Series XC75

Modular LED matrix displays with Ethernet interface

Operating instructions

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2 Legal note

This operation manual has been prepared with the utmost care. However, we do not accept any liability for possible errors. We always appreciate your suggestions for improvement, corrections, comments and proposals. Please contact us: editing@siebert-group.com

3 Safety precautions

Important information

Read these operating instructions before starting the unit. They provide you with important information on the use, safety and maintenance of the units. This helps you to protect yourself and prevent damage to the unit. The notes are indicated by a warning triangle and have the following meaning:

DANGER!

Disregardingthis warning notice leads to death or serious bodily harm.

WARNING!

Disregardingthe warning notice can lead to death or serious bodily harm.

ATTENTION!

Disregardingthe warning notice can lead to minor physical injuries or property damage.

The operating instructions are intended for trained professional electricians familiar with the safety standards of electrical technology and industrial electronics.

Store these operating instructions in an appropriate place.

The manufacturer is not liable if the information in these operating instructions is not complied with.

Safety

DANGER!

Components inside the units are energized with electricity during operation. For this reason, mounting and maintenance work may only be performed by professionally-trained personnel while observing the corresponding safety regulations.

The repair and replacement of components and modules may only be carried out by the manufacturer for safety reasons and due to the required compliance with the documented unit properties.

The units do not have a power switch. They are operative as soon as the operating voltage is applied.

Intended use

The units are intended for use in industrial environments. They may only be operated within the limit values stipulated by the technical data.

When configuring, installing, maintaining and testing the units, the safety and accident-prevention regulations relevant to use in each individual case must be complied with.

Trouble-free, safe operation of the units requires proper transport, storage, installation, mounting and careful operation and maintenance of the units.

Mounting and installation

The attachment options for the units were conceived in such a way as to ensure safe, reliable mounting.

WARNING!

The user must ensure that the attachment hardware, the unit carrier and the anchoring at the unit carrier are sufficient to securely support the unit under the given surrounding conditions.

The units are to be mounted in such a way that they can be opened up while mounted. Sufficient space for the cables must be available in the unit near the cable entries.

Sufficient space is to be kept clear around the units to ensure air circulation and to prevent the build-up of heat resulting from use. The relevant information must be heeded in the case of units ventilated by other means.

ATTENTION!

When the housing fasteners are opened, the front frame of the housing hinges out upward or downward (depending on the unit version) automatically.

Grounding

All devices are equipped with a metal housing. They comply with safety class I and require a protective earth connection. The connecting cable for the operating voltage must contain a protective earth wire of a sufficient cross section (DIN VDE 0106 part 1, DIN VDE 0411 part 1).

EMC measures

The devices comply with the current EU Directive (EMC Directive) and provide the required interference immunity. Observe the following when connecting the operating voltage and data cables:

Use shielded data cables.

The data and operating voltage cables must be laid separately. They may not be laid together with heavy-current cables or other interference-producing cables.

The cable thickness must be properly assessed (DIN VDE 0100 Part 540).

The cable lengths inside the units are to be kept as short as possible to prevent interference. This applies especially to unshielded operating voltage cables. Shielded cables are also to be kept short due to any interference which might be emitted by the shielding.

Neither excessively long cables nor cable loops may be placed inside the units.

Disposal

Units or unit parts which are no longer needed are to be disposed of in accordance with the regulations in effect in your country.

4 Unit description

The devices of the XC75 series are designed for outdoor applications. The horizontal and vertical scalability of the modules allows the realization of very large displays. The integrated DisplayControlUnit enables the presentation of texts, graphics, images and videos in RGB colors.

5 Model designation

The operating instructions apply to the devices of the XC75 series:

XC75-192.128-G1-C4V2-M1

XC75-192.128-G1-C4V2-S0

Devices with option 2103 are equipped with additional air-to-air heat exchangers.

6 Device structure

The devices of the XC75 series have a modular design. The individual modules have a resolution of 192 x 128 pixels. The complete display is assembled at the customer's site from one or more of these modules.

