages that may be displayed. If any warnings are active, they are highlighted in orange inside the box in the status column
The system can initially continue to operate if warnings are pending. If the warnings become faults, the charging system will stop.

MPU Warnings

Warning Id	Description	Status
W325	Heat-Sink Temperature	<input type="checkbox"/>
W326	IM-Pad Temperature	<input type="checkbox"/>
W327	RTC Battery Low Voltage	<input type="checkbox"/>
W328	Invalid Command	<input type="checkbox"/>

Fig. 27: MPU Warnings

Overview

MPU warnings

W325	Heat-sink temperature
W326	IMP temperature
W327	RTC battery low voltage
W328	Invalid command



Reference

The following technical description of the MPU 3.0 contains further information:

- [TNB_0085_MPU30.pdf](#)

The document is part of the project documentation and can be downloaded from www.conductix.com.

5.3.6 MPU Errors

Description This area contains a list of all error messages that may be displayed. If any faults are pending, they are highlighted in orange inside the box in the status column.
The system will stop functioning if faults are present.

MPU Errors

Error Id	Description	Status
F310	Power Good	<input type="checkbox"/>
F311	Over Current	<input type="checkbox"/>
F312	Over Temperature	<input type="checkbox"/>
F313	Fan Fault	<input type="checkbox"/>
F314	Heat-Sink Temperature	<input type="checkbox"/>
F315	IM-Pad Temperature	<input type="checkbox"/>
F316	RTC Battery Voltage	<input type="checkbox"/>
F317	EEPROM Read/Write	<input type="checkbox"/>
F318	MRAM Read/Write	<input type="checkbox"/>
F320 	CAN Communication	<input type="checkbox"/>
F321	Over Voltage	<input type="checkbox"/>
F322 	Ethernet Communication	<input type="checkbox"/>
F323	Short Circuit	<input type="checkbox"/>

Fig. 28: MPU Errors

**Disrupted CAN or Ethernet communication**

Errors F320 and F322 indicate disrupted CAN or Ethernet communication. These faults reset themselves as soon as the corresponding communication to the battery (CAN) or the control system (Ethernet/CAN) is established. This does not require any interaction via the web interface. Without a corresponding CAN or Ethernet connection with the pre-set 'Manual' charging mode, the fault must be reset in 'Reset MPU errors & warnings' located under the 'Settings' tab.

**Over voltage fault**

If the over voltage threshold is set too low, the over voltage fault F321 is triggered. During commissioning, the over voltage threshold must be adjusted accordingly under the 'Settings' tab in 'Charging Power Management' → 'General parameters', as the default setting is 0 V. After adjustment, the over voltage fault must be reset in the 'Reset MPU errors & warnings' located under the 'Settings' tab.

Overview**MPU errors**

F310	Power good
F311	Over current
F312	Over temperature
F313	Fan fault
F314	Heat-sink temperature
F315	IMP temperature
F316	RTC battery voltage
F317	EEPROM read/write
F318	MRAM read/write
F320	CAN communication
F321	Over voltage
F322	Ethernet communication
F323	Short circuit

**Reference**

The following technical description of the MPU 3.0 contains further information:

- [TNB_0085_MPU30.pdf](#)

The document is part of the project documentation and can be downloaded from www.conductix.com.

5.3.7 Power Management**Description**

The *'Power Management'* displays the Present configuration as well as the requirements set and calculated for the MPU's charging power, i.e. the power transfer parameters.

In the centre column of the *'Monitor'* tab, you will see the *'Power Management'* section for each charging mode set.

Power Management

Description	Value	Unit
Mode		
Charging mode	Manual	-
Set values		
Current	60	A
Voltage	57	V
Power	3.42	kW
Output		
Current	60	A
Derating reason	None	-
Power transfer	Enabled	-
PWM duty cycle	45	%
Fan		
Duty Cycle	0	%

Fig. 29: 'Power Management' for 'Manual' charging mode set

Values

Description	Meaning	Value range	
		min.	max.
Mode			
Charging mode	<u>Manual</u> : Charging process according to values set in the web interface		
	<u>BMS only</u> : Charging process as required with active communication with the BMS		
	<u>BMS & PLC</u> : Charging process as required with active communication with the BMS and PLC		
	<u>PLC only</u> : Charging process according to values set by the control system		
BMS type *	<u>CAN V1.1</u> : CAN protocol based on the CAN 2.0B standard		
	<u>CANOpen – VT V02.06</u> : CAN protocol based on the high-level CANOpen standard		
	<u>CAN – SB CXW</u> : CAN protocol of the Conductix-Wampfler battery block SB		
	<u>Custom</u> : A desired protocol can be added on request		
Set values			
Current	Battery charging current	0 A	60 A
Voltage	Battery charging voltage	0 V	59 V
Power	Battery charging power – calculated value from the pre-set battery charging voltage and battery charging current	0 kW	3.54 kW
Output			
Current	Charging current set value adjusted according to internal specifications	0 A	60 A
Derating reason	<u>None</u> : There is no reason for a power reduction		
	<u>Set value limit reached</u> : Power reduction by reaching the maximum charging current		
	<u>Start phase</u> : Power reduction during system start-up		
	<u>End of charge voltage</u> : Power reduction when the end of the charging process is reached		
	<u>IM-pad temperature</u> : Power reduction due to excessive charging pad temperature		
	<u>Heat-sink temperature</u> : Power reduction due to excessive heat-sink temperature		
	<u>Power</u> : Maximum possible power achieved		
	<u>Error</u> : Charging process interruption in the event of an error		
<u>Disabled</u> : The charging process has been disabled			

Description	Meaning	Value range	
		min.	max.
Power transmission	Active: The charging process is active		
	Disabled: The charging process is disabled		
	Disabled - SOC limitation: The charging process is disabled by the threshold values for battery charging		
PWM duty cycle	Current requirement for the IPS: 0 % = stop 10 % (less) ... 50 % (OK) ... 90 % (more)	0 %	90 %
Fan			
Duty cycle	Duty cycle of the external, optionally connectable fan	0 %	100 %

* The entry is only displayed for a selected charging mode with involvement of the BMS.



3 kW of charging power

The system is limited to 3 kW of charging power. The power value displayed in the 'Power Management' is calculated from the set values. The actual charging power is regulated to a maximum of 3 kW by the system.



'Power Management' in various modes

The 'Power Management' always displays the values currently valid for the charging process. As for the set values, the requested values are transmitted to the MPU. In this way, the set values are displayed before the application of internal limits (60 A max. charging current, 59 V max. charging voltage, 3 kW max. power). The final set values of the charging current and charging voltage are displayed depending on the selected mode:

- 'Manual': User-set values that have been saved under the 'Settings' tab of the web interface are displayed.
- 'BMS only': The BMS specifies the setting values dynamically.
- 'PLC only': The settings in the control system specify the setting values.
- 'BMS & PLC': The setting values requested by the BMS are provided with a multiplier and an offset, which are transferred to the MPU by the control system.

Further information can be found in the description of the respective areas shown under 'Monitor' when a specific charging mode has been set.

5.3.8 Measurement

Description The *'Measurement'* section shows all the measured values currently supplied by the MPU.

In the centre column of the *'Monitor'* tab, you will see the *'Measurement'* section for each charging mode set.

Measurement

Description	Value	Unit
Battery		
Current	59.65	A
Voltage	50.212	V
Power	2.995	kW
DC-Link		
Voltage	50.255	V
Temperature		
Heat-Sink	66	°C
IM-Pad	58	°C
Frequency		
Rectifier phase U	98.134	kHz
Rectifier phase W	98.132	kHz
Misc		
Fan voltage	0.107	V
RTC battery voltage	3.276	V

Fig. 30: Measured values

Values

Description	Meaning	Value range	
		min.	max.
Battery			
Current	Present charging current to the battery	0 A	60 A
Voltage	Present charging voltage to the battery	0 V	59 V
Power	Present charging power to the battery	0 kW	3 kW
DC-Link			
Voltage	DC voltage on the DC-Link (between rectifier output and battery coupling)	0 V	60 V
Temperature			
Heat-sink	Current MPU heat-sink temperature	0 °C	100 °C
IMP (mobile charging pad)	Current temperature of the charging pad connected to the MPU	0 °C	100 °C
Frequency			
Rectifier phase U	AC voltage phase to the rectifier	85 kHz	130 kHz
Rectifier phase W	AC voltage phase to the rectifier	85 kHz	130 kHz
Misc			
Fan voltage	Voltage supplied to external fan	0 V	14 V
RTC battery voltage	Battery voltage of the built-in real-time clock battery	2 V	3.3 V

5.3.9 Battery Management System (BMS)

Description

The *'Battery Management System (BMS)'* section displays the values currently sent or requested by the battery management system.

In the centre column of the *'Monitor'* tab, the *'Battery Management System (BMS)'* section is only displayed when the *'BMS only'* or *'BMS & PLC'* charging mode is set.

Battery Management System (BMS)

Description	Value	Unit
Command		
State	Release	-
Set values BMS		
Charging current	60	A
Charging voltage	57	V
Set values MPU		
Charging thresholds	Enabled	-
Charging activation threshold	95	%
Charging deactivation threshold	97	%
State		
State of charge (SOC)	50	%
Battery voltage	50.229	V
Battery current	59.837	A
Cell temperature	50	°C

Fig. 31: Battery Management System (BMS)



Internal limitation of current and voltage

The current for charging the battery is internally limited to 60 A and the charging voltage is also internally limited to 59 V. This adjustment is not taken into account in the values set for this purpose; instead, the values displayed are the ones actually requested from the MPU for this range.



Interaction between BMS and PLC

The BMS primarily controls the charging of the battery. Charging can be adjusted as required by the AGV control system or system controller. To do so, the multiplier and offset values are changed via the control system.

