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Operating and Installation Instructions

Remote PC Terminals

CHALLENGER 15”

CHALLENGER 18”



General reference

This manual is valid for CHALLENGER 15-2 and CHALLENGER 18.

(CHALLENGER 15-2 corresponds to the second Generation of CHALLENGER 15.
In the following text it will be referred to as the CHALLENGER 15.)



Warning!

Please read these instructions carefully before installing this device.

The CHALLENGER 15/18 and the associated power supply units 15-PSU and 18-PSU for the CHALLENGER 15 and CHALLENGER 18 respectively may only be installed or deinstalled by qualified personnel.

The information in the Certificate of Conformity should be fully adhered to.

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Technical Developments

The manufacturer reserves the right to modify technical data without notice.

Version-/Revisiondata:

OSD Version: R1 und R2

Repairs, Dangerous chemicals

A note detailing the fault must always accompany equipment sent to GeCma Components GmbH or any of their agents for repair.

The following procedures must be carried out before a unit is sent back for repair:

- Remove all residues that may be present. Pay special attention to the gasket grooves and crevices where residue may collect. Please ensure that precautions have been taken to remove all traces of substances that may represent a health risk before returning the device.
- Costs of disposal of materials or injury of personnel (acid burns etc.) arising due to the equipment not being cleaned properly will be charged to the owner of the equipment.

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Introduction

The CHALLENGER 15/18 is an Visualisation and Operator Terminal. It consists of the following main components: the CHALLENGER 15/18-FMO display module, the CHALLENGER KB keyboard and CHALLENGER TB Trackball, plus the 15-PSU or 18-PSU power supply unit and the associated CHALLENGER TCV2 data transmission card. The transmission card transmits data from the PC to the CHALLENGER Terminal. Distances of up to 600m and 400 m can be covered by the 15 and 18 respectively.

The TCV2 transmission card is connected directly to the PC. It is connected to the VGA graphics card for the RGB signal and the PS2 connectors for the keyboard and mouse signals. IBM compatible PC's must be used for trouble free operation. No special driver software is required nor do any system specific graphics cards need to be installed in the PC.

The transmission of the display, keyboard and mouse data is made by the TCV2 card via a screened twisted pair cable with 4 pairs to the CHALLENGER 15/18-FMO display module.

Built into the CHALLENGER 15/18-FMO display module is the receiver electronics as well as the connector blocks for the keyboard and mouse/tracker ball. Power for the CHALLENGER 15/18-FMO display module is supplied by the 15-PSU or 18-PSU power supply unit.

The following variants are available:

Device	Version
CHALLENGER 15-FMO	Panel-mounted monitor
CHALLENGER 18-FMO	Panel-mounted monitor
CHALLENGER KB	Panel-mounted keyboard
CHALLENGER-KMU	Panel-mounted keyboard and mouse
CHALLENGER TB	Trackball
CHALLENGER M	Mouse
CHALLENGER MTD	Mouse / trackball decoder
CHALLENGER 15-FH-DMK	Field housing with display, mouse and keyboard
CHALLENGER 15-FH-DTK	Field housing with display, trackball and keyboard
CHALLENGER 15-FH-D	Field housing with display
CHALLENGER 15-FH-DT	Field housing with display and trackball
CHALLENGER 15-FH-DK	Field housing with display and keyboard
CHALLENGER 15-FH-DM	Field housing with display and mouse
CHALLENGER 18-FH-DMK	Field housing with display, mouse and keyboard
CHALLENGER 18-FH-DTK	Field housing with display, trackball and keyboard
CHALLENGER 18-FH-D	Field housing with display
CHALLENGER 18-FH-DT	Field Housing with display and trackball
CHALLENGER 18-FH-DK	Field housing with display and keyboard
CHALLENGER 18-FH-DM	Field housing with display and mouse
CHALLENGER TCV2	19" Euro card cartridge consisting of: Data transmission card with optional connections for local monitor, keyboard and mouse
PSU2	Power supply unit for the TCV2 19" rack
15-PSU	Power supply for the CHALLENGER 15-FMO
18-PSU	Power supply for the CHALLENGER 18-FMO

Application

The CHALLENGER 15 and 18 can be employed in all areas of industry where PC functionality is required in the plant in harsh environments.

CHALLENGER 15:

It can be connected to **any IBM compatible PC** running software with an XGA resolution (768 x 1024 pixels, True Colour 32 bit)

CHALLENGER 18:

It can be connected to **any IBM compatible PC** running software with an SXGA resolution (1280 x 1024 pixels, True Colour 32 bit)

Operating principle

The VGA screen data and keyboard and mouse/tracker ball data are fed into the TCV2, where they are combined and converted into conditioned signals. The PSU2 (for 100V…240V AC) is required to supply the TCV2.

No special graphics card is needed, although we recommend that only good quality cards are used otherwise picture quality may suffer. The data cable connection should not be wired via junction boxes.

The electronics in the TCV2 cassette and the CHALLENGER 15/18 FMO allow the PC terminal to be mounted 600m or more (400m in the case of the 18) from the actual PC CPU (at distances of 400m or more the resolution and the display refresh rate must be reduced).

Design of the 15-PSU/18-PSU



Warning!

The power supply unit 15-PSU or 18-PSU provides two electrically isolated power supply circuits for the CHALLENGER 15 or CHALLENGER 18. The 15-PSU or 18-PSU has a voltage output of 12V and a factory pre-set power limitation.

Please refer to the drawing of the 15-PSU or 18-PSU in the appendix for details.

POWER SUPPLIES 12V:

Input Voltage:	100-240V AC (optional 24VDC)
Output Voltage:	10,8 – 13,2V DC
Power:	2x30W
Input Frequency:	50-60Hz
Operation Temperature:	0°C – 50°C

The Input-Voltage is connected as the following table to the Terminals labelled "INPUT". The supply with Input-Voltage for several modules is achieved by connecting them in parallel.

Input-Voltage:	Connection:
INPUT L	(L) 100-240V AC (optional +24VDC)
INPUT N	(N) 100-240V AC (optional 0VDC)

For 15/18-PSU will be used two modules.
The Power for the CHALLENGER 15/18 is connected as the following table to the Terminals labelled "OUTPUT":

Preferred cable-No.	Output Circuit Terminals:	Terminal block K1:	Connection:
Cable1 2	OUTPUT 1 V-	K1(11) & K3(2)	Supply circuit PS 3 & PS 8 (0 V)
Cable1 1	OUTPUT 1 V+	K1(12) & K3(1)	Supply circuit PS 3 & PS 8 (+12 V)
Cable2 2	OUTPUT 2 V-	K1(3+15) & K2(2)	Supply circuit PS 1 & PS 6 & PS 7 (0 V)
Cable2 1	OUTPUT 2 V+	K1(4+16) & K2(1)	Supply circuit PS 1 & PS 6 & PS 7 (+12 V)

Design of the CHALLENGER 15 – FMO display module

For mechanical details of the CHALLENGER 15-FMO please refer to the drawings in the appendix.

Technical Data:

Component	: CHALLENGER-15-FMO
Resolution	: XGA (1024 x 768 pixels) Lower resolutions are interpolated.
Screen size	: 15.1"
Display type	: TFT with 16 million colours
Ingress protection	: IP66 (NEMA 4x) from front
Front plate	: Anodised aluminium
Dimensions	: 417 x 340.5 x 70 mm (w x h x d)
Weight	: 12 kg
Power supply	: 15-PSU

The connections are detailed in the following table.

Preferred cable-No.	Terminal block K1:	Connection:
	1	Not used
	2	Not used
Cable2 2	3	Supply PS6- (0 V)
Cable2 1	4	Supply PS6+ (+12V)
	5	Not used
	6	Not used
	7	Not used
	8	Not used
	9	Not used
	10	Not used
Cable1 2	11	Supply PS3- (0 V)
Cable1 1	12	Supply PS3+ (+12)
	13	Not used
	14	Not used
Cable2 2	15	Supply PS1- (0 V)
Cable2 1	16	Supply PS1+ (+12)
Preferred cable-No.	**Terminal block K2:**	**Connection:**
Cable2 1	1	Supply PS7+ (+12)
Cable2 2	2	Supply PS7- (0 V)
	3	Not used
Preferred cable-No.	**Terminal block K3:**	**Connection:**
Cable1 1	1	Supply PS8+ (+12)
Cable1 2	2	Supply PS8- (0 V)
	3	Not used

The data signal is connected to terminal block K5. Only use recommended cable.

Preferred cable-color	Terminal block K5:	Connection:
white	1	1. Twisted pair (a)
brown	2	1. Twisted pair (b)
white	3	2. Twisted pair (a)
green	4	2. Twisted pair (b)
white	5	3. Twisted pair (a)
orange	6	3. Twisted pair (b)
Screen	7	Screen
Screen	8	Screen
white	9	4. Twisted pair (a)
blue	10	4. Twisted pair (b)

Preferred cable-No.	Terminal block K4:	Connection:
1	1	Keyboard/pointing device data (a)
2	2	Keyboard/pointing device data (b)
3	3	GND
4	4	Backlight-control
5	5	GND
6	6	GND
7	7	Keyboard power supply +5V
8	8	Keyboard power supply 0V
9	9	Pointing device power supply +5V
10	10	Pointing device power supply 0V

Preferred cable-No.	Terminal block K9:	Connection:
17	1	Barcode Scanner Power Supply
16	2	Barcode Scanner Power Supply
13	3	OSD keyboard SUB menu
15	4	OSD keyboard UP
14	5	OSD keyboard Down
12	6	OSD keyboard menu
11	7	OSD keyboard GND

The adjustment potentiometers and the four-key keypad are described in **"Commissioning"**.

Design of the CHALLENGER 18 – FMO display module

For mechanical details of the CHALLENGER 18 display module please refer to the drawings in the appendix.

Technical Data:

Component	: CHALLENGER-18-FMO
Resolution	: SXGA (1280 x 1024 pixels) Lower resolutions are interpolated.
Screen size	: 19 "
Display type	: TFT with 16 million colours
Ingress protection	: IP66 (NEMA 4X) from front
Front plate	: Anodised aluminium
Dimensions	: 505.9 x 427.7 x 80 mm (w x h x d)
Weight	: 16 kg
Power supply	: 18-PSU

The connections are detailed in the following table.