Two types of modules are available: M1 and S0. The M1 module is the master module and can be expanded horizontally and vertically with S0 expansion modules.

A master module M1 is always required for each XC75 display. This contains the Ethernet connection, the DisplayControlUnit, the signal processing and the control of the LEDs.

The signal processing of all additional S0 extension modules is always done in the master module. For LED areas larger than 192x128 pixels, the S0 extension modules can be added horizontally and vertically. Each S0 module also has the size 192x128 pixels. The signal processing of all additional modules is always done in the master module of the display.

The pixel pitch is 8mm in horizontal and 8mm in vertical direction.

Each module has doors on the back for maintenance and service purposes, which are closed with sash locks.

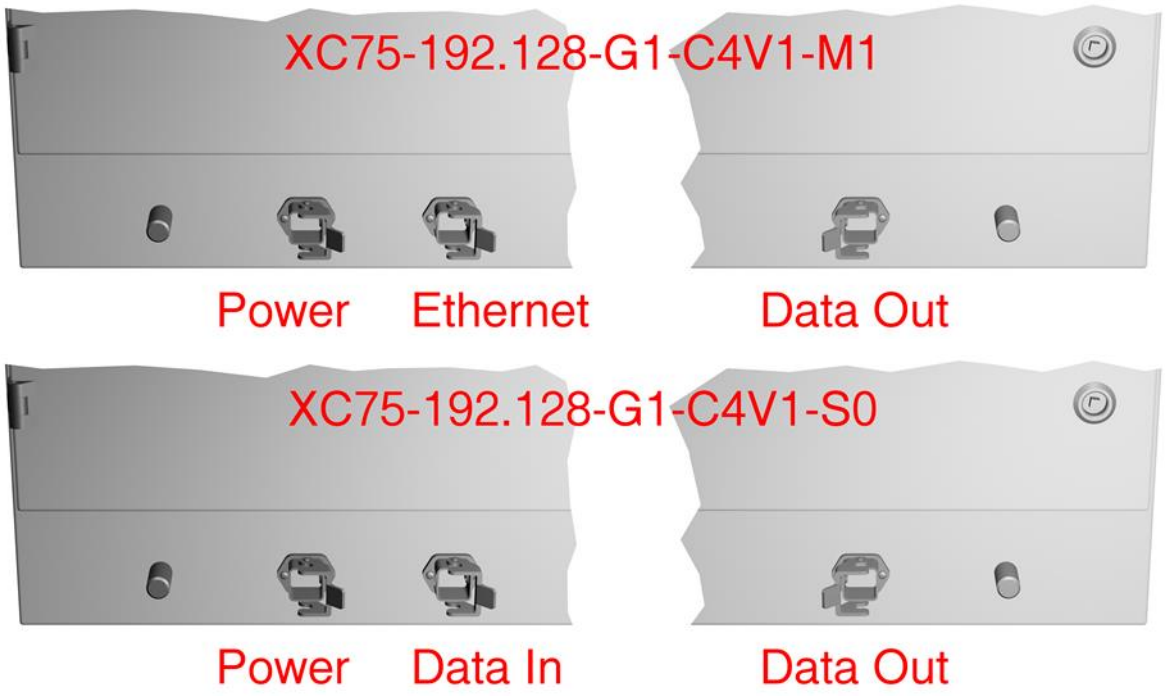
For example, the following sizes can be realized (horizontal x vertical):

Setup	Dimensions in pixels	Dimensions in meters
M1	192 pixels x 128 pixels	1,536 m x 1,024 m
M1 + S0	384 pixels x 128 pixels	3,072 m x 1,024 m
M1 + S0 + S0	576 pixels x 128 pixels	4,608 m x 1,024m

All electrical connections are located on the rear side at the lower edge of the housing and are connected via various Harting HAN 3A connectors with protection type IP65. The position of the connectors is identical for master and expansion modules.

Each module has a separate power supply with 230 V AC.

The connection to Ethernet is made via the master module. This also supplies all expansion modules with data, which are connected to each other via Data Out and Data In connections.