Values

Description	Meaning	Calculation only for 'BMS & PLC' charging mode
Command		
State	<u>Release</u> : Command from the BMS to start the charging process	
	<u>Stop</u> : Command from the BMS to stop the charging process	
Set values BMS		
Charging current	Battery charging current: Depends on the BMS/battery	Charging current setpoint value communicated by the BMS. In 'BMS & PLC' charging mode, this value is included in the calculation according to formula (1). This value is then internally limited to 60 A
Charging voltage	Battery charging voltage: Depends on the BMS/battery	Charging voltage setpoint value communicated by the BMS. In 'BMS & PLC' charging mode, this value is included in the calculation according to formula (2). This value is then internally limited to 59 V
Set values MPU		
Charging thresholds	<u>Enabled</u> : Manually set threshold values with priority for the BMS	
	<u>Disabled</u> : Threshold values specified by the BMS	
* Charging activation threshold	If the state of charge of the battery is below or equal to the value set here in percent, the charging process is started	
* Charging deactivation threshold	If the state of charge of the battery is above or equal to the value set here in percent, the charging process is stopped	
State		
State of charge (SOC)	State of charge (SOC) of the battery according to the BMS (0 % to 100 %)	
Battery voltage	Present voltage of the battery to be charged according to BMS: Depends on the BMS/battery	
Battery current	Present current of the battery to be charged according to BMS: Depends on BMS/battery (the Conductix-Wampfler battery block SB does not transmit this value)	
Cell temperature	Temperature of the warmest battery cell according to the BMS: Depends on the BMS/battery	

- (1) In 'BMS & PLC' charging mode, the setpoint values for charging current are calculated as follows, based on the values requested by the BMS:

$$\text{current set value} = (\text{PLC: current offset}) + (\text{BMS: current set value}) * (\text{PLC: current multiplier})$$

- (2) In 'BMS & PLC' charging mode, the setpoint values for charging voltage are calculated as follows, based on the values requested by the BMS:

$$\text{voltage set value} = (\text{PLC: voltage offset}) + (\text{BMS: voltage set value}) * (\text{PLC: voltage multiplier})$$

- * The values are displayed if the function has been manually enabled.



Calculation using the formulas for 'BMS & PLC' charging mode

Formulas (1) and (2) are used by the MPU to calculate the final set values for the charging voltage and charging current. The values specified by the BMS can be adjusted by changing the multiplier and offset values in the control system. If the multiplier and offset values are left at their default settings, the values set for the charging current and charging voltage are applied as specified by the BMS.

Displayed set values/setpoint values

'BMS only' charging mode

If the 'BMS only' charging mode is set, the current and voltage values for charging the battery are specified by the BMS. The set values are displayed under the 'Monitor' tab in the 'Battery Management System (BMS)' and 'Power Management' sections.

'BMS & PLC' charging mode

If the 'BMS & PLC' charging mode is set, the current and voltage values for charging the battery transmitted by the BMS are set by changing the multiplier and offset values of the PLC (in this case, the system controller or AGV control system). The multiplier and offset values are decisive for the charging process in this mode. The final values set by the control system are displayed under the 'Monitor' tab in the 'PLC Controller' and 'Power Management' sections.

The 'Battery Management System (BMS)' area displays the values sent by the BMS. If no modified offsets and multipliers are used, the following sections display identical set values for current and voltage:

- 'PLC Controller'
- 'Battery Management System (BMS)'
- 'Power Management'



Further information can be found in the description for the respective sections.

5.3.10 PLC Controller

Description

The *'PLC Controller'* area displays the values currently required by the PLC (system controller or vehicle control system).

In the centre column of the *'Monitor'* tab, the *'PLC Controller'* section is only displayed when the *'PLC only'* or *'BMS & PLC'* charging mode is set.

PLC Controller

Description	Value	Unit
Command		
State	Enable	-
Set values		
Current	60	A
Voltage	57	V
Multiplicator		
Current	1	-
Voltage	1	-
Offset		
Current	0	A
Voltage	0	V

Fig. 32: PLC Controller



Internal limitation of current and voltage

The current for charging the battery is internally limited to 60 A and the charging voltage is also internally limited to 59 V. This adjustment is not taken into account in the values set for this purpose; instead, the values displayed are the ones actually requested from the MPU for this range.



Interaction between BMS and PLC

The BMS primarily controls the charging of the battery. Charging can be adjusted as required by the AGV control system or system controller. To do so, the multiplicator and offset values are changed via the control system.

Values

Description	Meaning	Calculation only for 'BMS & PLC' charging mode
Command		
State	Enable: Command from the PLC to start the charging process	
	Stop: Command from the PLC to stop the charging process	
Set values		
Current	Battery charging current	Charging current setpoint value communicated by the PLC. In 'BMS & PLC' charging mode, this value is the result of the calculation according to formula (1). This value is then internally limited to 60 A
Voltage	Battery charging voltage	Charging voltage setpoint value communicated by the PLC. In 'BMS & PLC' charging mode, this value is the result of the calculation according to formula (2). This value is then internally limited to 59 V
Multiplicator		
Current	Multiplicator is irrelevant for 'PLC only' charging mode (1 = default value)	Multiplicator for the target current calculation according to formula (1)
Voltage	Multiplicator is irrelevant for 'PLC only' charging mode (1 = default value)	Multiplicator for the target voltage calculation according to formula (2)
Offset		
Current	Offset is irrelevant for 'PLC only' charging mode (0 = default value)	Offset for the target current calculation according to formula (1)
Voltage	Offset is irrelevant for 'PLC only' charging mode (0 = default value)	Offset for the target voltage calculation according to formula (2)

- (1) In 'BMS & PLC' charging mode, the setpoint values for charging current are calculated as follows, based on the values requested by the BMS:

$$\text{current set value} = (\text{PLC: current offset}) + (\text{BMS: current set value}) * (\text{PLC: current multiplicator})$$

- (2) In 'BMS & PLC' charging mode, the setpoint values for charging voltage are calculated as follows, based on the values requested by the BMS:

$$\text{voltage set value} = (\text{PLC: voltage offset}) + (\text{BMS: voltage set value}) * (\text{PLC: voltage multiplicator})$$



Calculation using the formulas for 'BMS & PLC' charging mode

Formulas (1) and (2) are used by the MPU to calculate the final set values for the charging voltage and charging current. The values specified by the BMS can be adjusted by changing the multiplier and offset values in the control system. If the multiplier and offset values are left at their default settings, the values set for the charging current and charging voltage are applied as specified by the BMS.

Displayed set values/setpoint values

'PLC only' charging mode

If the 'PLC only' charging mode is set, the current and voltage values for charging the battery are specified by the PLC. The set values are displayed under the 'Monitor' tab in the 'PLC Controller' and 'Power Management' sections.

'BMS & PLC' charging mode

If the 'BMS & PLC' charging mode is set, the current and voltage values for charging the battery transmitted by the BMS are set by changing the multiplier and offset values from the PLC (in this case, the system controller or AGV control system). The multiplier and offset values are decisive for the charging process in this mode. The final values set by the control system are displayed under the 'Monitor' tab in the 'PLC Controller' and 'Power Management' sections.

The 'Battery Management System (BMS)' area displays the values sent by the BMS. If no modified offsets and multipliers are used, the following sections display identical set values for current and voltage:

- 'PLC Controller'
- 'Battery Management System (BMS)'
- 'Power Management'



Further information can be found in the description for the respective sections.

5.3.11 Real-Time Clock (RTC)

Description

The real-time clock displays the current time set on the device.

Real Time Clock (RTC)

Year: 2024	Month: 2	Day: 2	Hour: 11	Min: 58	Sec: 37
---------------	-------------	--------	-------------	---------	---------

Fig. 33: Real-time clock (RTC)



Changing values

The time and date information can be changed under the 'Settings' tab, see section [↗ 'Setting the date and time' on page 99.](#)

5.3.12 Status LEDs

Description The depiction of the status LEDs is a mirrored representation of the status LEDs on the device.

Status LEDs

Name	Description	Status
CAN Status	CAN bus is deactivated.	
Operation	Charging process active.	
Error	No warnings or faults.	

Fig. 34: Status LEDs

The status LEDs indicate the system status of the MPU. They can display different colours and flashing modes.

The status LED check is intended for commissioning and maintenance work (troubleshooting).

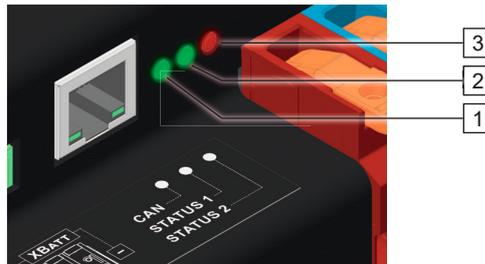


Fig. 35: Status LEDs

- 1 CAN status indicator
- 2 Operation indicator
- 3 Fault indicator

Meaning of the status indicators

LED	State	Meaning		
CAN CAN status	Off	CAN bus inactive		
		CAN bus disabled		
		CAN bus fault-free		
	● Green	On	Data was sent	
		Flashes	Data was received	
	● Red	On	CAN bus has error	
Flashes		Data buffer is full		
Status 1 Operation Charging	Off	No charging process		
		● Green	On	Module is ready for operation
			Charging is not requested	
		Flashes	Charging is requested	
	Setpoint value is sent to the IPS			
	● Amber	Flashes	Charging process active	
Status 2 Faults	Off	No warning		
		No error		
		Initialisation succeeded		
	● Yellow	On	Warning is pending	
		Flashes	Error during configuration	
	● Red	On	Error in operation	
		Flashes	Error during initialisation	
		Flashes slowly	Bootloader active	
			No firmware	

5.3.13 Software Information

Description

The 'Software Information' area shows a list of the firmware and bootloader versions currently installed on the MPU.

The firmware can be updated via the 'Settings' tab.



NOTICE!

Firmware update from version 75102_20 or older to 75102_22 or newer leads to loss of calibration and product-specific information
Incorrect calibration can lead to material damage.

The specific product information that can be viewed under the 'Settings' tab will be lost after updating the firmware. This can impair communication between devices in the network. The calibration of the MPU will be lost when installing a newer firmware version. As a result, the measured values are no longer set correctly and the connected battery may thus suffer damage.

If you need to update the firmware, contact a Conductix-Wampfler service technician.



Backing up data

Take note of your own settings before updating the firmware or resetting to factory settings. As of firmware version 75102_22, some user-set values can be saved in a configuration file. To restore the settings you have made yourself, the configuration file must be uploaded to the device again after updating the firmware or resetting the device to factory settings; see [↩ Chapter 'MPU configuration file' on page 105](#).

