

1034 Smart SLC IQ Easy 4 1034 Addition SLC IQ Easy 4 User's Manual



EasION_IQ_4.1_UM_9752154610_NL_D_GB_F_V0_1



[https://
simco.nl/
1034000000](https://simco.nl/1034000000)



Preface

This manual is intended for the installation and use of the IQ Easy platform components:

- Smart SLC
- Addition SLC
- Manager 4
- Extension 4

This manual must always be accessible to the operating personnel.

Read this manual completely before installing and commissioning this product.

Instructions in this manual must be followed to ensure proper operation of the product and to make a warranty claim.


The warranty provisions are described in the General Terms and Conditions of Sale of SIMCO (Nederland) B.V.


Note:


Some functionality may not be implemented and will be commented with *future


Explanation of symbols


The following symbols may appear in this manual or on the product.


	<p>Warning Indicates special information to prevent injury or significant damage to the product or the environment.</p>
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	<p>Danger Indicates information for preventing electric shocks.</p>
---	---

	<p>High temperature Indicates information for preventing burning.</p>
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	<p>Sharp Edges Indicates information for preventing injury by sharp objects.</p>
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	<p>Note Important information for making the most efficient use of the product and for preventing damage to the product or the environment.</p>
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	<p>Hint Advice about the use of the product.</p>
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	<p>Remote control Refers to information only applicable to equipment with remote control function.</p>
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1 Introduction

The IQ Easy 4 system is a control system for all IQ 4.0 certified Simco-Ion devices.

	<p>This Simco-ION product is IQ 4.0 certified. The product can be used within an IQ 4 platform using a Smart SLC IQ 4.0/Manager IQ 4.0 system.</p> <p>The IQ 4 platform is intended to connect Simco-ION devices in order to control all devices from one central location. The system's core consists of the Smart Simco-ION Logic Controller (SLC), a 'plug and run' control system. The system is based on:</p> <ul style="list-style-type: none">• Smart SLC IQ 4.0<ul style="list-style-type: none">◦ Addition SLC IQ 4.0• Manager IQ 4.0<ul style="list-style-type: none">◦ Extension IQ 4.0
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IQ features

IQ 4.0 compatible devices have additional functionalities when combined with a Smart SLC IQ 4.0/Manager IQ 4.0 system.

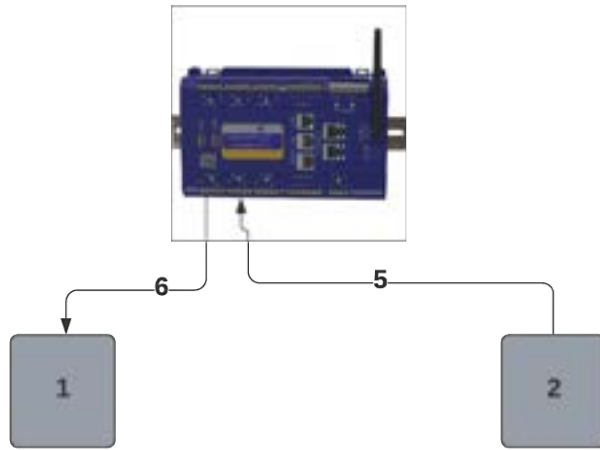
The devices provided the following added value (depending on device type):

- central status control and control of the anti-static bar
- read out parameters
- change parameters
- closed loop feedback (CLFB)
- ionisation efficiency indication
- calibration of efficiency indication
- ionisation optimisation settings
- data logging
- data graph
- event logging
- automatic device software update

For individual functionality, refer to the section for the specific device.

Closed Loop FeedBack principle

The Closed Loop FeedBack (CLFB) functionality can automatically reduce the static charge on the production material to a desired level using the anti-static bar.



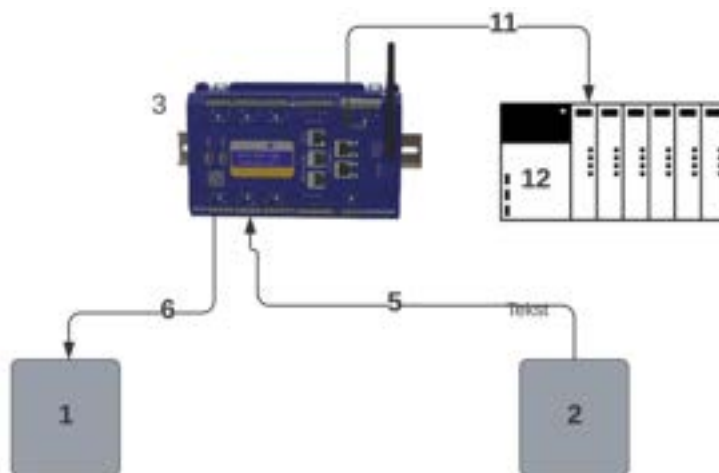
- 4 -

1	Anti-static bar	Neutralising WEB voltage
2	Sensor bar	Measuring WEB voltage
3	Smart-SLC / Manager 4	Continuously calculate the discharge voltage and control the anti-static bar
4	Material to be neutralised	
5	Measurement data	
6	Control data	

Figure: CLFB principle

Fieldbus principle

A Fieldbus connection offers the possibility to integrate the Simco-ION devices with the machine control and realise control from one PLC.



- 4 -

1	Anti-static bar	Neutralising WEB voltage
2	Sensor bar	Measuring WEB voltage
3	Smart-SLC / Manager 4	Continuously calculate the discharge voltage and control the anti-static bar
4	Material to be neutralised	
5	Measurement data	
6	Control data	
11	Fieldbus connection	Various fieldbus protocols are supported
12	Machine control - PLC	Various PLC brands and types are supported

Figure: Fieldbus principle

The following device types are available.

Smart SLC Spare part numbers

No	Part number	Description	Comment
1a		Smart SLC IQ 4.0	
	1034000000	Smart SLC IQ 4.0	standard device
	1034000020	Smart SLC IQ 4.0 Profinet	device with fieldbus
	1034000030	Smart SLC IQ 4.0 EtherCAT	device with fieldbus
	1034000040	Smart SLC IQ 4.0 Ethernet/IP	device with fieldbus
	1034000100	Smart SLC IQ 4.0 S-WL	device with Simco Wifi network
	1034000120	Smart SLC IQ 4.0 S-WL & Profinet	device with Simco Wifi network & fieldbus
	1034000130	Smart SLC IQ 4.0 S-WL & EtherCAT	device with Simco Wifi network & fieldbus
	1034000140	Smart SLC IQ 4.0 S-WL & Ethernet/IP	device with Simco Wifi network & fieldbus
1b		Addition SLC IQ 4.0	
	1034001000	Addition SLC IQ 4.0	standard device
	1034001100	Addition SLC IQ 4.0 S-WL	device with Simco Wifi network
2a		Manager IQ 4.0	
	1034002000	Manager IQ 4.0 AC	standard device AC: 100-240V
	1034002020	Manager IQ 4.0 AC Profinet	device with fieldbus
	1034002030	Manager IQ 4.0 AC EtherCAT	device with fieldbus
	1034002040	Manager IQ 4.0 AC Ethernet/IP	device with fieldbus
	1034002100	Manager IQ 4.0 AC S-WL	device with Simco Wifi network
	1034002120	Manager IQ 4.0 AC S-WL & Profinet	device with Simco Wifi network & fieldbus
	1034002130	Manager IQ 4.0 AC S-WL & EtherCAT	Simco Wifi network & fieldbus
	1034002140	Manager IQ 4.0 AC S-WL & Ethernet/IP	Simco Wifi network & fieldbus
2b		Extension IQ 4.0	
	1034003000	Extension IQ 4.0 AC	standard device
	1034003100	Extension IQ 4.0 AC S-WL	device with Simco Wifi network

Description

The IQ Easy 4.0 platform is intended to connect Simco-Ion devices in order to control all devices from one central place.

The core of the system consists of a Smart Simco-ION Logic Controller (Smart SLC)

The Smart SLC is a plug&play control unit. It can control up to 6 Simco-ION devices.

The Smart SLC is DIN rail mounting, and can be placed inside any electrical cabinet. Devices are connected with a push-in wire connector.

The system can be expanded with additional SLC's. Each SLC can control an additional 6 devices.

The SLC IQ 4 provides basic functionality:

- Distribution of the 24V power to the devices and the controller.
- Ethernet connection to a computer for visual control through the built-in HMI surface
- Analogue Input and Outputs
- LED indications of the status of each connected device
- Global status indication LED's
- Software and firmware updates
- Data logging
- Event logging
- 6 analog inputs (remote on/of) *future
- 6 analog outputs (status) *future
- 2 global outputs (status) *future
- Safety relays circuit expansion *future

Optional functionality

- Fieldbus
 - Ethernet based:
 - Profinet,
 - EtherCat
 - Ethernet IP *future
- WiFi access to HMI interface *future
- WiFi connection SLC to SLC *future
- External data-logging storage *future
- User definable functions E.g. Additional alarms and warnings *future

Available Devices:

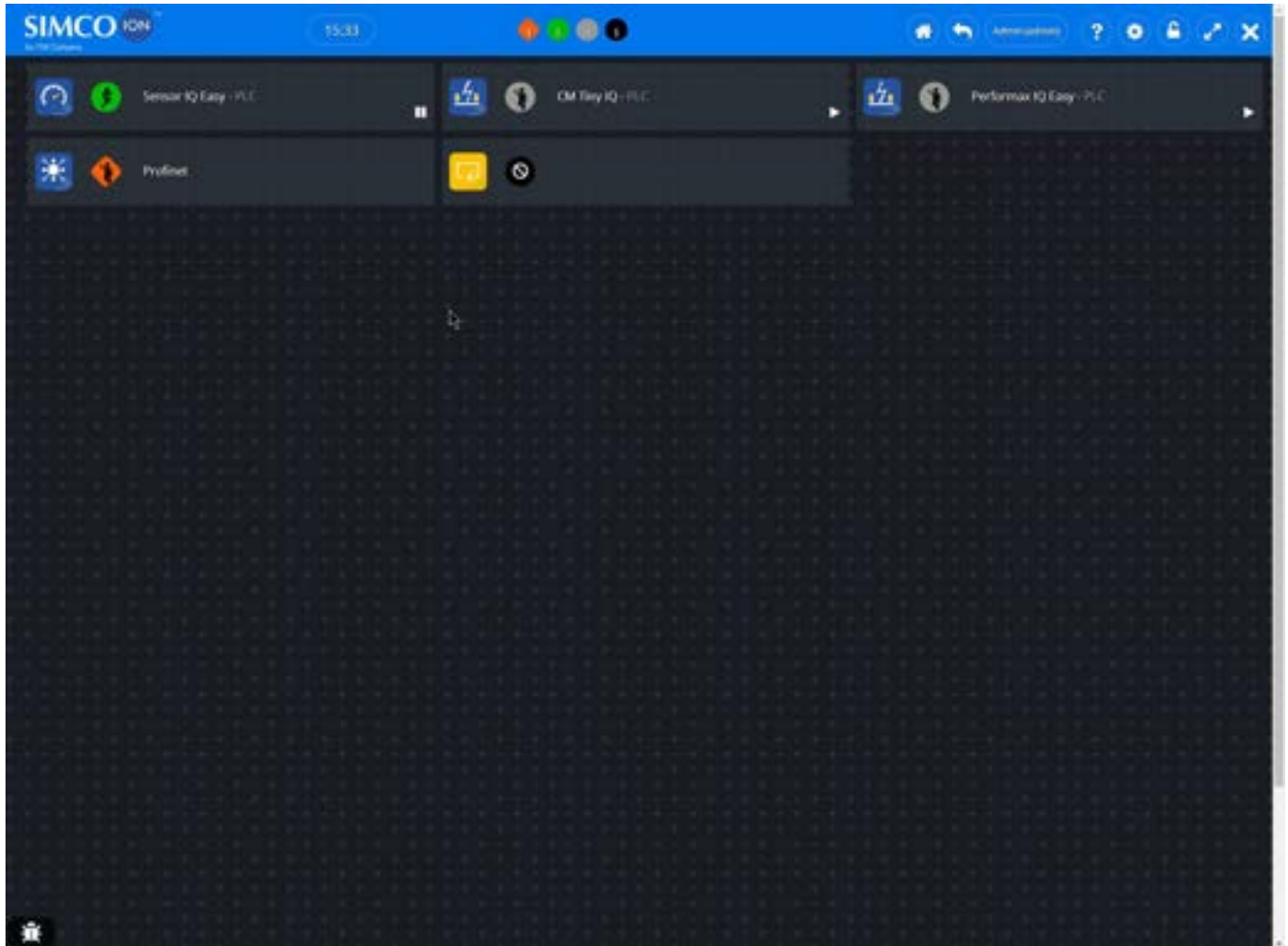
- Anti static bar, EasION IQ 4.x for neutralising applications with distance 50 – 400 mm
- Anti static bar, Performax IQ Easy for neutralising applications with distance 50 – 400 mm
- Anti static bar, Performax IQ Easy Ex for neutralising applications 50 – 200 mm in ATEX environment
- Anti static bar, ThunderION for neutralising applications 150 – 1000 mm
- Sensor IQ Easy, measuring static electricity
- Sensor IQ Easy 2.0 EX, measuring static electricity in ATEX environment

- CM-Tiny, charging generator 20 kV
- CMM-Easy, charging generator 20 kV for IML applications
- CM5 + IQ Com generator converter, charging generator up to 60 kV
- VicinION IQ,
- Cleanflex Easy IQ
- Blowflex Easy IQ

2.2 Getting to know the system

Smart SLC







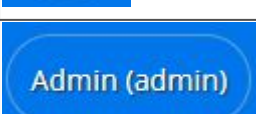




HMI



All components in the system are presented in an equal way and are referred to as "Object".