To prevent condensation, the modules are equipped with automatically regulating heaters.

7 Installation instructions

Parts set

All devices are supplied with a parts kit containing the components required for mounting:

6 x M16 washers and nuts for fastening the XC75 modules to the support structure (loosely screwed on)

1 x HAN3A from Harting for connecting the 230 V AC power supply per module

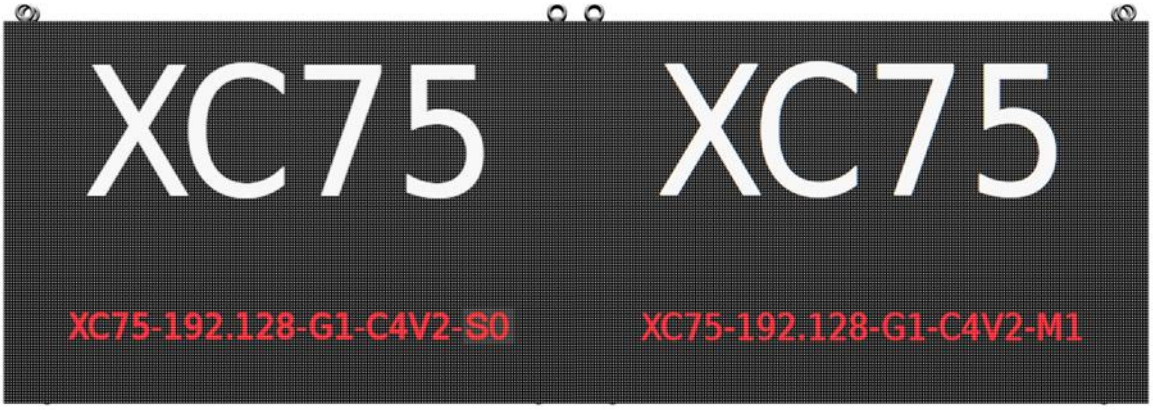
1 x HAN3A-RJ45 from Harting to connect the Ethernet cables1 x connecting cable from M1:Data Out to S0:Data In

2 x drainage nozzle

1 x square key to open the doors

Arrangement of the modules

When assembling an XC75 device, make sure that the modules are arranged correctly: when looking from the front, the M1 module is mounted furthest to the right. The S0 modules are mounted on the left side of the M1 module.



Assembly device

Each module has four hanging eyes on the top for transport as an assembly aid.

The individual modules are prepared for mounting on a support construction. For this purpose, the modules are each provided with three M16 x 30 mounting bolts at the upper and lower edge.

The technical drawings with dimensions are at the end of this documentation.

ATTENTION!

The LED modules reach up to the edges of the devices. When moving and setting down, appropriate measures must be taken to avoid damaging the outer LEDs.

Requirements to the installation site

The supporting structure is erected by the customer and must comply with the applicable local regulations.

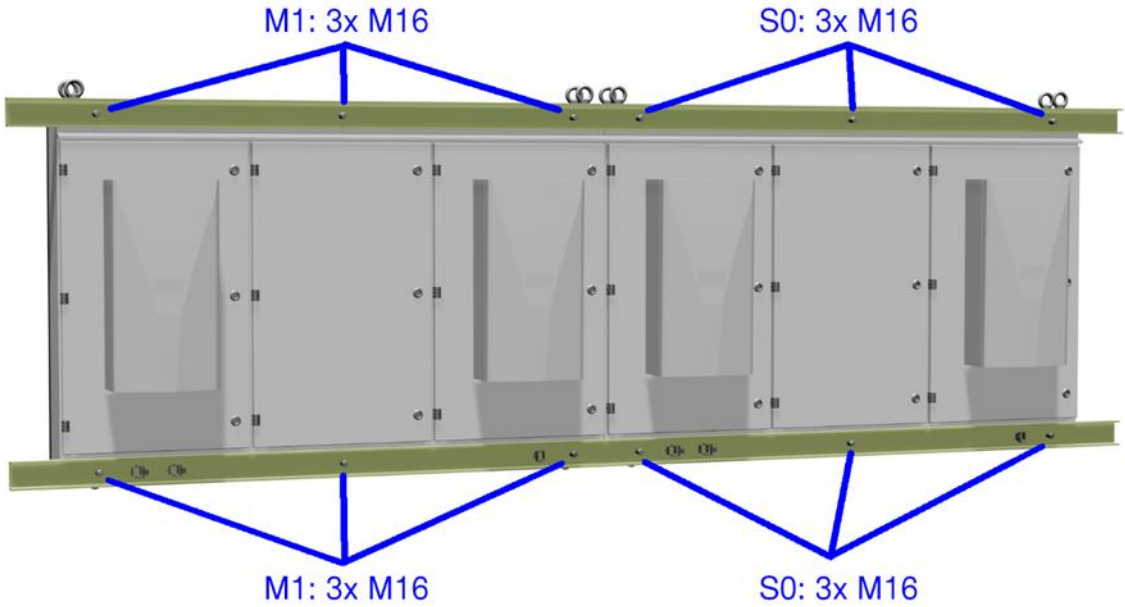
The following points must be taken into account:

