

# Documentation AIT SmartGate2x2

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## **Document data:**

Version: **5.00**  
Creation date: 18.03.2025  
Creation of the document: **Michael Gauch/ Matthias Singh**  
Reference number:  
Project name: **AIT SmartGate2x2**  
Documentation valid from S/N: 1500243XXXX

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## 1 Introduction

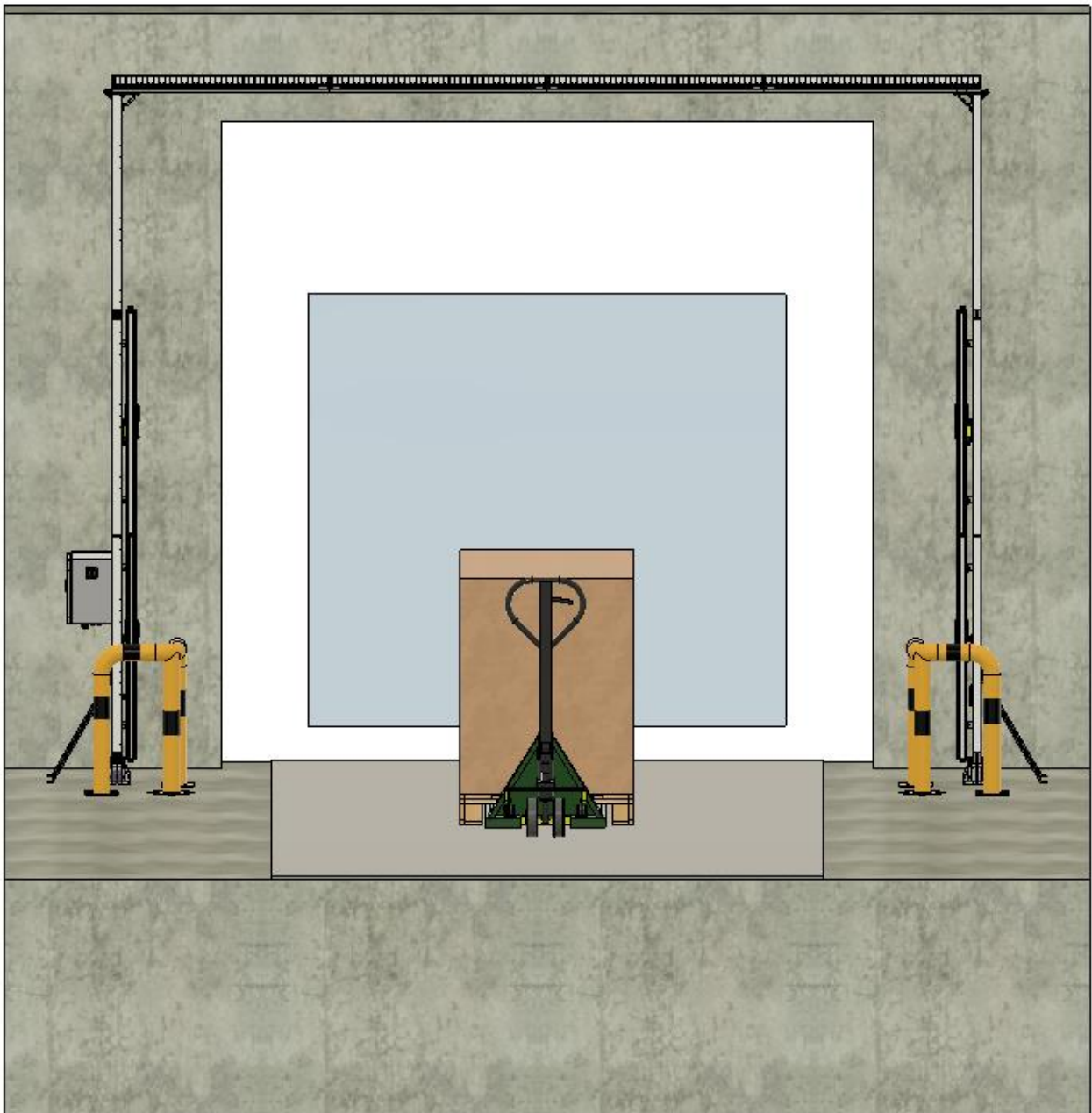
The AIT SmartGate2x2 is a scanner for automatically scanning pallets, e.g. in the lorry loading ramp area, from two sides and capturing all 1D or 2D codes.

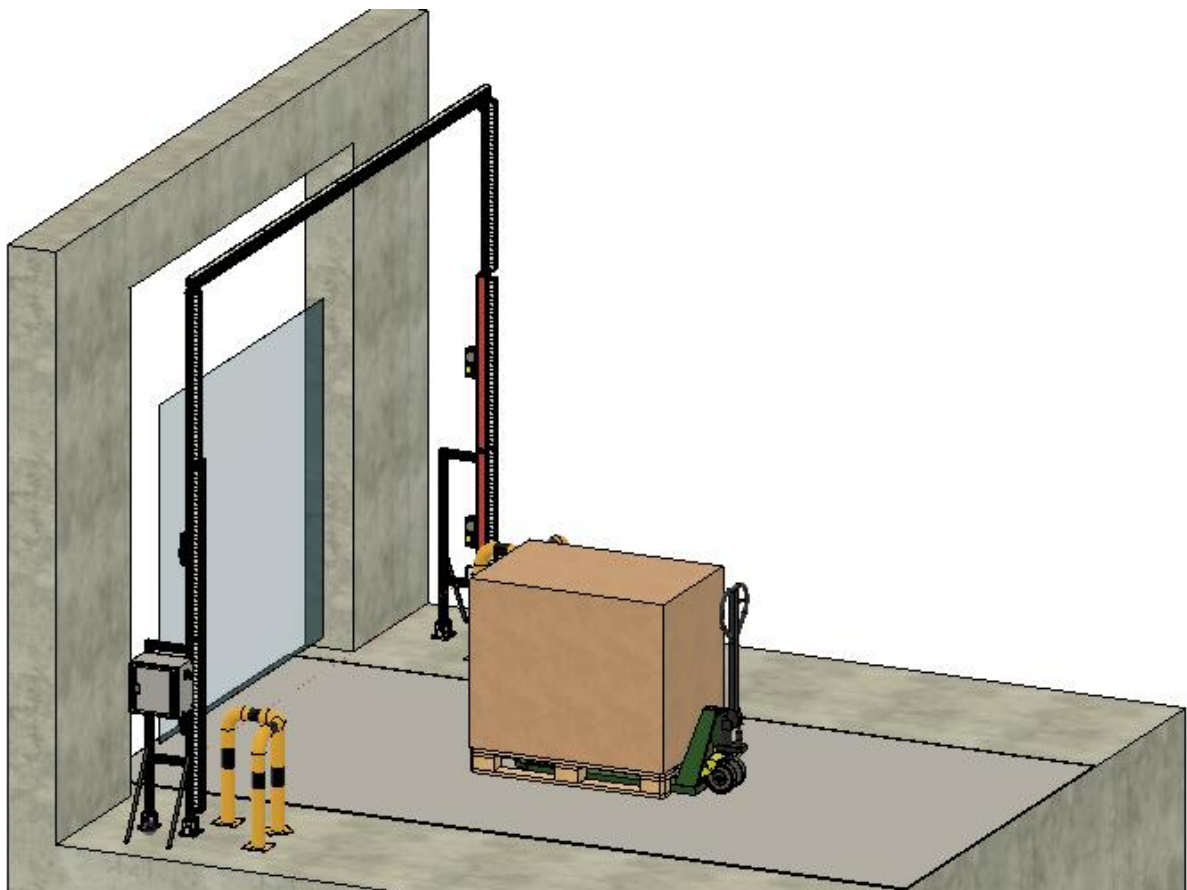
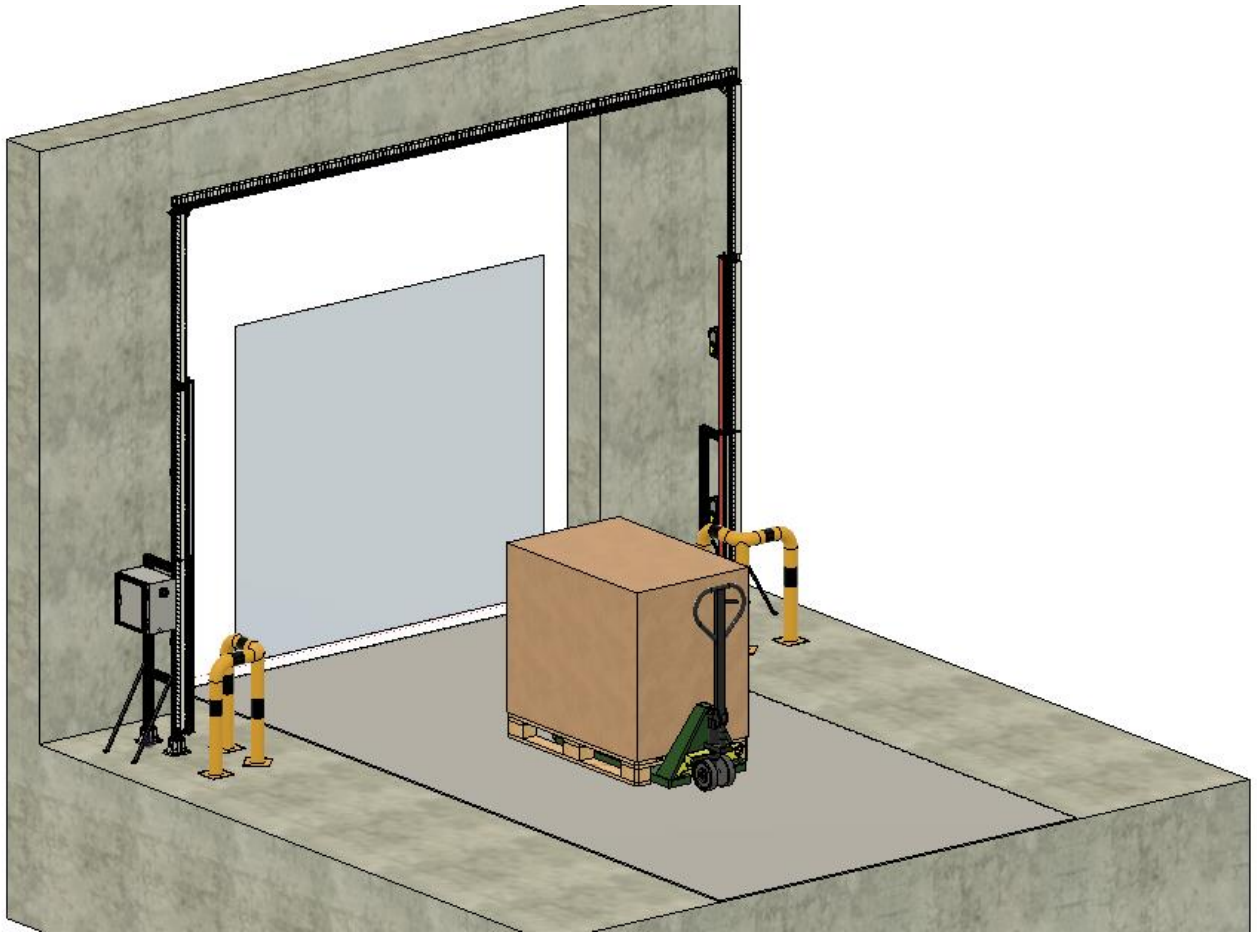
The pallet is moved through the Scangate via a conveyor line, pallet truck or forklift. The system automatically triggers the reading via the built-in light barrier.

The read data (codes) can be transmitted via Profinet or TCP/IP to a higher-level system or controller.

The complete documentation can also be found at

<https://www.ait.de/de/ait-smartgate-download/>





## 2 Features

The system has the following features:

- Pre-assembled system for quick and easy installation
- Simple connection of the system
- Basic element with 4 mirror scanners and lighting to the left and right of the loading door
- Terminal box with on/off switch, switch, 20A power supply unit and fuse
- Optional cross frame for cable routing
- Scan height up to 2m
- Scan depth 0.8m to 2m
- Maximum movement speed 1m/s or 4km/h

The complete system (item number: 042591) consists of:

4x Cognex DM475X-1AX-M mirror scanner

4x high-power logistics lighting, 1m each.

1x terminal box 380x300x210mm including 8-way switch, 20A 24VDC power supply unit, fuse, on/off switch

4x set of connection cables for scanner and lighting

4x scanner and lighting brackets

2x mounting pillar right/left 2.2m high with cable duct and mounting set

1x trigger kit, consisting of reflex light barrier, reflector, cable & brackets

Optional:

- Cross bridge for connecting the 2 scanning columns (article number: 042592)
- Impact protection bar 2 pieces required (article number: 042593)

### 3 Safety instructions

Please read the documentation carefully before commissioning and pay particular attention to the labelled safety instructions.

If anything is unclear, please refer to these instructions or the applicable manuals.

Make sure that you understand the instructions in this manual and that you are sufficiently informed about how the AIT SmartGate2x2 works.

When servicing the system or opening the terminal box, the power supply must be disconnected and the generally applicable safety rules must be observed.

#### 3.1 Transporting the device



##### CAUTION

Risk of injury and damage due to incorrect transport!

Devices should be packed and transported as vibration-free as possible.

#### 3.2 General note

For reasons of clarity and due to the large number of possible cases, this documentation does not contain all detailed information and, in particular, cannot take into account every conceivable case of operation or maintenance. Persons (including children) who are not able to use the appliance safely due to their physical, sensory or mental capabilities or their inexperience or lack of knowledge must not use this appliance without supervision or instruction by a responsible person.




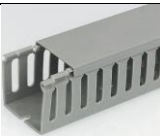



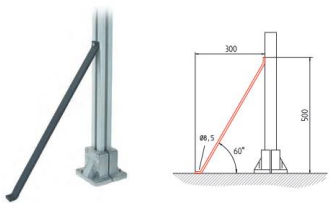



#### 3.3 Basic safety information

Due to their functional electrical and mechanical properties, the systems can cause serious damage to health and property if they are not used, operated and maintained as intended or if unauthorised interventions are carried out. It is therefore assumed that the planning and execution of all installations, transport, operation and maintenance are carried out and supervised by responsible, qualified personnel.

When operating electrical systems, certain parts of them are inevitably under dangerous electrical voltage or mechanical stress. Only suitably qualified personnel may work on the system. They must be thoroughly familiar with the contents of these and all other instructions. The correct and safe use of this system requires proper transport, proper storage, proper operation and careful maintenance. Instructions and information on the equipment must also be observed.