Software Information

Bootloader

Description	Value
Version	75100_02_MPU
Build Date & Time	2023-09-22 10:56:31

Firmware

Description	Value
Version	75102_22
Build Date & Time	2024-05-21 13:20:25

Fig. 36: Software Information

5.4 'Settings' tab

You must be logged in to open the 'Settings' tab (see [Chapter 'Starting and logging in' on page 49](#)). To prevent unauthorised changes to the settings, please reset the default password (see [Chapter 'Password management' on page 76](#)).

The 'Settings' tab of the MPU web interface allows you to update and change various values and properties. Further information on the corresponding setting options is displayed when the mouse pointer is positioned over an orange **i** or black **!i** symbol.

The 'Settings' tab is divided into the following sections:

MPU: Mobile Power Unit

Monitor Settings Logging

7 mpuAdmin EN

1 Password Management **i**
Password :
Re-type password :
Apply

2 Reset MPU Errors and Warnings **i**
Reset MPU errors & warnings :
Reset

3 Charging Power Management **i**
Select changing mode : Manual
Power transfer (no / yes) :

4 Temperature Threshold **i**

Description	Value
IM-Pad Temperature Error Value	85 °C
IM-Pad Temperature Warning Value	80 °C
Heat-Sink Temperature Error Value	90 °C
Heat-Sink Temperature Warning Value	85 °C

Set IM-Pad error threshold Temperature [°C] : 85
Heat-Sink error threshold Temperature [°C] : 90
Apply

5 Reset Changes **i**
Reset unsaved Changes :
Reset

6 Configuration Network **i**
Connection Type : Static
IP address : 192.168.1.100
Subnet mask : 255.255.255.0
Gateway : 192.168.1.1
Hostname : mpu
DNS server : 192.168.1.3
Apply

7 Administrator – logout
mpuAdmin EN

8 Real Time Clock (RTC) **i**
Year : 2024 Month : 6 Day : 12 Hour : 13 Min : 56 Sec : 7
New RTC date & time : tt.mm.jjjj --:--:--
Now
Apply

9 Product Information **i**

Description	Value
MPU Serial number	CWA000129004
MPU ID / Name	Mobile Power Unit 3.0
Production date	2022/45
MAC address	9C-47-F9-0-0-21

Edit MPU ID / Name : Mobile Power Unit 3.0
Set

10 Firmware Restart **i**
Restart firmware :
Restart

11 Firmware Update **i**
Enter bootloader mode :
Reboot

12 Factory Reset **i**
Reset configuration to factory values :
Reset

13 Configuration File **i**
Upload
Download

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Fig. 37: View 'Settings' tab

- 1 Password management
- 2 Reset MPU errors & warnings
- 3 Charging power management
- 4 Temperature threshold
- 5 Reset changes
- 6 Configuration
- 7 Administrator – logout
- 8 Real-Time Clock (RTC)
- 9 Product information
- 10 Firmware restart

- 11 Firmware update
- 12 Factory reset
- 13 MPU configuration file

5.4.1 Password management

Description The password for accessing the 'Settings' tab can be changed under 'Password Management'. The default user name always remains the same (see [Chapter 'Starting and logging in' on page 49](#)).

Password Management ⓘ

Password :

Retype Password :

Fig. 38: Password management

Change the password



1. Enter the new password in the top input field. The password can be viewed in plain text from when you begin entering it.

Password requirements

The password must be at least 6 characters and not longer than 16 characters.



Recommendation

Choose a memorable password and/or do not make it freely accessible. If the new password is saved and a new login is required for the 'Settings' tab without knowing the new password, only a service technician can perform a reset to the default settings.

2. Repeat the new password in the input field at the bottom. The password can be viewed in plain text from when you begin entering it.
3. Click on the [Apply] button.
 - ⇒ The password has been changed. The new password will be required the next time you log in.

5.4.2 Reset MPU errors & warnings

Description Pending hardware or software faults or warnings are displayed under the 'Monitor' tab. To reset all faults and warnings, click on the [Reset] button under the 'Settings' tab → 'Reset MPU errors & warnings'. If the cause of the error or warning persists, the error or warning is displayed again.

Reset MPU Errors and Warnings

Reset MPU errors & warnings :

Reset

Fig. 39: Reset MPU errors & warnings



Disrupted CAN or Ethernet communication

Errors F320 and F322 indicate disrupted CAN or Ethernet communication. These faults reset themselves as soon as the corresponding communication to the battery (CAN) or the control system (Ethernet/CAN) is established. This does not require any interaction via the web interface. Without a corresponding CAN or Ethernet connection with the pre-set 'Manual' charging mode, the fault must be reset in 'Reset MPU errors & warnings' located under the 'Settings' tab.



Over voltage fault

If the over voltage threshold is set too low, the over voltage fault F321 is triggered. During commissioning, the over voltage threshold must be adjusted accordingly under the 'Settings' tab in 'Charging Power Management' → 'General parameters', as the default setting is 0 V. After adjustment, the over voltage fault must be reset in the 'Reset MPU errors & warnings' located under the 'Settings' tab.

5.4.3 Charging Power Management



⚠ WARNING!

Risk of injury due to inadequate safety precautions

Personal injury and material damage may result if the overall system is not operated safely.

- Only specialised personnel may operate and maintain the devices. Only a qualified electrician may carry out work on electrical components.
- Install the necessary external safety devices (also between the MPU and battery).
- Before starting work, ensure that all safety equipment is functioning properly.
- Observe all technical descriptions for the 'WirelessCharger 3.0' inductive charging system, see [🔗 Chapter 'Applicable documents'](#) on page 5.



Defining general parameters as an initial step

The general parameters are decisive for all modes and must be set initially before the charging process (see [🔗 Chapter 'General parameters'](#) on page 88).



Over voltage fault

If the over voltage threshold is set too low, the over voltage fault F321 is triggered. During commissioning, the over voltage threshold must be adjusted accordingly under the 'Settings' tab in 'Charging Power Management' → 'General parameters', as the default setting is 0 V. After adjustment, the over voltage fault must be reset in the 'Reset MPU errors & warnings' located under the 'Settings' tab.

Description

Under 'Charging Power Management', charging values are set and the desired charging mode is selected:

- Manual
 - [🔗 Further information on page 53](#)
 - [🔗 Further information on page 80](#)
- BMS only
 - [🔗 Further information on page 54](#)
 - [🔗 Further information on page 82](#)

- BMS & PLC
 - [Further information on page 55](#)
 - [Further information on page 84](#)
- PLC only
 - [Further information on page 57](#)
 - [Further information on page 87](#)

Different inputs are required depending on the charging mode set.

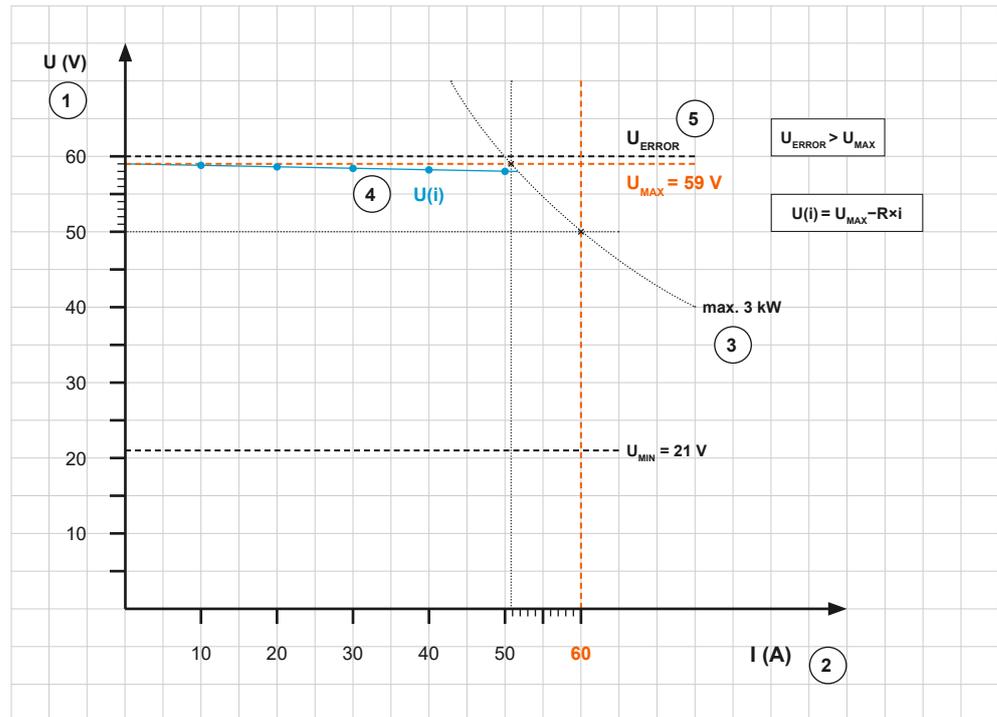


Fig. 40: Charging Power Management

- 1 Battery charging voltage
- 2 Battery charging current
- 3 Battery charging power
- 4 Output resistor
- 5 Over voltage threshold

5.4.3.1 'Manual' charging mode

The 'Manual' charging mode is pre-set during initial commissioning and is suitable for test purposes.

Set the battery charging values according to the battery manufacturer's specifications. To start a charging process, set the output current and the output voltage greater than 0.

Useful value ranges are:

Data	Value	Unit
Min.	21	V
Max.	59	V

Data	Value	Unit
Min.	> 0	A
Max.	60	A



Disrupted CAN or Ethernet communication

Errors F320 and F322 indicate disrupted CAN or Ethernet communication. These faults reset themselves as soon as the corresponding communication to the battery (CAN) or the control system (Ethernet/CAN) is established. This does not require any interaction via the web interface. Without a corresponding CAN or Ethernet connection with the pre-set 'Manual' charging mode, the fault must be reset in 'Reset MPU errors & warnings' located under the 'Settings' tab.