In the support rails, the necessary holes for the M16 stud bolts and the cutouts for the power supply and the data lines must be provided.

Sufficient space for opening the doors on the rear of the device must be provided.

For units with option 2103, air-to-air heat exchanger, ensure sufficient distance to the nearest wall so as not to impair the cooling function.

Each module is fastened to the support rails with 6 pieces of M16 nuts and washers (included in delivery).



Connection to 230 V AC

Installation may only be carried out by qualified personnel.

The devices are supplied via a HAN3A plug, 230 V AC voltage. The counterpart is also included in delivery.

DANGER!

Danger due to electric shock. There are dangerous voltages in the device which may cause death if handled improperly.

Pin Nr.	Function	
1	L	230V AC
2	N	Neutral
PE	PE	Protective Earth

Connection to the Ethernet

The Ethernet connector (HAN3A RJ45 socket) is located on the back of the M1 module. A suitable mating connector is included in delivery.

Wiring between modules M1 and modules S0

The data generated by the M1 module is led from the output M1:Data Out to the input S0:Data In with a CAT5 cable. The cable is included in delivery.

Drainage nozzle

After mounting, both drainage nozzles must be mounted on the lower side of the device on each module.

Opening the device

There are three doors on the back of the XC75 module, which are opened with the included square key.

Since all connections on the rear of the unit are designed as plug connectors, there is no need to open the doors. Neither during assembly nor during normal operation. The doors are only required for servicing.

ATTENTION!

As a safeguard against damage to the paintwork, safety lines are hooked in. These must not be removed.

DANGER!

When closing the doors, especially if the display is horizontal, there is a risk of crushing.

ATTENTION!

Some devices have internal ventilators that can start automatically even when the case is open. Long hair, hanging clothes and jewelry can get caught and caught in the ventilators.

Do not wear loose or hanging clothes or jewelry when working on the device.

Protect long hair with a hair net.

8 Start-up

The XC75 series, as well as the XC50 and XC55 series, are based on Siebert XCplus technology. The following manuals are available for download on the web site.

BAL XCPlus Ethernet	Integrating the display into the network
BAL XCPlus WEB	Web interface
BAL XCPlus JSON	JSON Interface
BAL XCPlus PLC	PLC Connector