## 4 AIT SmartGate2x2

### 4.1 Parts list

Element	Quantity	Designation	
1	6	Vertical profile, 1100mm	
2	4	Transverse profile, 300mm	
	4	Floor clamp	
4	4	Cable duct, 1000mm	
5	4	Profile connector	
	16	Floor anchor HLA for floor clamp Bore diameter 12mm	
	4	BA floor anchor for 60° support. Bore diameter 8mm	
	4	Support 60°	
	2	Cover caps	
	4	Power IO cable scanner 10m	
	2	Ethernet cable 10m for connecting the scanners opposite the terminal box	

	2	Ethernet cable 2m for connecting the scanners on the side of the terminal box		
	4	Scanner mounting plate		
	1	Reflection light barrier		
	1	Light barrier mounting bracket		
	1	Reflector light barrier 80x80mm		
	1	Reflector mounting bracket		
	1	Terminal box with on/off switch, switch, 24VDC power supply unit 20A, fuse, 380x300x210mm 5m supply cable with Schuko plug		
	4	Mirror scanner		
	4	Logistics lighting 1000mm, red		
	8	Lighting brackets		




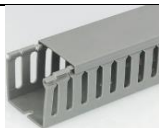



## 5 Scangate cross bridge for cable routing (optional)

With the cross bridge for the AIT SmartGate2x2, the cables can be laid across the route to the terminal box. To do this, the Scangate columns on the right and left are initially raised by 1 metre. The total height of the vertical columns is then 3200mm. The maximum clearance height is 3100mm. The length of the cross track is 4000mm.

The cable ducts are pre-assembled with the profiles. The profiles are connected to each other with 2 longitudinal connectors. A profile bracket is mounted in each of the 2 corners for bracing.

If the frame is also to be supported at the front on the wall, a profile (not included in the scope of delivery) can be attached to the frame using the cast brackets.

## 5.1 Parts list

Element	Quantity	Designation	
1	4	Profile top transverse, 1000mm	
2	2	Vertical profile, 1000mm	
3	2	Profile angle	
4	6	Cable duct, 1000mm	
5	10	Profile connector	
6	2	Casting angle	
7	12	Bracket mounting kit #4026209	

## 6 Structure/ Assembly

The AIT SmartGate2x2 is supplied pre-assembled for easy installation. Two specialised personnel are required for installation. The electrical connection and wiring may only be carried out by trained specialists.

### 6.1 On-site preparation


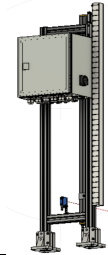



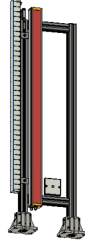




To operate the AIT SmartGate, all you need is a 230V power supply or socket and a network cable (100Mbit). The control cabinet is equipped with a 5m long power cable with Schuko plug.

The control cabinet of the AIT SmartGate is equipped with a switch for connecting an external network cable (RJ45).

Two skilled labourers are required for the mechanical assembly.

A qualified electrician is required for the electrical connection.

## 6.2 List of pre-assembled modules

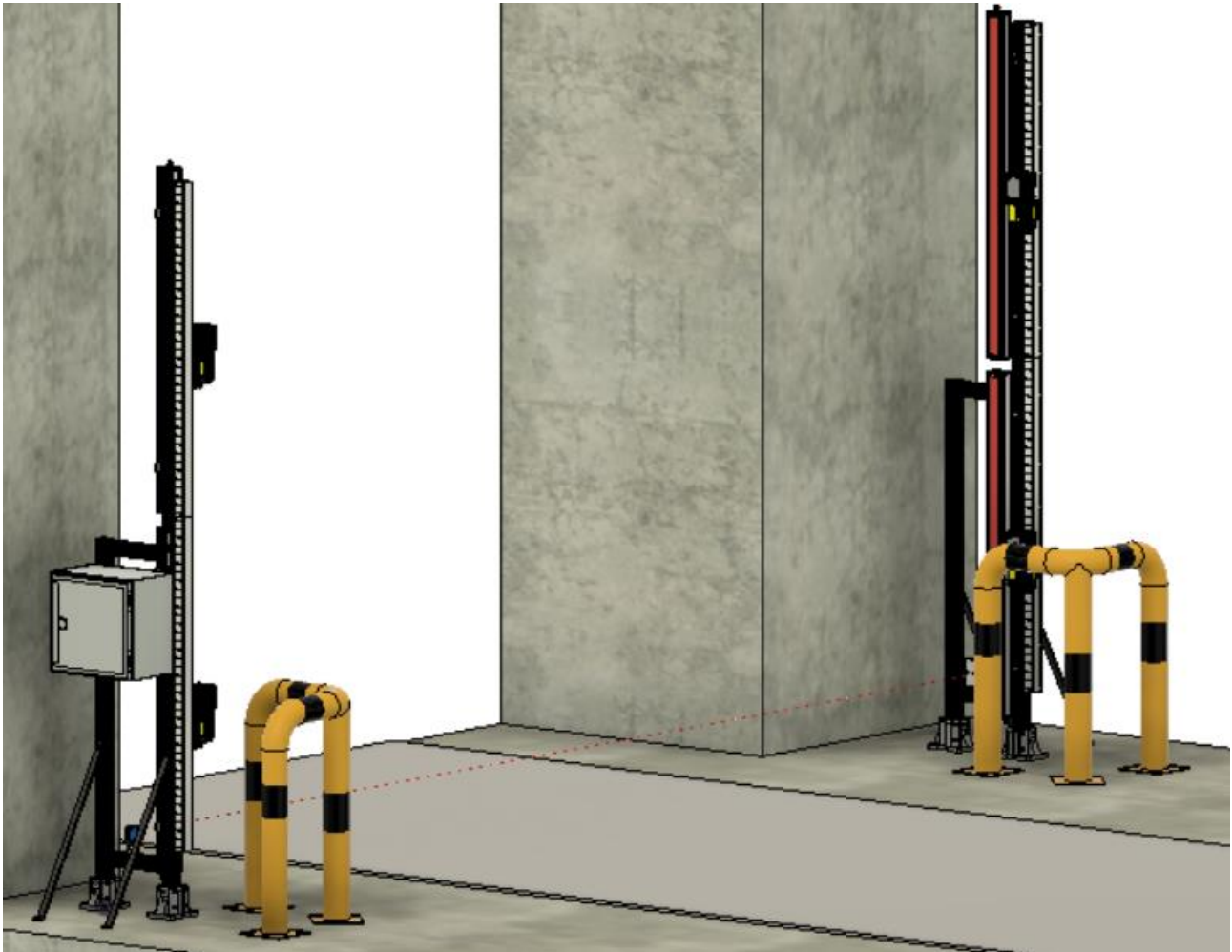
Element	Quantity	Designation	
	1	Frame on left with lighting, light barrier and switch cabinet	
	1	Upper profile left	
	1	Frame right with reflector	
	1	Upper profile right	
	4	Mirror scanner with holder	

## 6.3 Assembly instructions

Please carry out the following assembly steps one after the other:

1. Fitting the frame on the left
2. Fitting the frame on the right
3. (Optional) Cross bridge and laying the cables through the cross bridge
4. Setting up and aligning the frames
5. Mounting the scanners in the specified positions
6. Wiring and connection in the switch box
7. Aligning the frames Checking the light barrier signal
8. Anchoring the frames

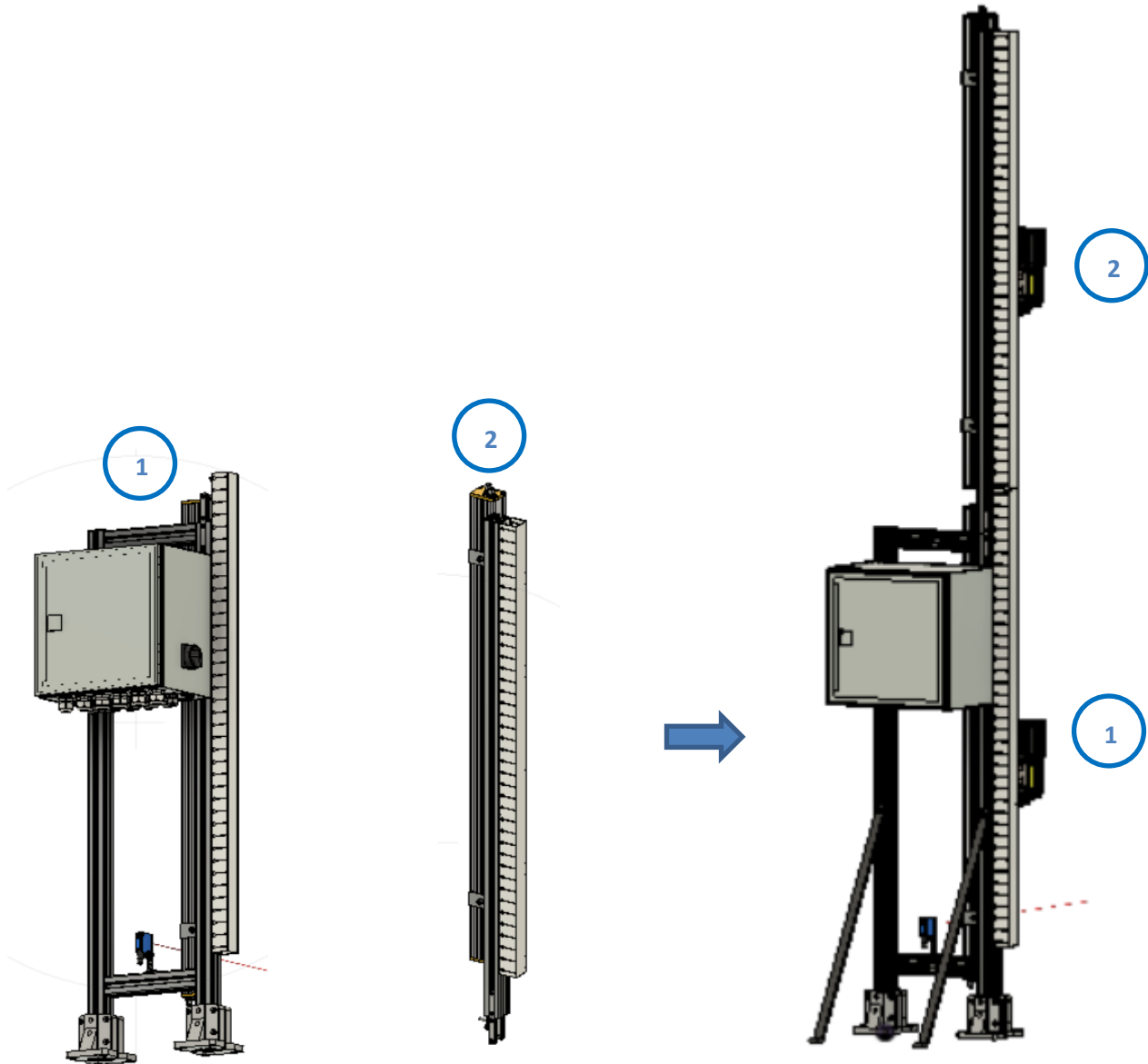
### 6.3.1 View of AIT SmartGate2x2 without cross bridge



### 6.3.2 Fitting the frame on the left

Fitting the upper profile on the left to the frame on the left.

Connect the upper profile on the left (2) with the frame on the left (1) using 2 profile connectors and tighten the screws of the profile connectors



#### 6.3.2.1.1 Fitting the support struts to the profile

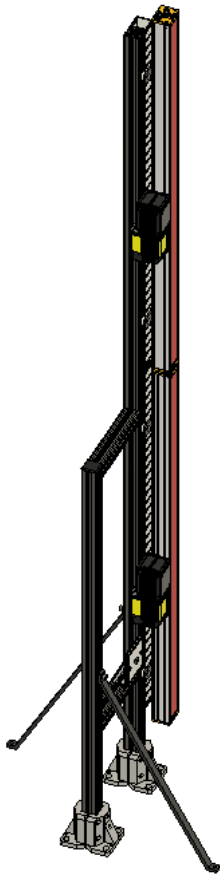
Screw the 60° support struts to the vertical profile. Align the support struts so that they are level with the floor clamps.



##### Attention

It is essential to fit the support struts before erecting, otherwise the frame may fall over. When erecting for the first time, it is recommended that the 2 support struts are initially fitted on both sides of the profile (see image below) to prevent the frame from toppling over in either direction.

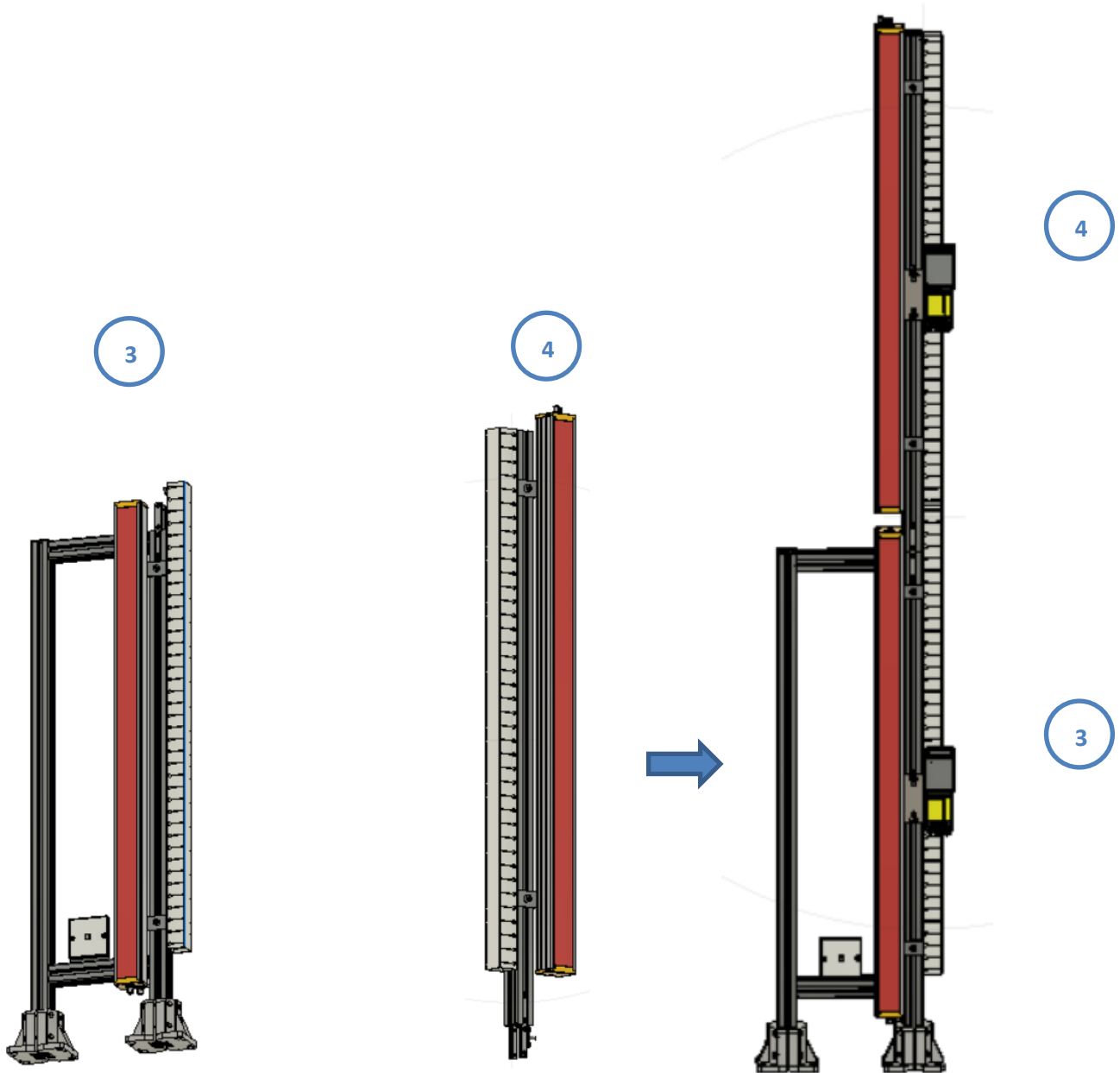
Only when the frame has been aligned and anchored can the support struts be moved and also anchored.