Menu

Menu items

	Screensaver	
	Full screen	
	Log-in out	
	Maintenance	Updates
	User Manual	
	Refresh	Refresh screen
	Current User	
	Back	
	Home	
	Home	
	Time	Current local time Click to set localtime Login as Admin to click and set system time

Objects

Objects can have various types:






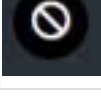
- Devices (Neutraliser, Charger, Sensor, Perforation detector)
- Fieldbus
- IO (Input / output) (future implementation)
- SLC (future implementation)
- Functions
 - CLFB Closed Loop Feed Back
 - Alarms & Warning (future implementation)
 - Customer function (future implementation)
 - WiFi (future implementation)

Object type

Icon representing the Object type:

	Neutralising
	Neutralising for ATEX
	Charging
	Sensor
	Sensor for ATEX
	Fieldbus
	Function CLFB
	System






Object status

	Running man with green background: Object is running
	Standing man with grey background: Object is standby
	Running man with orange background: Warning, object is running
	Standing man with orange background: Warning, object is standby
	Standing man with red background: Alarm, object is standby
	Black circle with stripe: Object is disabled

This is Body Placeholder text for your Master Page. Topics created using this Master Page will get this text by default. Replace text of this Body Placeholder with your default content for topics. Area outside this Body Placeholder represents the layout of the Master Page which will not be shown in the associated topics but will be present in the output. The Body Placeholder content will be replaced by actual topic content in the output. Use Master Page to define the layout of your topic in the output.

Controls

Controls of the object are shown when appropriate in the access level

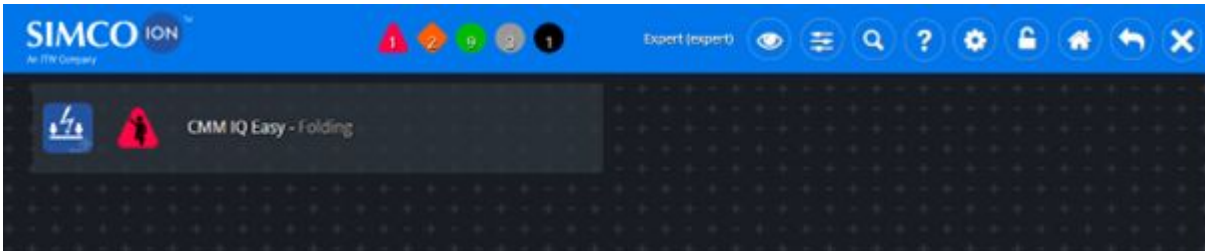
	Object is running Click this button to set Object in standby
	Object in in standby Click this button to set Object in running
	Object is enabled Click this button to disable the Object
	Object is disabled Click this button to enable the Object
	Action log Click this button to show Action log

Filter Status



The view can be filtered on the status of Objects.

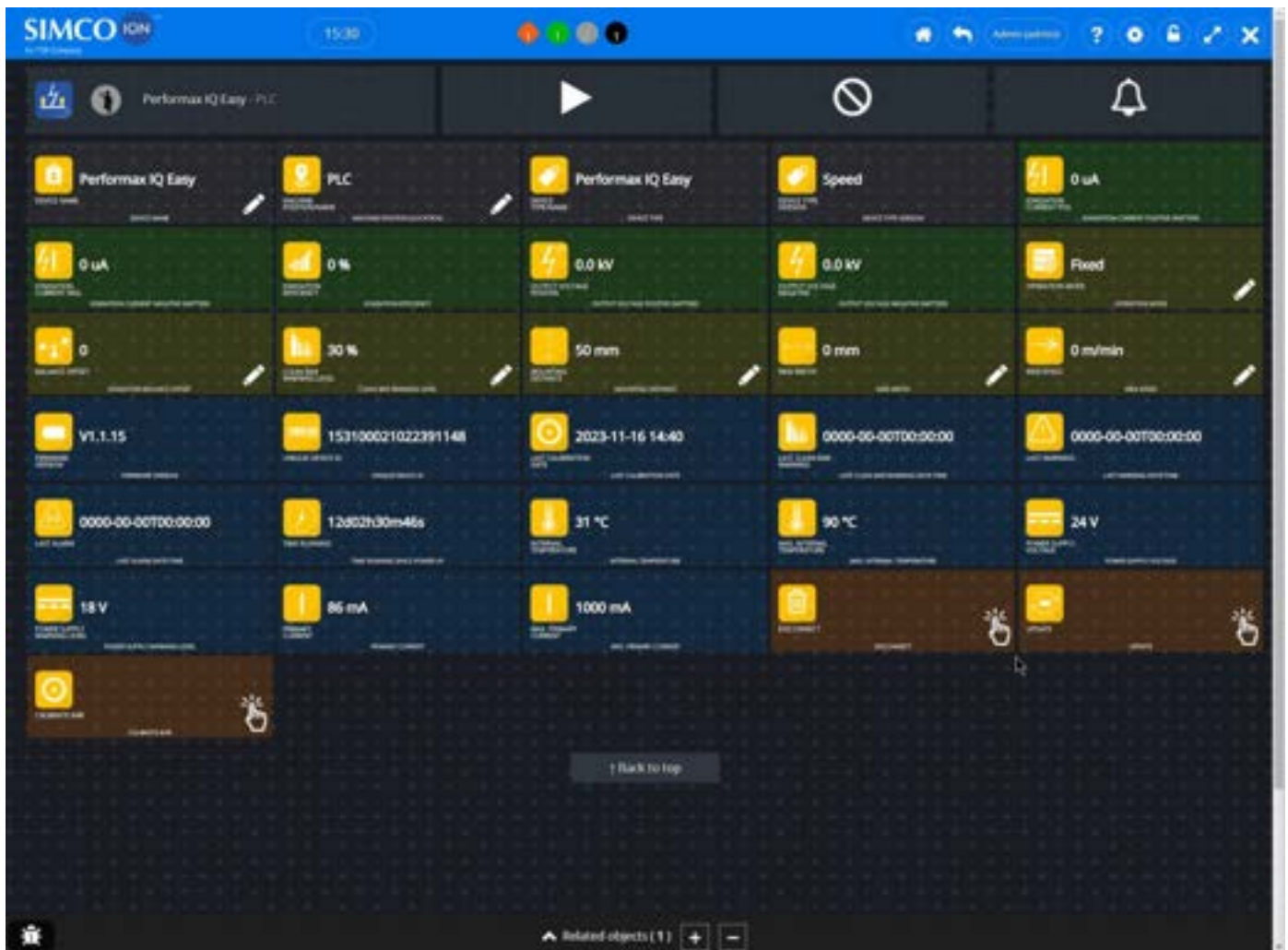
Example: Clicking on the red triangle shows all Objects with a warning



Clicking on the Home button or anywhere in the blue top will return to full unfiltered view.

Parameter Screen

Parameter view , access level Basic

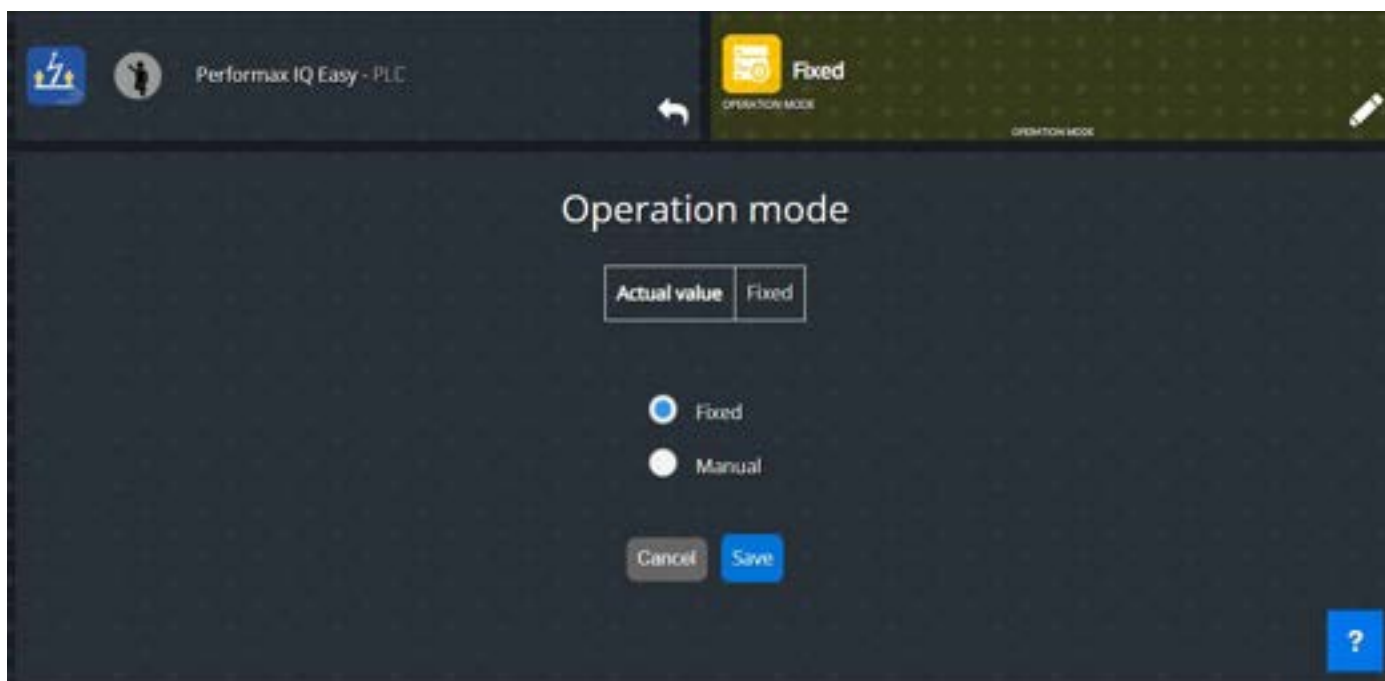


Each parameter of the object is presented with an ICON and a text indicating the type of the parameter.

Depending of the access level the appropriate parameters, controls and events are shown.