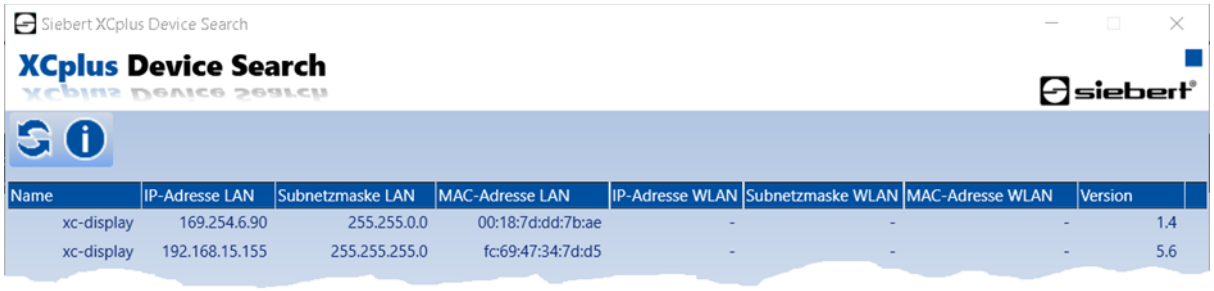
Start message after power on

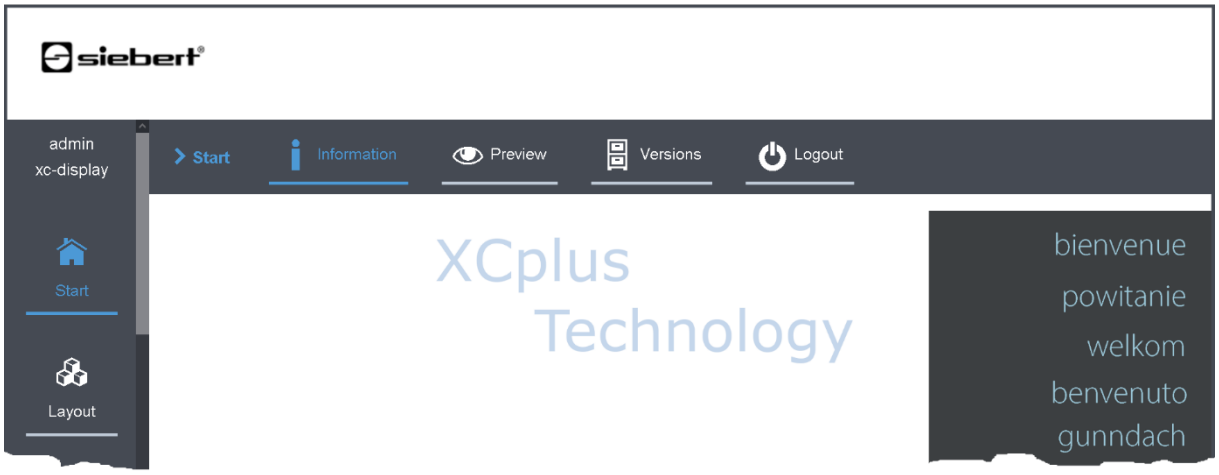
After applying the 230 V AC power supply, boot messages are displayed and the operating system starts. This process takes about 30 seconds, after which the display is ready for operation.

In delivery state, the display shows the default layout. After commissioning, it shows the layout last seleIcted by the user.

XCPlus Device Search and Web site

For more information, see the instructions above.





9 Technical data

Electrical properties

Power supply voltage	Serie XC75	230 V AC, 50/60 Hz ±15 %
Power consumption*	XC75	200 W typ., 780 W max.
	XC75 with option 2103	220 W typ., 880 W max.

* The typical performance corresponds to the display of texts in white font and at maximum brightness. The maximum power corresponds to the full-surface control in white at maximum brightness.

Digital displays with LEDs can be read better if a luminous font on a black background is selected for visualization. Use the sliders on the parameterization page of the XC75 web server to adjust the brightness of the display to the conditions at the installation site.

Since the display has a lower energy consumption due to the corresponding settings, you contribute to environmental protection and reduce your running costs at the same time.