### 6.3.3 Mount frame on the right

Mounting upper profile right to frame right.

Connect the upper profile on the right (4) with the frame on the right (3) using 2 profile connectors and tighten the screws of the profile connectors.



#### 6.3.3.1 Fitting the support struts to the profile

See mounting frame left

### 6.3.4 (Optional) Cross bridge and cable routing through the cross bridge

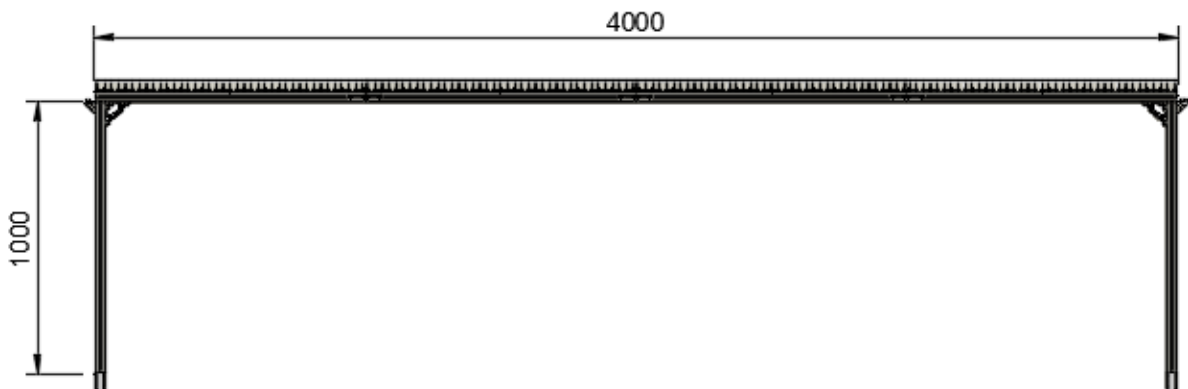


#### Attention

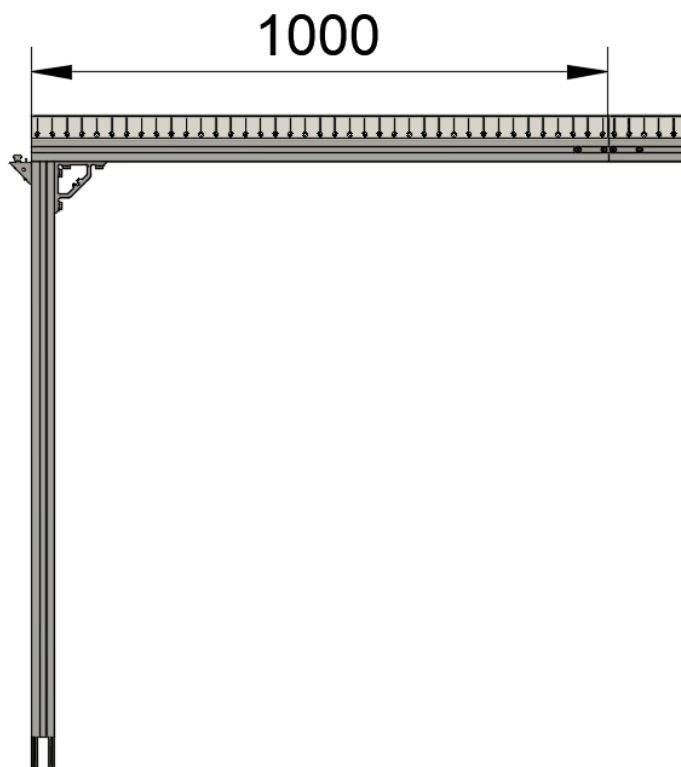
Two people are required for assembly. During assembly, ensure that the cable ducts of the vertical struts (2) are orientated in the same way as the cable ducts of the Scangate.

When assembling the cross frame together with the Scangate, it is recommended to assemble the frame lying completely on the ground, lay the cables in the cable ducts and then carefully erect it with two people. The scanners should only be mounted on the frame once it has been set up vertically and anchored. It is recommended that the cables for the two scanners on the right-hand side of the frame (2 x Ethernet green 10m and 2x Power I/O black 10m) are laid in the cross bridge before the frame is erected.

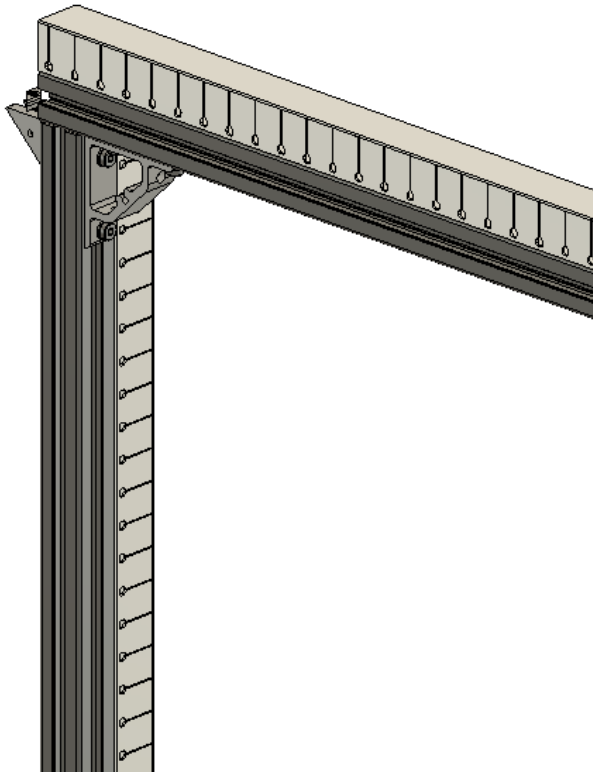
#### 6.3.4.1 Sketch of the fully assembled transverse bridge.



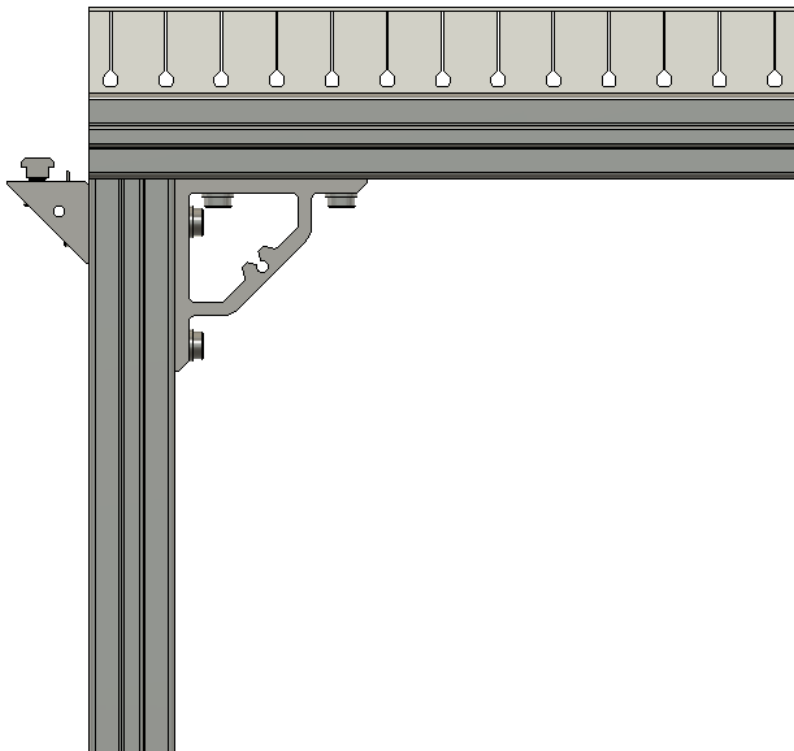
#### 6.3.4.2 Detailed sketch of the corner of the transverse bridge



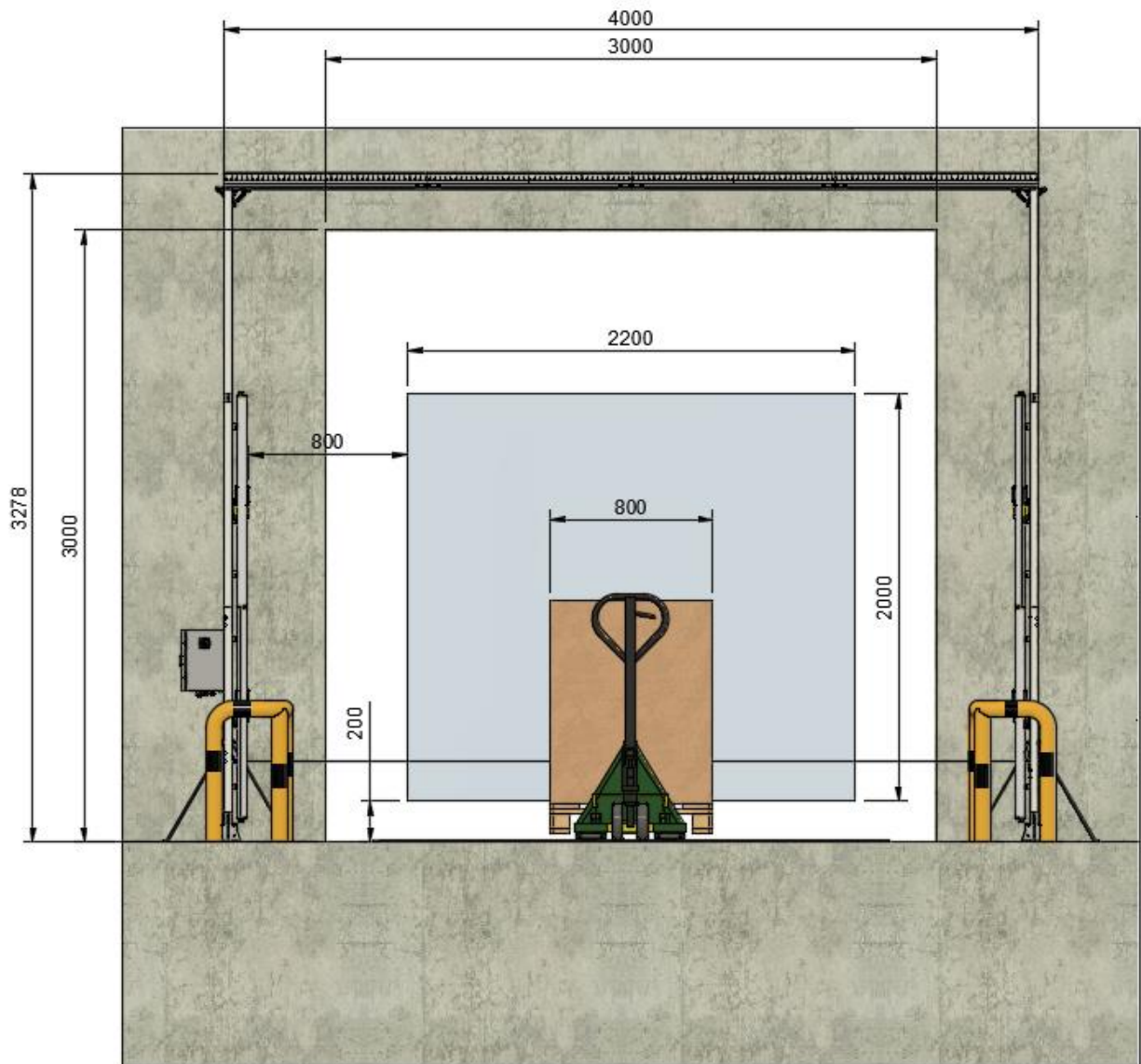
#### 6.3.4.3 Oblique view of the corner of the transverse bridge



#### 6.3.4.4 Detailed view of corner with mounting bracket



#### 6.3.4.5 Complete view of SmartGate2x2 with cross bridge



### 6.3.5 Setting up and aligning the frames



#### Attention

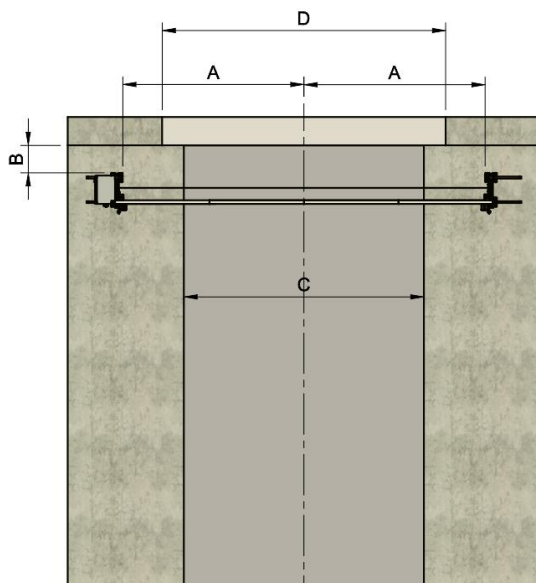
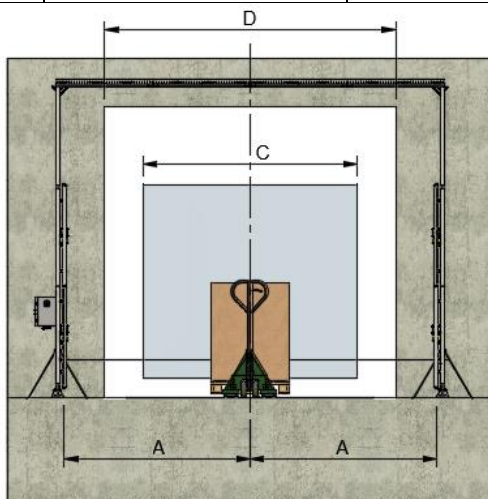
Two people are required for assembly. During assembly, ensure that the cable ducts of the vertical struts (2) are orientated in the same way as the cable ducts of the Scangate.

When assembling the cross frame together with the Scangate, it is recommended to assemble the frame lying completely on the ground, lay the cables in the cable ducts and then carefully erect it with two people. The scanners should only be mounted on the frame once it has been erected vertically and anchored.