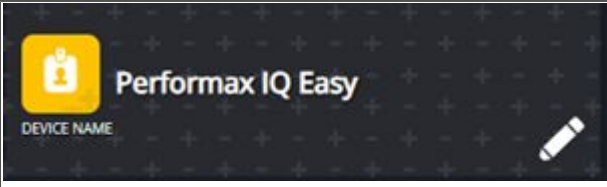




Parameter view, access level Admin

Parameter Edit



Parameter colours

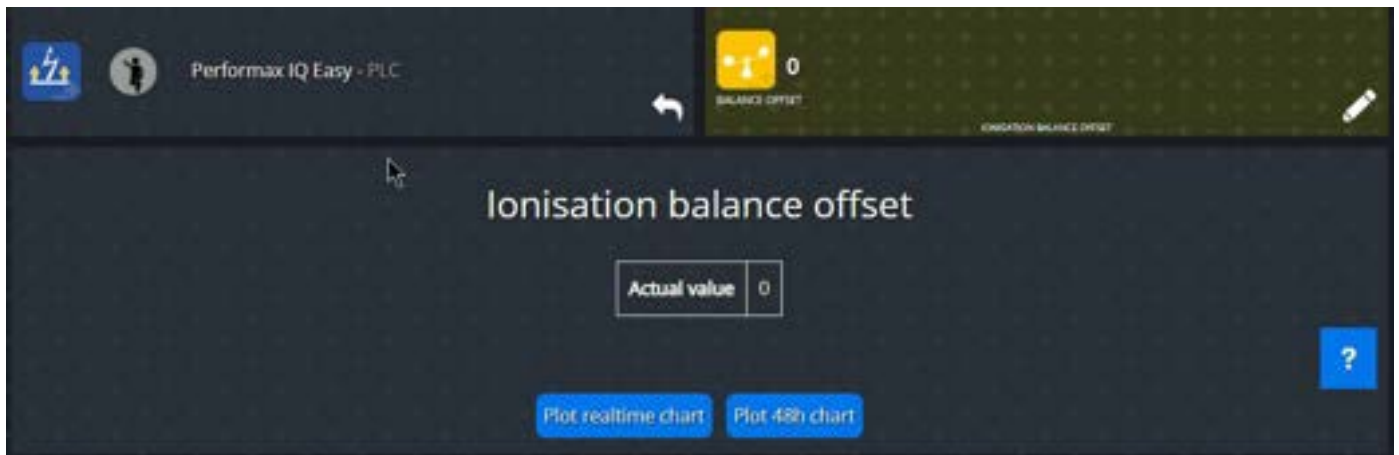
The parameters are shown in relevant groups indicated with a colour.

 <p>Performax IQ Easy DEVICE NAME</p>	<p>General information about the Object</p>
 <p>IONISATION CURRENT POS 0 uA</p>	<p>Green background: Real time values</p>
 <p>Fixed OPERATION MODE</p>	<p>Yellow background: Settings</p>
 <p>FIRMWARE VERSION</p>	<p>Blue background: Maintenance information about the Object</p>
 <p>CALIBRATE BAR</p>	<p>Brown background: Actions</p>

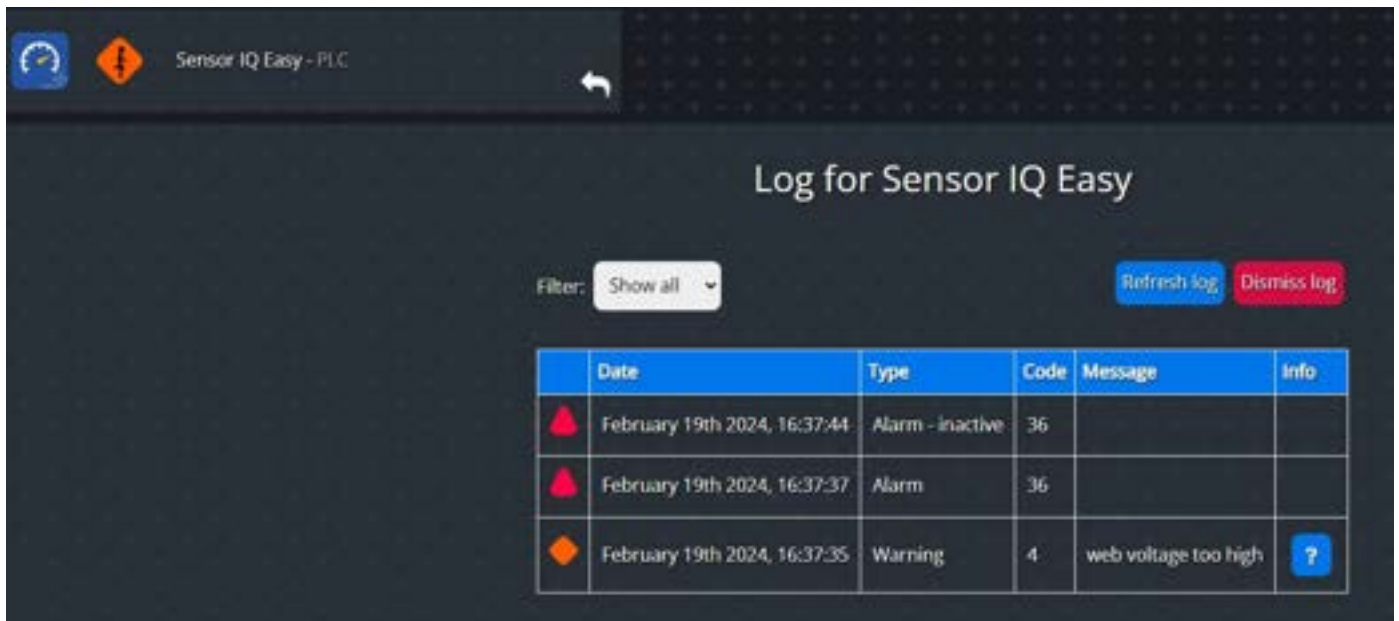
Parameter Info

Parameters files are buttons that can be clicked to show the details.

If a parameter has an action , clicking on the action symbol will directly initiate the action (Edit or run action)



Event log



Action log

Dismiss log: Clear the table and show only new events

Refresh log: Show all events

Filter: Filter event logs on type of event.

? Help: show help for the event

If there is contextual help present a ? button will be displayed.

Click the button to get help.

Click the button or close to close the help.

Standard help will be displayed in english. If a translation in the chosen language of your setting is available, this will be displayed.

3 Safety



- A qualified electrician must carry out electrical installation and repairs in accordance with national and local regulations.
- The product must not be used in a fire or explosion-hazardous environment.



- The equipment must be properly earthed. Earthing is necessary to ensure proper and safe operation and to prevent electric shocks upon contact.
- The power must be turned off before any work on the equipment is started to prevent electric shock.



- Making modifications, adjustments, etc., without prior written consent or carrying out repairs using non-original parts will invalidate the equipment's guarantee and withdraw the CE approval for the product.

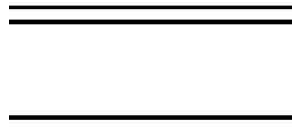
Technical specifications

Electrical	
Supply voltage	21–27 V DC, Nom 24 V
Current consumption Logic power	Max. 1 A DC
Current consumption Device power	3 A per device port, Max. 20 A DC
Connections:	Power in : Screw terminal block
	Device : push in terminal block
	IO (Logic in, Logic out): push in terminal block
	2x USB
	Customer LAN RJ45, Only on Smart-SLC
	Simco-ION LAN 2x RJ45
	Simco WLAN : Antenna *future
	Optional WLAN addition : Antenna *future
	Optional fieldbus : 2x RJ45
IO	Logic in 6x : 10 - 30V, max 0,5 mA
	Logic out 6x : open emitter, Supply voltage -1 V, max 25 mA
	Status 2x: open emitter, Supply voltage -1 V, max 25 mA
Dimensions	204 x 138 x 62.5 mm
Mounting	DIN rail
Weight	1100 g
Material	Aluminium, Plastic
Ambient Conditions	
Use	Industrial, internal use
Ingress protection class	IP20
Temperature	0–45°C T _{Amb}
Approvals	CE

Connection diagram Smart SLC

Connection diagram Additional SLC

Circuit diagram



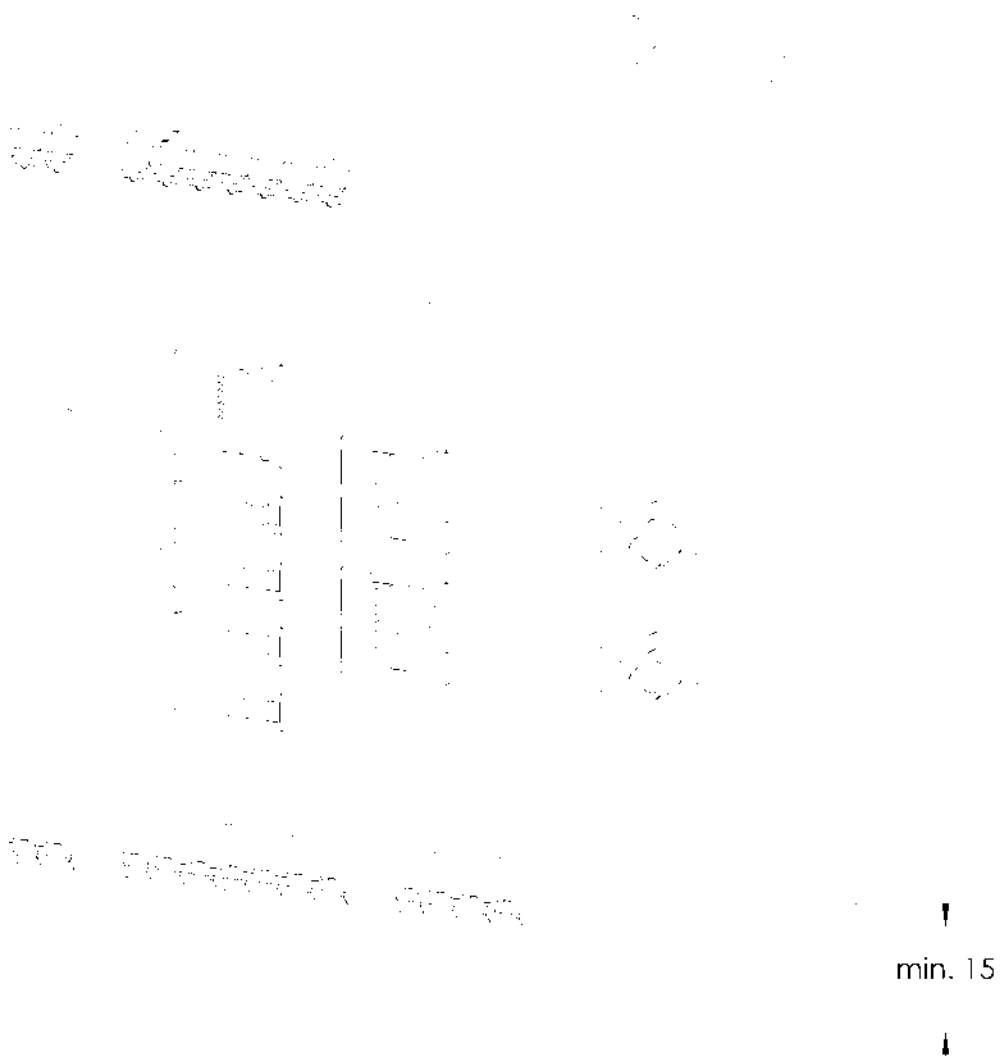


Figure: SLC mounting distance

Installation

Checks

- Check that the equipment is undamaged and that you have received the correct version.
- Check whether the necessary accessories are included.
- Check whether the details of the packing slip correspond to the details of the product received.



If you have any problems or doubts, please get in touch with Simco-Ion Netherlands or the agent in your region.