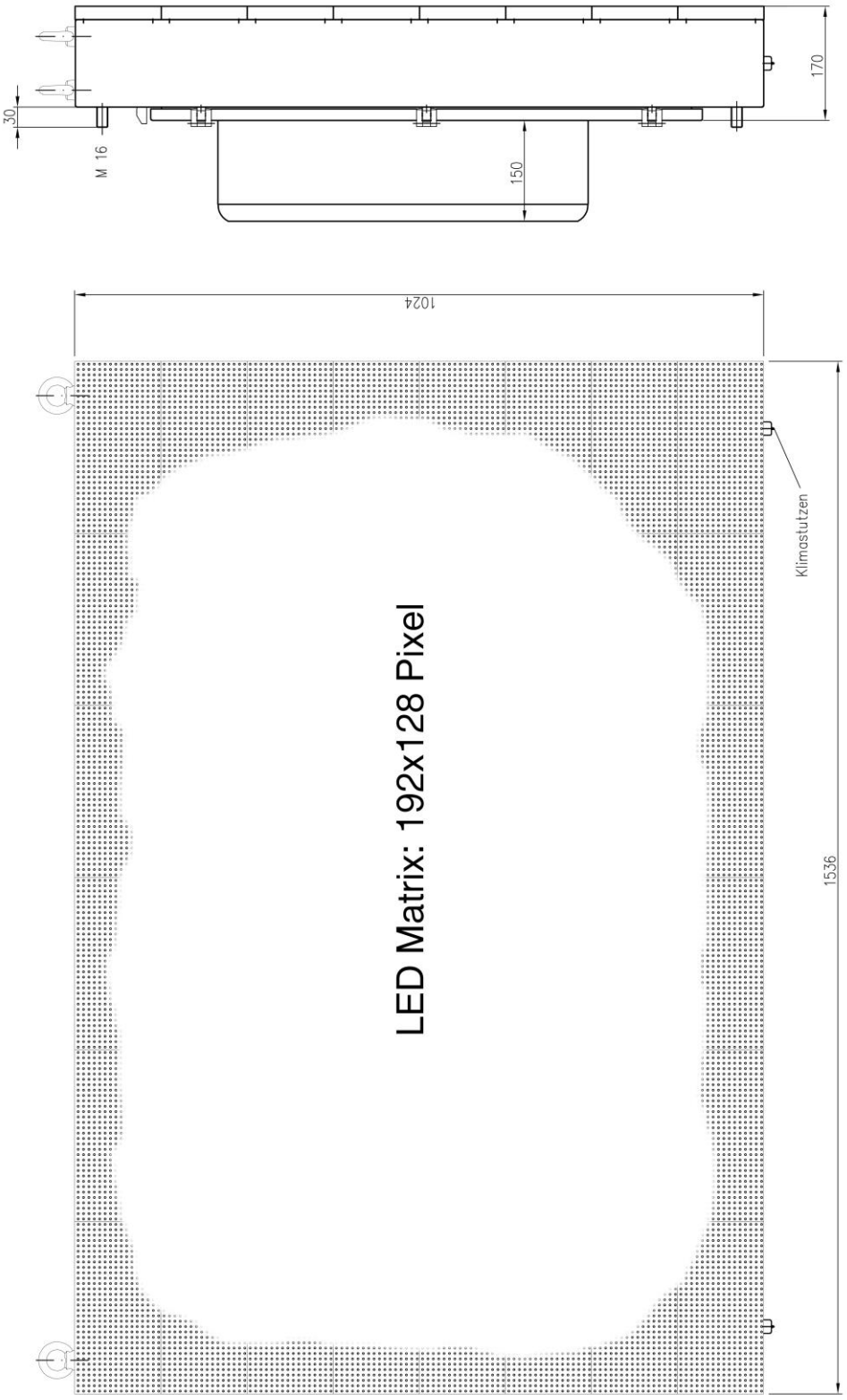
Construction

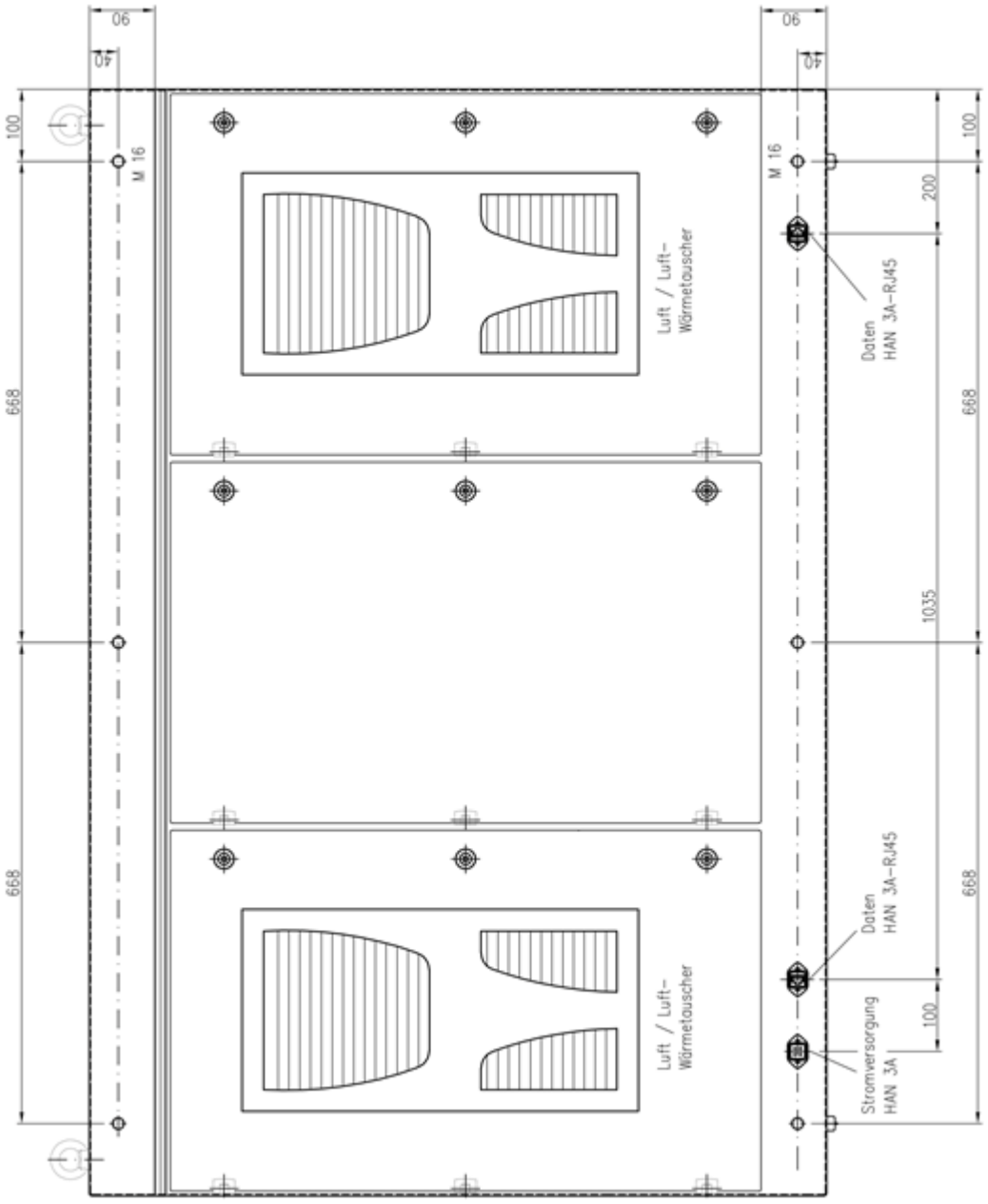
Housing	Steel plate electrolytically galvanized, double powder coated, optionally stainless steel 1.4301 (V2A) or 1.4571 (V4A) powder coated
Color of housing	Light gray (RAL 7035), optionally other RAL colors
Dimensions (mm)	1536 x 1024 x 170 (width x height x depth)
	1526 x 1024 x 320 (width x height x depth) with option 2103
Protection type	IP65

Ambient conditions

Operating temperature	-25…50 °C
Relative humidity	< 90 %, non condensing
Storage temperature	-25…70 °C

Dimensions


170
30
M 16
150
1024
Klimastutzen
LED Matrix: 192x128 Pixel
1536


90
40
90
40
100
M 16
M 16
100
200
668
Luft / Luft-
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Daten
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100
Stromversorgung
HAN 3A