Setting the 'Manual' charging mode

Charging Power Management ⓘ

Select charging mode : Manual ▾

Power transfer (no / yes) :

Manual Parameter ⓘ

Battery charging current [A] :

Battery charging voltage [V] :

Fig. 41: Example settings for the 'Manual' charging mode

1. For 'Charging mode', select [Manual] in the drop-down menu.

To select the 'Charging mode', move the mouse pointer over the orange field with the set charging mode and click on it. Move the mouse pointer down to the desired charging mode in the drop-down menu and click on it.



NOTICE!

The battery may get damaged as a result of incorrect settings

The connected battery may get damaged if the charging voltage and/or the charging current are set too high. This may result in premature failure or destruction of the battery. Select the settings according to the battery manufacturer's specifications.

2. Under '*Manual parameters*', enter the values for the '*Battery charging current [A]*' and the '*Battery charging voltage [V]*'.



Maximum permissible values

No values higher than the internal limits can be entered here: Max. charging current is 60 A and max. charging voltage is 59 V.

3. Click on the [*Apply*] button.
4. To start the charging process when the two charging pads are appropriately positioned in line with each other, press the slider to the right for '*Power transfer (no / yes)*'.
 - ⇒ As soon as the mouse pointer is moved away from the slider, the square of the slider is highlighted in orange, indicating that the function is active.

5.4.3.2 'BMS only' charging mode

Charging Power Management ⓘ

Select charging mode : BMS only ▾

Select BMS type : CAN - SB C ▾

Charging thresholds (no / yes) :

Charging activation threshold [%] :

Charging deactivation threshold [%] :

Apply

Fig. 42: Example settings for 'BMS only' charging mode

1. For 'Charging mode', select [BMS only] in the drop-down menu.

To select the 'Charging mode', move the mouse pointer over the orange field with the set charging mode and click on it. Move the mouse pointer down to the desired charging mode in the drop-down menu and click on it.



Setting up the system

For all charging modes except for 'Manual', the MPU must be connected to the control system and/or the battery management system via its interfaces, and the communication between them and the MPU must be secured. In order to start the charging process, the stationary and mobile charging pads must be positioned in line with each other. The associated documentation for the 'WirelessCharger 3.0' inductive charging system contains further information; see [Chapter 'Applicable documents'](#) on page 5.

2. For 'BMS type', select the CAN settings suitable for the battery used from the drop-down menu.

To select the 'BMS type', move the mouse pointer over the orange field with the set BMS type and click on it (only '-' is shown as the first option). Move the mouse pointer down to the desired BMS type in the drop-down menu and click on it:

BMS type	<u>CAN V1.1</u> : CAN protocol based on the CAN 2.0B standard
	<u>CANOpen – VT V02.06</u> : CAN protocol based on the high-level CAN-Open standard
	<u>CAN – SB CXW</u> : CAN protocol of the Conductix-Wampfler battery block SB
	<u>Custom</u> : A desired protocol can be added on request

3. ▶ If desired, you can enter your own threshold values for battery charging. These values take priority over those of the BMS. To do this, move the slider to the right under '*Threshold values for battery charging (No / Yes)*'.
 - ⇒ As soon as the mouse pointer is moved away from the slider, the square of the slider is highlighted in orange, indicating that the function is active.
Two additional input fields with default values are displayed. The default values are automatically applied. If other values are required, they can be entered in the corresponding input fields for starting and/or stopping the charging process. Then, click on the *[Apply]* button.
4. ▶ Stay in the '*Settings*' tab and set the required data transmission rate under '*Configuration*' → '*CAN interface*'. To do this, select the data transfer rate for '*Bitrate [kbit/s]*' in the drop-down menu and enter the desired timeout in the corresponding input field (see also section [↗ '*CAN interface*' on page 97](#)). Click on the *[Apply]* button.
 - ⇒ The MPU is now ready for the charging process. The charging process starts when the conditions for charging are met.

5.4.3.3 'BMS & PLC' charging mode

Charging Power Management 

Select charging mode : BMS & PLC ▾

Select BMS type : CAN - SB C ▾

PLC interface : Ethernet ▾

Charging thresholds (no / yes) :

Charging activation threshold [%] :

Charging deactivation threshold [%] :

Apply

Fig. 43: Example settings for 'BMS & PLC' charging mode

1. For 'Charging mode', select [BMS & PLC] in the drop-down menu.

To select the 'Charging mode', move the mouse pointer over the orange field with the set charging mode and click on it. Move the mouse pointer down to the desired charging mode in the drop-down menu and click on it.

NOTICE!



The battery may get damaged as a result of incorrect settings

The connected battery may get damaged if the charging voltage and/or the charging current are set too high. This may result in premature failure or destruction of the battery. Select the settings according to the battery manufacturer's specifications.



Setting up the system

For all charging modes except for 'Manual', the MPU must be connected to the control system and/or the battery management system via its interfaces, and the communication between them and the MPU must be secured. In order to start the charging process, the stationary and mobile charging pads must be positioned in line with each other. The associated documentation for the 'WirelessCharger 3.0' inductive charging system contains further information; see  Chapter 'Applicable documents' on page 5.

2. ➤ For 'BMS type', select the CAN settings suitable for the battery used from the drop-down menu.

To select the 'BMS type', move the mouse pointer over the orange field with the set BMS type and click on it (only '-' is shown as the first option). Move the mouse pointer down to the desired BMS type in the drop-down menu and click on it:

BMS type	CAN V1.1: CAN protocol based on the CAN 2.0B standard
	CANOpen – VT V02.06: CAN protocol based on the high-level CAN-Open standard
	CAN – SB CXW: CAN protocol of the Conductix-Wampfler battery block SB
	Custom: A desired protocol can be added on request



Ethernet and CAN protocols

Ethernet and CAN commands for communication between the devices are defined. Only use defined commands for communication. Documentation material on Ethernet and CAN protocols is provided in digital form. Please request it from your Conductix-Wampfler representative.

3. ➤ As for the 'PLC interface', the desired data transmission type between the MPU and the AGV or system controller can be selected in the drop-down menu. [Ethernet] is pre-set. [Ethernet] and [CAN] are available in the drop-down menu.



Preventing communication with the PLC

To completely deactivate PLC communication for the charging modes without involving the PLC you can also select '-' as the PLC interface.

To select the 'PLC interface', move the mouse pointer over the orange field with the set communication method and click on it. Move the mouse pointer down to the desired setting in the drop-down menu and click on it.

4. ➤ If desired, you can enter your own threshold values for battery charging. These values take priority over those of the BMS. To do this, move the slider to the right under 'Charging thresholds (no / yes)'.
 ⇒ As soon as the mouse pointer is moved away from the slider, the square of the slider is highlighted in orange, indicating that the function is active.
 Two additional input fields with default values are displayed. The default values are automatically applied. If other values are required, they can be entered in the corresponding input fields for starting and/or stopping the charging process. Then, click on the [Apply] button.

- 5.** Skip this step if 'CAN' was selected for communication with the control system.

Stay in the 'Settings' tab and, if necessary, change the preconfigured IP settings under 'Configuration' → 'Network' so that the communication nodes are in the same network. Click on the [Apply] button and perform a reboot (see also section ↗ 'Network' on page 93).

Set the desired Ethernet protocol for 'Ethernet interface'. To do this, go to the 'Ethernet protocol' and select [TCP] or [UDP] from the drop-down menu. [TCP] is pre-set. Enter the correct communication addresses for the MPU and the control system in the input fields for TCP or UDP.

Enter the desired timeout in the corresponding input field (see also section ↗ 'Ethernet interface' on page 96).

Click on the [Apply] button.

- 6.** Stay in the 'Settings' tab and set the required data transmission rate under 'Configuration' → 'CAN interface'. This applies to communication with the BMS and also with the control system if CAN has been selected for it. Select the data transfer rate for 'Bitrate [kbit/s]' in the drop-down menu and enter the desired timeout in the corresponding input field (see also section ↗ 'CAN interface' on page 97). Click on the [Apply] button.

⇒ The MPU is now ready for the charging process. The charging process starts when the conditions for charging are met.

5.4.3.4 'PLC only' charging mode

Charging Power Management 

Select charging mode : PLC only ▾

PLC interface : Ethernet ▾

Fig. 44: Example settings for 'PLC only' charging mode

1. ➤ For 'Charging mode', select [PLC only] in the drop-down menu.

To select the 'Charging mode', move the mouse pointer over the orange field with the set charging mode and click on it. Move the mouse pointer down to the desired charging mode in the drop-down menu and click on it.

NOTICE!



The battery may get damaged as a result of incorrect settings

The connected battery may get damaged if the charging voltage and/or the charging current are set too high. This may result in premature failure or destruction of the battery. Select the settings according to the battery manufacturer's specifications.



Setting up the system

For all charging modes except for 'Manual', the MPU must be connected to the control system and/or the battery management system via its interfaces, and the communication between them and the MPU must be secured. In order to start the charging process, the stationary and mobile charging pads must be positioned in line with each other. The associated documentation for the 'WirelessCharger 3.0' inductive charging system contains further information; see  Chapter 'Applicable documents' on page 5.



Ethernet and CAN protocols

Ethernet and CAN commands for communication between the devices are defined. Only use defined commands for communication. Documentation material on Ethernet and CAN protocols is provided in digital form. Please request it from your Conductix-Wampfler representative.

2. ▶ As for the 'PLC interface', the desired data transmission type between the MPU and the AGV or system controller can be selected in the drop-down menu. [Ethernet] is pre-set. [Ethernet] and [CAN] are available in the drop-down menu.



Preventing communication with the PLC

To completely deactivate PLC communication for the charging modes without involving the PLC you can also select '-' as the PLC interface.

To select the 'PLC interface', move the mouse pointer over the orange field with the set communication method and click on it. Move the mouse pointer down to the desired setting in the drop-down menu and click on it.

3. ▶ Skip this step if 'CAN' was selected for communication with the control system.

Stay in the 'Settings' tab and , if necessary, change the preconfigured IP settings under 'Configuration' → 'Network' so that the communication nodes are in the same network. Click on the [Apply] button and perform a reboot (see also section ↗ 'Network' on page 93).

Set the desired Ethernet protocol for 'Ethernet interface'. To do this, go to the 'Ethernet protocol' and select [TCP] or [UDP] from the drop-down menu. [TCP] is pre-set. Enter the correct communication addresses for the MPU and the control system in the input fields for TCP or UDP.