Installation precautions

Environmental conditions

Installation location

Free mounting area

Mechanical installation

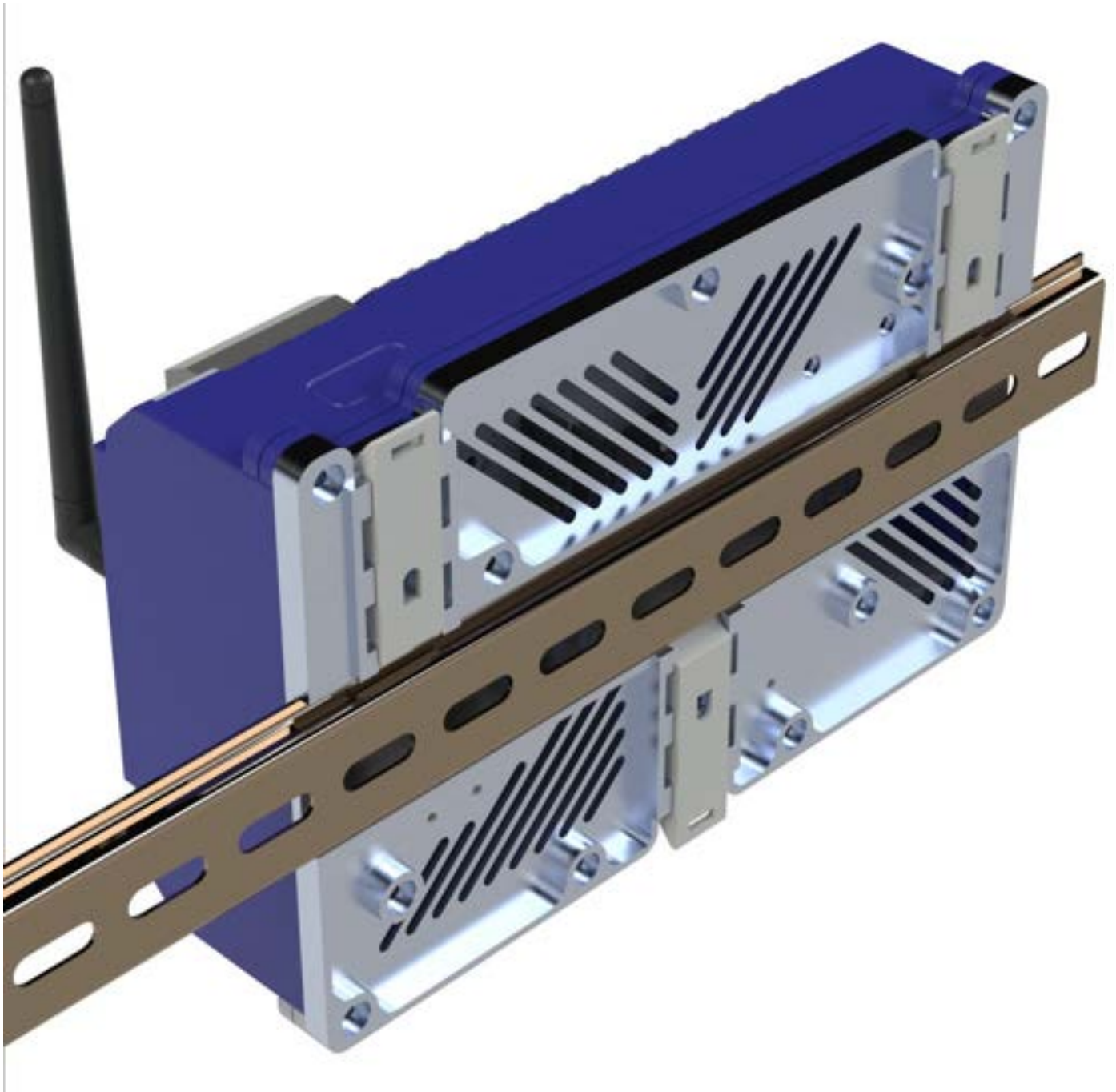
Mount the Smart-SLC or SLC in an electrical cabinet on a DIN rail.

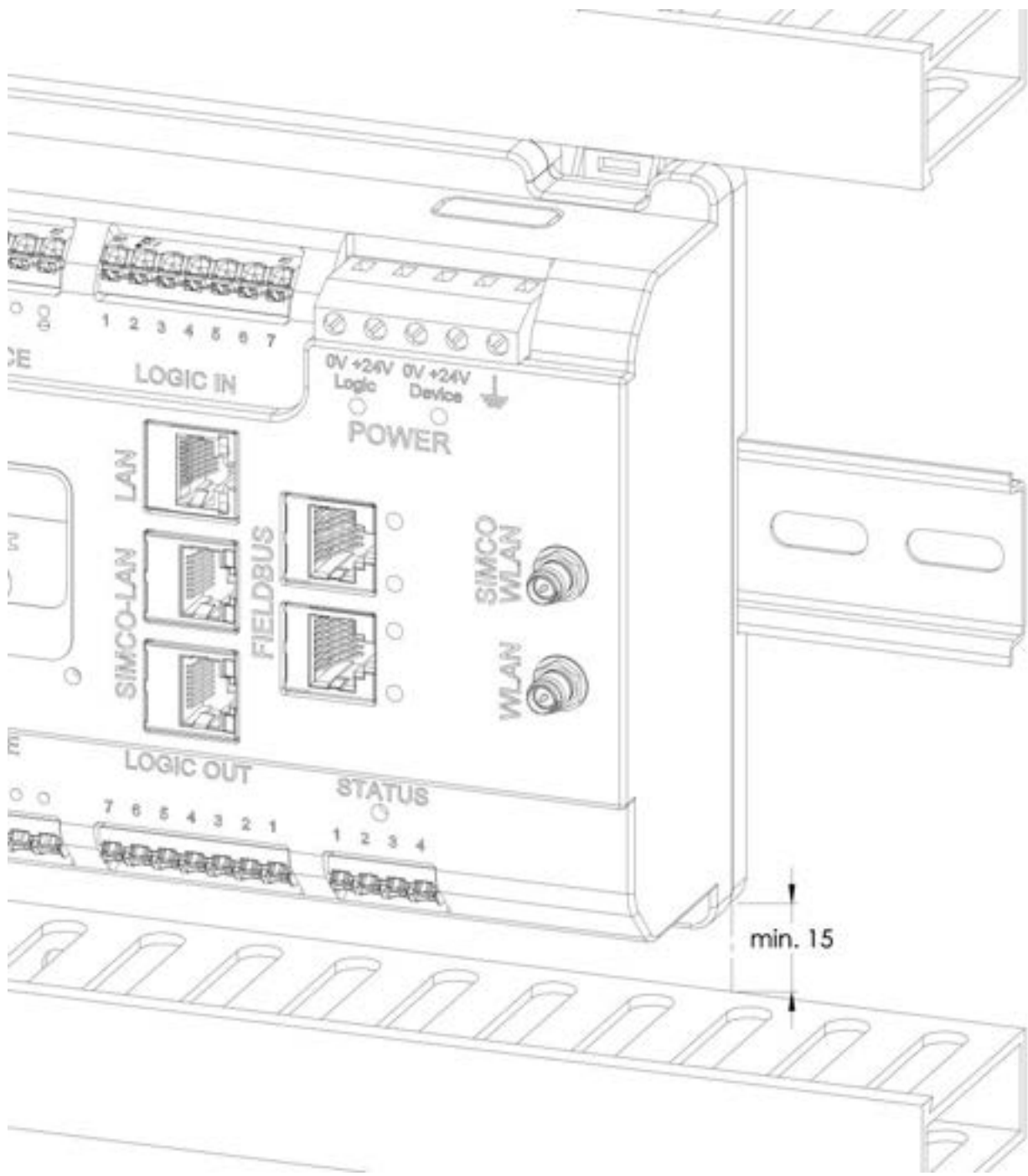
Mounting

Click the unit on the DIN rail, bottom first.

Unmounting:

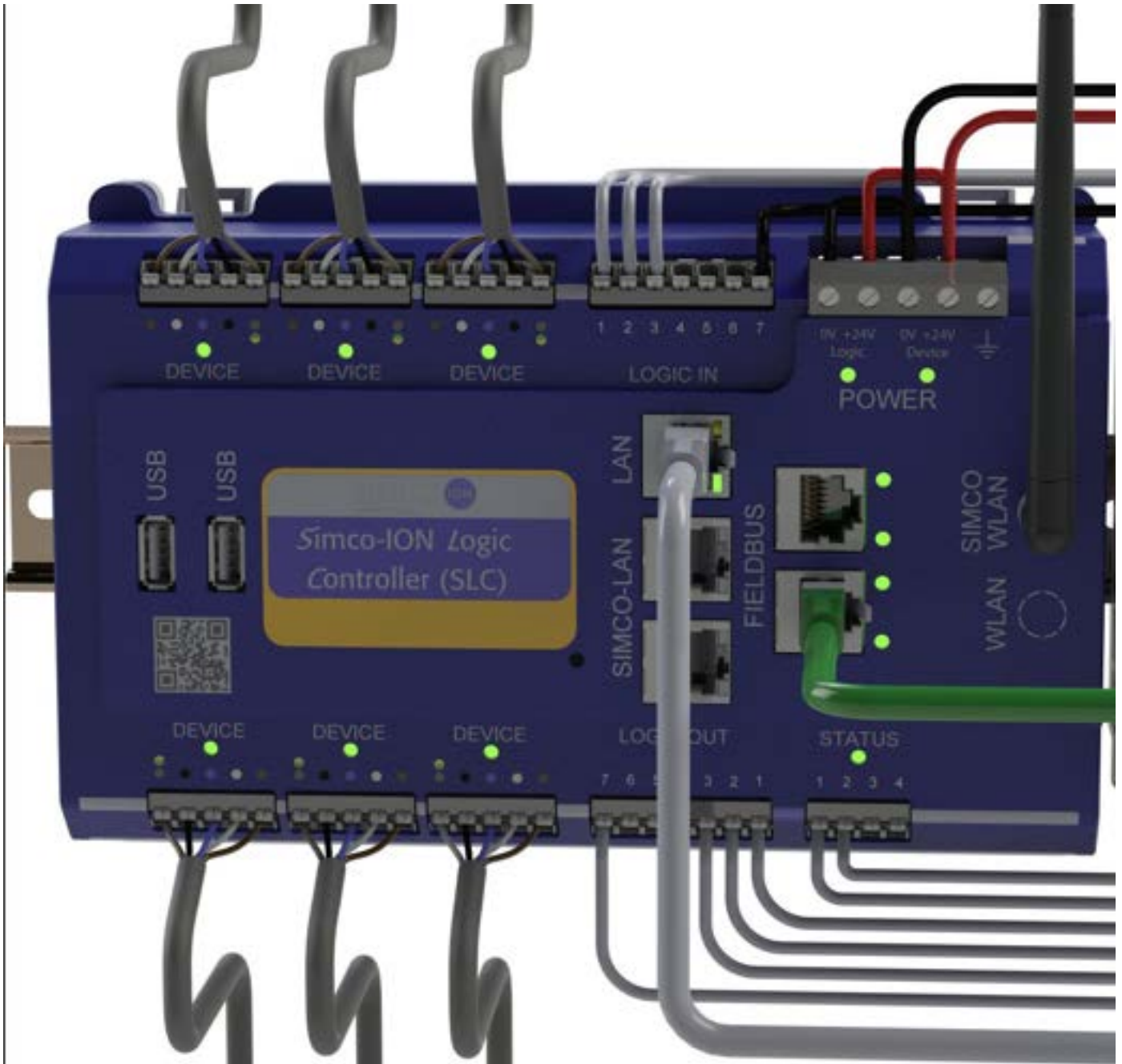
When mounted on a low DIN rail, place screw drivers in all 3 clips and move outwards.
When mounted on a high DIN rail only clips on one side have to be released





Electrical installation

Check the wiring diagram : [Electrical wire connections](#)



Connect Simco-ION IQ devices

Connect a Simco-ION IQ device to a port. Strip the 5 individual wires and terminate them with a cable end sleeve.

Push the wired with cable end sleeve directly in to the correct position. The positions are colour marked. The 5th wire is grounding and can be yellow/green or gray.

Use M12 cables female 5 pole with blunt end 0,34 mm² for cables up to 15 m. For longer cables consult Simco-ION.

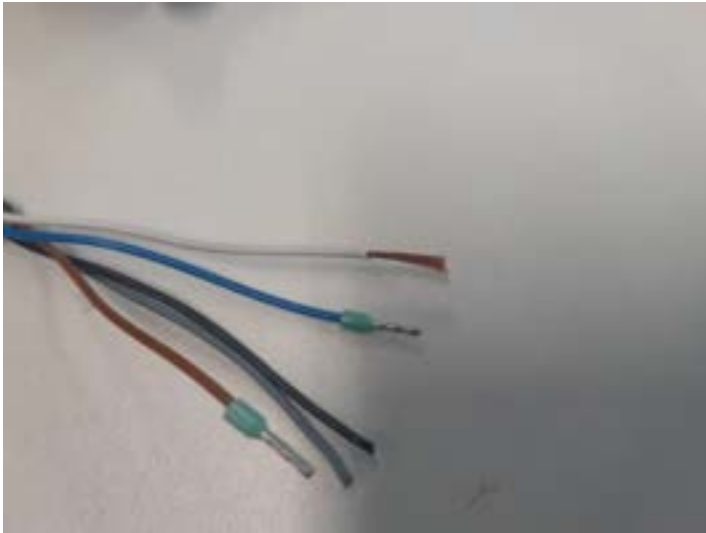
For device cables use cable ends for 0,34 mm² (supplied with the SLC)



Strip the outside core approx 60 mm.



Strip the wires 6 mm and use crimping tool to fix cable ends.



Push wires in a device terminal block with the corresponding colours.



Connection colours
1. Yellow/Green or Grey
2. Black
3. Blue
4. White
5. Brown

Power:

The Smart-SLC has 2 power connections.