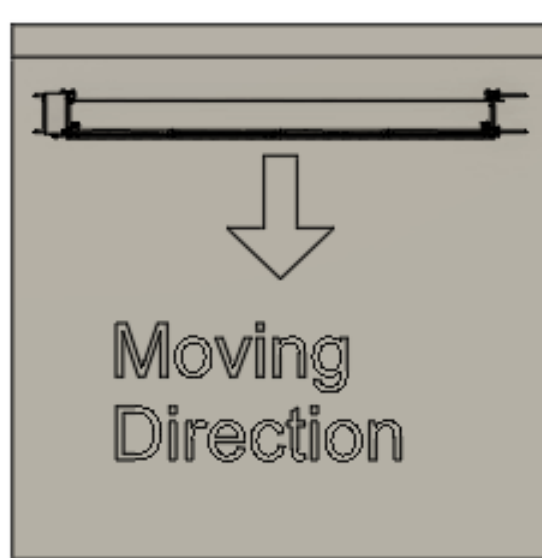
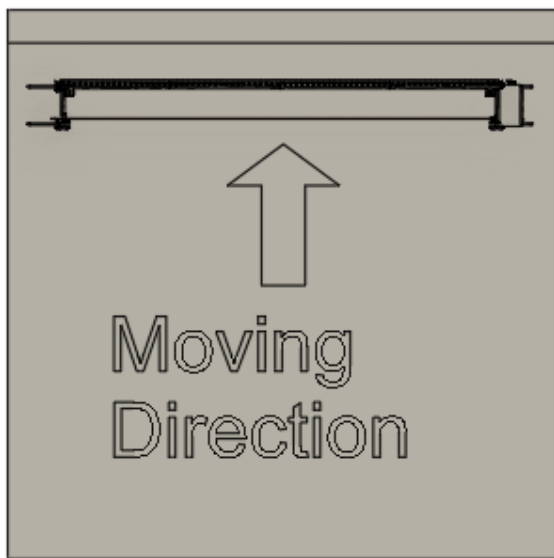
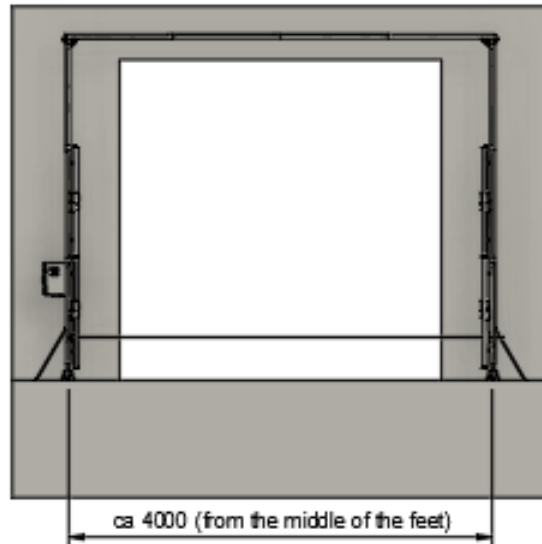
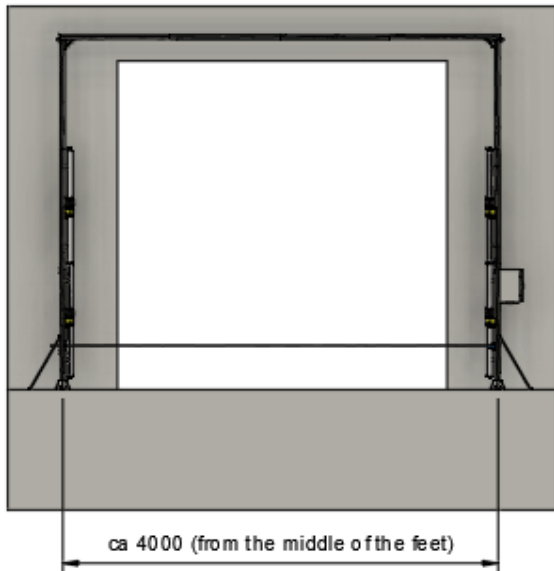
**Caution!** Align the frame in the centre and parallel to the door.

A	Distance from centre axis of door to edge of levelling foot	1915mm
B	Distance between AIT Smartgate and wall	Variable but min. 100mm
C	Scan area width	2200mm
D	Door width	3000mm



### 6.3.6 Orientation of the Smartgate depending on the direction of movement

The Smartgate should be set up in such a way that when the Smartgate is passed through, the light barrier is passed first and then the scanner.



**Figure 1: Smartgate for goods**

**Figure 2: Smartgate for incoming goods**

### 6.3.7 Mounting the scanners in the specified positions

The mirror scanners are labelled Master and Client 1 to Client 3. Attach the scanners to the correspondingly labelled brackets using the M4 countersunk screws supplied.



### 6.3.8 Wiring and connection in the switch box



#### Attention

Please read these instructions carefully and observe the enclosed E-plan. Electrical work may only be carried out by trained specialists. Before starting work, ensure that the switch box is de-energised.

The scanners are preconfigured so that one is the syncmaster (master) to which the light barrier signal is connected. The other scanners (clients 1-3) are automatically triggered by this Syncmaster(master). The scanners are labelled accordingly. The terminal assignment is described below and in the E-plan.



**Attention!** Only connect the Syncmaster to the trigger signal of the light barrier. Only the power supply +24VDC and Gnd must be connected to the clients (1-3). Do not mix up cables!

### 6.3.8.1 General view of switch box



### 6.3.8.2 Terminal X2 assignment diagram

Please also refer to the enclosed wiring diagram. The cables shown in the table must be connected during installation.



Terminal X2	Connection
X2:1	+24VDC Scanner Syncmaster (Black)
X2:2	+24VDC Scanner Client1 (Black)
X2:3	+24VDC Scanner Client 2 (Black)
X2:4	+24VDC Scanner Client 3 (Black)
X2:5	--
X2:6	--
X2:7	--
X2:8	+24VDC photoelectric sensor (brown)
X2:9	--
X2:10	Trigger (In 0) Scanner Syncmaster (Purple)--
X2:11	GND Scanner Syncmaster (grey)
X2:12	GND Scanner Client1 (grey)
X2:13	GND Scanner Client 2 (grey)
X2:14	GND Scanner Client 3 (grey)
X2:15	--
X2:16	--
X2:17	Common In, Scanner Syncmaster (Yellow)
X2:18	GND Light barrier (blue)
X2:19	--
X2:20	Signal light barrier (white)

6.3.8.3 E-Plan  
Artikelstückliste

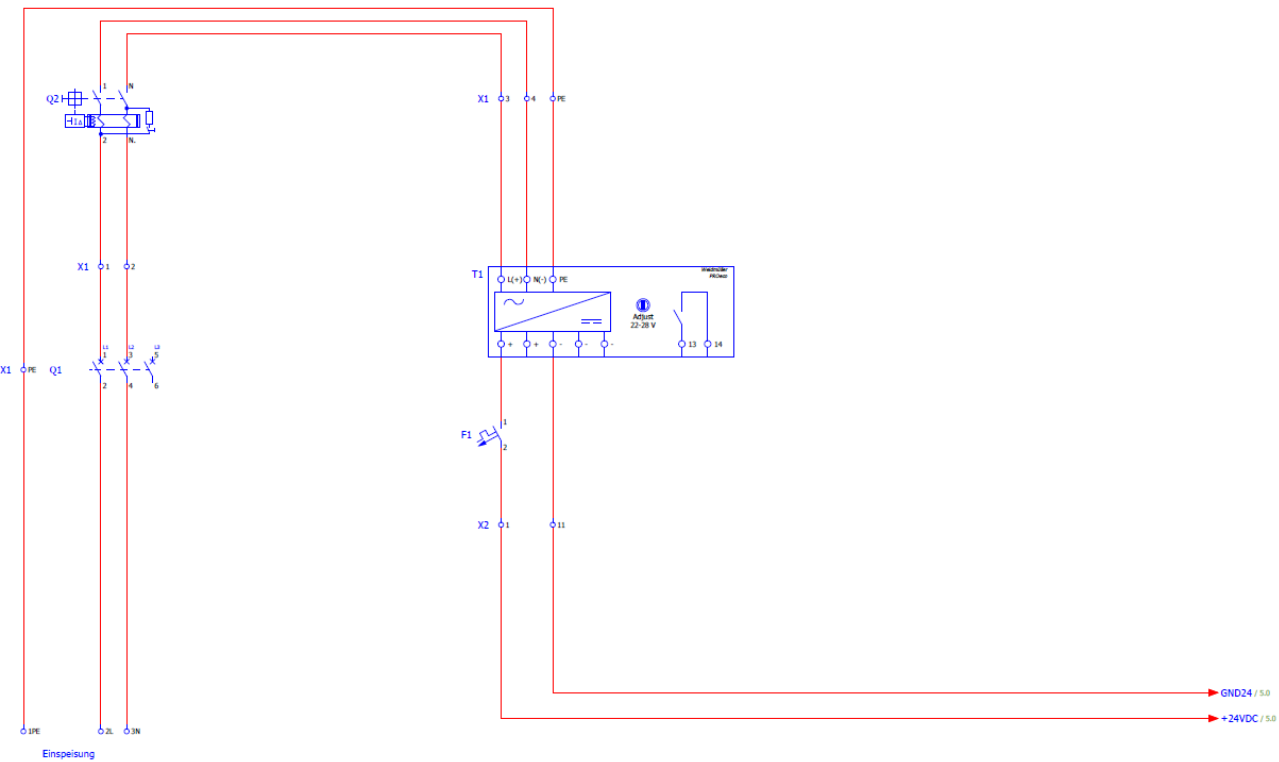
F01\_001

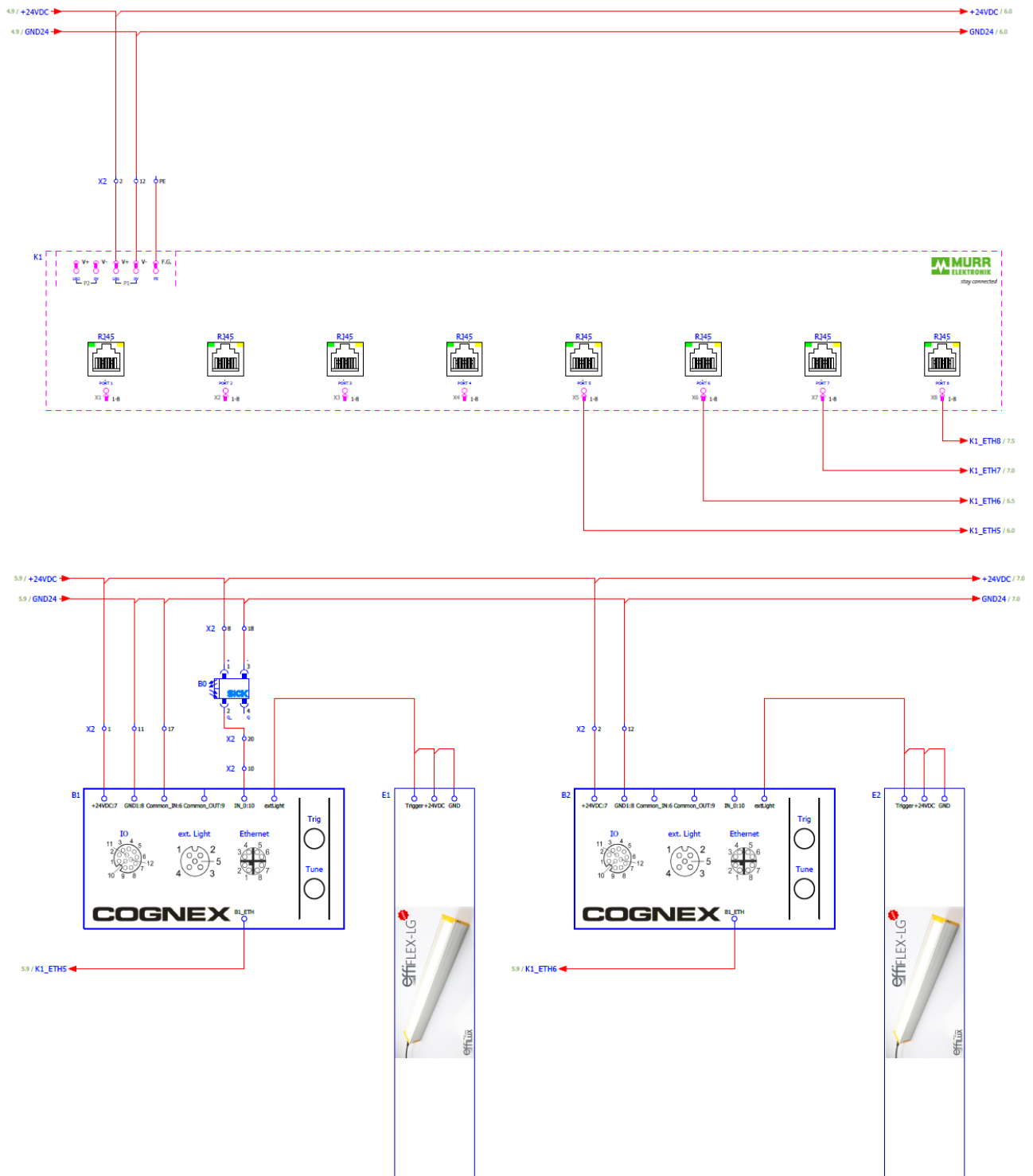
Betriebsmittelkennzeichen	Menge	Bezeichnung	Typnummer	Lieferant	Artikelnummer
B01	1	Sockelsteck-LED-Strahler, WL12-3P24V33	1041435	SSE	1041435
B01	1	HESM Linear Polarisator, Vert and Horizontal , DM47v	DM470-HESM-LP	AIT	042794
B02	1	HESM Linear Polarisator, Vert and Horizontal , DM47v	DM470-HESM-LP	AIT	042794
B03	1	HESM Linear Polarisator, Vert and Horizontal , DM47v	DM470-HESM-LP	AIT	042794
B04	1	HESM Linear Polarisator, Vert and Horizontal , DM47v	DM470-HESM-LP	AIT	042794
E1	1	EFFILUX LED POL LIGHT RED 3Mx250MM, 250	ICLS-1000-625-S-P	AIT	013034
E2	1	EFFILUX LED POL LIGHT RED 3Mx250MM, 250	ICLS-1000-625-S-P	AIT	013034
E3	1	EFFILUX LED POL LIGHT RED 3Mx250MM, 250	ICLS-1000-625-S-P	AIT	013034
E4	1	EFFILUX LED POL LIGHT RED 3Mx250MM, 250	ICLS-1000-625-S-P	AIT	013034
K1	1	Jeckly BTX GE Unmanaged Switch 8 Port 1000Mbit	58815	MEUR	MEUR.58176
Q1	1	HPT-ROH 15A/160V 400V/7,2kW	3L20003-HTR03	SSE	SSE.3L20003-HTR03
Q2	1	FELIS-Schalter	SSS1354-68038	SSE	SSE.SSS1354-68038
T1	1	PRO-ECO 480W 24V 20A	1469510000	WET	WET.1469510000
F1	1	Leitungsschutzschalter ECO 1-polig 230/400V 6A	SSE.SSL6120-6	SSE	SSE.SSL6120-6