Preferred cable-No.	Terminal block K1:	Connection:
	1	Not used
	2	Not used
Cable2 2	3	Supply PS6- (0 V)
Cable2 1	4	Supply PS6+ (+12V)
	5	Not used
	6	Not used
	7	Not used
	8	Not used
	9	Not used
	10	Not used
Cable1 2	11	Supply PS3- (0 V)
Cable1 1	12	Supply PS3+ (+12)
	13	Not used
	14	Not used
Cable2 2	15	Supply PS1- (0 V)
Cable2 1	16	Supply PS1+ (+12)
Preferred cable-No.	**Terminal block K2:**	**Connection:**
Cable2 1	1	Supply PS7+ (+12)
Cable2 2	2	Supply PS7- (0 V)
	3	Not used
Preferred cable-No.	**Terminal block K3:**	**Connection:**
Cable1 1	1	Supply PS8+ (+12)
Cable1 2	2	Supply PS8- (0 V)
	3	Not used

The data signal is connected to Terminal Block K5. Only use recommended cable.

Preferred cable-color	Terminal block K5:	Connection:
white	1	1. Twisted pair (a)
brown	2	1. Twisted pair (b)
white	3	2. Twisted pair (a)
green	4	2. Twisted pair (b)
white	5	3. Twisted pair (a)
orange	6	3. Twisted pair (b)
Screen	7	Screen
Screen	8	Screen
white	9	4. Twisted pair (a)
blue	10	4. Twisted pair (b)

Preferred cable-No.	Terminal block K4:	Connection:
1	1	Keyboard/pointing device data (a)
2	2	Keyboard/pointing device data (b)
3	3	GND
4	4	Backlight-control
5	5	GND
6	6	GND
7	7	Keyboard power supply +5V
8	8	Keyboard power supply 0V
9	9	Pointing device power supply +5V
10	10	Pointing device power supply 0V

Preferred cable-No.	Terminal block K9:	Connection:
17	1	Barcode Scanner Power Supply
16	2	Barcode Scanner Power Supply
13	3	OSD keyboard SUB menu
15	4	OSD keyboard UP
14	5	OSD keyboard Down
12	6	OSD keyboard menu
11	7	OSD keyboard GND

The adjustment potentiometers and the four-key keypad are described in **"Commissioning"**

Design of the CHALLENGER KB keyboard

The CHALLENGER KB is a 105 key keyboard and is the same as a standard Windows 95 keyboard. In the KMU version of the keyboard there is a integrated mouse pointer (pressure sensitive).

The two keyboards KB / KMU it is possible to connect the follow components.

- CHALLENGER M (Mouse)
- CHALLENGER TB (Trackball)
- CHALLENGER Barcode scanner
- Or further on request

The following variants are possible:

CHALLENGER KB	(Trackball or Mouse)
CHALLENGER KMU	-
CHALLENGER KB-2D	(Trackball or Mouse) and (Trackball or Mouse) and Scanner
CHALLENGER KMU-2D	(Trackball or Mouse) and Scanner

For mechanical details of the CHALLENGER KB / KMU module please refer to the drawings in the appendix.

Technical data:

Tastatur & Pointing Device

Component	: CHALLENGER-KB
Power supply	: from display unit
Keyboard type	: 105 QWERTZ, QWERTY, AZERTY keyboard lay out, IBM compatible
Keys	: Membrane protected short travel pushbuttons included integrated industrial mouse
Ingress protection	: IP66 (NEMA 4X) from front
Dimensions	: 429 x 165 x 60 mm (w x h x d)
Weight	: 2.0 kg
Membrane material	: Technoplast – resistant to most solvents

The connections are detailed in the following table.

Preferred cable-No.	Terminal block K11:	Connection:
1	1	Keyboard/pointing device data (a)
2	2	Keyboard/pointing device data (b)
3	3	GND
4	4	Back light control
5	5	GND
6	6	GND
7	7	Keyboard power supply +5V
8	8	Keyboard power supply 0V
9	9	Pointing device power supply +5V
10	10	Pointing device power supply 0V
	11	Ext. pointing device +5V
	12	Ext. pointing device 0V
	13	Ext. pointing device data
	14	Ext. pointing device clock
	15	Not used
	16	Not used
11	17	Deactivate keyboard/mouse **(OPTION)**
13	18	Deactivate keyboard/mouse **(OPTION)** / OSD keyboard SUB-menu
Preferred cable-No.	**Terminal block K12:**	**Connection:**
12	1	OSD menu
14	2	OSD keyboard down
15	3	OSD keyboard up
Preferred cable-No.	**Terminal block K14:**	**Connection:**
Scannerc. (1)	1	+5V for RS232 peripheral
16	2	connected to K9 (2)
17	3	connected to K9 (1)
Scannerc. (2)	4	RS232-RxD
Scannerc. (3)	5	0V for RS232 peripheral
	6	RS232-DSR
	7	RS232-CTS
	8	RS232-TxD
	9	RS232-DTR
Scannerc. (4)	10	RS232-GND
	11	RS232-RTS
	12	GND

Design of the CHALLENGER M mouse module

The CHALLENGER M is a Microsoft compatible industrial mouse that can be connected to the CHALLENGER KB.

The principle of operation is based on pressure sensitive resistors much like those used in Notebook PCs.

For mechanical details of the CHALLENGER M module please refer to the drawings in the appendix.

Technical data:

Component	: CHALLENGER M
Description	: Panel mounted industrial mouse based on PSR technology
Power supply	: from display unit
Ingress protection	: IP66 (NEMA 4X) from front
Front plate	: Anodised aluminium
Dimensions	: 98 x 165 x 40.5 mm (w x h x d)
Weight	: 0.45 kg

The connections are detailed in the following table.

Connection cable	Connection
Brown	+5V
White	0V
Yellow	Data
Green	Clock

Design of the CHALLENGER TB trackball module

The CHALLENGER TB is a Microsoft compatible industrial trackball that can be connected to the CHALLENGER KB .

For mechanical details of the CHALLENGER TB module please refer to the drawings in the appendix.

Technical data:

Component	: CHALLENGER TB
Description	: Trackball with 55mm ball
Power supply	: from display unit
Ingress protection	: IP65 from front
Front Plate	: Anodised aluminium
Dimensions	: 98 x 165 x 40.5 mm (w x h x d)
Weight	: 0.45 kg

The connections are detailed in the following table.

Connection cable	Connection
Red	+5V
Blue	0V
Green	Data
White	Clock

Design of the CHALLENGER MTD

The CHALLENGER MTD module is an interface to connect a mouse or trackball module. It is used when no keyboard is required and only a display and pointing device are needed for the application at hand.

For mechanical details of the CHALLENGER MTD module please refer to the drawings in the appendix.

Technical data:

Component	: CHALLENGER MTD
Housing	: Anodised aluminium
Ingress protection	: IP30
Power supply	: from display unit
Anschlüsse	: K11/ 18pole Phoenix socket K12/ 3pole Phoenix socket
Dimensions	: 160 x 37 x 144 mm (w x h x d)
Weight	: 0.62 kg

The connections are detailed in the following table.

Preferred cable-No.	CHALLENGER MTD		CHALLENGER -FMO		CHALLENGER M	CHALLENGER TB
	Terminal-Block K11	Terminal-Block K12	Terminal-Block K4	Terminal-Block K9	cable	cable
1	1	-	1	-	1	1
2	2	-	2	-	2	2
3	3	-	3	-	3	3
4	4	-	4	-	4	4
5	5	-	5	-	5	5
6	6	-	6	-	6	6
7	7	-	7	-	7	7
8	8	-	8	-	8	8
9	9	-	9	-	9	9
10	10	-	10	-	10	10
	11	-	-	-		11
	12	-	-	-		12
	13	-	-	-		13
	14	-	-	-		14
	15	-	-	-		15
	16	-	-	-		16
11	17	-	-	7	11	17
13	18	-	-	3	13	18
12	-	1	-	6	12	-
14	-	2	-	5	14	-
15	-	3	-	4	15	-

Design of the TCV2 data transmission card

The TCV2 data transmission card has been designed as a 19" cassette with 14 HP wide and by 3 U high. Connections to the PC for the VGA cable, PS/2 keyboard and PS/2 mouse are located on the front panel. The optional connections for connecting a local monitor, keyboard and mouse are located to the right of these connections. The display, keyboard and mouse data is transmitted to the CHALLENGER Terminal in the remote area using a four pair data cable. The option to enable/disable the terminal and also the local keyboard and mouse is possible using the digital inputs 14D and 14Z.

14Z	14D	Status
H	H	Automatic operation
L	H	Terminal locked
H	L	Desktop locked

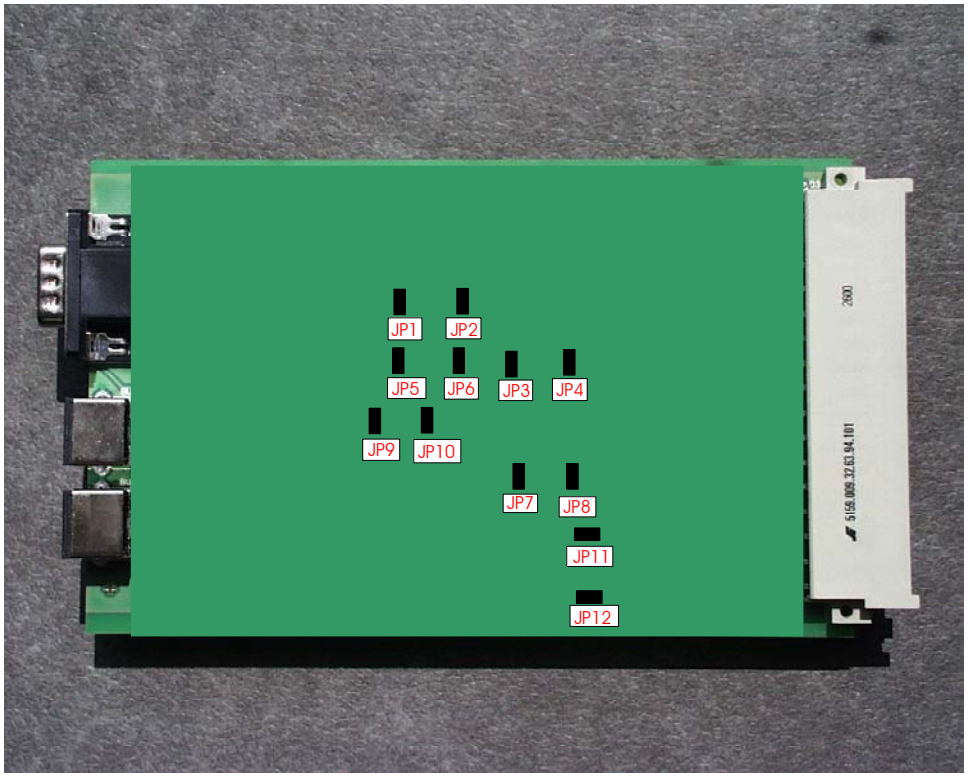
The TCV2 consists of the circuit board DC7, TRV2 and the TME2 and is supplied with power by the 19" PSU2 module.