Enter the desired timeout in the corresponding input field (see also section ↗ 'Ethernet interface' on page 96). Click on the [Apply] button.

4. ▶ Skip this step if 'Ethernet' was selected for communication with the control system.

Stay in the 'Settings' tab and set the required data transmission rate under 'Configuration' → 'CAN interface'. To do this, select the data transfer rate for 'Bitrate [kbit/s]' in the drop-down menu and enter the desired timeout in the corresponding input field (see also section ↗ 'CAN interface' on page 97). Click on the [Apply] button.

⇒ The MPU is now ready for the charging process. The charging process starts when the conditions for charging are met.

5.4.3.5 General parameters

The general parameters apply to all charging modes. Set the general parameters first before adjusting the specific settings for the respective charging modes.

General Parameter 

Output resistor [Ω] :

Over voltage threshold [V] :

Over current threshold [A] :

Over current monitoring (no / yes) :

Fig. 45: Setting general parameters

Output resistor

The output resistor achieves an improvement in regulation when the end-of-charge voltage is reached. The value of the output resistor must be above 0.

The default value of the output resistor is 0.01 Ω .

The useful value range is:

Data	Value	Unit
Min.	0.001	Ω
Max.	0.01	Ω

Setting the output resistor

1.  If required, enter a value other than the default value (0.01 Ω) in the input field for 'Output resistor [Ω]'.
2.  Click on the [Apply] button.

Over voltage threshold

If the control fails due to the software threshold, the over voltage threshold protects the hardware and prevents dangerous voltage at the outputs.

The default value is '0'. To start a charging process, adjust the over voltage threshold.

Data	Value	Unit
Min.	0	V
Max.	60	V

**60 V – hardware threshold**

- The system switches the charging process off via the hardware when 60 V is exceeded.
- Parameterisation above 60 V is not possible.



Over voltage fault

If the over voltage threshold is set too low, the over voltage fault F321 is triggered. During commissioning, the over voltage threshold must be adjusted accordingly under the 'Settings' tab in 'Charging Power Management' → 'General parameters', as the default setting is 0 V. After adjustment, the over voltage fault must be reset in the 'Reset MPU errors & warnings' located under the 'Settings' tab.

Setting the over voltage threshold

1. ➤ For 'Over voltage threshold [V]', enter a value in the input field that is higher than the battery voltage and the output voltage (battery charging voltage).
2. ➤ Click on the [Apply] button.
3. ➤ If an over voltage fault has already occurred, stay in the 'Settings' tab and click on the [Reset] button in the 'Reset MPU errors & warnings' section.

Over current threshold

The current is limited to the requested setting value for the charging current. However, should an over current occur, the over current limit value can be adjusted to a value that is higher than the charging current.

The over current threshold is pre-set to 68 A and enabled, i.e. an error is triggered in the event of over current.

To prevent short-term current spikes of over 60 A from causing an over current fault, the over current value can be adjusted as follows. Note that the minimum value should be a few amperes above the charging current.

Data	Value	Unit
Min.	0	A
Max.	70	A

Setting the over current threshold

1. ➤ If required, enter a value other than the default value (68 A) in the input field for 'Over current threshold [A]'.
2. ➤ Click on the [Apply] button.
3. ➤ To enable the over current threshold, make sure that the slider is moved to the right under the [Apply] button for 'Over current monitoring (No / Yes)' in the 'General parameters' section.
 - ⇒ As soon as the mouse pointer is moved away from the slider, the square of the slider is highlighted in orange, indicating that the function is active.
 - ↳ If the slider is positioned on the left, the square of the slider is greyed out and the function is disabled regardless of the value entered for 'Over current threshold [A]'.

5.4.4 Temperature threshold

Description Under 'Temperature Threshold', you can view and set the temperature fault values for the IMP (Inductive Mobile Pad) and the heat-sink of the MPU. As soon as the maximum values set are exceeded, an error message is triggered and the charging process is disabled. A warning is issued automatically as soon as the temperature is 5 °C below the temperature fault value.

Temperature Threshold

Descripton	Value
IM-Pad Temperature Error Value	85 °C
IM-Pad Temperature Warning Value	80 °C
Heat-Sink Temperature Error Value	90 °C
Heat-Sink Temperature Warning Value	85 °C
Set IM-Pad error threshold Temperature [°C] :	<input type="text" value="85"/>
Heat-Sink error threshold Temperature [°C] :	<input type="text" value="90"/>
	<input type="button" value="Apply"/>

Fig. 46: Setting the temperature threshold

Values

Settings/generated values	Meaning	Default value
Mobile charging pad (IMP): Temperature error value	Pre-set temperature for triggering the error message and shutting down the charging process	85 °C *
Mobile charging pad (IMP): Temperature warning value	Automatically generated value for triggering the warning message and starting the derating function 5 °C below the temperature error value	80 °C
Mobile Power Unit (MPU): Heat-sink temperature error value	Pre-set temperature for triggering the error message and shutting down the charging process	90 °C *
Mobile Power Unit (MPU): Heat-sink temperature warning value	Automatically generated value for triggering the warning message and starting the derating function 5 °C below the temperature error value	85 °C

* It is not possible to enter higher values. It is not possible to set values below 5 °C.



Setting lower values

The values can be set lower than the maximum permissible and default values to prevent components in the environment from heating up unacceptably.



Note before setting the temperature

Apply temperature settings for the mobile charging pad and the heat sink that are above the current temperatures. The current temperatures can be viewed under the 'Monitor' → 'Measurement' tab. If the temperatures are set too low, it causes temperature faults, which are marked in the 'Monitor' tab under 'MPU Errors'. In this case, these temperature errors automatically reset themselves as soon as the values are set again to higher permissible values. The values must be set higher than the current temperature.

Editing the temperature threshold

1. Enter the desired and permissible temperature values for fault triggering.
2. Click on the [Apply] button.
 - ⇒ The values are applied and can be viewed under the 'Settings' → 'Temperature Threshold' tab together with the adjusted warning values.

5.4.5 Reset changes

Description

Entry changes in the 'Settings' tab can be cancelled before they are saved by clicking the [Apply] button. Clicking the [Reset] button resets any settings that have already been made and not yet saved to the previously saved ones.

Reset Changes

Reset unsaved Changes :

Reset

Fig. 47: Reset changes

5.4.6 Configuration

Description

The 'Configuration' section offers setting options for the application of a dynamic or static network configuration and for Ethernet and CAN communication with the system controller or AGV control system and for the battery management system.



Ethernet and CAN protocols

Ethernet and CAN commands for communication between the devices are defined. Only use defined commands for communication. Documentation material on Ethernet and CAN protocols is provided in digital form. Please request it from your Conductix-Wampfler representative.

Configuration

Network [i](#)

Connection Type :	<input type="text" value="Static"/>
IP address :	<input type="text" value="192.168.1.100"/>
Subnet mask :	<input type="text" value="255.255.255.0"/>
Gateway :	<input type="text" value="192.168.1.1"/>
Hostname : i	<input type="text" value="mpu"/>
DNS server :	<input type="text" value="192.168.1.3"/>
	<input type="button" value="Apply"/>

Ethernet Interface [i](#)

Ethernet Protocol :	<input type="text" value="TCP"/>
TCP MPU port :	<input type="text" value="55555"/>
TCP client port :	<input type="text" value="55550"/>
UDP MPU port :	<input type="text" value="44444"/>
UDP client port :	<input type="text" value="44440"/>
RX timeout [ms] : i	<input type="text" value="5000"/>
	<input type="button" value="Apply"/>

Can Interface [i](#)

Bitrate [kbit/s] :	<input type="text" value="250"/>
RX timeout [ms] : i	<input type="text" value="5000"/>
	<input type="button" value="Apply"/>

Fig. 48: Configuration

Network

All relevant IP settings can be made in the 'Network' section. Operation is briefly disrupted in the meantime. The device must be rebooted. After making changes, access to the device or the web interface must be tested with the new data.

IP address pre-sets

The default static network configuration contains the following settings:

IP address default settings

Connection type	Static
IP address	192.168.1.100
Subnet mask	255.255.255.0
Gateway	192.168.1.1
Hostname	mpu
DNS server	192.168.1.3

Changing IP settings

1.  Make sure that *[static]* is selected as the connection type. Enter your own valid static network configuration settings in the fields provided in the web interface. When changing the hostname, note that this and the IP address are both relevant for accessing the web interface.
2.  To save the settings, click on the *[Apply]* button.
 - ⇒ A reboot is required to finally transfer the values to the device.
3.  Stay in the 'Settings' tab, go to 'Firmware Restart' and click on the *[Restart]* button.
4.  Press *[OK]* to confirm the message asking whether the device should be rebooted in firmware mode.
 - ⇒ The current online access is disabled.
 - ↳ The notification 'Reboot in progress!' is shown at the top left of the browser before the website is no longer accessible.
5.  If necessary, adjust the network configuration on your own PC (see  *Chapter 'Set up network connection' on page 13*).
6.  Test your online access with the newly set data.

**After changing the IP address**

- *To access the device again via the web interface after changing the IP address, enter the changed IP address or `mpu/` in the address line of the browser and open the web interface again. The `mpu/` entry only works if the hostname has not been changed. If the hostname has been changed, enter the changed name with a trailing slash in the address line of the browser.*
- *During the firmware update, the bootloader always reverts to the default IP address `192.168.1.100` of the device. Take this into account when assigning IP addresses in the network (see also  *Chapter 'Firmware update' on page 101*).*



Access to device without knowledge of the IP address

If the IP address of the device is unknown, the following measures may be taken:

- Enter *mpu/* in the address bar of the browser, provided the hostname has not been changed, and view the values under 'Configuration' → 'Network' in the 'Settings' tab.
- Search for the device on the network using suitable software.
- Reset the device to the preconfigured values under the 'Settings' → 'Factory Reset' tab. Please note that all values you have set yourself will be lost.

DHCP

If the device is connected in a network with a DHCP server, the dynamic network configuration can be selected.



Factory reset

The device is delivered with a static network configuration set to a fixed IP address (see also section ↗ 'IP addresses' on page 13).

Switch device to DHCP

Requirement:

- Direct access exists via static network configuration.