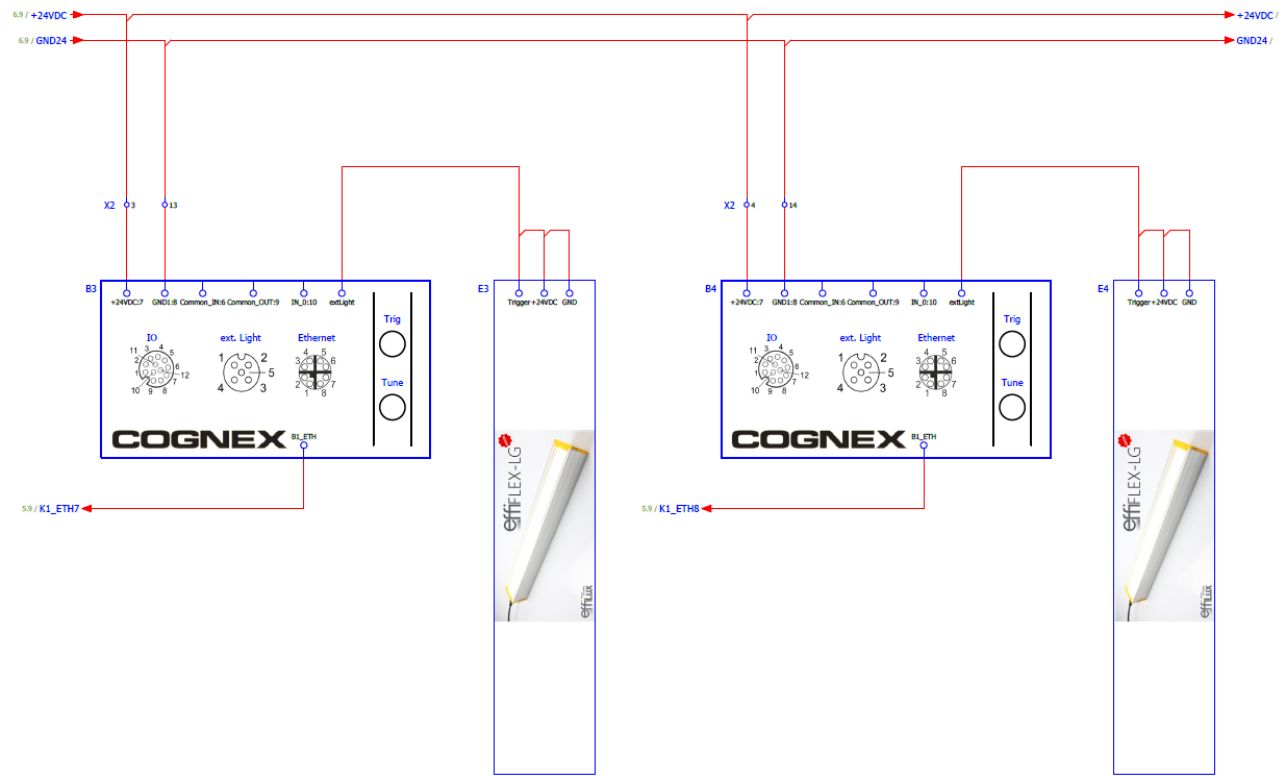
Inhaltsverzeichnis

Spalte X: eine automatisch erzeugte Seite wurde manuell nachbearbeitet

Seite	Seitenbeschreibung	Seitenzusatzfeld	Datum	Bearbeiter
1	Titel- / Deckblatt		18.03.2025	Gross
2	Artikelstückliste		18.03.2025	Gross
3	Inhaltsverzeichnis		18.03.2025	Gross
4	230 V Hauptstromkreis		18.03.2025	Gross
5	24V Steuerstromkreis		18.03.2025	Gross
6	24V Steuerstromkreis		18.03.2025	Gross
7	24V Steuerstromkreis		18.03.2025	Gross

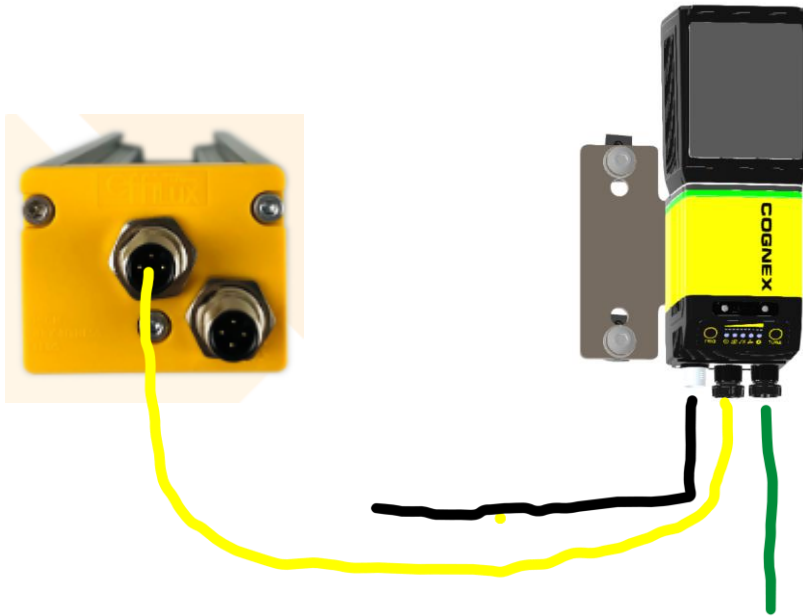






#### 6.3.8.4 Connecting the yellow cables for lighting control

Connect each individual scanner to the lighting mounted directly next to it using the yellow lighting cable (M12xM12, 4-pin, A-coded, 1m). The centre connection of the lighting is connected to the centre connection of the scanner.



#### 6.3.8.5 Connecting the green network cables

Connect the green network cable (M12 8-pin X-coded to RJ45, 10m or 2m) to the scanners.

The short 2m cables are connected to the scanners on the left-hand frame with the control cabinet. The 10m cables are connected to the scanners on the right-hand frame.

Lay the green cables to the switch box (optionally via the cross bridge)

Feed the green cables through the M25 cable glands on the switch box

Connect the green cables to switch K1.



#### 6.3.8.6 Connecting the power IO cable

Connect the power IO cables (M12, 12-pin, A-coded to open ends) to the scanners.

Lay the cables to the switch box (optionally via the cross bridge)

Route the cables via the M16 cable glands.

It is recommended to shorten the power/IO cables in order to minimise the cable length and thus the voltage drop.

Connect the power/IO cables to terminal block X2 as described in the table.

#### 6.3.8.7 Connection of the light barrier signal

Connect the light barrier cable (M12, 4-pin, A-coded, 3m) to the sensor and route this to the control cabinet via the cable duct.

Guide the cable into the control cabinet via the M16 cable glands.

The signal cable can be shortened if required.

Connect the signal cable of the light barrier to terminal block X2 as described in the table.

#### 6.3.8.8 Connecting the external network cable

Guide the external network cable with the RJ45 plug through an M25 screw connection into the switch box and plug the cable into the K1 switch.

#### 6.3.8.9 Connecting the power cable to the socket and switching on for the first time

Check again that the wiring has been carried out in accordance with these instructions and the wiring diagram.

Close the switch cabinet.

Plug the supplied power cable with the earthed plug into the socket.

Switch on the control box at the black main switch on the side.

After switching on, the scanners need approx. 30 seconds to start up. The system is then ready.

### 6.3.9 Aligning the frames and checking the light barrier signal

After switching on the system electrically, check the light barrier signal and align the frame or reflector if necessary. The signal is indicated by LEDs on the light barrier. When the light barrier triggers, all 4 lights of the AIT Smartgate must switch on and the scanners must start scanning.

Once the frames are correctly aligned and the light barrier is triggered, switch off the system at the main switch and disconnect the mains plug. Then anchor the system to the ground.

### 6.3.10 Anchoring the frames

Align the frame in the centre and parallel to the door.

Anchor the frame to the floor on the left and right before commissioning. First anchor the floor clamp.

After anchoring the floor clamp, the 60° supports can now be fitted and anchored in their final position.



**Attention! Floor clamp and support require different drill holes**

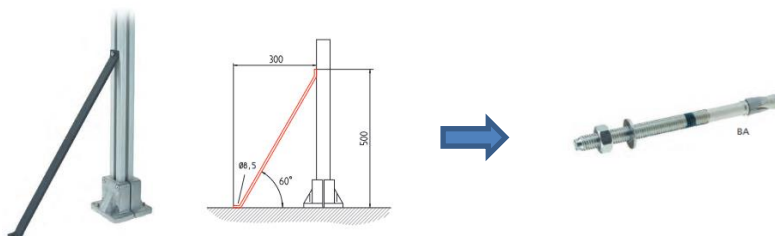
#### 6.3.10.1 Floor clamp attachment



Mark the drill holes and drill 4 holes with a **diameter of 12 mm** for each floor clamp. Use the HLA floor anchors for fastening.

#### 6.3.10.2 Fixing support 60°

Mark the holes and drill **8 mm diameter** holes. Use the BA ground anchors for fastening.



## 7 Details of individual components

### 7.1 Lighting

Special 1 metre long logistics lights are used. The lights are connected directly to the scanner and controlled by it.



#### 7.1.1 Connections



1, Trigger (yellow cable to the scanner)

#### 7.1.2 Technical data

Power supply	24VDC +/- 10%
Power consumption medium	1A
Power consumption max	1,45A
Max. Flash duration	100µs
Max. Frequency	150Hz
Response time	<1µs
Dimensions (HxWxL)	60x47x1023mm
Connections	2 x M12 5pin male, A-coded
Number of LEDs	100
Wavelength	625nm (red)

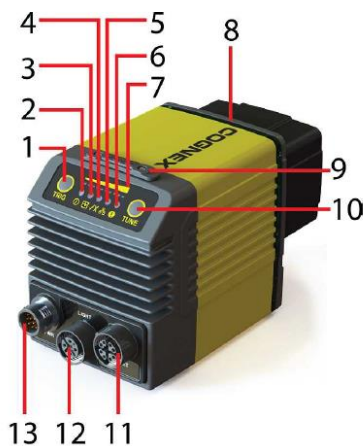


## 7.2 Mirror scanner

The High-Speed Steerable Mirror (HSSM) attached to the Cognex DataMan® 470 fixed-mount 1D/2D reader provides a powerful, cost-effective solution for large field-of-view applications. Pallet scanning, aggregation and large area scanning functions previously required expensive, high-resolution PC vision systems or two or more smart cameras to successfully read the large volume and variety of 1D/2D codes. The HSSM delivers this coverage and speed in a single compact design. It enables fast installation, lower maintenance costs and higher productivity.

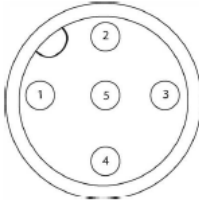
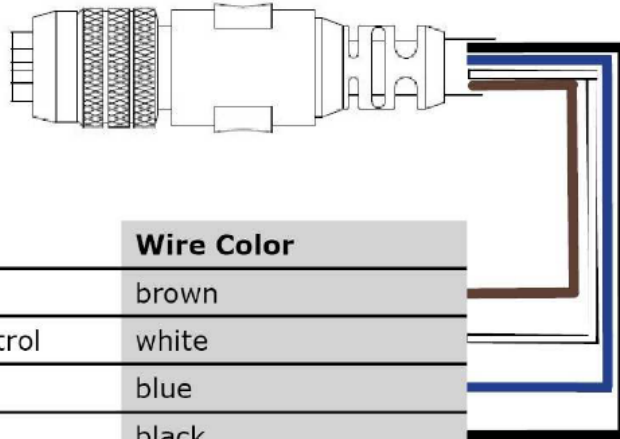


### 7.2.1 Displays and connections



1	Trigger button (deactivated)
2	Power LED
3	Training status LED
4	Good/bad reading LED
5	Network LED
6	Error LED
7	Peak indicator
8	Result display LED
9	SD card slot
10	Tuning button (deactivated)
11	Network connection M12 X-coded (to the switch in the control cabinet)
12	External lighting control M12 (yellow cable for lighting)
13	Power I/O connection (black cable to the control cabinet)

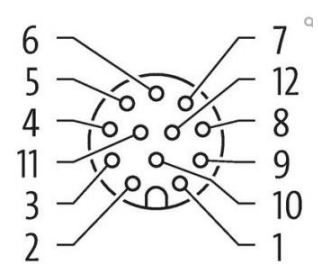
### 7.2.2 Cable assignment for external lighting control

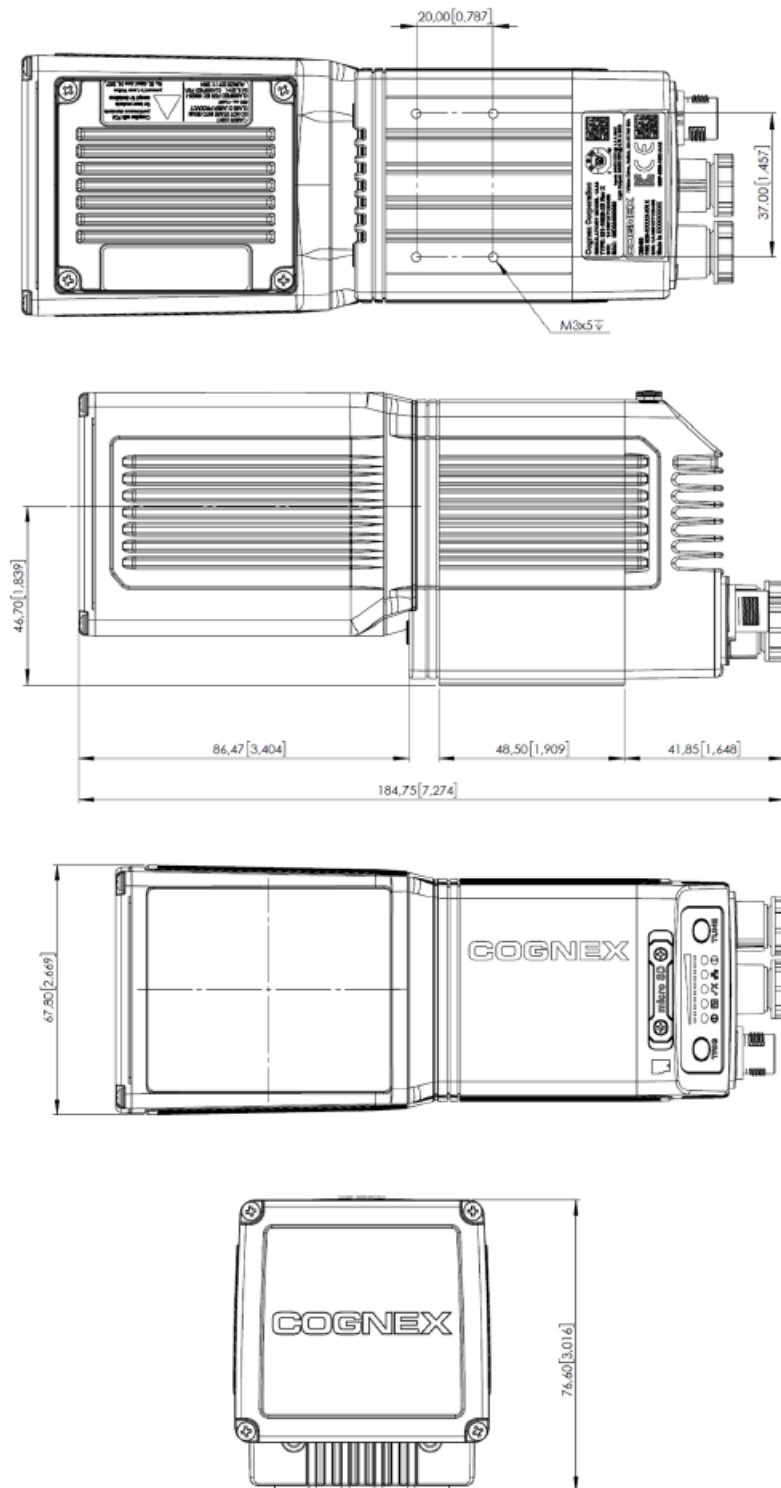
Pin #	Signal Name	Wire Color
1	+24 VDC	brown
2	Brightness Control	white
3	GND	blue
4	Strobe	black
5	Chassis	not connected