On the rear of the TCV2 is a 48 pin connector to DIN 41612 type F for the connections.

The TCV2 data transmission card is compatible with PS2 pointing devices but not Microsoft "intelli-mouse" or "wheel mouse"

Settings:
If cable runs are longer than 275m, the following jumpers on the TRV 2 must be closed:

JP1 to JP12



Circuit board TRV2

Transmission card

Technical data:

Component	: CHALLENGER-TCV2
Housing	: 19" cassette 3 U, 14 HP
Power supply	: from CHALLENGER PSU2
Connections	: VGA, PS2 keyboard and mouse
Weight	: 0.65 kg
Software version	: >1.16

Connector pins ST10	Connection	
2D	Power supply+12V	2D
2Z	Power supply+12V	2Z
4D	Power supply 0V	4D
4Z	Power supply 0V	4Z
6D	Power supply –12V	6D
6Z	Power supply –12V	6Z
8D	Power supply +5V	8D
8Z	Power supply +5V	8Z
10D	Power supply 0V	10D
10Z	Power supply 0V	10Z
12D	Power supply –5V	12D
12Z	Power supply –5V	12Z
14D	keyboard/mouse lock function (Option)	
14Z	keyboard/mouse lock function (Option)	
16D	DATA_DE	
16Z	DATA_R	
18D	GND	
18Z	DATA_D	
20D	GND	
20Z	GND	
22D	GND	
22Z	GND	
24D	GND	
24Z	GND	
26D	4. Twisted pair (a)	
26Z	4. Twisted pair (b)	
28D	1. Twisted pair (a)	
28Z	1. Twisted pair (b)	
30D	2. Twisted pair (a)	
30Z	2. Twisted pair (b)	
32D	3. Twisted pair (a)	
32Z	3. Twisted pair (b)	

Design of the PSU2 power supply unit

The PSU2 with wide range input (100-240VAC) is a 19" Euro card. It provides all the power required by up to 4 TCV2 and up to 4 TCS1 data transmission cards. On the rear of the PSU2 is a 48 pin connector to DIN 41612 type F for the connections.

Technical data:

Power supply for TCV2 and TCS1

Component	: CHALLENGER PSU2
Housing	: 19" Euro card 3U, 8HP
Power supply	: 100-240VAC 3,15 AT
Weight	: 0.65 kg

Connector pins ST1	Connection
2D	+5V
2Z	+5V
4D	GND
4Z	GND
6D	-5V
6Z	-5V
8D	GND
8Z	GND
10D	+12V
10Z	+12V
12D	GND
12Z	GND
14D	-12V
14Z	-12V
16D	GND
16Z	GND
18D	Do not use
18Z	Do not use
20D	GND
20Z	GND
22D	Do not use
22Z	Do not use
24D	GND
24Z	GND
26D	GND
26Z	GND
28D	Earth
28Z	Earth
30D	100-240VAC (N)
30Z	100-240VAC (N)
32D	100-240VAC (L)
32Z	100-240VAC (L)

The mains power supply should not be connected directly to the connector pins. It should be connected via a normal mains power supply filter.

Design of the 19" rack (optional)

If required, we can also supply the TCV2, PSU2 and TCS1 complete in a 19" rack. The components are installed in a desktop housing, type Rack 42-2, or a type Rack 84-2 full width 19" rack.

All you need do is provide the power and plug in the data cable (10 pole Phoenix socket).

When installing more than one 19" rack into a 19" rack cabinet a minimum of 1U space must be left between each rack for ventilation purposes.

Preferred cable-color	10 pole Phoenix socket on 19" rack	Connection:
white	1	Twisted pair 1 a
brown	2	Twisted pair 1 b
white	3	Twisted pair 2 a
green	4	Twisted pair 2 b
white	5	Twisted pair 3 a
orange	6	Twisted pair 3 b
white	9	Twisted pair 4 a
blue	10	Twisted pair 4 b
Screen	7	Screen
Screen	8	Screen

Software for the TCV2 and KB

The software version of the TCV2 and KB modules is >1.16.

What's new in version 1.16 compared to 1.15?

1. **Additional PS/2 pointing device interface for PDS**
   The KB now has a second PS/2 interface for the connection of a second pointing device. This works in parallel with the first PS/2 interface.
   The second PS/2 interface uses the following connections:

   K13,1 =supply +V9
   K13,2 =GND
   K13,3 =DATA
   K13,4 =CLOCK

2. **Optical error analysis on the remote unit**
   If the RS485 connection between the local and remote units goes down, an optical error signal is generated.
   The signals are as follows:
   - 1Hz flashing of "SCROLL LOCK" LED = data line not connected.
   - 1Hz flashing of "NUM LOCK" LED = data line cross wired.

3. **Back light control**
   With this standard function the life of the backlights can be greatly increased. If the CHALLENGER keyboard/mouse is not used for more than one hour, the brightness of the background lighting is reduced by 50%. As soon as the keyboard/mouse is used again the brightness automatically increases back to its normal level. This function is implemented in software version 1.09 and higher.
   If you wish to disable this function, terminal block K4, pin 4 on the CHALLENGER 15/18 FMO (display) should be disconnected from the terminal block K11, pin 4 on the CHALLENGER KB (keyboard).

4. **Back light dimming via the remote keyboard**
   The back light can be dimmed by pressing the 4 arrow keys on the remote keyboard at the same time.

5. **Display software revision number**
   Pressing the key combination [Ctrl+S+O+F] on the remote unit displays the software version number in the Editor.

6. **Extension of the KEYLOCK inputs**
   The existing KEYLOCK input K11 terminal 18 has now been extended by the 3 inputs K12 terminals 1-3, in other words the key switch can be connected to K11terminal 18 as well as the inputs K12 terminals 1-3.

7. **Automatic deactivation of OSD mode**
   OSD mode is automatically deactivated 30 sec. after the last key stroke.

8. **Optical indication of activated OSD mode**
   If OSD mode is active, all three LEDs on the local and remote keyboard flash at a frequency of 1Hz.

Installation

General installation requirements



Warning!

The instructions given in these chapters should be heeded to ensure reliable operation. The conditions in the Certificate of Conformity must be adhered to.

Installation should only be carried out by qualified engineers who can demonstrate they have received the necessary training.



Warning!

Installing the terminal

If required, the relevant module for the CHALLENGER 15-FH and CHALLENGER 15/18-FHP can be pre-installed and cabled up in the factory. The only cabling then required would be the data cable and mains leads. For details of the exact mounting arrangement please refer to the drawings in the appendix .

All housing nuts and fixing brackets must be tightened evenly.

If you have ordered the panel mounted module, make sure that the rubber seals fit properly all the way round and observe the following cabling requirements. For panel dimensions, please refer to the drawings in the appendix.

Make sure that the required level of ingress protection is maintained. Check all seals carefully during installation.

The maximum ambient temperature stated in our design specifications should not be exceeded.

Installing the 15-PSU or 18-PSU

For the power supply connection please refer to the chapter „Design of the 15-PSU/18-PSU" and the drawings in the appendix.

The cable between the 15-PSU or 18-PSU and the CHALLENGER FMO must be no more than 10 m length when the cable cross-section is 1mm^2 .

Installation of CHALLENGER PC Terminals Supplied in Pre-wired Enclosures

1. Mounting the CHALLENGER FH/FHP Enclosures

- Fix the STF pipe stand or EBF elbow stand to the floor or wall. Ensure that the floor or wall is strong enough to take the load of the CHALLENGER enclosure system.

- Refer to drawing 10100251 in appendix for instructions on how to fit the MB coupling that connects the enclosure to the STF or EBF stands. Using the 4 screws provided fit the FH or FHP enclosure to the MB coupling

2. Wiring the Terminal

- Thread the power cable (100-240 V AC) through the M25 cable gland in the STF or EBF stands to the 15-PSU or 18-PSU. Terminate the power cable like the chapter "Design of the 15-PSU/18-PSU" and the drawings in the appendix.

- The data cable should be threaded through the M20 cable gland on the STF or EBF stands and terminated to connector K5 a per the following connection table.

- The mechanical attributes of the cables must be heeded during installation.

- The data cable should be wired directly from TCV2 to the display. Use of junction boxes is not recommended.

Preferred cable-color	Terminal block K5:	Connection:
white	1	1. Twisted pair (a)
brown	2	1. Twisted pair (b)
white	3	2. Twisted pair (a)
green	4	2. Twisted pair (b)
white	5	3. Twisted pair (a)
orange	6	3. Twisted pair (b)
Screen	7	Screen
Screen	8	Screen
white	9	4. Twisted pair (a)
blue	10	4. Twisted pair (b)

Earthing between the STF or EBF Stands and the FH or FHP Enclosure



Warning!

An earth bonding lead is pre-installed in the enclosure and connected to the main bonding stud. The other end of this earth lead is for connection to the M6 x 20 self tapping bolt inside the STF or EBF stand that locks the MB coupling in place. See drawing 10100251 and the following pictures for details.



Earthing on the inside of the STF using the MB coupling bolt



Earth connection to the main bonding stud in the enclosure

3. Installing the local area Components

- Install the Rack 84-2 19" sub rack into your 19" rack cabinet or place the Rack 42-2 desktop rack on a suitable surface.
- Connect the VGA, Keyboard and Mouse cable (supplied) to the respective PC ports and to respective connectors (marked IN) on the left hand side of the front panel of the TCV2
- The connectors (Marked OUT) on the right hand side of the TCV2 front panel are for connection of a local Monitor, Keyboard and Mouse.
- Connect the power supply using the mains cable provided to the socket on the back of the Rack 84-2 or Rack 42-2 rack to the PSU2 supply. The LED on the front of the PSU2 card will then light up.
- Terminate the data cable to the 10 pole phoenix connector supplied and plug into the socket on the back of the Rack 84-2 or Rack 42-2 rack

Complete Wiring Details

The following tables detail the complete wiring of all the CHALLENGER PC Terminal components and is required only for fault finding or when building the components into your own enclosures or 19" racks

The connection

Connect the power supplies from the supply circuit terminals of the 15-PSU or 18-PSU to terminal K1, K2 and K3 on the CHALLENGER FMO. The cable must be no more than 10 m length when the cable cross-section is 1mm^2 .