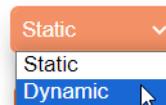
1. ➤ Under the 'Settings' → 'Configuration' → 'Network' tab, click on 'Static'.

⇒ A drop-down menu opens.

Configuration

Network ⓘ

Connection Type :



IP address :

2. ➤ In the drop-down menu, select and click on [Dynamic].



Hostname

Only the connection type (must be set to [Dynamic]) and the hostname are relevant for the dynamic network configuration. The hostname can be reassigned in the corresponding input field. When changing the hostname, note that this is relevant for opening the web interface if the IP address is assigned dynamically.

3. ▶ If the network configuration is only changed to *[Dynamic]*, this change is not confirmed by pressing the *[Apply]* button. To save the settings if the hostname has been changed, click on the *[Apply]* button.
 - ⇒ A reboot is required to finally transfer the values to the device.
4. ▶ Stay in the 'Settings' tab, go to 'Firmware Restart' and click on the *[Restart]* button.
5. ▶ Press *[OK]* to confirm the message asking whether the device should be rebooted in firmware mode.
 - ⇒ The current online access is disabled.
 - ↳ The notification 'Reboot in progress!' is shown at the top left of the browser before the website is no longer accessible.
6. ▶ Connect the device to a local network.
7. ▶ Enter the hostname with a trailing slash in the address line of the browser. If the hostname has not been changed in the settings, the default entry is `mpu/`. Open the web interface again.
 - ⇒ Access is established via the web interface.



After dynamic assignment of IP addresses has been set

- *If the hostname has been changed, enter the new name with a trailing slash in the address line of the browser to open the web interface.*
- *During the firmware update, the bootloader always reverts to the default IP address 192.168.1.100 of the device (see also ↗ Chapter 'Firmware update' on page 101).*

Ethernet interface

All relevant settings for communication with Ethernet can be configured in the 'Ethernet Interface' section. The settings are applied directly without having to reboot the system.

The settings must be configured correctly whenever the MPU has to communicate with the AGV or system controller (PLC) via Ethernet. Use the IP settings to ensure that the MPU and PLC are in the same network beforehand.

Settings for the UDP (User Datagram Protocol) and TCP (Transmission Control Protocol) communication protocols can be entered in the corresponding input fields. The active protocol can be selected in the drop-down menu and is highlighted in orange. The TCP communication protocol is pre-set.

Configuring the Ethernet interface

1. ➤ To change the communication protocol from TCP to UDP, go to the 'Settings' → 'Configuration' → 'Ethernet Interface' tab and click on [TCP] under 'Ethernet Protocol'.
⇒ A drop-down menu opens.
2. ➤ In the drop-down menu, select and click on [UDP].
3. ➤ For UDP, enter a new designated address in the 'UDP MPU port' (MPU) and 'UDP client port' (PLC) input fields or leave the default values as they are. The MPU and PLC must be in the same address range.

For TCP, enter a new designated address in the 'TCP MPU port' (MPU) and 'TCP client port' (PLC) input fields or leave the default values as they are. The MPU and PLC must be in the same address range.
4. ➤ A value of 5000 ms is pre-set for 'RX timeout [ms]'. If desired, enter a new value in the input field.
The system waits for a response within the time period stored as a value in the input field before the data packet is considered lost. If the scheduled time for communication between the devices is exceeded, the connection is considered cancelled. If you want the connection to remain without a limit, enter '0' in the input field.
5. ➤ Click on the [Apply] button.

CAN interface

All relevant settings for communication with the CAN bus can be configured in the 'CAN interface' section. The settings are applied directly without having to reboot the system.

The settings must be made correctly whenever the MPU has to communicate with the connected BMS of the battery and/or with the AGV or system controller (PLC) via CAN.

If a battery with BMS is used, the MPU communicates with the connected battery management system via the CAN interface. The configuration settings are specified by the BMS. Refer to the specific documentation of the battery manufacturer for the battery used.

If communication between the MPU and BMS and communication between the MPU and PLC should take place simultaneously via CAN, the same bus is used. In this case, the same data transmission rates must therefore be set for BMS and PLC.

Configuring the CAN interface

1. ▶ The default setting for '*Bitrate [kbit/s]*' is *[250]*. The current selection is displayed next to '*Bitrate [kbit/s]*' and is highlighted in orange.
If a data transmission rate other than 250 kbit/s is required for CAN communication, it is also possible to select *[100]*, *[125]*, *[500]*, *[800]* or *[1000]* in the drop-down menu.
To select a different data transfer rate, move the mouse pointer over the orange field with the default value *[250]* and click on it. Move the mouse pointer down to the desired value in the drop-down menu and click on it.
⇒ The selected value appears as the current selection next to '*Bitrate [kbit/s]*'.
2. ▶ A value of 5000 ms is pre-set for '*RX timeout [ms]*'. If desired, enter a new value in the input field.
The system waits for a response within the time period stored as a value in the input field before the data packet is considered lost. If the scheduled time for communication between the devices is exceeded, the connection is considered cancelled. If you want the connection to remain without a limit, enter '0' in the input field.
3. ▶ Click on the *[Apply]* button.

5.4.7 Administrator – logout

Description Users who are logged in as administrators have access to the '*Settings*' tab (see ↗ *Chapter 'Starting and logging in'* on page 49).
You can see from the user name in the top right-hand corner of the '*Settings*' tab that the administrator is logged in.



Fig. 49: Logged in administrator

Administrator logout

1. ▶ The logout symbol  is also located in the top right-hand corner of the '*Settings*' tab, right next to the language code '*EN*' or '*DE*'.
2. ▶ Click on the logout symbol.
⇒ The administrator is logged out and the '*Monitor*' tab of the web interface appears. To regain access to the '*Settings*' tab, you will need to log in again.

5.4.8 Real-Time Clock (RTC)

Description The current system time of the device can be adjusted under the '*Settings*' → '*Real time clock (RTC)*' tab.

Real Time Clock (RTC) ⓘ

Year : 2024 Month : 5 Day : 22 Hour : 11 Min : 50 Sec : 38

New RTC date & time :

22.05.2024 11:11

Now

Apply

Fig. 50: Real-time clock (RTC) – setting the date and time

Setting the date and time

1. First enter the date in the order day, month and year in the input field: xx.xx.xxxx. Make sure that the values entered are valid.
2. After entering the full date, press the right arrow key [→] at the end of the year. Then enter the time with valid values and two digits each for hours and minutes. Use the arrow buttons to navigate forwards and backwards as required. If necessary, to clear the digits, select the entered digits and press the [Del] key. Fill out all fields.
3. Click on the [Apply] button.
 - ⇒ The seconds start counting from the moment the data is transferred.
 - ↳ The current settings of the real-time clock can be viewed via the 'Monitor' and 'Settings' tabs.

Applying current date and current time

1. Click on the [Now] button directly below the input field.
 - ⇒ The current system time of the PC initially appears in the input field.
2. Click on the [Apply] button.
 - ⇒ The seconds start counting from the moment the data is transferred.
 - ↳ The current settings of the real-time clock can be viewed via the 'Monitor' and 'Settings' tabs.

5.4.9 Product information

Description

The serial number, MAC address and production date of the device are displayed under 'Product Information'. A specific device ID can be assigned there.

Product Information 

Descripton	Value
MPU Serial number	CWA0000129004
MPU ID / Name	Mobile Power Unit 3.0
Production date	2022/45
MAC address	9C-47-F9-0-0-21

Edit MPU ID / Name :

Fig. 51: Product information

MPU ID / Name

The ID of the device is used for the MPU communication. The ID is factory-set.

**MPU ID**

Every MPU has the same ID set at the factory. If the MPU ID is used to identify several devices in the network, the ID must be customised individually for each MPU. However, the MPU ID is not absolutely necessary for recognising different devices in the network.

**Changing
'MPU ID /
Name'**

1.  Enter the new MPU ID in the input field provided.
2.  Click on the *[Apply]* button.
 - ⇒ The new value is displayed under *'Product Information'*.

5.4.10 Firmware restart**Description**

If problems occur, the device can be restarted with a *'Firmware Restart'* without having to disconnect the MPU from the power supply. MPU operation is briefly interrupted.

For changes to the network configuration to be applied, it is also necessary to reboot the system.

**Charging process during firmware restart**

The charging process is briefly interrupted during a firmware restart.

Firmware Restart

Restart firmware :



Fig. 52: Firmware restart

Performing a restart

1. ➤ Go to 'Firmware Restart' in the 'Settings' tab and click on the [Restart] button.
2. ➤ Press [OK] to confirm the message asking whether the device should be rebooted in firmware mode.
 - ⇒ The current online access is disabled.
 - ↳ Before being redirected to the 'Monitor' tab, the notification 'Reboot in progress!' is briefly displayed in the top left of the browser.
 - ↳ As soon as interactions can be performed again on the web interface, the device has been rebooted. If necessary, refresh the web interface.

5.4.11 Firmware update

Description

The 'Monitor' → 'Software Information' tab provides an overview of the firmware and bootloader version currently installed on the device.

Under the 'Settings' → 'Firmware Update' tab, you have the option of uploading an updated firmware version to the device. The new MPU firmware may also update the web interface.

Firmware Update

Enter bootloader mode :



Fig. 53: Option to update the MPU firmware

Updating the firmware

The MPU firmware can be updated in bootloader mode via a bin file provided. During the firmware update, the bootloader always reverts to the default IP address (192.168.1.100) of the device. Take this into account when assigning IP addresses in the network. MPU operation is interrupted during the update process. The MPU reboots when you switch to bootloader mode and during the firmware update.

After the firmware is updated, the web interface can be used as usual by entering the (factory) configured IP address or the hostname with a trailing slash in the browser. If the default settings are used, it may be sufficient to refresh the website.



During the firmware update, the charging process is stopped and communication with the BMS is interrupted.

A firmware update can be initiated even when the MPU is in charging mode.

Note that the charging process is stopped during the update. During the firmware update, there is also no communication between the MPU and any BMS used. To prevent the battery from switching off as a result of this, you must connect an external 24 V power supply during the firmware update.

Once the firmware update is complete, the MPU returns to charging mode if charging mode was enabled before the update. When using a battery with BMS, make sure that the battery is switched on after the firmware update to ensure that the original communication between the MPU and BMS can be restored.