### 7.2.3 Power I/O cable assignment

Pin	Signal name	Wire Colour
1	Out2/In2	BN (Brown)
2	TxD	BU (Blue/Blue)
3	RxD	WH (White/White)
4	Out3/In3	GN (Green/Green)
5	In 1	PK (pink/pink)
6	Common In	YE (Yellow/Yellow)
7	+24V DC	BK (Black/Black)
8	GND	GY (Grey/Grey)
9	Common Out	RD (Red/Red)
10	In 0	VT (violet/purple)
11	Out 0	GY PK (Grey Pink/Grey Pink)
12	Out 1	RD BU (Red Blue)



## 7.2.4 Scanner dimensions



## 7.2.5 Technical data scanner

Specification	DM474 Variant	DM475 Variant
Weight	718 g	
Power	24 VDC $\pm 10\%$	
Power Consumption	24 VDC $\pm 10\%$ , 1.5 A maximum Supplied by LPS or NEC class 2 only	
Trigger and Tune Buttons	Yes; Quick Setup Intelligent Tuning	
Laser Aimer	Included	
Discrete Inputs	2 fixed + (*) opto-isolated	
Discrete Outputs	2 fixed + (*) opto-isolated	
*Other I/O Points	2 user-configurable	
Status Outputs	Beeper, 5 multifunctional LEDs, 10 LED bar array, 360 degree indicator	
Lighting	Various controllable external light options	
Communications	Ethernet and Serial	
Protocols	RS-232, TCP/IP, PROFINET, EtherNet/IP(TM), SLMP, Modbus TCP, NTP, SFTP, FTP, MRS Java Scripting enabled for custom protocols	
Dimensions	L: 184.8 mm, W: 67.8 mm, H: 77.8 mm	
Operating Temperature	0–57 °C (32–134.6 °F) <sup>1</sup>	
Storage Temperature	-20–80 °C (-4–176 °F)	
Operating and Storage Humidity	< 95% non-condensing	
Protection	IP67 with cables	
RoHS Certified	Yes	
Approvals (CE, UL, FCC)	Yes	
Vibration Spec	9 GRMS for 1.5hrs	
Angle of Deflection	-40° to +40°	
Software Models	QL, X	

## 7.2.6 Security and standards

The DataMan 470 scanner with HSSM (High speed steerable mirror) meets or exceeds the requirements of all applicable standards for safe operation. As with any electrical device, the best way to ensure safe operation is to use the device in accordance with the standards below. Please read these instructions carefully before using the appliance.



### Warning



This device has been tested according to the IEC60825-1 3rd ed., 2014 standard and has been categorised as a Class 1 laser. The wavelength is 650nm

Safety and Regulatory	
Manufacturer	Cognex Corporation One Vision Drive Natick, MA 01760 USA
CE	Regulatory Model R00062 This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take immediate measures. This equipment complies with the essential requirements of the EU Directive 2014/30/EU. Declarations are available from your local representative.
EU RoHS	Compliant to the most recent applicable directive.
FCC	FCC Part 15, Class A This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
Korea	R-REM-CGX-R00062 This device is certified for office use only and if used at home, there can be frequency interference problems.
TÜV	Regulatory Model R00062
	NRTL: TÜV SÜD SCC/NRTL OSHA Scheme for UL/CAN 61010-1.
	CB report available upon request. TÜV SÜD, IEC/EN 61010-1.

## 7.2.7 Maintenance and cleaning

### 7.2.7.1 Cleaning the housing

To clean the housing of the scanner, apply a small amount of isopropyl alcohol to a cleaning cloth. Do not apply the cleaning fluid directly to the scanner.



#### **Attention**

Do not clean the scanner or the mirror housing with a harsh or corrosive agent such as lye, methyl, ethyl and ketone or petrol.

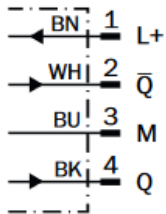
### 7.2.7.2 Cleaning the mirror housing

Use a compressed air tool to remove dust from the housing. The compressed air must be oil-free, dry and free of other contaminants that can settle on the scanner glass. To clean the scanner's mirror housing, apply a small amount of isopropyl alcohol to a cleaning cloth. Do not apply the cleaning fluid directly to the glass. Do not scratch the window.

## 7.3 Signal light barrier

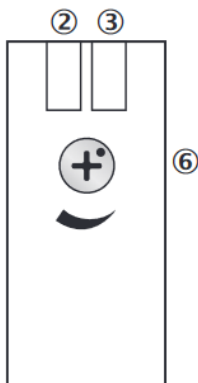


### 7.3.1 Connection diagram



Cable colour	Pin	Occupancy
Brown	1	+ 24VDC
Blue	3	GnD
White	2	Trigger signal to camera

### 7.3.2 Status displays

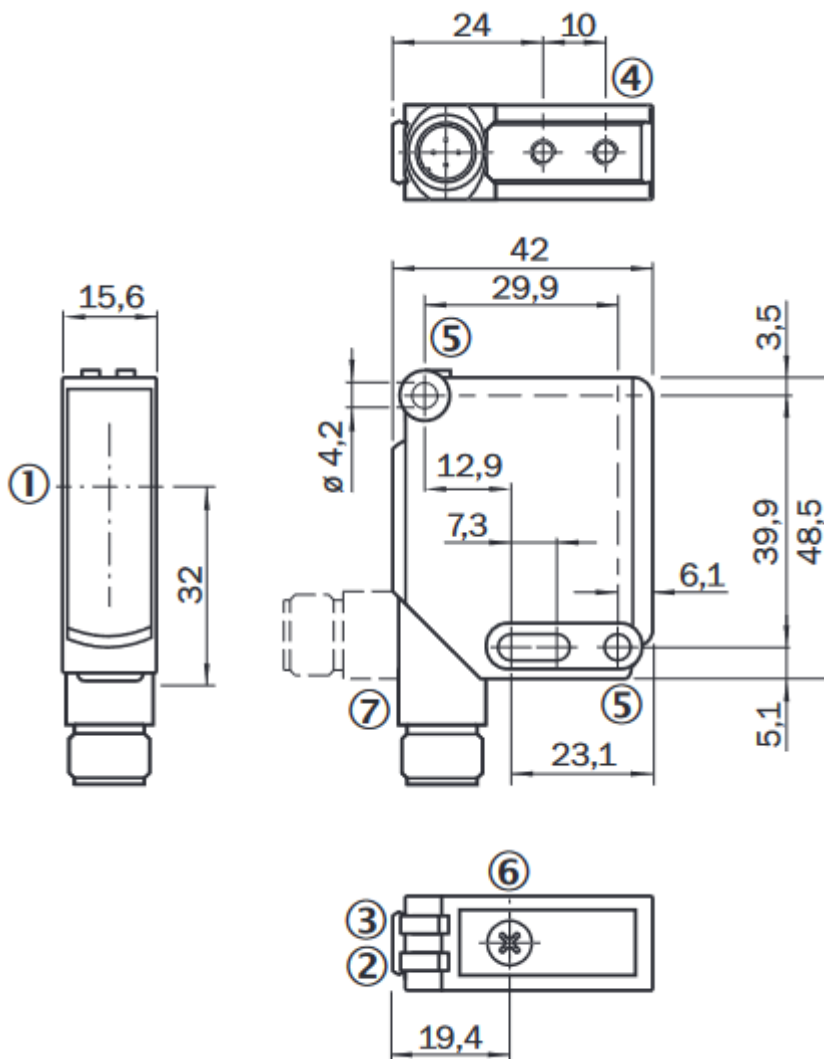


- 2: Indicator LED yellow: Status light reception
- 3: Indicator LED green: Supply voltage active
- 6: Sensitivity adjuster: Potentiometer

### 7.3.3 Technical data

Device type	Light scanners and light barriers
Functional principle	Retro-reflective photoelectric sensor
Functional principle Detail	Autocollimation
Switching distance max.	0 m ... 5 m
Polarisation filter	Yes
Type of light	Visible LED red light, wavelength 640nm
Light spot size	Ø 100 mm (3 m)
Supply voltage	10 V DC ... 30 V DC
Power consumption	30 mA
Digital output	Type PNP
Signal voltage	PNP HIGH/LOW > U <sub>v</sub> - 2.5 V / approx. 0 V
Output current	I <sub>max.</sub> ≤ 100 mA
Response time	≤ 330 µs
Switching frequency	1,500 Hz

### 7.3.4 Dimensions



## 8 Software

The scanners are set up ready for operation. Normally, only the IP addresses need to be adjusted. First download the Cognex DataMan Setuptool V24.1.0 software and install it on your local PC.

You can download the setup tool from the following link.

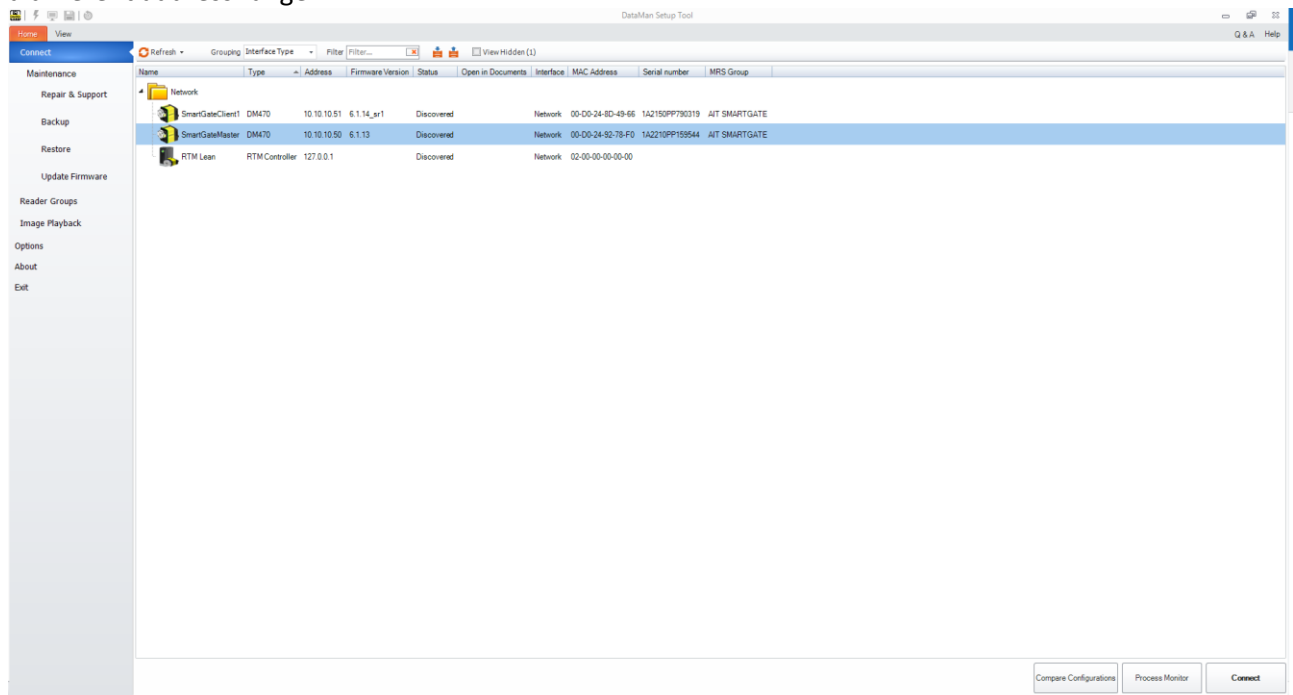
<https://support.cognex.com/en/downloads/detail/dataman/4819/1033>

Install the setup tool and start the DataMan setup tool.

Go to home page

### 8.1 Establishing a connection to the scanner

Install the Cognex DataMan Setup Tool if you have not already done so. Start the software. The scanners connected to the network appear in the list below. The status is set to misconfigured if the scanners are in a different address range.



## 8.2 Setting the IP addresses

The IP addresses of the scanners must be set up once. It is recommended to assign a fixed IP address to each scanner and not to set it to DHCP. The default IP addresses are:

SmartGateMaster: 10.10.10.50

SmartGateClient1: 10.10.10.51

SmartGateClient2: 10.10.10.52

SmartGateClient3: 10.10.10.53

SmartGateClient4: 10.10.10.54

SmartGateClient5: 10.10.10.55

Subnet mask: 255.255.255.0

Select "Repair and support" in the menu on the left

Select the camera in the centre, e.g. SmartGateMaster

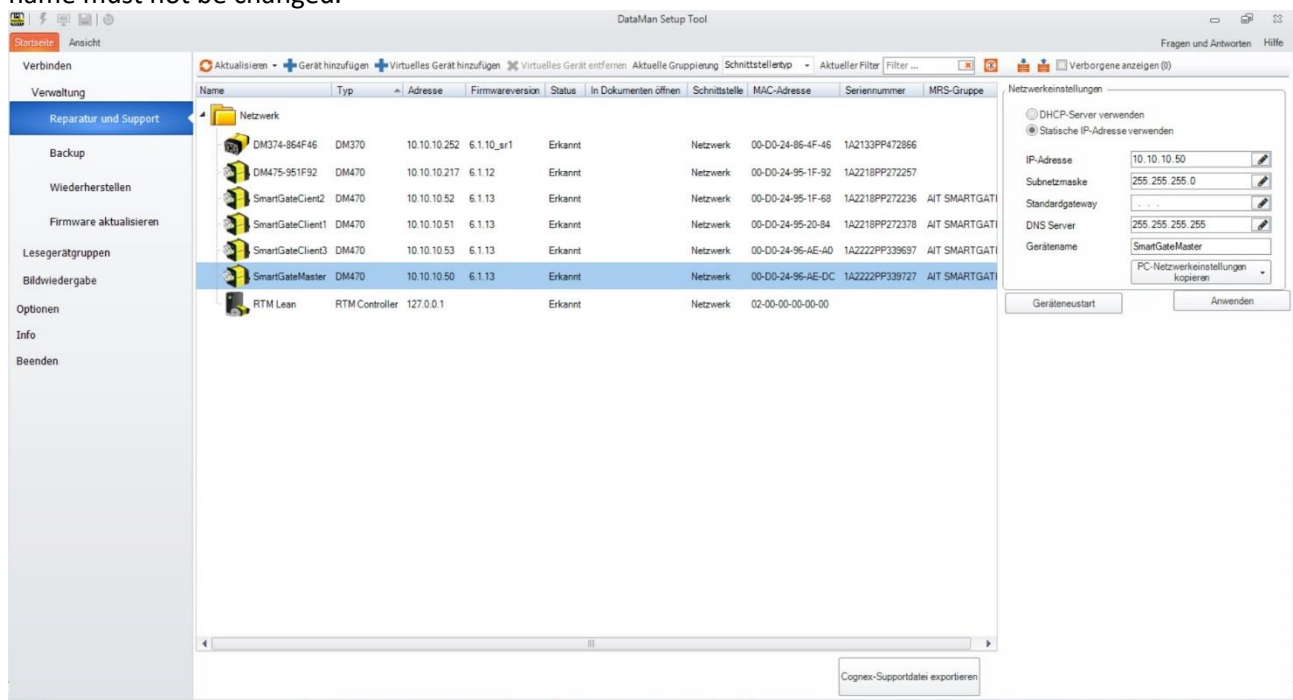
The current IP address and subnet mask appear on the right.