CHALLENGER 15 Display

Preferred cable-No.	Terminal Supply circuit 15-PSU	Terminal block K1 CHALLENGER 15 - FMO
	-	1
	-	2
Cable2 2	OUTPUT V-	3
Cable2 1	OUTPUT V+	4
	-	5
	-	6
	-	7
	-	8
	-	9
	-	10
Cable1 2	OUTPUT V-	11
Cable1 1	OUTPUT V+	12
	-	13
	-	14
Cable2 2	OUTPUT V-	15
Cable2 1	OUTPUT V+	16

Preferred cable-No.	Terminal Supply circuit 15-PSU	Terminal block K2 CHALLENGER 15 - FMO
Cable2 1	OUTPUT V+	1
Cable2 2	OUTPUT V-	2
	-	3

Preferred cable-No.	Terminal Supply circuit 15-PSU	Terminal block K3 CHALLENGER 15 - FMO
Cable1 1	OUTPUT V+	1
Cable1 2	OUTPUT V-	2
	-	3

CHALLENGER 18 Display:

Preferred cable-No.	Terminal Supply circuit 18-PSU	Terminal block K1 CHALLENGER 18 - FMO
	-	1
	-	2
Cable2 2	OUTPUT 2 V-	3
Cable2 1	OUTPUT 2 V+	4
	-	5
	-	6
	-	7
	-	8
	-	9
	-	10
Cable1 2	OUTPUT 1 V-	11
Cable1 1	OUTPUT 1 V+	12
	-	13
	-	14
Cable2 2	OUTPUT 2 V-	15
Cable2 1	OUTPUT 2 V+	16

Preferred cable-No.	Terminal Supply circuit 18-PSU	Terminal block K2 CHALLENGER 18 - FMO
Cable2 1	OUTPUT 2 V+	1
Cable2 2	OUTPUT 2 V-	2
	-	3

Preferred cable-No.	Terminal Supply circuit 18-PSU	Terminal block K3 CHALLENGER 18 - FMO
Cable1 1	OUTPUT 1 V+	1
Cable1 2	OUTPUT 1 V-	2
	-	3

The Input-Voltage is connected as the following table to the Terminals labelled "INPUT". The supply with Input-Voltage for several modules is achieved by connecting them in parallel.

Input-Voltage:	Connection:
INPUT L	(L) 100-240V AC (optional +24VDC)
INPUT N	(N) 100-240V AC (optional 0VDC)
INPUT Earth	Earth connection

Connect terminal block K11/K12 to the CHALLENGER 18-FMO terminals K4 and K9. The maximum length of cable allowed is 5 metres.

Preferred cable-No.	CHALLENGER KB/-KMU or MTD		CHALLENGER -FMO		CHALLENGER M	CHALLENGER TB
	Terminal-Block K11	Terminal-Block K12	Terminal-Block K4	Terminal-Block K9	cable	cable
1	1	-	1	-	-	-
2	2	-	2	-	-	-
3	3	-	3	-	-	-
4	4	-	4	-	-	-
5	5	-	5	-	-	-
6	6	-	6	-	-	-
7	7	-	7	-	-	-
8	8	-	8	-	-	-
9	9	-	9	-	-	-
10	10	-	10	-	-	-
	11	-	-	-	brown	red
	12	-	-	-	white	blue
	13	-	-	-	yellow	green
	14	-	-	-	green	white
	15	-	-	-	-	-
	16	-	-	-	-	-
11	17	-	-	7	-	-
13	18	-	-	3	-	-
12	-	1	-	6	-	-
14	-	2	-	5	-	-
15	-	3	-	4	-	-

Connect the data cable (twisted pair) directly to the TCV2 or to the 10 pole Phoenix socket of the rack provided.

Preferred cable-color	10 pole socket 19" rack	or connector pins ST10 TCV2	To the CHALLENGER FMO terminal block K5	Core-pair
white	1	28D	1	1a
brown	2	28Z	2	1b
white	3	30D	3	2a
green	4	30Z	4	2b
white	5	32D	5	3a
orange	6	32Z	6	3b
white	9	26D	9	4a
blue	10	26Z	10	4b
Screen	7	24Z	7 Screen	Screen
Screen	8		8 Screen	

Make sure the screen maintains a sufficient safety/insulation distance.

The PC is connected to the TCV2 using the cable supplied.

PC	TCV2
VGA output	VGA in
PS/2 keyboard	To PC keyboard
PS/2 mouse	To PC mouse

Additional units can be connected on the desktop:

TCV2	Additional units
VGA out	VGA monitor
To desktop keyboard	PS/2 keyboard
To desktop mouse	PS/2 mouse

Connect a mains cable to the IEC connector on the rear of the desktop housing.

If you ordered a rack, that is all the cabling you have to do. If you have chosen to install the 19" units yourself, the power supply for the TCV2 must also be connected. Use a mains filter for the mains power.

TCV2	PSU2
2DZ	10DZ
4DZ	12DZ
6DZ	14DZ
8DZ	2DZ
10DZ	4DZ
12DZ	6DZ

PSU2	Versorgung
32 DZ	100-240VAC (L)
30 DZ	100-240VAC (N)
28 DZ	PE

Fine tuning

Before turning on the CHALLENGER 15/18-FMO, it is necessary to tune the data transmission to the length of cable used. For this purpose three DIP switches S5 to S7 are used. All three switches must be set in the same position to work correctly. For cable runs over 275m, several additional jumpers on the TCV2 are already set from GECMA Components (further details see "Design of the TCV2 data transmission card").

S5, S6, S7	1	2	3	4	5	6	7	8	9	10
30 – 75m	■					▒	▒			
75 – 125m		■				▒	▒			
125 – 175m			■			▒	▒			
175 – 300m				■		▒	▒			
275 – 325m					■	▒	▒			
325 – 375m					■	▒	▒	■		
375 – 450m					■	▒	▒	■	■	
450 – 500m					■	▒	▒	■		■

ON	■
OFF	
FT	▒

FT: Fine Tuning, the grey, hatched "switches" 6 and 7 can be connected to all switch positions: they are used to fine tune the picture.

Turn on the terminal and the PC and check that the keyboard and mouse are working properly.

To tune the picture quality, open a program with a lot of fine detail on it, such as Windows Explorer. Remember that best picture quality can only be achieved when working in the same resolution as the CHALLENGER 15 (1024 x 768) and CHALLENGER 18 (1280 x 1024). This is due to the LCD used, as this only provides a perfectly sharp image at these resolutions. If you select a lower resolution, the internal logic automatically interpolates the signal to a resolution of 1024 x 768 or 1280 x 1024. (However, if this is not an integer relationship, the picture will not look right.) The ideal refresh rate for the terminal should be around 60 Hz, but can be higher.

The linear tuning is performed first using the trimming potentiometers on the rear of the CHALLENGER. The ***Focus*** potentiometer adjusts the sharpness of the picture, the **Brightness** potentiometer its brightness. Turning the controls to the left sharpens or increases picture brightness respectively, while turning to the right has the opposite effect in each case.

Start by making the picture darker and out of focus. Now increase the **Brightness** to half the required value and then sharpen the image using the **Focus** control. Adjust slightly as required.

Now carry out an auto adjust (see **Operation and calibration of the display**). If the picture is not right, set the brightness and contrast to around 25% in the OCD menu and adjust the picture using the **Brightness** and **Focus** controls on the display.

At distances of more than 275m, line compensation may be necessary in order to achieve satisfactory picture quality. Use DIP switch blocks S8 to S13 and an appropriate test picture (e.g. längenabgleich.bmp) to carry out line compensation.

Function of DIP switch blocks S8 to S13:

The individual DIP switch blocks S8 to S13 can be used to compensate the propagation times of the individual colour cables.

There are 2 blocks for each colour. - S12 and S13 are used for blue
- S10 and S11 for green
- S8 and S9 for red

The DIP switches enable the propagation time for each colour to be increased by between 0ns and 15ns.
Each switch block consists of 4 DIP switches; each switch can be set to ON or OFF.

Default switch settings: S8, S10, S12: all DIP switches ON
S9, S11, S13: all DIP switches OFF

The two DIP switch blocks for each colour are always adjusted in pairs, e.g.: if DIP switch 1 on block S8 is set to OFF, DIP switch 1 on block S9 must be set to ON. This would increase the propagation time for the colour red by 1ns. If you look at the test picture you will see that the red colour has moved fractionally to the right.

If all DIP switches are in their default positions, then there will be absolutely no increase in propagation time
If just the setting of DIP switch 1 of the relevant block pair is changed, this corresponds to a time increase of 1ns.
If just the setting of DIP switch 2 of the relevant block pair is changed, this corresponds to a time increase of 2ns.
If just the setting of DIP switch 3 of the relevant block pair is changed, this corresponds to a time increase of 4ns.
If just the setting of DIP switch 4 of the relevant block pair is changed, this corresponds to a time increase of 8ns.
An increase in time of up to 15ns can be achieved by combining DIP switches 1-4 in binary notation.

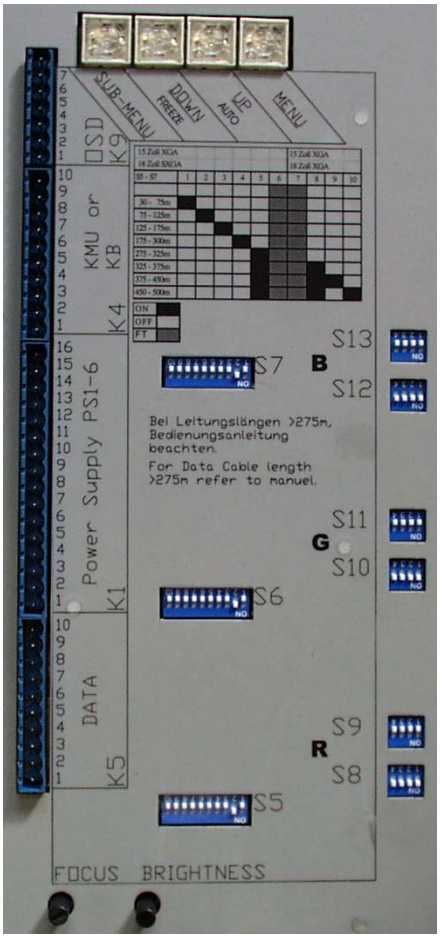
The shift in the individual colours can be noticed on the test picture "Längenabgleich.bmp" and the optimum times for the colours blue/green and red adjusted accordingly.