1. Logic power: This is the 24V power to the control electronics of the Smart-SLC: Supply 24V 1A
2. Device power: 24V power to all devices.



See Chapter [4.1 Technical Specifications](#) for more connectivity and electrical load details.

The specification is for the maximum load of the SLC.

Depending on the connected devices, type and length, the load will be less.

Make your own calculation and determine the Amp rating of your power supply.

Take into account the inrush current when selecting the power unit.

Example:

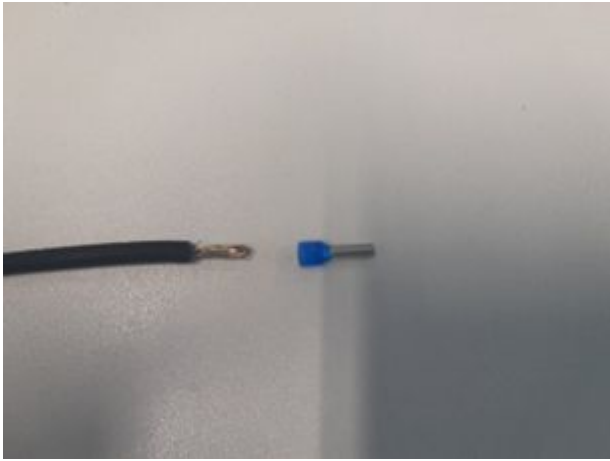
Qty	Device	Max current A
3	EasION IQ 4.1	3.6
2	ThunderION IQ 2.0	4.0
1	Sensor IQ Easy	1.0
	Total	8.6

Connect the grounding connection to your cabinet or machine grounding.

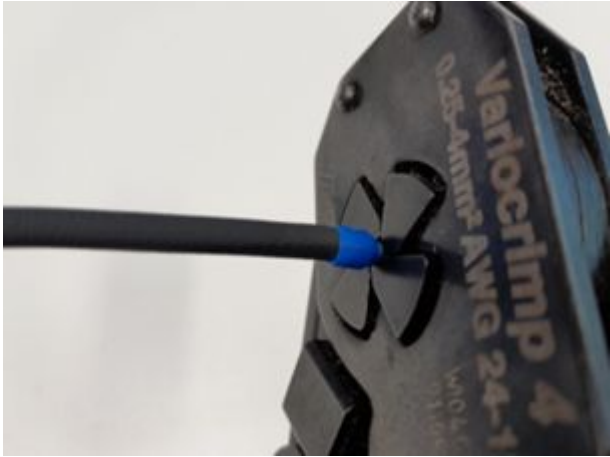


Use wires 2,5 mm² with flexible core

Strip wires 10 mm



Crimp the 2,5 mm² cable ends with a crimping tool (10 pieces supplied)



Global status:

The global status connection block can be used to get signals about the global status of the system.

It has 2 signals:

- | | |
|-------------------|-------|
| 1: Global warning | Pin 4 |
| 2: Global Alarm | Pin 2 |

The connection Pin 1 and pin 3 are common 0V connection.

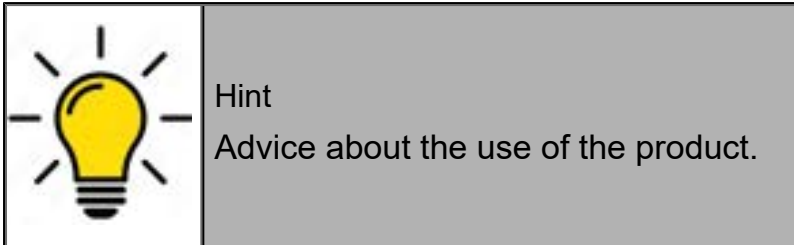


See Chapter Technical Specifications for more connectivity and electrical load details.

Connecting to the HMI (Human Machine Interface)

The HMI is a web based application that will run on many different operating systems.

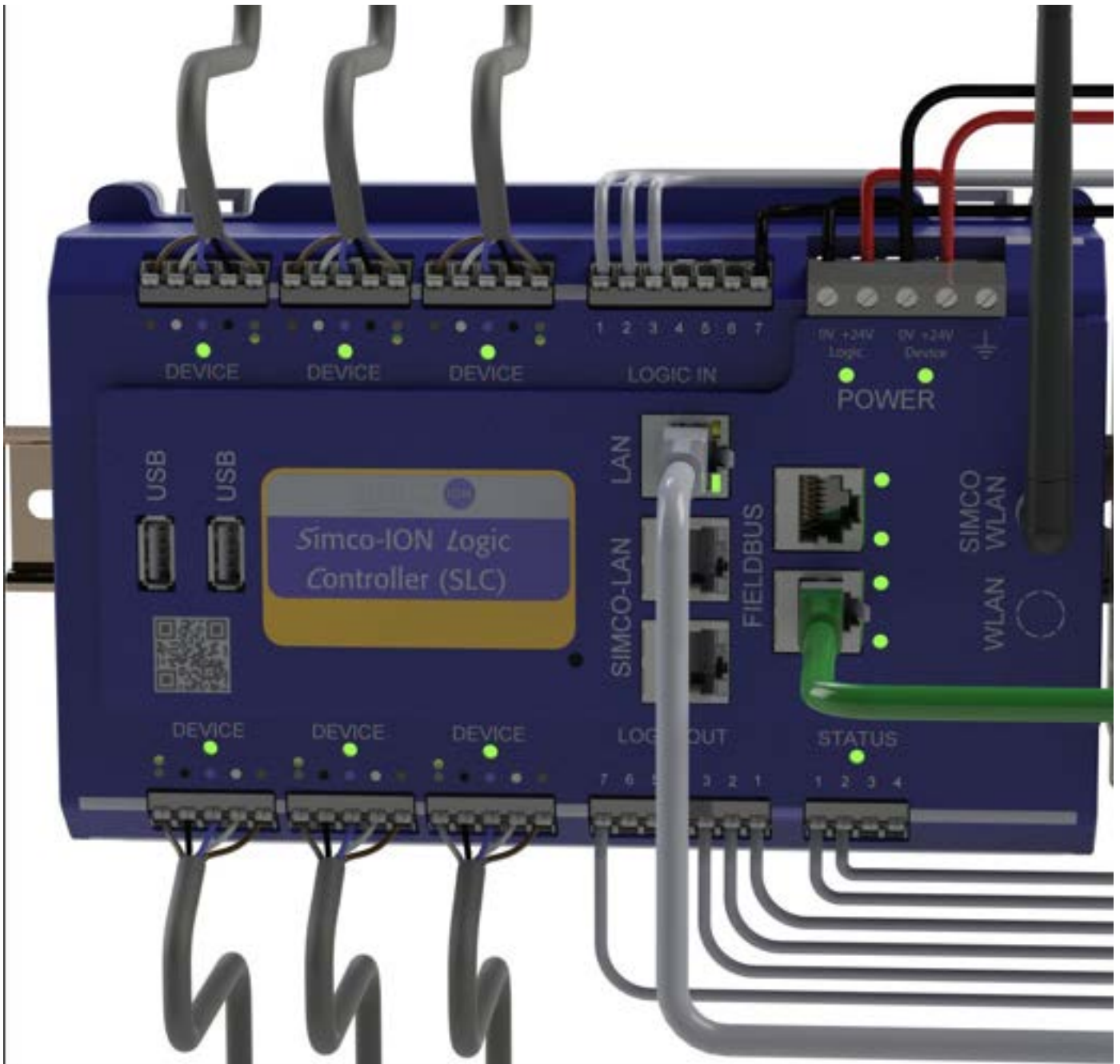
When the SLC IQ 4 is connected to LAN via an Ethernet switch or router you can access the user interface through a browser.



Be careful how to connect the SLC IQ 4 to your network. Only use the LAN connection. Your network will use DHCP to apply an IP address to the SLC IQ 4

Only for servicing and configuration a peer to peer connection can be used to connect to one of the SIMCO-LAN ports.

The SLC IQ 4 will have a fixed IP : 192.168.10.199



Login procedure:

1. Connect your login device to the same network that the SLC IQ 4 is connected to.
2. Check the Nameplate of the SLC IQ 4 for the Item-number (1034xxxxx)(*set of ten*) and the serial-number (yyyyyyy)(*set of eight*) and use these numbers in the browser URL: 1034xxxxxyyyyyyy.local/ Press Enter.
3. A Screen saver or log-in screen should appear.
4. Once your SLC IQ 4 is connected to your network, you can do an IP scan and access it directly with the IP address. Note: Static IP settings are not available yet.



You can find the nameplate on the top of the SLC IQ 4.

Log in

Log in

The Smart SLC has 4 user access levels:

- Basic (view only)
- Advanced (operator)
- Expert (supervisor)
- Admin (Administrator)

When you are logged in you can create and edit any user profile with a lower access level.

At first setup for the system log in as Admin

Default:

User : Admin

Password : (no password)

It is highly recommended to change the default Admin password and to make additional Admin user(s) in case you forget the Admin password.



Recovery of Admin password:

Contact Simco-ION cs@simco-ion or ts@simco-ion to supply a recovery code.

The Admin user has access to additional settings needed for initial system configuration.

Create as many Basic, Advanced and Expert users as you want.

Passwords need to be at least 8 characters.

As administrator you can edit usernames and password after creation to modify if needed.

Basic users can only view the system and cannot change any settings or initiate actions.

Multiple Basic users can be logged in the system at the same time.

Advanced or Expert users has access to changing parameters or initiating actions. Only 1 Advanced or Expert user can be logged into the system.

When an Advanced or Expert user is logged in, the Administrator can also log in and change parameters, change status of objects or initiate actions.

Advanced users can change Object status (Run/Standby/Disable) and have access to a limited number of parameters.

Expert users have access to all user relevant functions.



After the first log-in, check the system time.

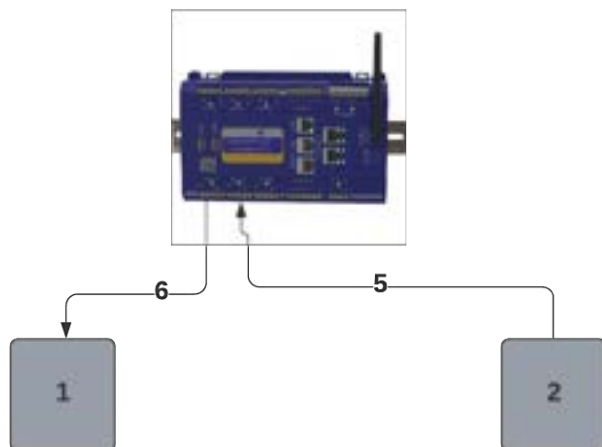
In case you have connected the Smart_SLC to your company network with internet access, the system time will be synchronised with a NTC time server.

In case you are using the Smart-SLC as a stand alone system the system time will be pre-set at the Simco-Ion factory and you will have to check and correct.

Creating / removing a Function Closed Loop Feed-back (CLFB)

Closed Loop FeedBack principle

The Closed Loop FeedBack (CLFB) functionality can automatically reduce the static charge on the production material to a desired level using the anti-static bar.



1	Anti-static bar	Neutralising WEB voltage
2	Sensor bar	Measuring WEB voltage
3	Smart-SLC / Manager 4	Continuously calculate the discharge voltage and control the anti-static bar
4	Material to be neutralised	
5	Measurement data	
6	Control data	

Figure: CLFB principle

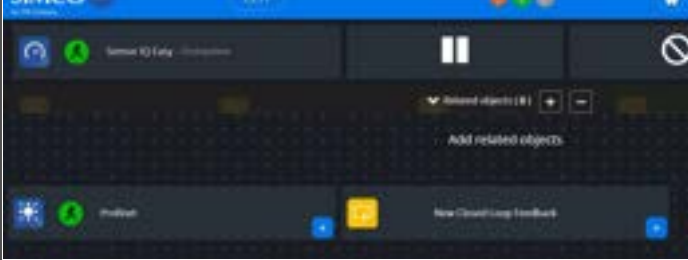
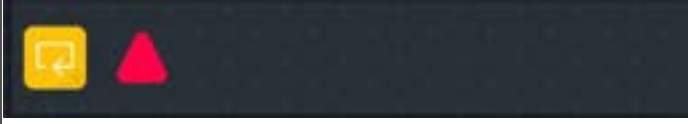

When you have a Sensor upstream of an anti-static bar, you can set up a CLFB loop. The anti-static or charging generator bar will get information about the static charge on the web and adjust settings accordingly.