Enter IP address

Press Apply. The scanner will then restart.

Repeat the process for all scanners.

The group assignment and the group settings are not changed by adjusting the IP addresses. The device name must not be changed.

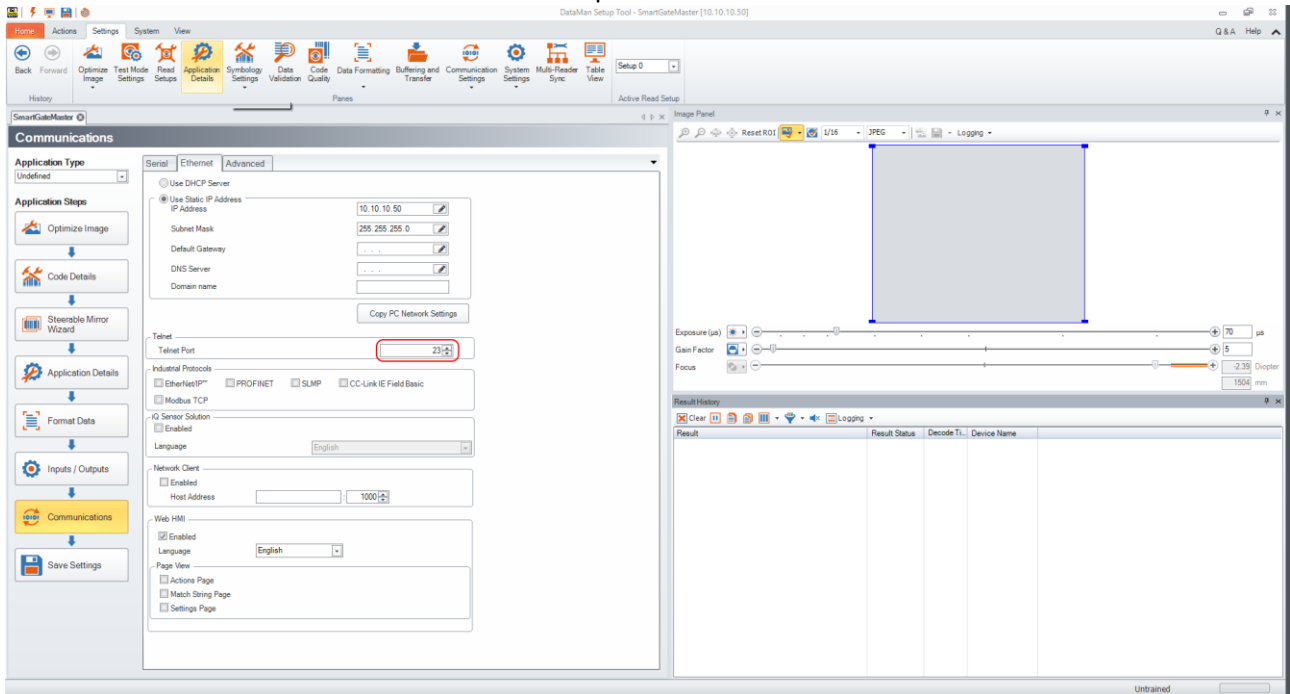


## 8.3 Establishing a connection to a scanner

Double-click on the desired scanner in the overview menu to establish a connection to the selected scanner.

## 8.4 Set communication port scanner

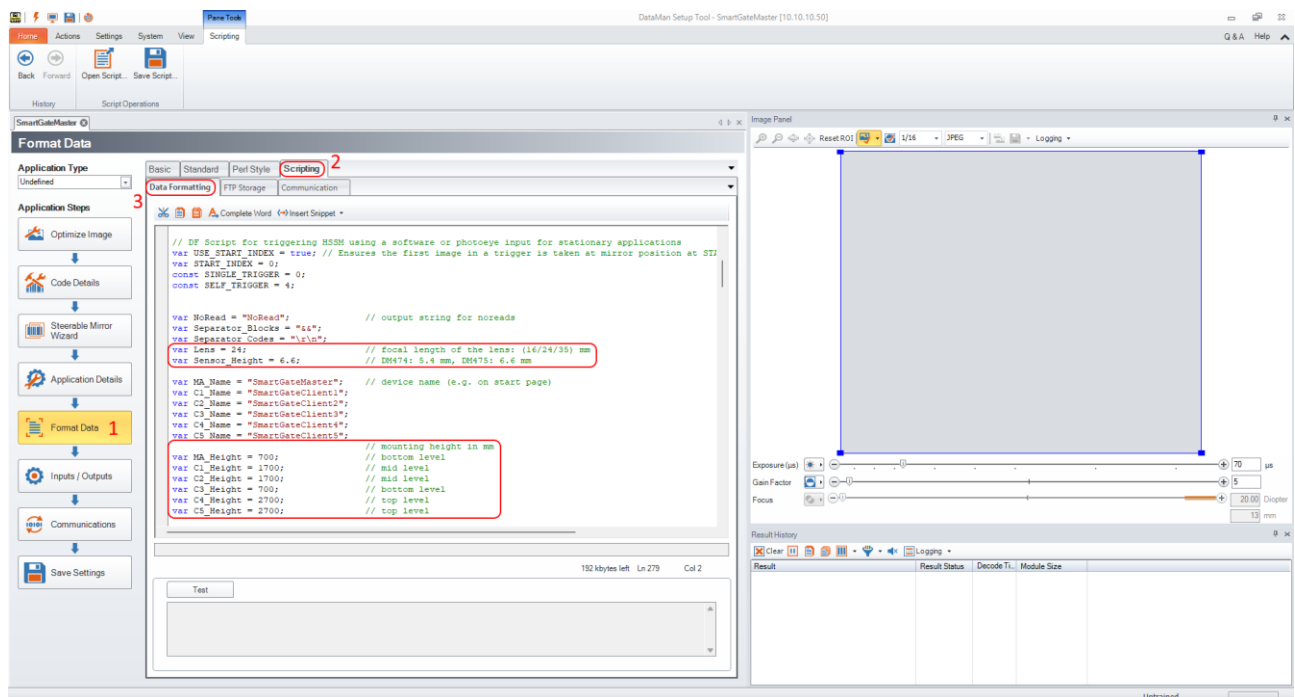
The communication port of the scanners is set to port 23 by default. For Bosch, the port is set to port 9011 for all scanners. The port is preset and does not usually need to be changed. The communication port can be set in the Communications->Ethernet->Telnet port menu.



## 8.5 Script data formatting

### 8.5.1 Install script on master scanner

The Data formatting script only needs to be installed on the master. The script is already installed by default and only needs to be reinstalled when the script is updated. To reload, select the menu item Format Data->Scripting-> DataFormatting. Select the new script file with Open Script. The file must have the format SmartGateMaster\_Dataformatting\_VX-X.js. If necessary, rename the txt file to js. Then save the data to the scanner with Save Settings.



## 8.5.2 Check/customise script

The Data formatting script is already installed on delivery and only needs to be checked and adapted during an update. Then save the data on the scanner with Save Settings.

The standard scanners are the 475 models and have a 24mm lens. These values are preset.

In order to correctly output the position of the read barcode, the height of the scanner in relation to the floor must be entered correctly. The values are already set on delivery. When updating from e.g. 2x2 SmartGate to 2x3, the values must be checked and adjusted if necessary. The scanners are labelled Master and Client1..5. Master-> MAHeight, Client1-> C1Height to Client5-> C5Height

The position of the lower scanners (left and right) is 700 mm above the floor when delivered.

These scanners have a reading range of approx. 200mm - 1200mm above the floor.

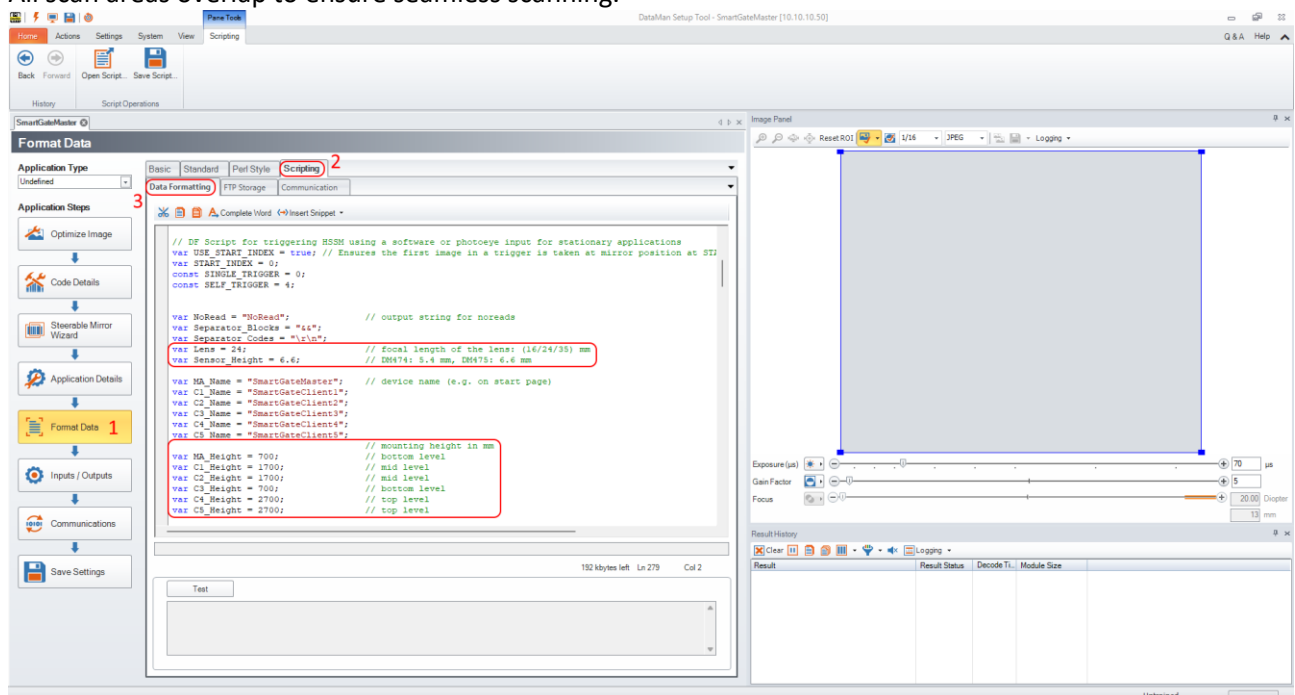
The position of the centre scanners (left and right) is 1700 mm above the floor when delivered.

These scanners have a reading range of approx. 1200mm - 2200mm above the floor.

The position of the uppermost scanners on the 2x3 (left and right) is 2700 mm above the floor when delivered.

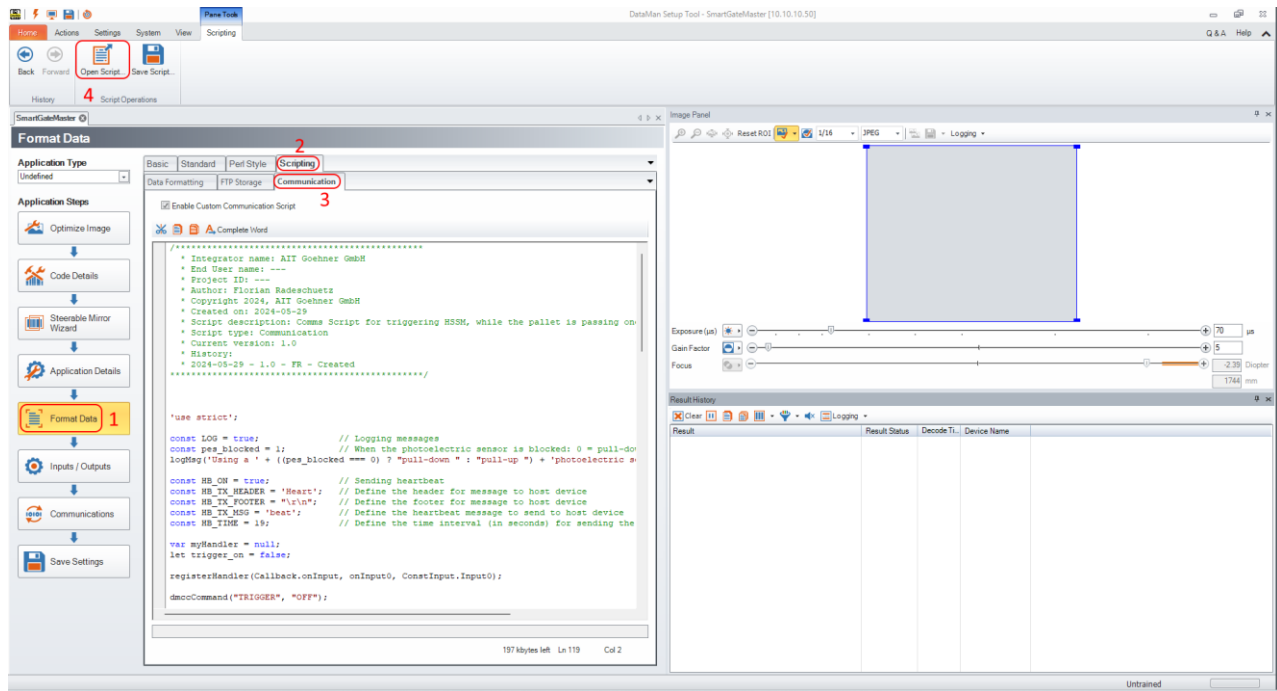
These scanners have a reading range of approx. 2200mm - 3200mm above the floor.

All scan areas overlap to ensure seamless scanning.