Lateral compensation procedure:

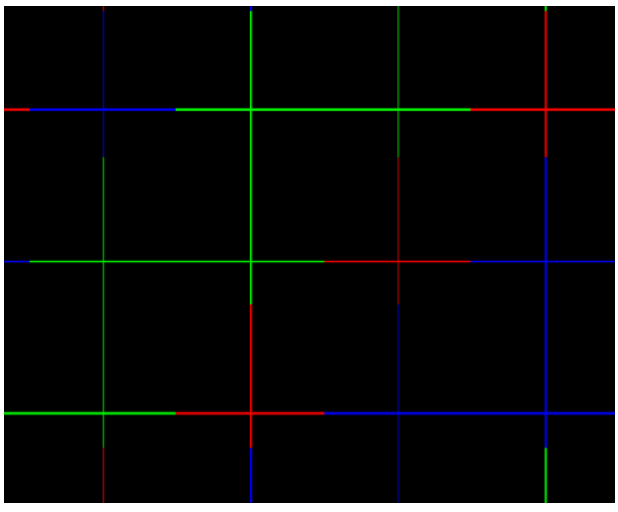
1. Open the test picture "Längenabgleich.bmp" and maximise to full screen
2. Select the Zoom function from the OSD menu and increase the size of the test picture as shown below
3. Compare the transitions between the vertical red, green and blue colours. The colour that is furthest to the right is used as the reference and the time for the other colours increased.
4. The DIP switches are used to increase the times for the colours by between 0ns and 15ns, so that the vertical shift comes as close as possible to the reference colour. How to use the DIP switches is described above.
5. The time adjustment is completed once the vertical aspect of the colours is more or less identical.

A menu appears on the display when the Menu button is pressed.

The next step uses the four buttons on the rear of the CHALLENGER 15/18 FMO display. The **O**n **S**creen **D**isplay (OSD) selection appears on the display when the **Menu** button is pressed, or by using the key combination Ctrl + 0, S, D.



Rear view of 18" display



Test picture: Längenabgleich.bmp

Operation and adjustment of the display

This section of the manual explains all the functions and calibration of the display.

For instance the calibration of the LCD monitor is carried out with the help of the OSD (On Screen Display) and the four pushbuttons. These four pushbuttons are used to navigate the menus and set parameters in the OSD menus.
You have the choice of using the four pushbuttons on the rear of the display or you can use the arrow keys on the keyboard (CHALLENGER KB).
To activate the four arrow keys on the keyboard that are used to control the OSD, the key combination *Ctrl OSD* must be entered. In other words, the Ctrl key and the keys O, S and D must be pressed at the same time. In this mode of operation the keyboard stops sending data to the PC. The functions now allocated to the four arrow keys are described in the table below. To revert to normal keyboard operation, simply press the Esc key.

The keys have the following function:

↑	**Menu key**	- Invoke the OSD menu - Switch to the next menu item
→	+	This key has the following two functions: - Select one of the functions from the SUB menu - Increase the value of the parameter (e.g. brightness)
←	-	- Reduce the value of the parameter (e.g. brightness)
↓	**Sub-Menu key**	- Select a SUB menu item

Options

The CHALLENGER 15/18 provides a number of useful additional functions and options. These are described below.

1. CHALLENGER SW2 keyboard/mouse option

   The CHALLENGER KMS is a Frontplate with 2 switch that can be optionally installed into the 19" rack. The KMS provides a choice of three modes of operation.

   - Automatic operation — The terminal and the desktop keyboard/mouse are controlled as described under the CHALLENGER DKM function
   - Desktop locked — The desktop keyboard/mouse are locked out. It is only possible for the operator to use the terminal keyboard/mouse.
   - Terminal locked — The terminal keyboard/mouse are locked out. It is only possible for the operator to use the desktop keyboard/mouse.

2. CHALLENGER SW1

   With this option it is possible to lock out the operation of the terminal keyboard/mouse. This function is invoked using a keyswitch integrated into the terminal housing.

3. CHALLENGER PDS

   With this option it is possible to select between two pointing devices. Applications for this option are to switch between the industrial mouse or the tracker ball or to switch between a left-handed and a right-handed mouse.

4. UVI Video Input

   This option allows the connection of an intrinscially safe video signal that can be displayed on the display in full screen mode or as a picture in picture mode.

5. BCS Barcode Scanner Input

   With this option an intrinsically safe barcode scanner can be connected to the CHALLENGER Keyboard and the barcode data sent to the host PC via the TCV2 card without need for further cables between the safe and hazardous area.

6. Cascading up to four Challenger Terminals to One PC

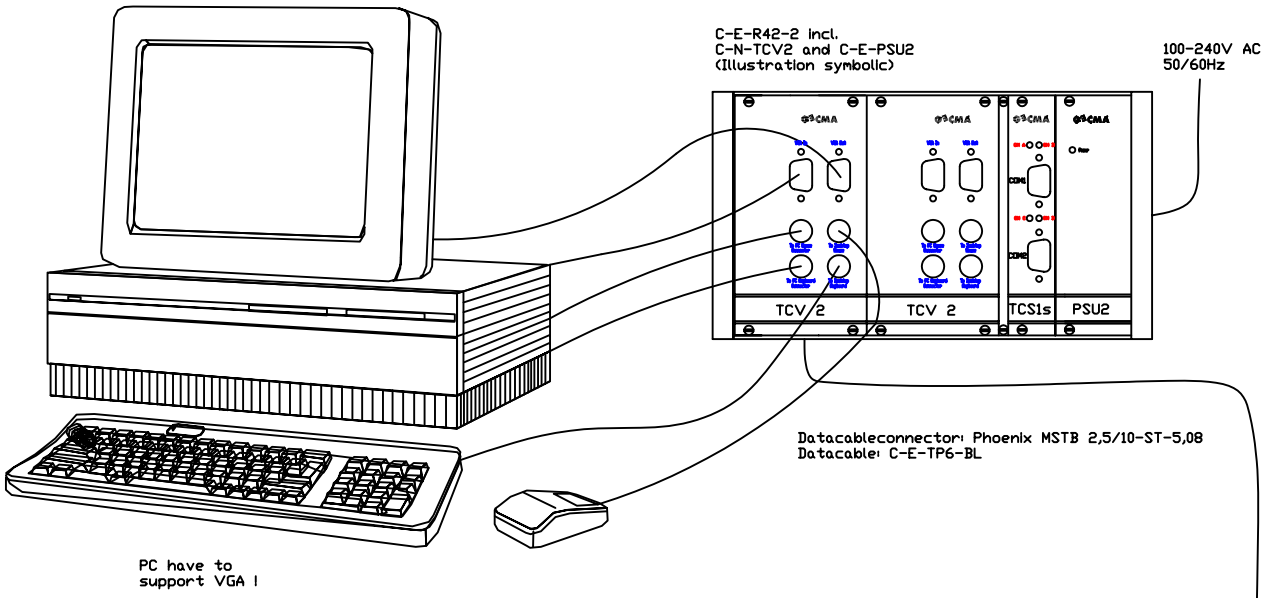
   The Desktop VGA, Keyboard and Mouse connections (parallel output) of the first TCV can be connected into the second TCV cards' PC VGA, Keyboard and Mouse PC connections (Inputs). The same principle can be used for up to four TCV cards. All connected Challenger Terminals display the same graphic from the PC as there is only one VGA output on the PC. The Keyboard/Mouse can be operated from any Terminal, however once one Terminal is being used it becomes the Master and the operation of the Keyboard/Mouse of the other Terminals in the cascade is blocked. They remain blocked whilst this Keyboard/Mouse is being used and for two seconds of no activity. Then the Keyboard/Mouse operation of the Terminals are free to be used again. The first one to be used then becomes the Master and so on. Note that it is also possible to connect a Monitor, Keyboard and Mouse to the last TCV card for local operation in the switch room. These function in the same way as a Monitor, Keyboard and Mouse of a Challenger Terminal.

Technical data

Field housing

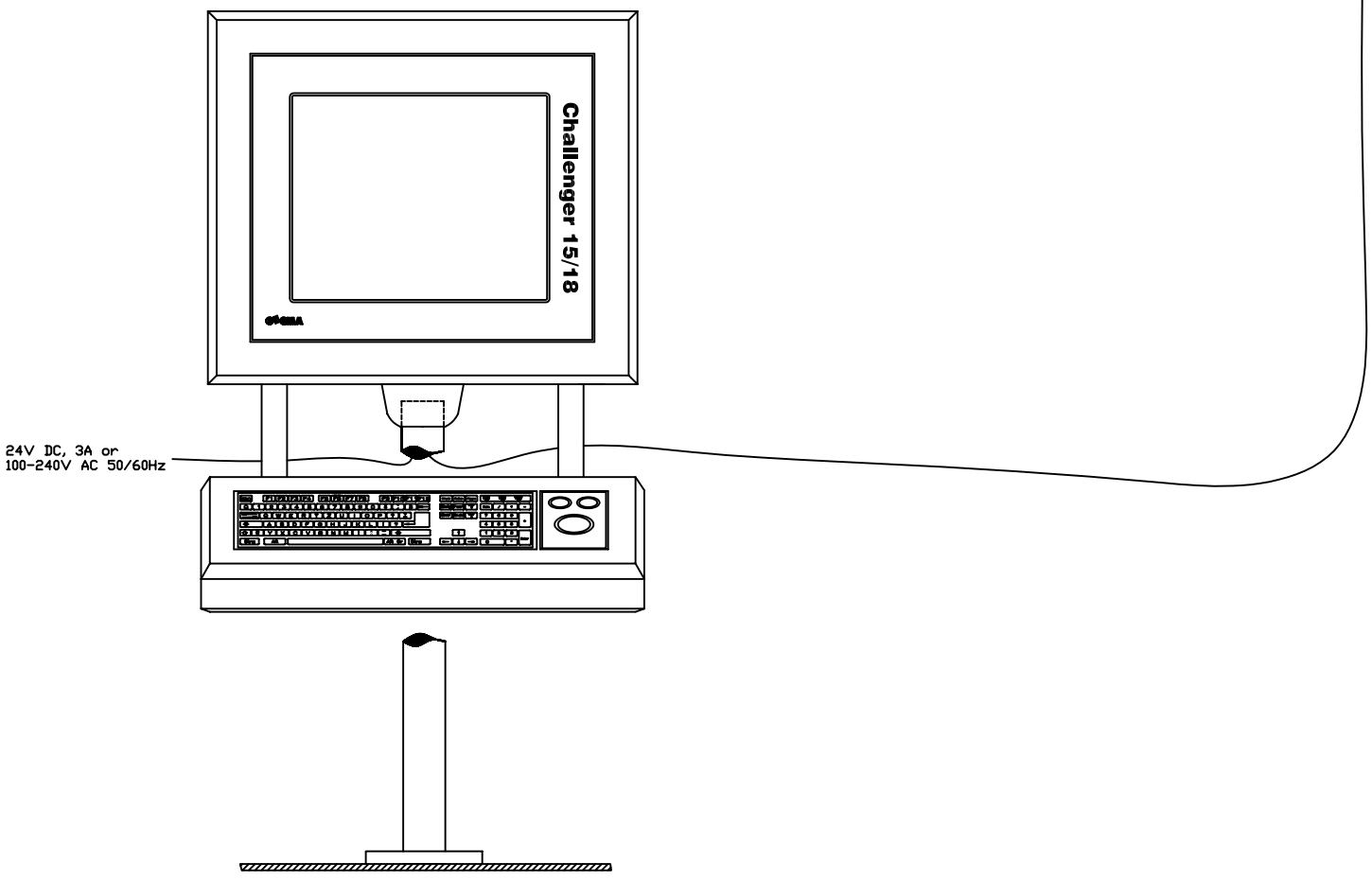
Component	: CHALLENGER 15-FHP
Description	: Enclosure for mounting the keyboard at an angle of 30° from the horizontal. Suitable for CHALLENGER 15-FMO and CHALLENGER KMU/KB/TB/M
Dimensions	: (460 x 525 x 200) mm and (261 x 626 x 78) mm (h x b x t)
Material	: Stainless Steel 1.4301
Finish	: Stainless Steel ground to hygienic standards
Ingress protection	: IP66 (NEMA 4X)
Weight	: 21 kg