Backing up data

Take note of your own settings before updating the firmware or resetting to factory settings. As of firmware version 75102_22, some user-set values can be saved in a configuration file. To restore the settings you have made yourself, the configuration file must be uploaded to the device again after updating the firmware or resetting the device to factory settings; see [↗ Chapter 'MPU configuration file'](#) on page 105.



NOTICE!

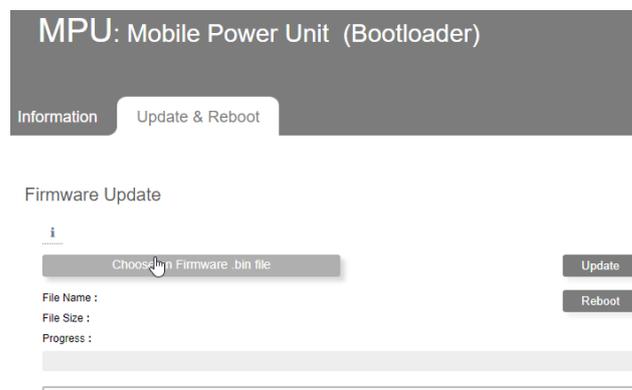
Firmware update from version 75102_20 or older to 75102_22 or newer leads to loss of calibration and product-specific information

Incorrect calibration can lead to material damage.

The specific product information that can be viewed under the 'Settings' tab will be lost after updating the firmware. This can impair communication between devices in the network. The calibration of the MPU will be lost when installing a newer firmware version. As a result, the measured values are no longer set correctly and the connected battery may thus suffer damage.

If you need to update the firmware, contact a Conductix-Wampfler service technician.

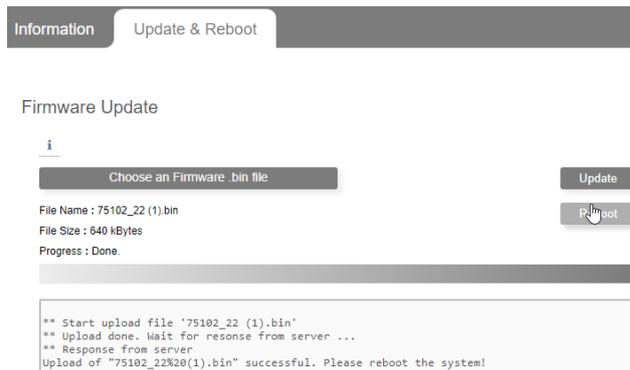
1. Under '*Firmware update*', click on the [*Reboot*] button.
2. Press [*OK*] to confirm the message asking whether the device should be rebooted in Bootloader mode.
 - ⇒ The notification '*Reboot in progress!*' appears at the top left above the web interface in the browser.
 - ↳ Redirection to bootloader mode takes place. There, you will find the '*Information*' tab containing information on the processor architecture, firmware and bootloader.
 - ↳ The '*Error*' status LED flashes red in all cases. In Bootloader mode, the MPU will reboot after five minutes of no interaction.
3. Click on the '*Update & Reboot*' tab.



4. Click on the [*Choose a firmware .bin file*] button.
 - ⇒ The '*Open*' prompt appears.
5. Choose the bin file saved in the folder structure on the PC and click on the [*Open*] button.



6. In Bootloader mode, the name and size of the selected bin file is displayed under the [*Choose a firmware .bin file*] button. Click on the [*Update*] button.
 - ⇒ The percentage and the progress bar indicate the progress of the process.



7. Further details are shown under the progress bar in the output window. As soon as *'Please reboot the system!'* is displayed, click on the *[Reboot]* button.
 - ⇒ At the top left in the browser, you will see the notification *'Reboot in progress!'*
 - ↳ The *'Information'* tab of the bootloader mode opens.
8. Wait until the MPU is operational again. The last initiated process may not start immediately. When the MPU is ready to boot or has started the booting process, the web interface can be refreshed if the default settings are used. Alternatively, you can open it again by entering the IP address or the hostname with a trailing slash in the browser. It may take a few seconds for the web interface to open.

5.4.12 Factory reset

Description The device can be reset to the factory settings.

All user parameters, with the exception of the real-time clock settings and the product information, are reset to the default settings using the *'Factory Reset'* function.

The *'Logging'* tab is not affected by the *'Factory Reset'* function.



Fig. 54: Resetting to factory settings

**Recommendation: Do not restore to factory settings when charging is in progress**

The system should not be reset to factory settings during the charging process, as otherwise the charging mode will always be set to 'Manual' and the values for charging will be lost. The charging process stops.

**Backing up data**

Take note of your own settings before updating the firmware or resetting to factory settings. As of firmware version 75102_22, some user-set values can be saved in a configuration file. To restore the settings you have made yourself, the configuration file must be uploaded to the device again after updating the firmware or resetting the device to factory settings; see [Chapter 'MPU configuration file'](#) on page 105.

Resetting to factory settings

1. ➤ Go to 'Factory settings' in the 'Factory Reset' tab and click on the [Reset] button.
2. ➤ Confirm the Reset configuration to factory values prompt by clicking on the [OK] button.
 - ⇒ Nearly all values that have been changed since the device was delivered are immediately and visibly reset to the default settings. The MPU is ready for immediate use.

5.4.13 MPU configuration file**Description**

Some settings configured for the MPU can also be saved in a configuration file. The configuration file can be downloaded from the device and also uploaded to other MPUs.

The following settings made via the web interface or the connected control system are saved in the downloaded configuration file.

Settings saved in the configuration file

- Selected charging mode
- Saved settings for the different charging modes
 - 'Manual': Power transfer (no / yes)
 - 'BMS only': BMS type, Charging thresholds (no / yes), lower threshold value, upper threshold value
 - 'BMS & PLC': BMS type, PLC interface, Charging thresholds (no / yes), lower threshold value, upper threshold value
 - 'PLC only': PLC interface
- Output resistor
- Over voltage threshold

- Over current threshold
- Over current monitoring (no / yes)
- IMP temperature error value
- Heat-sink temperature error value
- IP settings
- Ethernet settings
- CAN settings

You can upload a previously downloaded or compiled configuration file to the device.



Fig. 55: Configuration file

Downloading configuration files

1. Click on the *[Download]* button.
 - ⇒ A configuration file (`MPU_setting_XXXX-XX-XX-XX.json`) is created and saved locally in the Downloads folder on the PC by default.
2. If the browser is set accordingly, the 'Save as' prompt may also appear before the file is saved.

Select a storage location in the folder structure of the PC and click on *[Save]*.

 - ⇒ A configuration file (`MPU_setting_XXXX-XX-XX-XX.json`) is created and stored in the previously selected folder.
3. Save the file elsewhere if necessary.

Uploading configuration files

The configuration values from the uploaded file are immediately applied. Access to the web interface is maintained during the very short process. The web interface does not need to be reopened after the process.

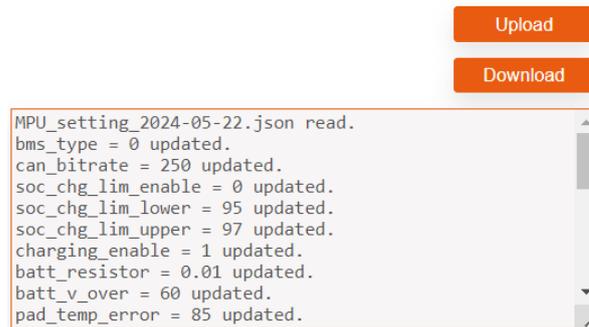


Uploading a configuration file during the charging process

A configuration file can also be uploaded during the charging process. The charging process is influenced by the parameters saved in the uploaded configuration file.

1. Click on the **[Upload]** button.
⇒ The 'Open' prompt appears.

Configuration File



2. Select the `MPU_setting_XXXX-XX-XX.json` JSON file saved in the folder structure on the PC and click on the **[Open]** button.
⇒ Feedback messages on the parameters contained in the JSON file appear in the output window.
↳ The current settings are immediately overwritten with the settings from the configuration file and the web interface remains accessible.

If another JSON file is uploaded immediately after the process, its feedback messages for the parameters also appear in the output window. The last file uploaded is the valid one.

Once the web interface is reloaded, the feedback messages for the parameters contained in the JSON file disappear from the output window.

5.5 'Logging' tab

The '*Logging*' tab of the MPU web interface allows you to log the current values of the MPU and is divided into the following sections:

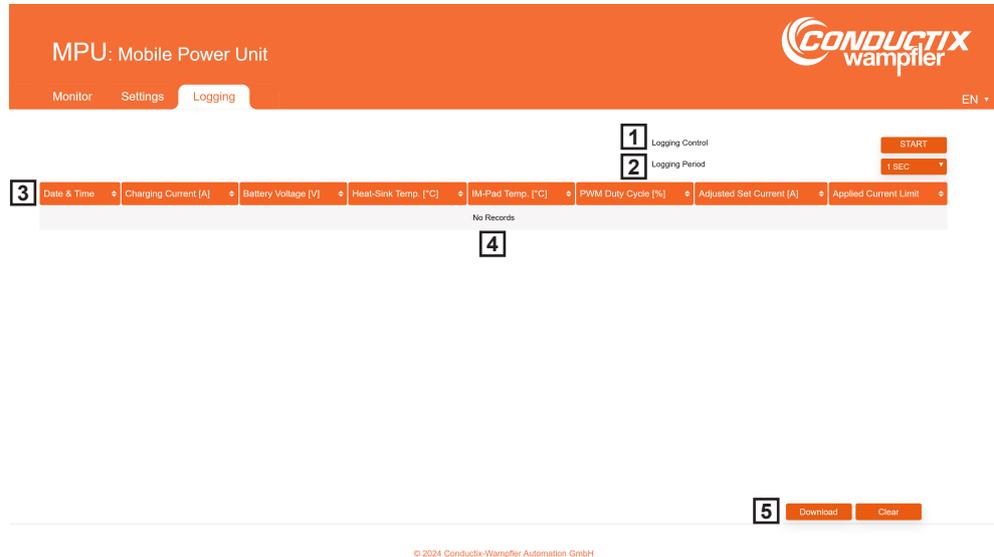


Fig. 56: 'Logging' tab view

- 1 Logging control
- 2 Logging period
- 3 Values recorded
- 4 Log area
- 5 Download and clear log