Various settings for a CLFB are available.






Be sure you know the influence of these settings before you start to change them.

Create a CLFB


Action	Result / explanation
Click on the anti-static bar or Charging generator [target device] you want to incorporate in the CLFB.	
Then click the [+] next to the Related objects overlay.	
Then click the blue + button of the New closed loop feedback Object.	
A new CLFB Object will appear.	
Click on it to edit.	
Give the CLFB a unique name by changing Parameter Name.	
Click on the [+] button next to Related objects.	
Select the Input device Sensor by clicking on the blue [+]	

Settings


Action	Result / explanation
The most important setting is the Web Voltage Offset.	
The Web voltage offset determines the resulting voltage on the web.	
For CLFB used for neutralisation this is usually 0 kV	
For CLFB for charging this is the desired charge on your web.	
A Fallback is set up as security. When communication with the sensor is lost for more than 5 seconds, the setpoint will take the value of the fallback . Default 0	
Choose the Sensor segments you want to include in the CLFB Start with a general setting: Segment selection: - All (default) - Selection - Auto (future, not implemented)	

The default setting is All, which used all the available segments.	
Selection, will let you choose which segments to use with setting the parameter Input Segments	
Refer to the CLFB manual section for the specific device for default settings and fine tuning the CLFB PID controller.	

Make the CLFB active

Action	Result / explanation
Click on the Enable button.	
If the CLFB is set up correctly, the status will become green with a running man.	
In case a warning or alarm is active, target or source devices are not present or not in run mode.	

Removing a CLFB

Action	Result / explanation
Delete all related object first with [-] button	
To remove the CLFB use the Disconnect action.	
Note: removal is definite.	

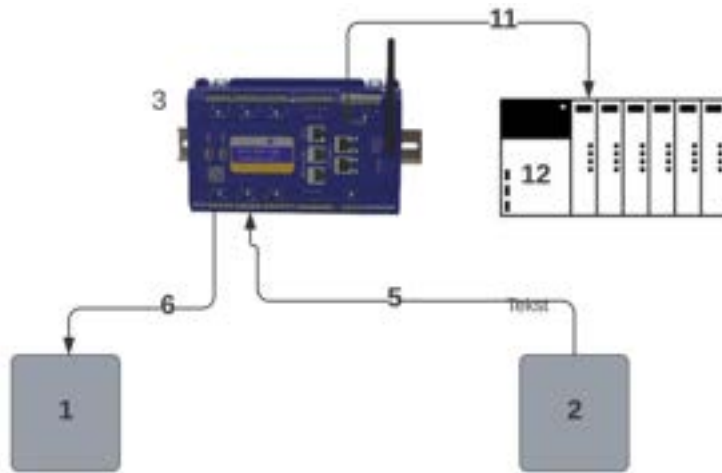
Controlling the CLFB via fieldbus

Action	Result / explanation
The CLFB function can be controlled by a fieldbus.	
See 6.6 Fieldbus Function how to map to fieldbus	
The fieldbus can control: CLFB_control CLFB_status CLFB_Web_offset_voltage CLFB_Input_segments	Note: When mapped to fieldbus the default status for CLFB is disabled. The fieldbus has to control the run / stanby status. See application notes for intermitting CLFB.

Fieldbus Integration

Fieldbus principle

A Fieldbus connection offers the possibility to integrate the Simco-ION devices with the machine control and realise control from one PLC.



- 4 -

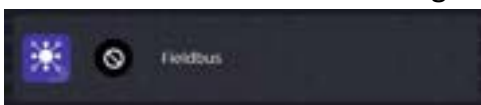
1	Anti-static bar	Neutralising WEB voltage
2	Sensor bar	Measuring WEB voltage
3	Smart-SLC / Manager 4	Continuously calculate the discharge voltage and control the anti-static bar
4	Material to be neutralised	
5	Measurement data	
6	Control data	
11	Fieldbus connection	Various fieldbus protocols are supported
12	Machine control - PLC	Various PLC brands and types are supported

Figure: Fieldbus principle

Fieldbus integration

The Smart SLC can be fitted with an Ethernet based fieldbus.

When a fieldbus module is integrated it will show up on the home-screen.



Fieldbus setup

The fieldbus needs setup by including all Objects you want to be able to control via the fieldbus.

When all objects are included the Smart SLC can generate an integration file (XML).

- GSD for ProfiNet,

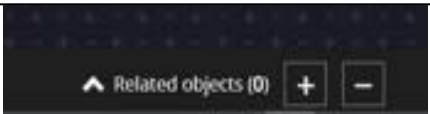

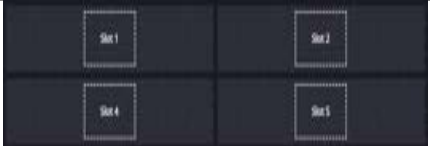
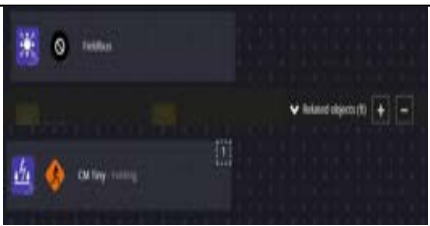


Note: Before you start the configuration of the fieldbus you should have finished the setup of the whole system.

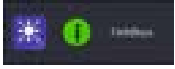





- All devices and extension SLC's should be connected.
- All related objects and functions s.a. CLFB should be configured



Any changes made to the system after generation of the XML file will be lost and will result in reprogramming the PLC integration!

Configuration of the fieldbus.

Action		Result / explanation
Log in as Administrator.		Standby
Click on the fieldbus object on the home-screen.		
The parameter screen of the fieldbus will show.		
Click on the [+] of the related objects section		
The screen will show all objects in the system that can be integrated in the fieldbus.		
Click on the [+] of the object you want to include.		
Select the slot you want to assign to the object.		
The slot will correspond with the order in which objects will be listed in the XML file and show up f.e. in your Siemens TIA portal.		
When finished selecting all objects, close the related objects section		
Enable the fieldbus by clicking the enable button.		

When the configuration was successful the fieldbus will show a green running status		
ProfiNet: follow next steps ; EtherCat scan your EtherCat master to get the configuration		
Place a USB stick in the USB port		
Click the Export button		
And click export		
When successful, it will show done		
You can now use the XML file to import in your PLC configuration software.		
The fieldbus can be enabled or disabled by users with access level Administrator or Expert.		
When the fieldbus is enabled it will show a green running man and control of certain parameters, actions and status control will be controlled by the fieldbus.		
In an object parameter screen you will notice that the Run/Standby button is no longer available and some parameters and action are locked.		
To regain manual control over the objects you can disable the fieldbus by clicking the disable button in the fieldbus object.		

Fieldbus Parameter configuration

Fieldbus configuration

ProfiNet [ProfiNet](#)

EtherCat [EtherCat](#)

ProfiNet

The Fieldbus interface is established with a bus coupler.

Connect one of the 2 ports to your ProfiNet network.

LED's next to the fieldbus connectors indicate:



ProfiNet

LED ->	1 (Network status)	2 (Link/ Act port FB1)	3 (Module status)	4 (Link/Act port FB2)
Off	Offline	No link	Off	No link , no activity
Green	Online (run)	Link, no communication	Normal operation	Link established
Green 1 flash	Online (stop)		Diagnostic events	
Green flickering		Activity		Activity
Green blinking	Blink (identification)			
Red	Fatal event		Exception error. Fatal event	
Red 1 flash	Station name error			
Red 2 flash	IP address error			
Red 3 flash	Configuration error			
Alternating Red/ Green			Firmware update	

Slot 1 (0) is dedicated to the IQ Easy "Smart_SLC application named manager".

It gives a status about the application and can be used to monitor the system and interpret if the application is operational to send/receive fieldbus commands.

Module	Rack	Slot	I address	Q address	Type
▼ iqmanager_1	0	0			Bus coupler
▶ Interface	0	0 X1			iqmanager
MANAGER_1	0	1	68...71		MANAGER

MANAGER_1 [MANAGER]							
General		IO tags		System constants		Texts	
Name	Type	Address	Tag table	Co			
Manager_Status	DInt	%ID68	Default tag table				

Error in PLC when Device is not related to correct slot, example Sensor_Device_1

Device overview							
Module	Rack	Slot	I address	Q address	Type	A...	
BAR_DEVICE_1	0	3			BAR_DEVICE		
DEVICE_STATUS_118	0	3 1	105		DEVICE_STATUS_118		
DEVICE_CONTROL_118	0	3 2		74	DEVICE_CONTROL_...		
DEVICE_ACTIVE_ERRORS_118	0	3 3	106..109		DEVICE_ACTIVE_ER...		
DEVICE_ACTIVE_WARNINGS_118	0	3 4	110..113		DEVICE_ACTIVE_W...		
PERFORMAX_BAR_OPERATION_MODE	0	3 5		75	PERFORMAX_BAR_...		
PERFORMAX_BALANCE_OFFSET	0	3 6		76..77	PERFORMAX_BALA...		
PERFORMAX_JONIZATION_EFFICIENCY	0	3 7	114		PERFORMAX_JONIZ...		
PERFORMAX_VSENSE_NEG	0	3 8	115..118		PERFORMAX_VSENS...		
PERFORMAX_VSENSE_POS	0	3 9	119..122		PERFORMAX_VSENS...		
PERFORMAX_JONIZATION_CURRENT_NEG	0	3 10	123..124		PERFORMAX_JONIZ...		
PERFORMAX_JONIZATION_CURRENT_POS	0	3 11	125..126		PERFORMAX_JONIZ...		
PERFORMAX_OUTPUT_VOLTAGE_NEG_5...	0	3 12		78..81	PERFORMAX_OUTP...		
PERFORMAX_OUTPUT_VOLTAGE_POS_5...	0	3 13		82..85	PERFORMAX_OUTP...		
SENSOR_DEVICE_1	0	4			SENSOR_DEVICE		
DEVICE_STATUS_117	0	4 1	127		DEVICE_STATUS_117		
DEVICE_CONTROL_117	0	4 2		86	DEVICE_CONTROL_...		
DEVICE_ACTIVE_ERRORS_117	0	4 3	128..131		DEVICE_ACTIVE_ER...		
DEVICE_ACTIVE_WARNINGS_117	0	4 4	132..135		DEVICE_ACTIVE_W...		
GATEWAY_IQ4_HIR5_WEB_VOLTAGE_5...	0	4 5	136..139		GATEWAY_IQ4_HIR...		
	0	5					
	0	6					

Refer tot the Smart SLC / Manager IQ Easy Fieldbus description document for detail about the available parameters. [Document](#)

EtherCat

LED's next to the fieldbus connectors indicate:



EtherCat

LED ->	1 (Run)	2 (Error)	3 (Link/Act port FB2)	4 (Link/Act port FB1)
Off	No power or init	No power or no error	No link , no activity	No link , no activity
Green	Operational		Link established	Link established
Green 1 flash	Safe - operational			
Green flickering	Boot		Activity	Activity
Green blinking	Pre - operational			