Component	: CHALLENGER 18-FHP
Description	: Enclosure for mounting the keyboard at an angle of 30° from the horizontal. Suitable for CHALLENGER 18-FMO and CHALLENGER KMU/KB/TB/M
Dimensions	: (460 x 525 x 200) mm and (261 x 626 x 78) mm
Material	: Stainless Steel 1.4301
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Ingress protection	: IP66 (NEMA 4X)
Weight	: 23 kg

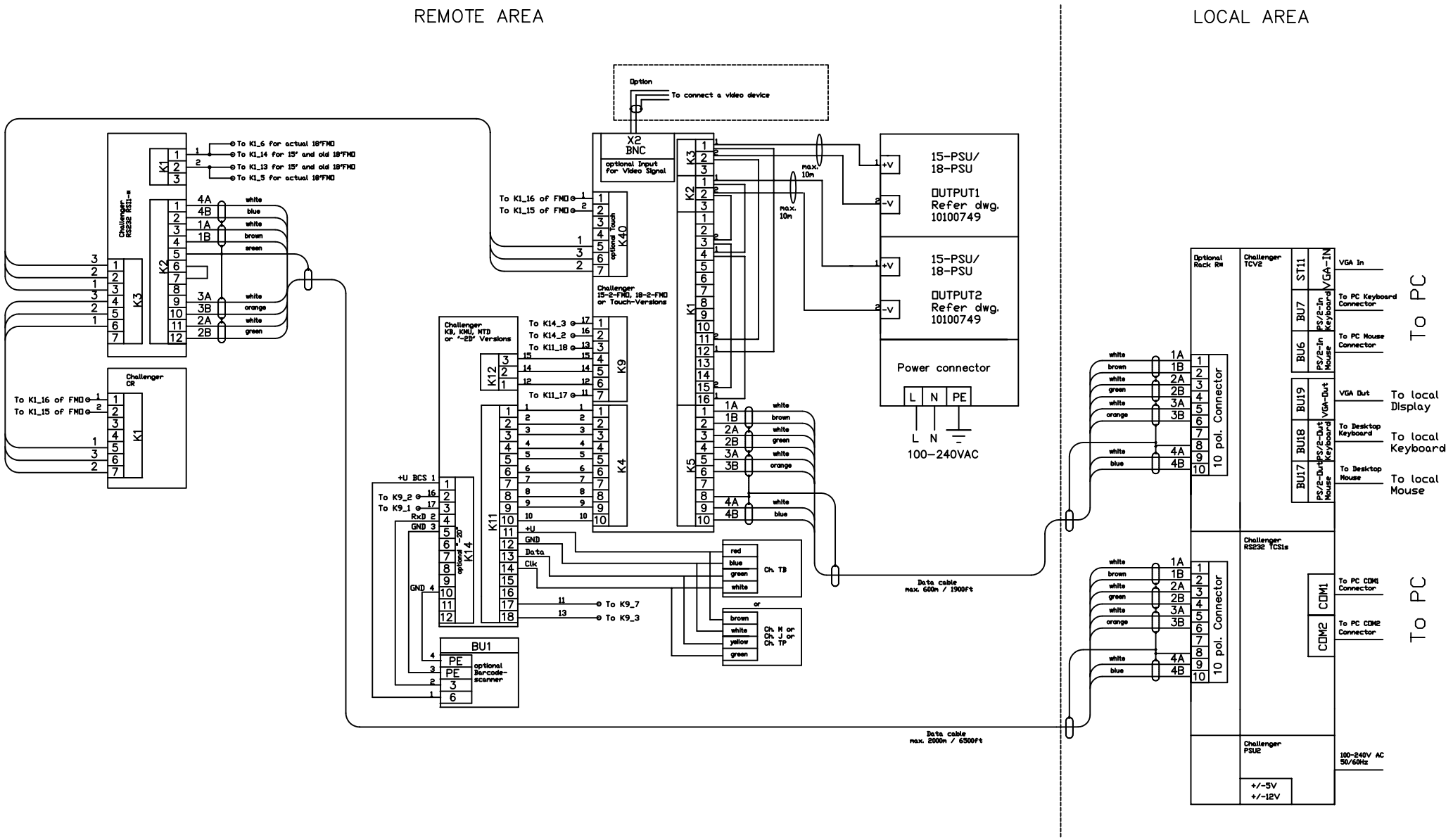


Local area

Remote area

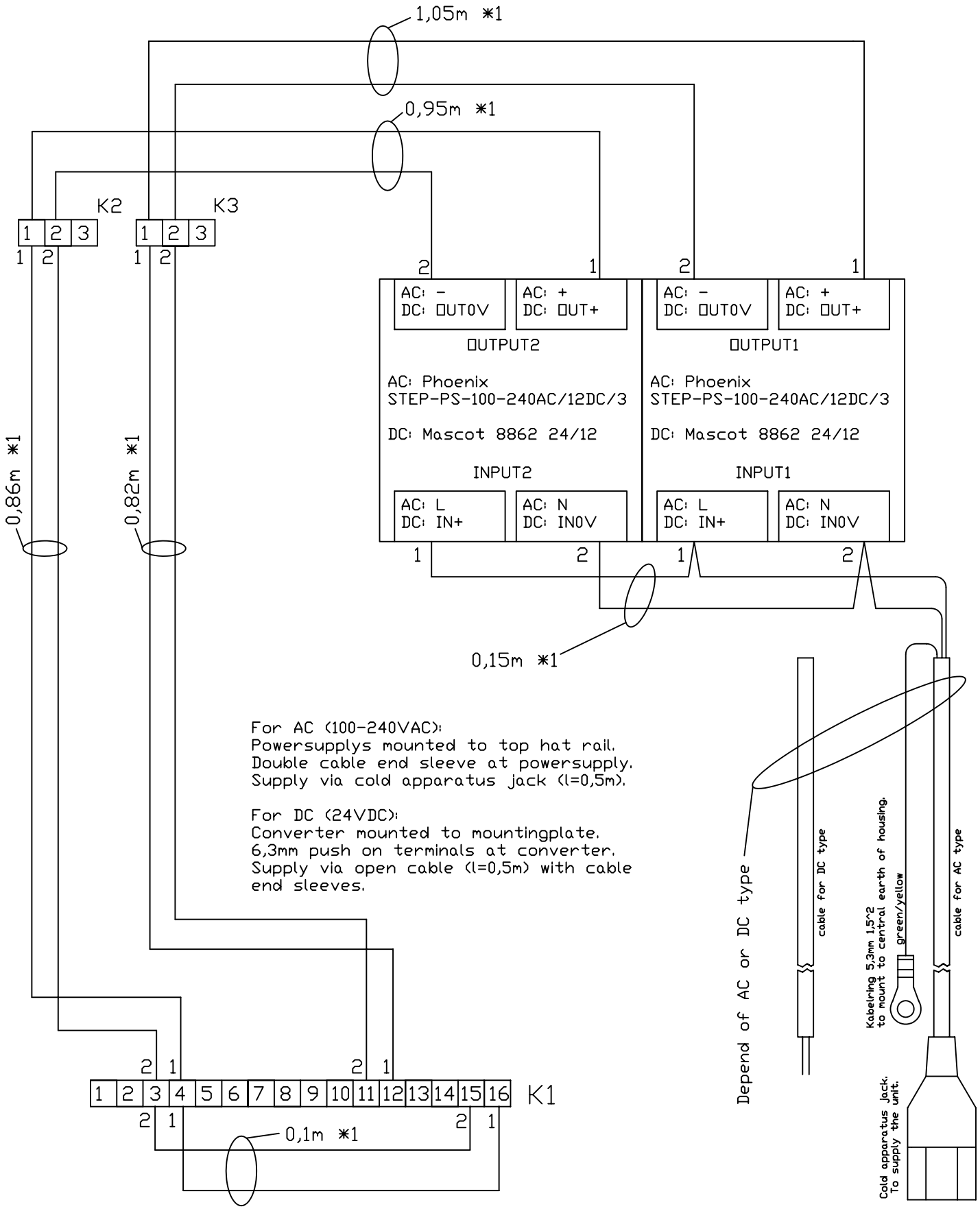


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				Titel: Installationplan Challenger NEX	
a	FHP-2 enclosure	21.07.09	A.Jung	GeCma Components GmbH D-50169 Kerpen, Germany	Zeichnungsnummer: 30100408
Rev.	Änderung	Datum	Name		Blatt: 1/1



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				Titel: Challenger 15i/18i Installationplan	
Rev.	Änderung	Datum	Name	GeCma Components GmbH D-50169 Kerpen, Germany	Zeichnungsnummer: 30100407 / Blatt: 1/1