## 8.6 Script communication for masters

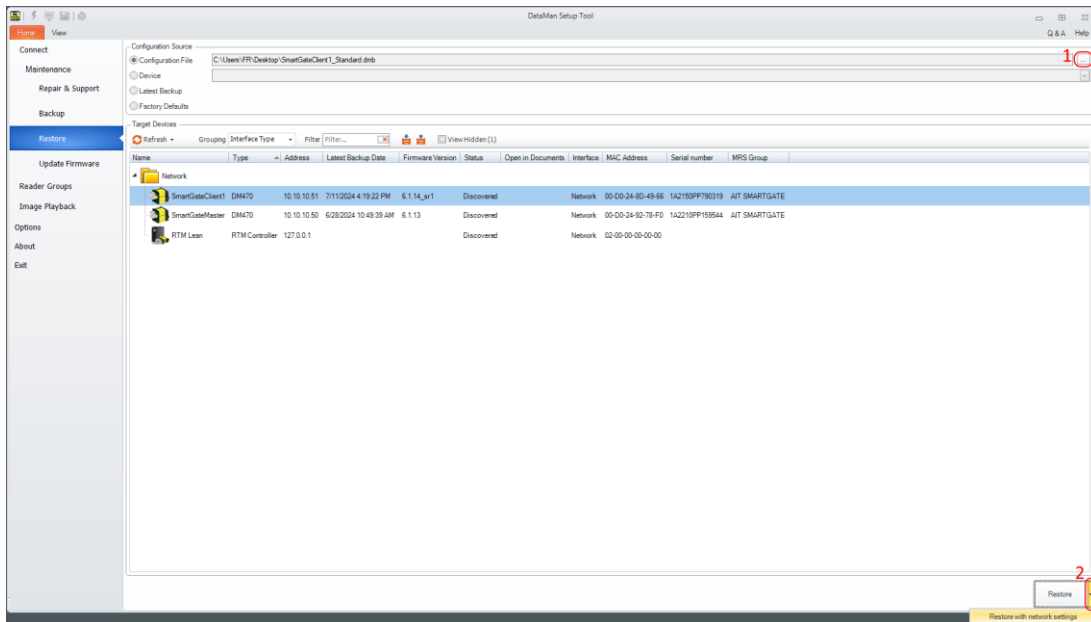
The communication script only needs to be installed on the master. The script is already installed on delivery and only needs to be reinstalled when the script is updated. To reload, select the menu item Format Data->Scripting-> Communication. Select the new script file with Open Script. The file must have the format SmartGateMaster\_Communication\_VX-X.js. If necessary, rename the txt file to js. The file must have the format \*.js. If necessary, rename the txt file to js. Then save the data to the scanner with Save Settings.



## 8.7 Backup/ Restore

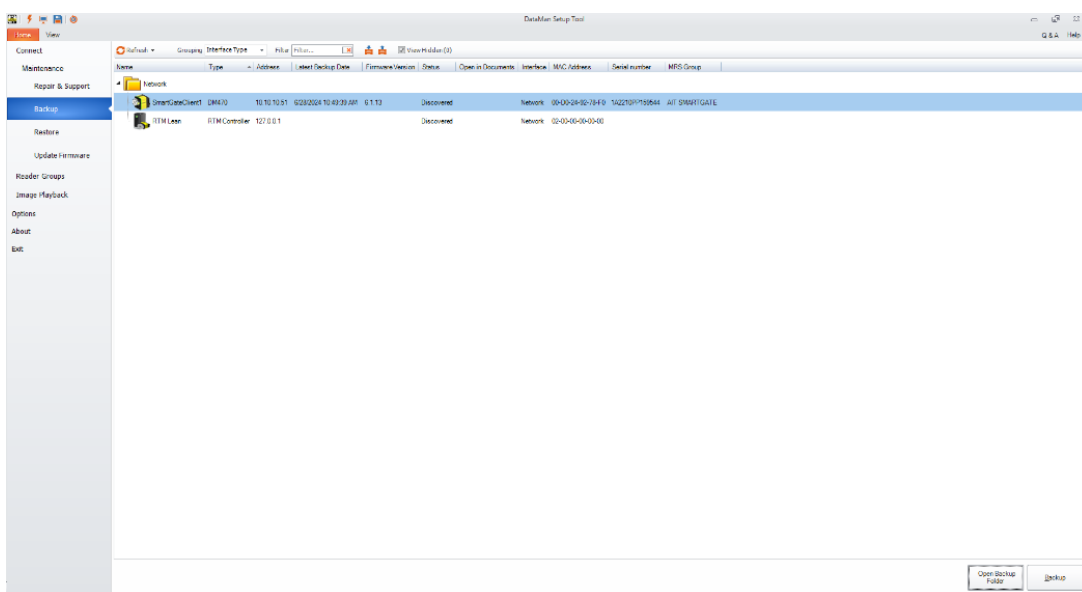
After a change or to restore, a backup can be restored from each one. To do this, select the scanner. Select Restore on the left and select the storage path and file name.

Select the Restore button at the bottom right. If the network address and port from the backup should also be transferred, press the arrow to the right of the button and select the lower menu "Restore with Network settings".



## 8.8 Create backup

A backup can or should be created of each scanner after it has been completely set up. To do this, select the scanner. Select Backup from the menu on the left. Press the Backup button at the bottom right. The backup is saved in the default path C:\users\<Actual user>\documents\cognex\dataman\backups\.

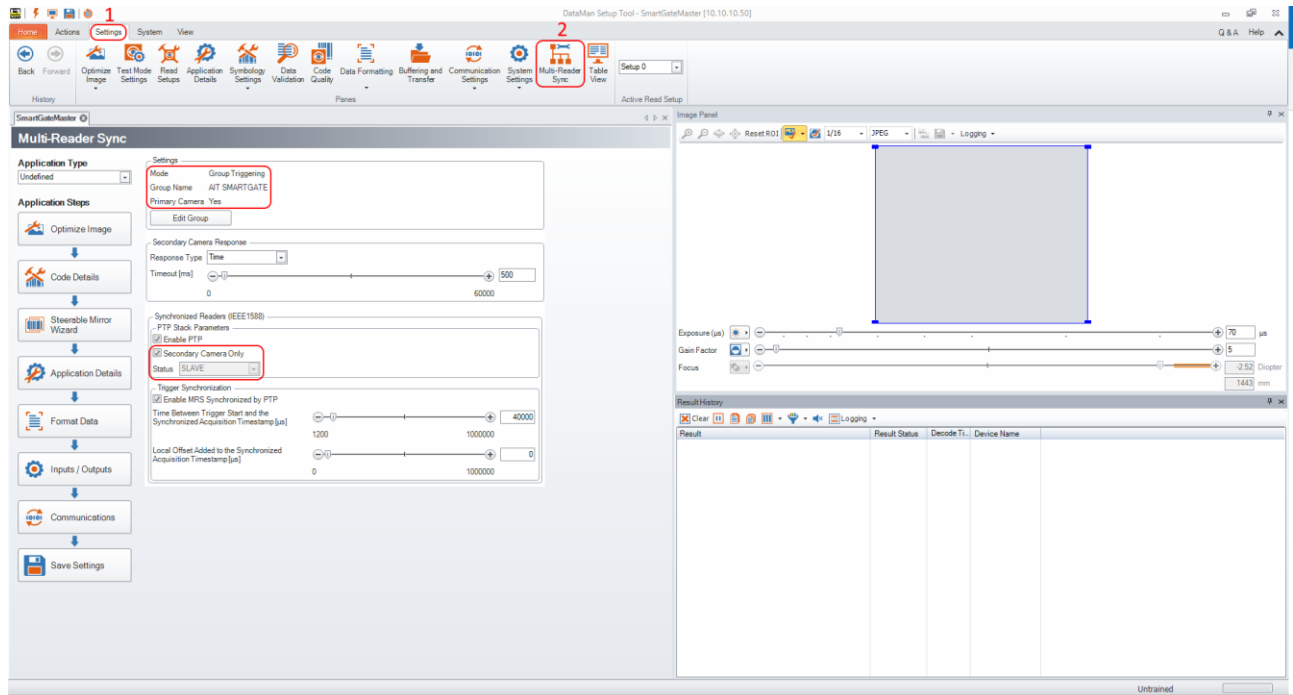


## 8.9 Check scanner grouping

To check the grouping, select the scanner. Check the settings in the Settings->Multi-Reader-Sync menu. It is not necessary to adjust/change the synchronisation/grouping. Even after changing the IP address of the scanners, the grouping does not need to be recreated.

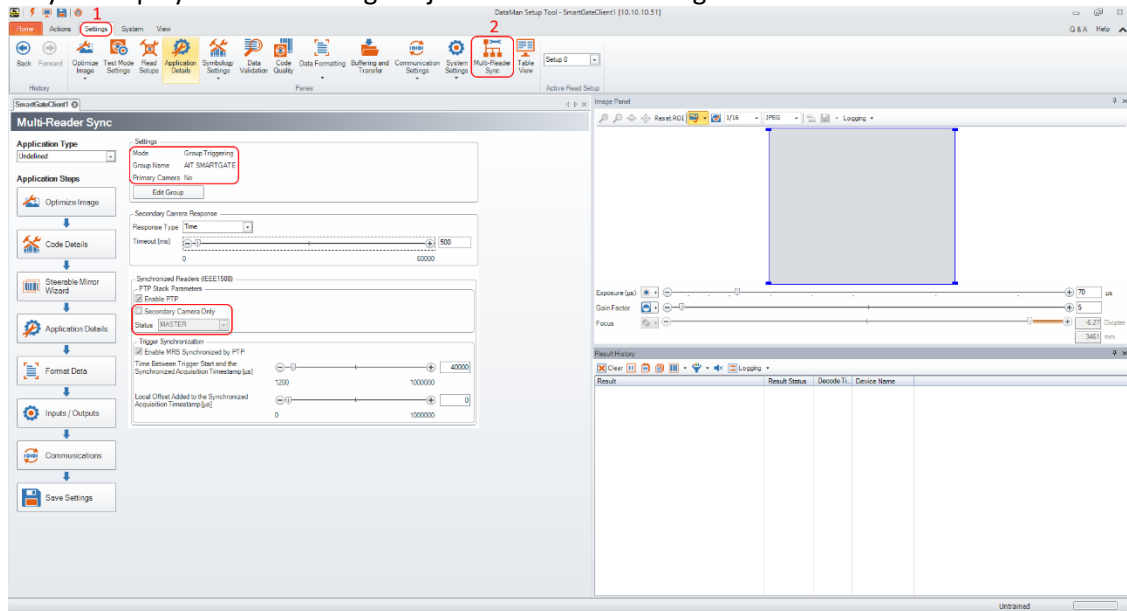
### 8.9.1 Synchronisation settings SmartGateMaster

Group must not! be edited. In particular, if other scanners have already been grouped, something incorrect may be displayed when editing. So just check these settings.



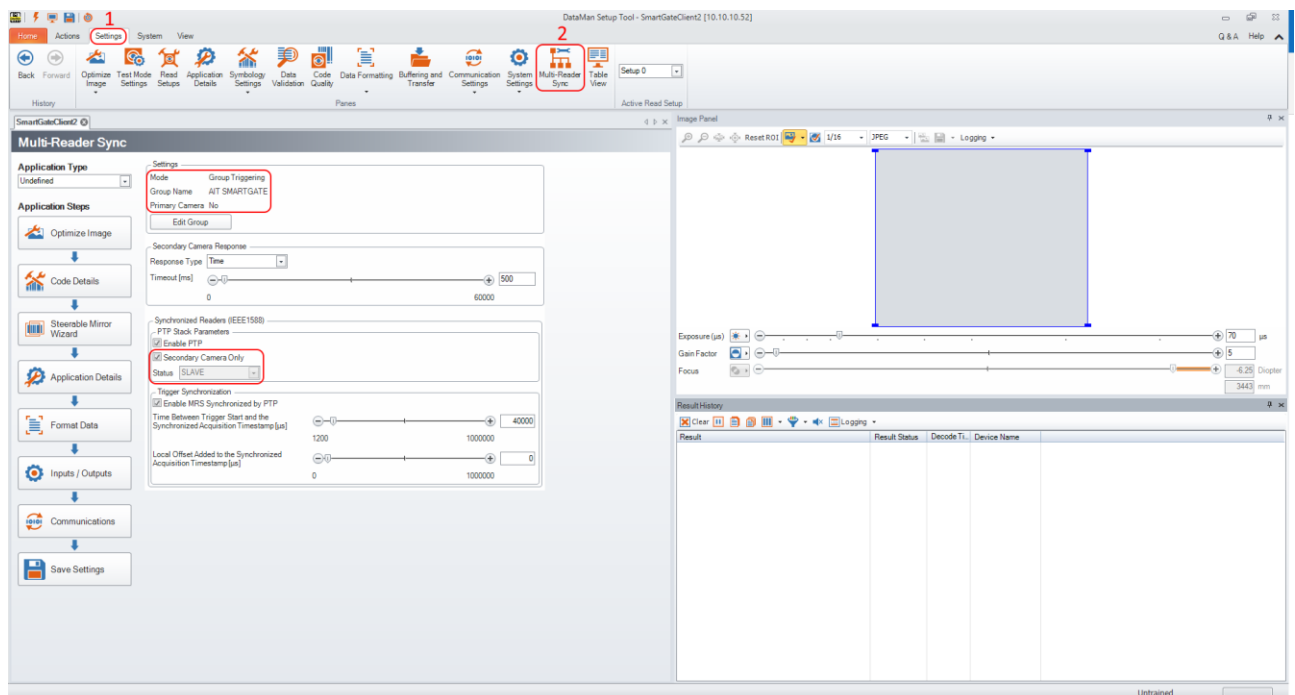
## 8.9.2 Synchronisation settings SmartGateClient1

Group must not! be edited. In particular, if other scanners have already been grouped, something incorrect may be displayed when editing. So just check these settings.



## 8.9.3 Synchronisation settings SmartGateClient2-5

Group must not! be edited. In particular, if other scanners have already been grouped, something incorrect may be displayed when editing. So just check these settings.



## 9 Maintenance

The system is designed to be as maintenance-free as possible. The terminal box requires no maintenance. If the light barrier is very dirty, clean it with a soft dry or slightly damp cloth. For cleaning the scanner, see chapter Mirror scanner.

## 10 Professional disposal



This labelling indicates that the terminal box, scanners, lights and electronic accessories such as power supply units, switches or cables must not be disposed of with other household waste.

Dispose of these components separately from other waste so as not to harm the environment. Dispose of these components properly to support the recycling of valuable materials.

## 11 Troubleshooting AIT SmartGate2x2

In the event of problems with the Smartgate, please note the possible causes and check the appropriate measures before contacting support:

Problem	Possible cause(s)	Measure(s)
System does not trigger	Light barrier misaligned Light barrier cable incorrectly connected or damaged Trigger signal to Syncmaster incorrect/not applied	Check light barrier and wiring Check Syncmaster connection
One light remains off	Lighting defective Cable from scanner to lighting not/not properly connected or cable damaged	Check the lighting and lighting cable from the scanner to the centre socket of the lighting
Scanner does not scan	Scanner defective Scanner not connected or incorrectly connected Scanner has lost configuration or configuration has been overwritten	Check the wiring of the scanner Does the scanner's mirror move? Reload the scanner configuration. (Attention: different configurations for Syncmaster and clients 1..3)
System scans but data does not arrive.	IP addresses incorrect Switch defective External network cable interrupted/ not plugged in	Check the IP addresses of the scanners Check switch Check plug connections to the switch