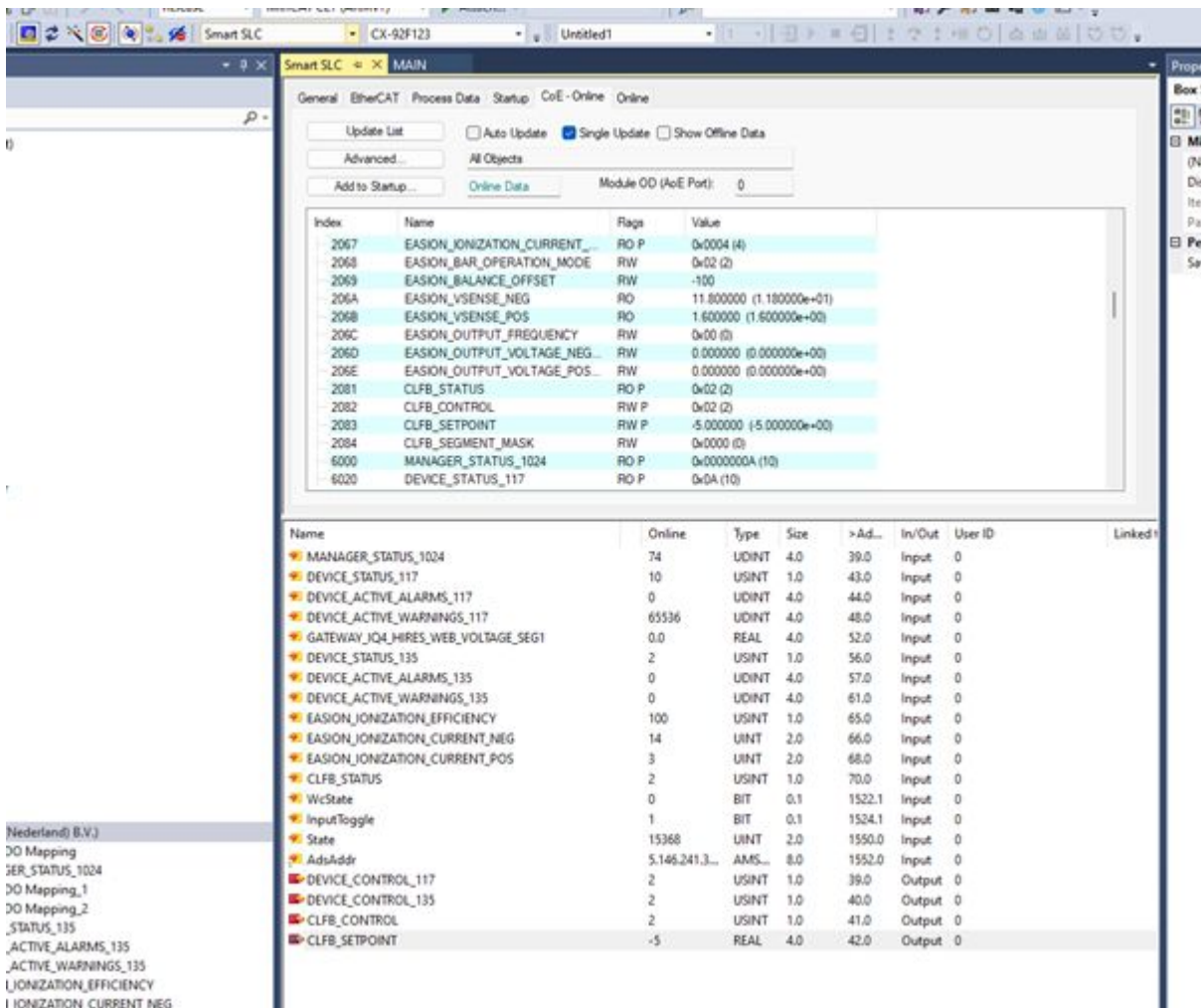
Red	Fatal event	Application controller failure		
Red 1 flash		Uncolicted state change		
Red 2 flash		Sync manager watchdog timeout		
Red flashing		Invalid configuration		
Flickering		Boot error		

Slot 1 (0) is dedicated to the IQ Easy “Smart_SLC application named manager”.

It gives a status about the application and can be used to monitor the system and interpret if the application is operational to send/receive fieldbus commands.

Use scan or load PDO from Device to integrate the Smart_SLC EtherCat node to the project.

Find all parameters including Cyclic and Acyclic.



Refer tot the Smart SLC / Manager IQ Easy Fieldbus description document for detail about the available parameters. [Document](#)

Fieldbus Device parameters

Fieldbus configuration

1. ProfiNET
2. EtherCat

Refer to

Refer tot the Smart SLC / Manager IQ Easy Fieldbus description document for detail about the available parameters.

Set Date and Time

All system logging and events are stored in UTC time.

When you have connected to Smart_SLC with your company network that has internet access, the system time will be synchronised with an NTP time server.

In case you are using the Smart-SLC as a stand alone system the system time will be pre-set at the Simco-Ion factory and you will have to check and correct.



Installing Additional SLC's

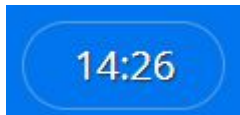
Each SLC has an integrated clock. The clock is preset by Simco-Ion to UTC time.

When replacing or adding Additional SLC's plug in the Simco-LAN cable in when the system has power and is running. In that case the new additions will automatically get the system time of the running Smart_SLC and will be recognised by the system.

In case you have plugged in the Additions during power down, you will have to check the system time in case the system is not connected to the internet.

Set system time:

Click on the clock in the header.





The current system time should always be UTC time!
Set new date and system time if necessary.

Current system time



15:09

UTC±00:00

Set new system time

Date	26-06-2023 
Time	15:09 
<input type="button" value="Save"/>	

Set local settings

Timezone	UTC±00:00 
24H or AM/PM	24H 
<input type="button" value="Save"/>	

Each user can set it's own local time. The local time setting will be stored in the user profile.

Functional check Smart SLC

Check on the dashboard of all connected devices are visible as objects.

Functional check devices

Check the individual device manual for operation check and fault conditions.

Operating Objects

Operation Control modes

Using the CLFB Function



Check the help at the specific parameter in the HMI to get to know the CLFB and all individual settings.

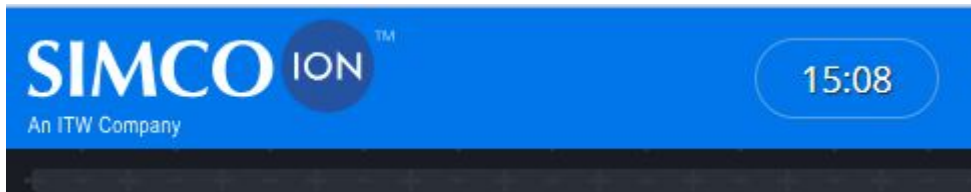
A CLFB function Object can also be mapped to a fieldbus slot.

When included in a fieldbus additional functionality is available:

- CLFB standby, for using CLFB with an intermitting proces. When CLFB is in standby it will keep the last setting of the CLFB and start from that point when CLFB is set to run.
- Use the parameter |Segment Mask to select which Sensor segments should be used for calculating the CLFB values.

8.1 Set system time / date

To set the system date /time click/press on the clock.



A screen with time / date and regions will appear.

All data logging will be done in UTC time.



You can set the local time for viewing in your browser.

Current system time



15:09

UTC±00:00

Set new system time

Date	26-06-2023 
Time	15:09 
<input type="button" value="Save"/>	

Set local settings

Timezone	UTC±00:00 
24H or AM/PM	24H 
<input type="button" value="Save"/>	

Software updates

Note: Only perform software updates when your machine/process is not in operation. Parts of the system will not be working during updates.

A complete update will take up to 20 minutes.

The system consists of 4 layers with software that may need updates. All 4 need to be completed to ensure a reliable working system.

The 4 layers can be updated by action performed by the user who has Administrator access.

Layers that need updates:

HMI (browser based user interface)

Smart SLC OS (Operating system)

SLC (Hardware/software communication with devices)

Devices (All connected Simco-ION devices, example; Anti-static bars, Static Sensor, Charging generator etc)

Contact cs@simco-ion.nl or ts@simco-ion.nl to provide you with an update package that you can install on a USB stick.

Update advice:

It is advised to always update the whole system. This means your system will have all latest software and all the latest device software to update your devices.

In case you connect a new device to the system which has a higher firmware version than similar devices in your system you have 3 choices:

1. Update the whole system (recommended, and only updated systems can rely on Technical Service Support)
2. Leave it as it is. (some functionality of your new device may not work)
3. Use the update procedure to downgrade the new device to the same version of other similar devices.

Starting the updates:

Install the USB stick with update package in the USB port.

Note: only place the latest update package on the USB, no older files.

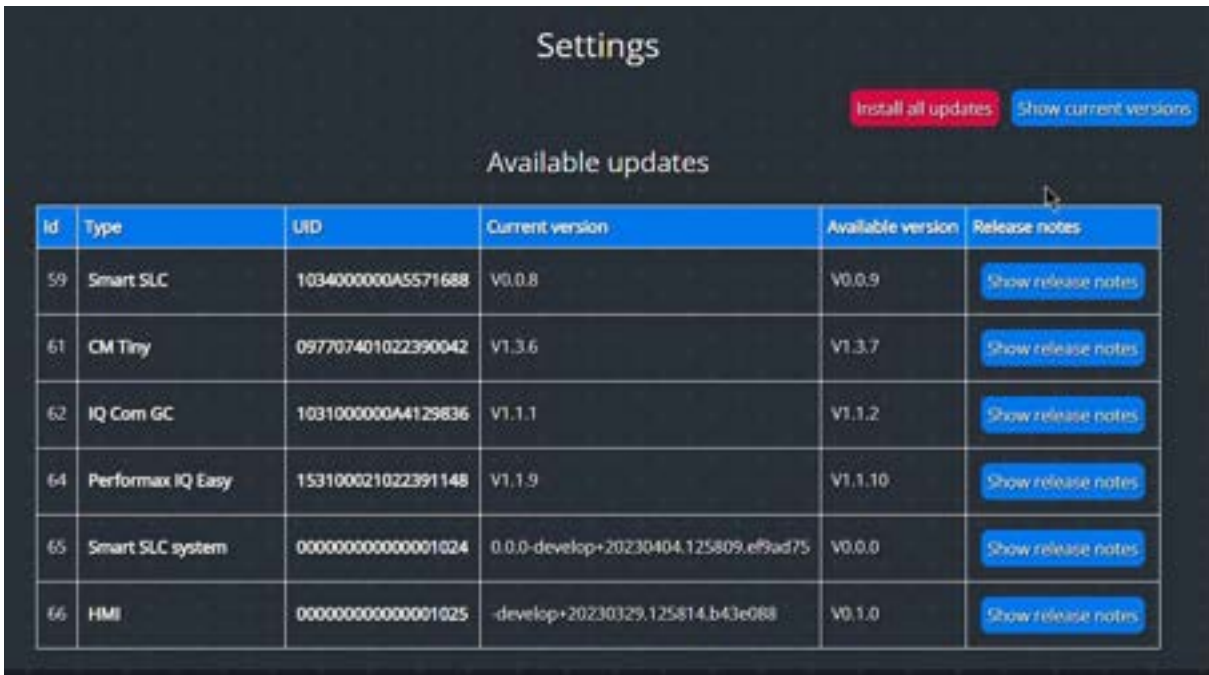
Log in with your Administrator username and password.



Go to Maintenance screen via the menu

A screen will appear with the current System configuration.

Click the button : "Check available updates"



You can check the release notes on individual components to see what will change.

Click "Install all updates"

A message will appear : "Updating the system"

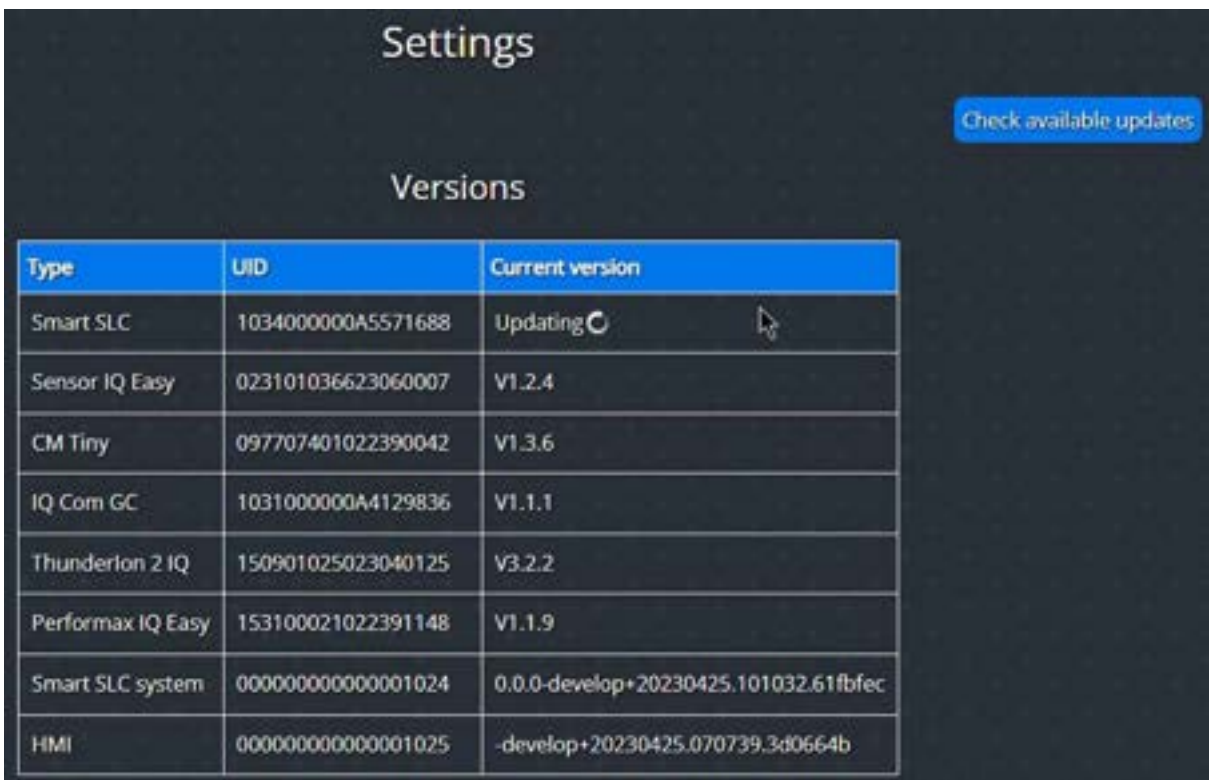
Wait until the system finishes.