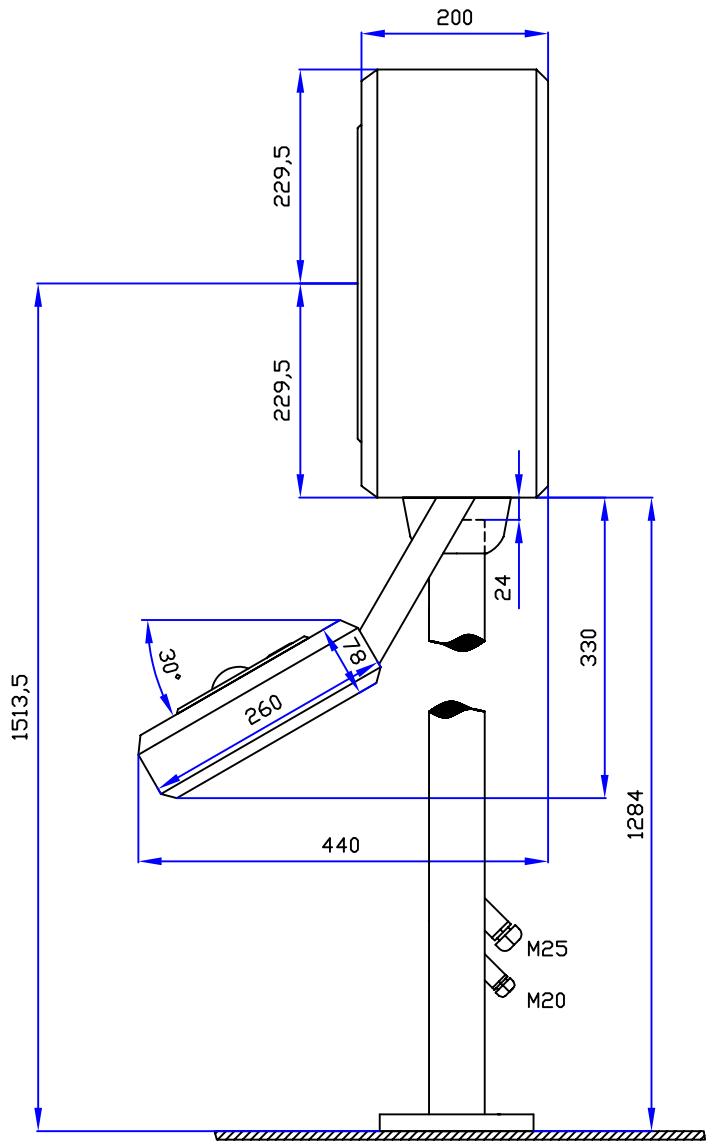
15-PSU/18-PSU

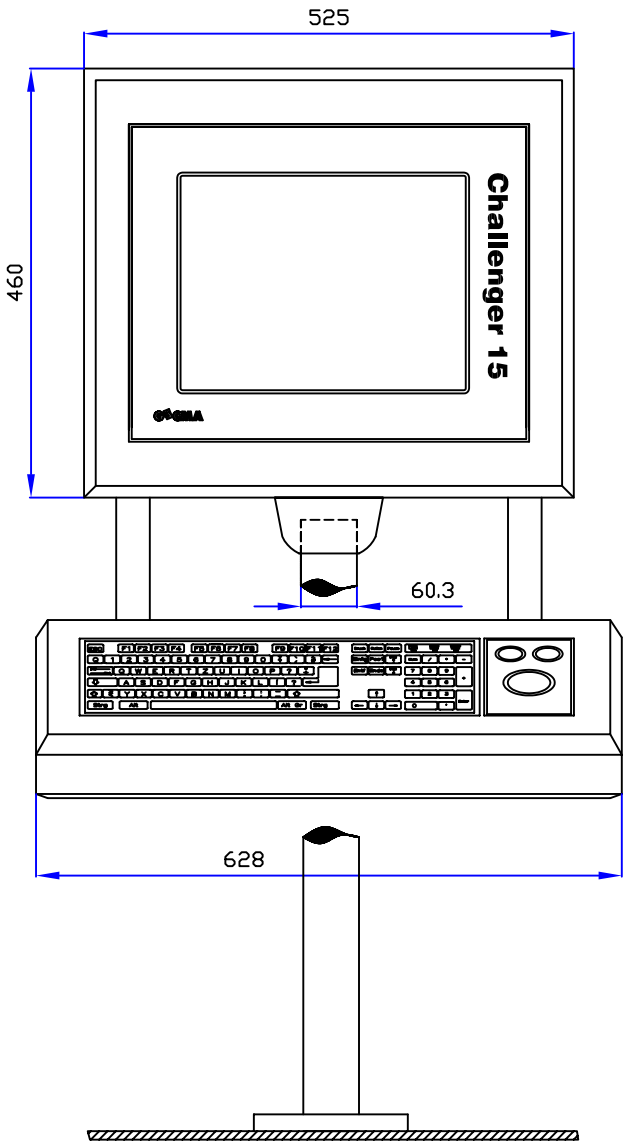


*1 Cable ÖPVC-ÖZ 2x1²

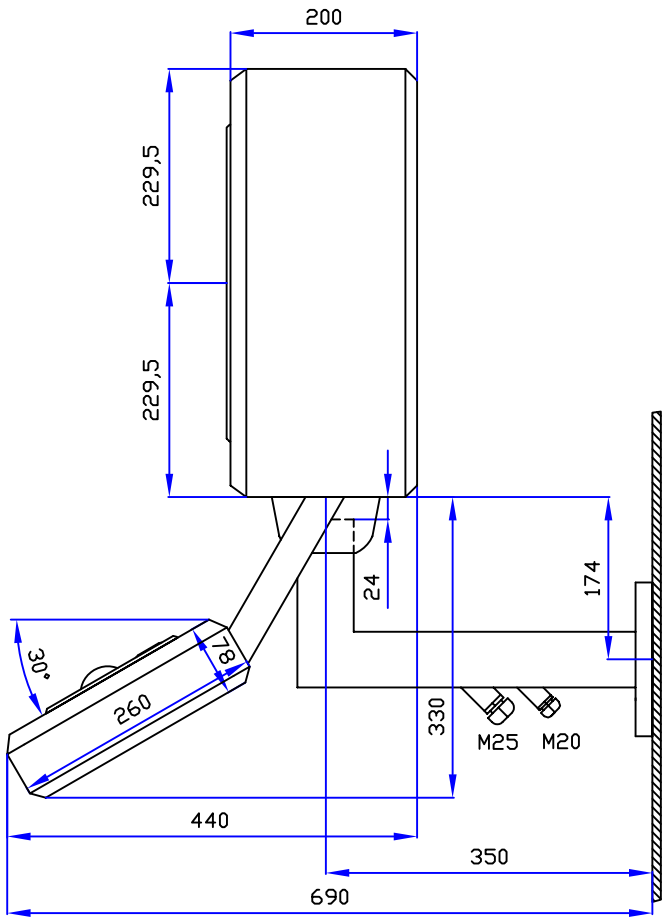
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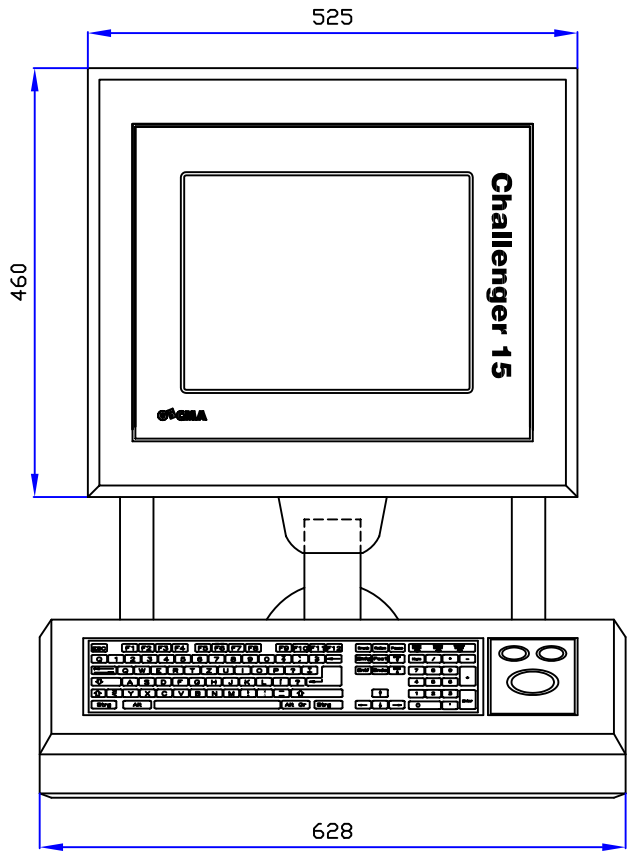
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GeCma Components GmbH D-50169 Kerpen, Germany		drawing no.: 10100749	sheet: 1/1