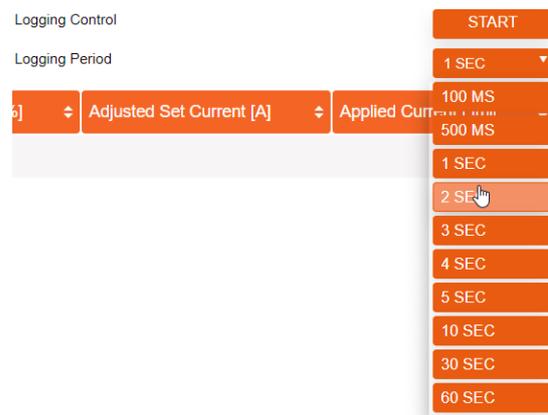
Description

The logging function, which can be executed in the '*Logging*' tab, takes place on the client side. Client-side logging enables the active recording of current values. The following values are recorded:

- Date & time of the terminal device (PC)
- Battery charging current in A
- Battery charging voltage in V
- Heat-sink temperature in °C
- Temperature of the mobile charging pad (IMP) in °C
- PWM duty cycle in %: Current requirement for the IPS
- Adjusted charging current in A: (Adjusted) set value of the charging current
- Applied current limit: Indicates the reason for limiting the set value of the charging current

Recording is started and stopped manually. The recorded values can be downloaded as a CSV file.

Starting logging



1. The 'Logging Period' is factory-set to [1 SEC]. The current selection is indicated with a small arrow pointing downwards next to 'Logging Period'.

If a time interval other than one second is required for the recording, you can also select [100 MS], [500 MS], [2 SEC], [3 SEC], [4 SEC], [5 SEC], [10 SEC], [30 SEC] or [60 SEC] in the drop-down menu.

To select a different time interval, use the mouse pointer to touch the field with the default value [1 SEC] and the arrow pointing downwards. Move the mouse pointer down to the desired value in the drop-down menu and click on it.

⇒ The selected value appears as the current selection with a small arrowhead pointing downwards next to 'Logging Period'.

2. Under 'Logging Control', click on the [Start] button.

⇒ Data logging is started and continuously records the values in the time interval set in the log area.

Stopping logging

Date & Time	Charging Current [A]	Battery Voltage [V]	Heat-Sink Temp. [°C]	IM-Pad Temp. [°C]	PWM Duty Cycle [%]	Adjusted Set Current [A]	Applied Current Limit
07/09/2024 11:23:06.771	60.56	50.24	54	40	45	60.00	SET CURRENT
07/09/2024 11:23:07.779	59.76	50.22	54	40	50	60.00	SET CURRENT
07/09/2024 11:23:08.787	59.76	50.21	54	40	55	60.00	SET CURRENT
07/09/2024 11:23:09.787	59.21	50.21	54	40	56	60.00	SET CURRENT
07/09/2024 11:23:10.777	59.30	50.22	54	40	51	60.00	SET CURRENT

3. The [Stop] button appears under 'Logging Control' while logging is in progress. Click on the [Stop] button.

⇒ Data logging is stopped.

↳ To view logged values that are out of the visible section, scroll the vertical scroll bar.



Sorting the log values

By clicking on the small arrowheads  in the column headings, you can sort the respective logged values within the column in ascending or descending order.

Downloading logging data

1.  The *[Download]* button is located next to the *[Clear]* button at the bottom right of the tab. You might need to scroll the vertical scroll bar to make the button visible on the monitor. Click on the *[Download]* button.
 - ⇒ A CSV file with the currently sorted sequence is created and saved locally in the Downloads folder on the PC by default.
2.  If the browser is set accordingly, the 'Save as' prompt may also appear before the file is saved.

Select a storage location in the folder structure of the PC and click on *[Save]*.

 - ⇒ A CSV file with the currently sorted sequence is created and saved in the folder selected beforehand.
3.  Save the file elsewhere if necessary.

Clearing logging data

-  The *[Clear]* button is located next to the *[Download]* button at the bottom right of the tab. You might need to scroll the vertical scroll bar to make the button visible on the monitor. Click on the *[Clear]* button.
 - ⇒ The data log will be deleted and cannot be restored. The log area now contains no records.

6 Customer service and addresses

Customer service

Our service team is available to provide technical information.

■ **Conductix-Wampfler Automation - Service**

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E-mail: service.potsdam@conductix.com



Service forms

Service forms are available for download under www.conductix.com.

Please send completed service forms to service.potsdam@conductix.com.

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7 Index

A

Addresses..... 111
 Administrator..... 18, 37, 50, 98
 Apparent output power..... 21, 46
 Applicable documents..... 5
 Automated Guided Vehicle (AGV).... 6, 55, 57

B

BMS..... 6, 54, 55
 Bootloader..... 32, 39, 94, 101
 IPS..... 5, 25, 39
 Mode..... 39, 101
 MPU..... 5, 73, 101

C

CAN..... 6, 54, 56, 62, 97
 Charging current
 62, 65, 67, 70, 79, 80, 81, 84, 87, 108
 Charging mode
 BMS & PLC..... 56, 62, 67, 68, 70, 71
 BMS only..... 54, 62, 67, 68
 Manual..... 53, 62
 PLC only..... 57, 62, 70, 71
 Charging power..... 62, 65, 79
 BMS..... 78
 BMS & PLC..... 78
 management..... 78
 Manual..... 78
 PLC..... 78
 Charging voltage
 62, 65, 67, 70, 79, 80, 81, 84, 87, 108
 Configuration file
 Download..... 44, 106
 Saved settings..... 43, 105
 Converter frequency..... 46
 CPU..... 6, 38
 Customer service..... 111

D

DC-Link voltage..... 21
 Derating..... 23, 36, 62, 91

DHCP..... 6, 32, 95
 DSP..... 6, 38

E

Ethernet..... 13, 56, 57

F

F110..... 27
 F111..... 27
 F113..... 27
 F120..... 27
 F121..... 27
 F122..... 27
 F210..... 27
 F211..... 27
 F212..... 27
 F213..... 27
 F214..... 27
 F215..... 27
 F216..... 27
 F217..... 27
 F218..... 27
 F219..... 27
 F222..... 27
 F223..... 27
 F224..... 27
 F225..... 27
 F226..... 27
 F227..... 27
 F310..... 60
 F311..... 60
 F312..... 60
 F313..... 60
 F314..... 60
 F315..... 60
 F316..... 60
 F317..... 60
 F318..... 60
 F320..... 59, 60, 77, 80

- F321..... 59, 60, 77, 78, 90
 F322..... 59, 60, 77, 80
 F323..... 60
 Factory reset..... 104
 Firmware
 CPU..... 5, 25, 38, 39
 DSP..... 5, 25, 38, 41
 IPS..... 5
 MPU..... 5, 73, 100, 101
 Restart..... 100
 Update..... 38, 101
- G**
 General parameters..... 88
- H**
 Heat-sink
 IPS..... 22, 26, 27, 36, 46
 MPU..... 58, 60, 65, 91, 108
 Hostname..... 13, 31, 32, 33, 94, 96
- I**
 IMP..... 6, 58, 60, 65, 91, 108
 Inverter frequency..... 46
 IP address..... 13, 16, 17, 31, 49, 94
 Dynamic..... 32, 95
 Static..... 31, 94
 IPS..... 6
 Errors..... 27
 Firmware..... 5, 38
 Heat-sink..... 22, 26, 27, 36, 46
 ID..... 34
 Password..... 18
 Serial number..... 34
 User name..... 18
 Warnings..... 26
 ISP..... 6, 22, 26, 27, 36, 46
- L**
 LED..... 6, 23, 72
 Logging..... 46, 108
 Log in..... 18, 30, 50, 76
 Logout..... 38, 98
- M**
 Mains current..... 21
 Mains voltage
 Frequency..... 21
 RMS..... 21
 Manual parameters..... 80
 Message
 Error..... 27, 58, 60
 Warning..... 25, 26, 58
 Mobile charging pad (IMP)
 58, 60, 65, 91, 108
 Monitor
 BMS & PLC charging mode..... 56
 BMS charging mode..... 54
 Manual charging mode..... 52, 53
 PLC charging mode..... 57
 MPU..... 6
 Errors..... 60
 Firmware..... 5, 100, 101
 Heat-sink..... 58, 60, 65, 91, 108
 ID..... 100
 Password..... 50
 Serial number..... 99
 User name..... 50
 Warnings..... 58
 MPU Errors
 resetting..... 77
 MPU Warnings
 resetting..... 77
- O**
 Output current..... 21, 46
 Output resistor..... 89
 Output voltage..... 21, 46
 Over current threshold..... 90
 Over voltage threshold..... 89

P		U	
Password.....	18, 30, 50, 76	UDP.....	6, 96
Change.....	30, 76	User name.....	18, 37, 50, 98
resetting.....	30, 76	W	
PLC.....	6, 55, 57	W225.....	26
Power.....	21, 46	W226.....	26
Power reduction.....	23, 62	W227.....	26
Power transmission.....	62	W325.....	58
R		W326.....	58
Real-time clock.....	24, 37, 71, 98	W327.....	58
Real-time clock (RTC).....	6, 24, 37, 71, 98	W328.....	58
Real-time clock setting up			
.....	37, 98		
Reset changes			
.....	34, 92		
S			
Serial number.....	34, 99		
Settings			
BMS & PLC charging mode.....	84		
BMS charging mode.....	82		
Manual charging mode.....	80		
PLC charging mode.....	87		
SOC.....	6, 62, 67		
State of charge.....	67		
Stationary charging pad (ISP)			
.....	22, 26, 27, 36, 46		
Status LED.....	23, 24, 72		
T			
Tab			
Logging.....	46, 108		
Monitor.....	20, 52		
Settings.....	29, 76		
TCP.....	6, 96		
Temperature			
Heat-sink.....	22, 26, 27, 58, 60, 65		
Mobile charging pad (IMP).....	58, 60, 65		
Stationary charging pad (ISP)....	22, 26, 27		