The next stage will be "Restarting , please wait"

When the operating system has been updated you will be asked to log in.

Log in as Administrator and finish the last part of the update procedure.

You can follow the individual components being updated.



Wait until all components have updated and the system restarts.

Now you can go back to normal operation.



Browser use caching of pages and images.

Especially after an update of the HMI your browser can show old pages and images.



Use the REFRESH button after each update has finished.

In case of persistent old images , clear you browser history.

Updating without operating system update and updating legacy devices:

Updating components and devices can be done without an update package on USB stick. The system contains all recent versions of firmware for the devices.

Click “Check available updates” and compare version numbers. If any devices have new firmware version available, click Install all updates.

Updating Legacy Devices:

Legacy devices can be used on the Smart SLC system but will not be configured before they have the latest firmware.

Go to the setting screen.

Legacy devices will show up in the list with no UID.

Click “Check available updates” and follow the procedure is described before.

After the update the Legacy device will have an UID and it will show up on the home screen.

Updating many Legacy devices at once will take some time. Occasionally you have to start the update procedure again.

Most Simco-ION Netherlands devices are forward compatible.

Check the compatibility list if in doubt.

In case you have a device marked as not compatible , please contact Simco-ION Customer Service for a solution.

Device compatibility, [refer to the list](#).

Remark: Firmware for Segments of Sensor IQ Easy and Sensor IQ Easy 2.0 Ex can only be upgraded by Simco-ION.

Updates for systems with Fieldbus

The fieldbus will be disabled during updates. Manually enable the fieldbus after the updates are finished.

Rollback

In case you are not satisfied with a software update, you can perform a rollback. Insert a USB stick with the previous Update release pack and start the update procedure.

9 Faults

When the system is not responding you can disconnect/connect the 24V logic power or use the reset button.



Table: Faults when the device connected to a 24 V DC power supply

Signaling	Problem Cause Solution
LED on the ... does not light up	
LED on ... flashing green	
LED on lights up red	
LED on lights up green	
LED on bar flashing red (1 Hz)	
LED on flashes red (5 Hz)	
etc.	

Warranty

The Simco-ION warranty conditions are described in and published on the internet. These conditions can be viewed by opening the following link.

https://www.simco-ion.co.uk/wp-content/uploads/Extended-warranty-conditions_GB.pdf
[Simco-ION Warranty Conditions GB](#)



Review these conditions before you submit equipment for repair (RMA procedure) to Simco-ION.

Repairs



Only Simco-ION can and may repair this product.

In the event of a defect within or outside the warranty, the product can be offered to Simco-ION for repair.

Use the RMA procedure before offering the product to Simco-ION.

Return Merchandise Autorisation

In case of problems and questions, please get in touch with Simco-ION or a Simco-ION representative in your region.

A malfunctioning or defective product can be returned to Simco-ION for repairs following the RMA (Return Merchandise Authorization) procedure below.

1. RMA Request:
 1. Fill in the Simco-ION RMA form at <https://www.simco-ion.nl/repair>
<https://www.simco-ion.co.uk/repair>
 2. By entering the item and serial numbers, you can determine whether your product will be repaired under warranty or if costs are involved.
2. Return sending:
 1. Pack the defective product properly;
 2. Indicate the RMA number on the package;
 3. Send the package to the stated return address of Simco-ION.

Store

Always store the Simco-ION products in a dry and cool place.

Disposal



When disposing of the product, follow the local environmental regulations.

Please do not dispose the product with regular waste at the end of its life, but offer it at an official point. This way, you help to protect the environment.

Spare parts

Configuration overview

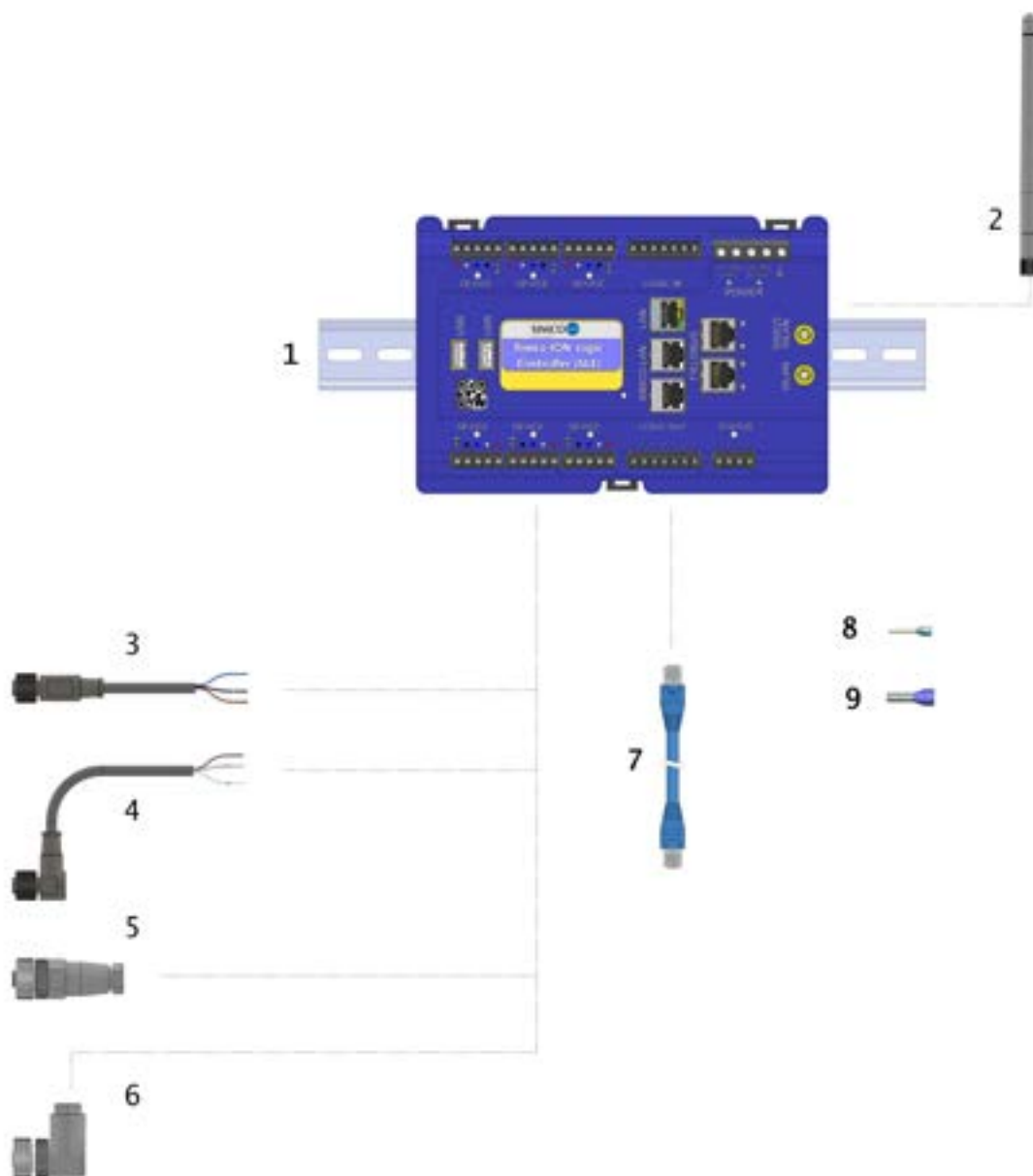


Figure: SLC Spare parts

List with spare parts

- | | | |
|---|--|----------------------------|
| 1 | DIN Rail | To be supplied by customer |
| 2 | Antenna | Optional |
| 3 | Connector device M12 female, straight with cable | |

- 4 Connector device M12 female, angled with cable
- 5 Connector device M12 female, straight
- 6 Connector device M12 female, angled
- 7 LAN Cable
- 8 Cable end device wires
- 9 Cable end power wires

Register

Send an email to cs@simco-ion.nl to register for log-in to the Simco-ION service portal to get access to our knowledgebase and news about updates.

Attachments

If applicable, provide a list of attachments here.

[Fieldbus parameter configuration](#)

[Electrical wire connections](#)

[Device compatibility](#)

Device parameters EasION, Performax

The functional parameter description applies to the following devices

- Performax IQ Easy 4.0
- EasION IQ 4.0

Parameter	Functional description	Comment
Device type version	<p>This parameter determines the default settings for output voltage and frequency.</p> <p>You can choose from 3 presets:</p> <ul style="list-style-type: none"> • Speed: web speed >500 m/min, web distance 50-500 mm • Hybrid: web speed 0-500 m/min, web distance 100-500 mm • Distance: web distance 100-1000 mm <p>This parameter can be changed from the Admin user level.</p>	read only
Operation mode	<p>This parameter has 2 modes:</p> <ul style="list-style-type: none"> • Fixed (default): the anti-static bar uses the default settings. • Manual: parameters related to the output voltage and frequency can be changed, it is also possible to use the anti-static bar in CLFB mode. <p>This parameter can be changed from the Expert user level.</p>	
Balance offset	<p>This parameter determines the ratio between positive and negative ions the anti-static bar produces.</p> <p>The default value is 0, producing an equal number of positive (+) and negative (-) ions. This parameter ranges from -100 (100% negative ions) to 100 (100% positive ions).</p> <p>This parameter can be changed from the Expert user level (and the Operation mode parameter then must be set to Manual).</p>	

The functional parameter description applies to the following devices

- Performax IQ Easy 4.1
- Easion IQ 4.1

Parameter	Functional description	Comment
-----------	------------------------	---------

Device type version	<p>This parameter determines the default settings for output voltage and frequency.</p> <p>You can choose from 3 presets:</p> <ul style="list-style-type: none"> • Speed: web speed >500 m/min, web distance 50-500 mm • Hybrid: web speed 0-500 m/min, web distance 100-500 mm • Distance: web distance 100-1000 mm <p>This parameter can be changed from the Admin user level.</p>	
Operation mode	<p>This parameter has 2 modes:</p> <ul style="list-style-type: none"> • Fixed (default): the anti-static bar uses the default settings. • Manual: parameters related to the output voltage and frequency can be changed, it is also possible to use the anti-static bar in CLFB mode. <p>This parameter can be changed from the Expert user level.</p>	
Balance offset	<p>This parameter determines the ratio between positive and negative ions the anti-static bar produces.</p> <p>The default value is 0, producing an equal number of positive (+) and negative (-) ions. This parameter ranges from -100 (100% negative ions) to 100 (100% positive ions).</p> <p>This parameter can be changed from the Expert user level (and the Operation mode parameter then must be set to Manual).</p>	
Output voltage positive set-point	<p>This parameter determines the default positive output voltage (when the Balance offset parameter is set to 0).</p> <p>The default output voltage positive value is determined by the Device type version parameter.</p> <p>This value can be adjusted from the Admin user level for specific applications.</p>	
Output voltage negative set-point	<p>This parameter determines the default negative output voltage (when the Balance offset parameter is set to 0).</p> <p>The default output voltage negative value is determined by the Device type version parameter.</p> <p>This value can be adjusted from the</p>	

	Admin user level for very specific applications.	
Output voltage max	This parameter determines the maximum output voltage (when the Balance offset parameter is set to -100 or 100). This value can be adjusted from the Admin user level for very specific applications.	
Output frequency setpoint	This parameter determines the frequency of the output voltage. The default Output frequency value is determined by the Device type version parameter. This value can be adjusted from the Admin user level for very specific applications.	

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