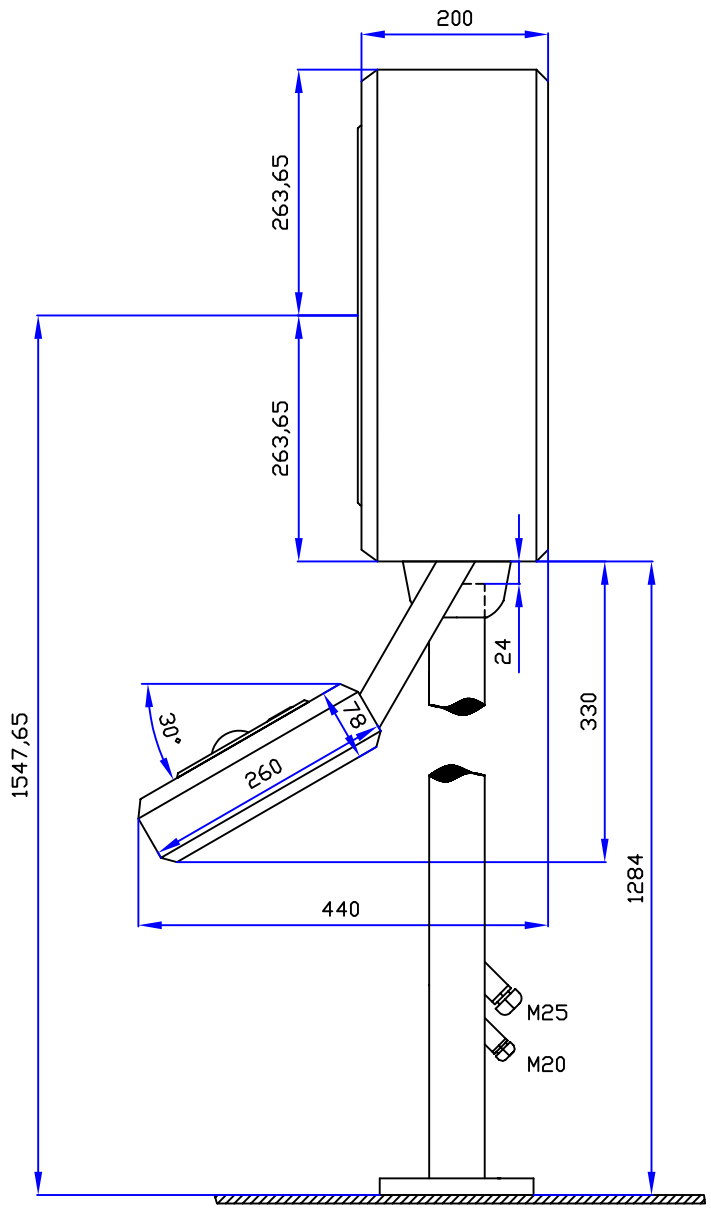


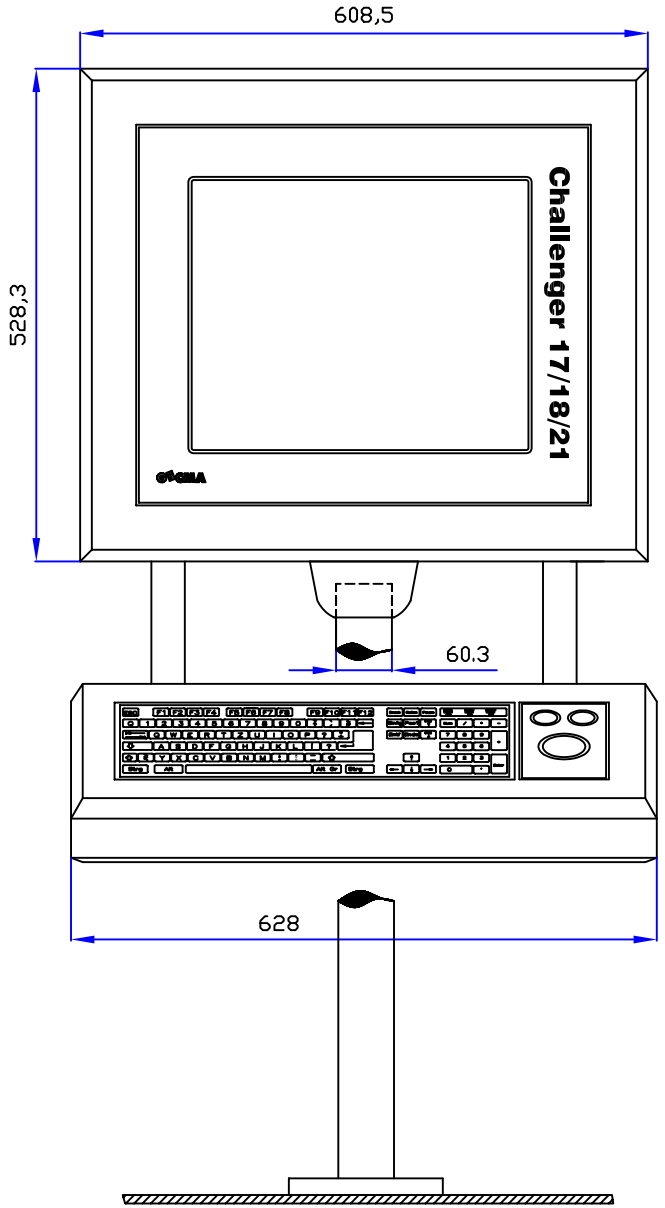
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Rev.	Änderung	Datum	Name		Blatt: 1/1



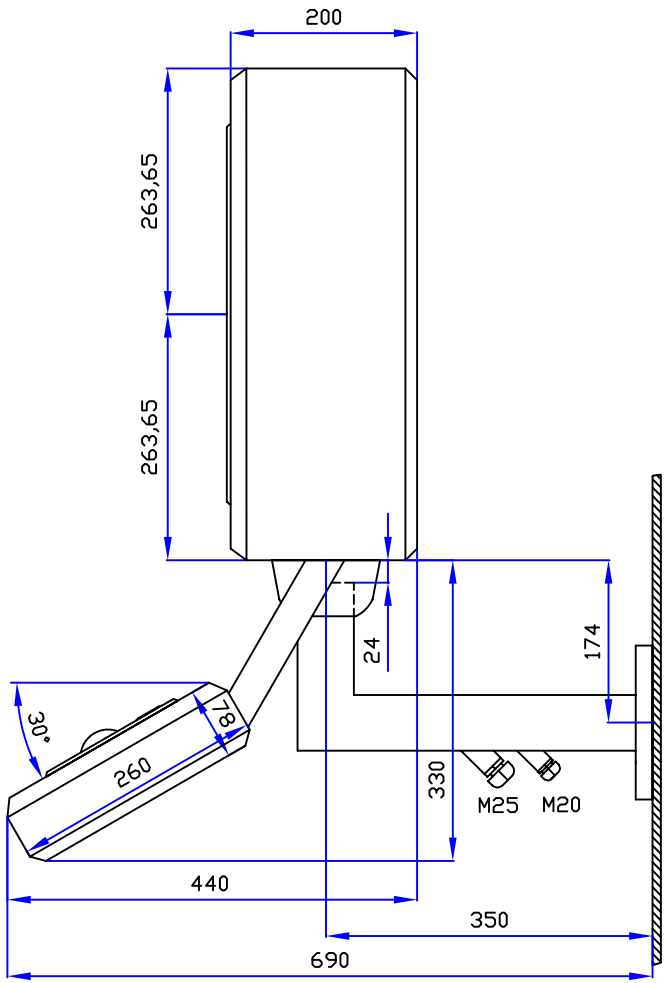


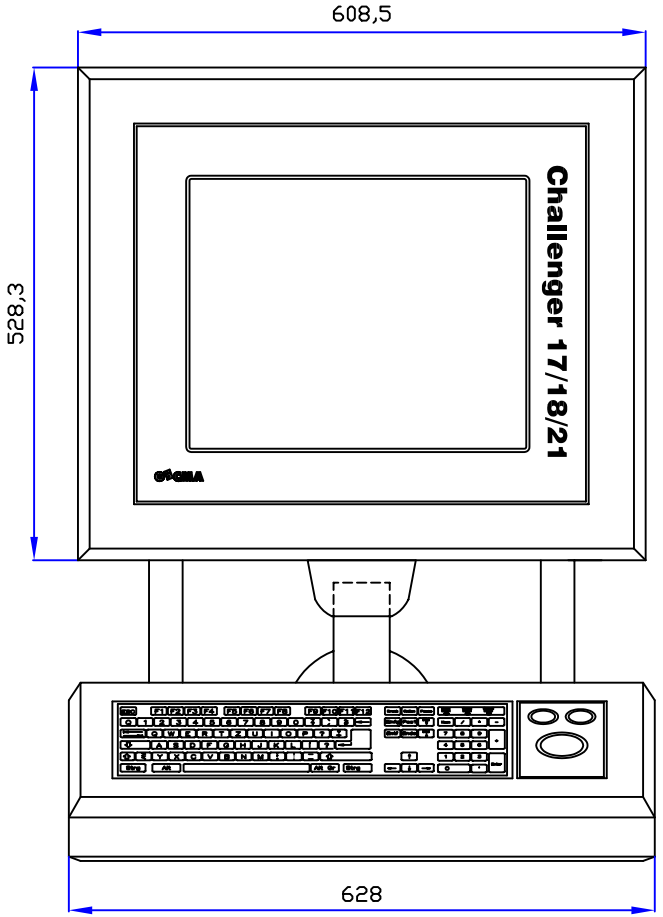
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				Geprüft:	Datum:
				Maßstab: 1 : 1	Gewicht:
				Werkstoff:	Oberfläche:
				Zul.Abw.: Allgemeintoler. mittel DIN 7168	
				Titel: FHP 15-2 Housing EBF with 1xM20 1xM25	
Rev.	Änderung	Datum	Name	GeCma Components GmbH D-50169 Kerpen, Germany	Zeichnungsnummer: 30100882 / Blatt: 1/1





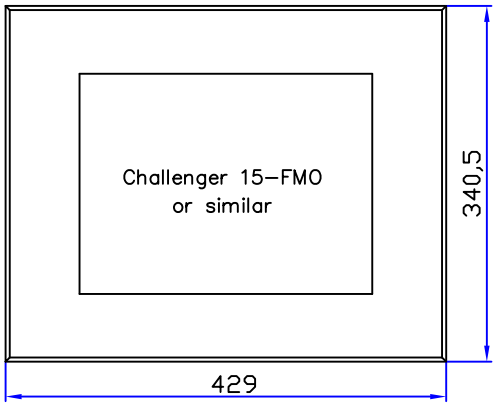
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				Werkstoff:	Oberfläche:
				Zul.Abw.: Allgemeintoler. mittel DIN 7168	
				Titel: FHP 18-2 Housing STF with 1xM20 1xM25	
b	FHP-2 enclosure	20.07.09	A.Jung	GeCma Components GmbH D-50169 Kerpen, Germany	Zeichnungsnummer: 30100419
a					Blatt: 1/1
Rev.	Änderung	Datum	Name		





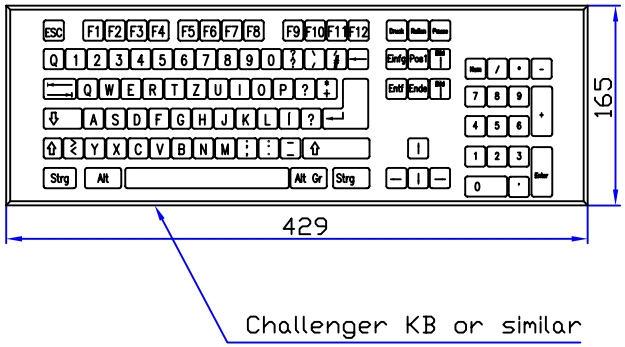
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				Geprüft:	Datum:
				Maßstab: 1 : 1	Gewicht:
				Werkstoff:	Oberfläche:
				Zul.Abw.: Allgemeintoler. mittel DIN 7168	
				Titel: FHP 18-2 Housing EBF with 1xM20 1xM25	
Rev.	Änderung	Datum	Name	GeCma Components GmbH D-50169 Kerpen, Germany	Zeichnungsnummer: 30100883 / Blatt: 1/1

Plan – View



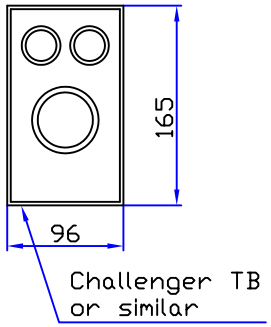
Cut out for switehgear cabinet
installation 417x328.5
Depth incl. Connector 97mm
Mounting by mountingclamps

Plan – View



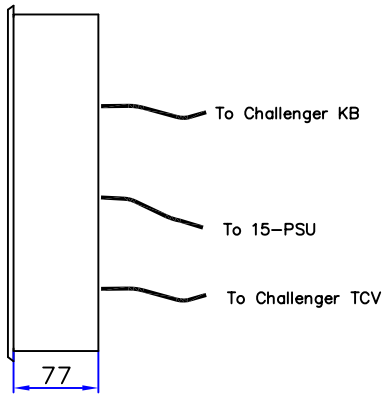
Cut out for switehgear cabinet
installation 417x153
Depth incl. Connector 60mm
Mounting by mountingclamps

Plan – View

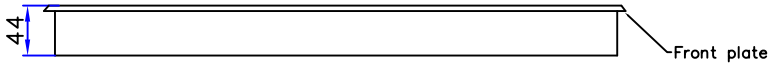


Cut out for switehgear cabinet
installation 84x153
Depth incl. Connector 60mm
Mounting by mountingclamps

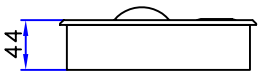
Side view



Side view

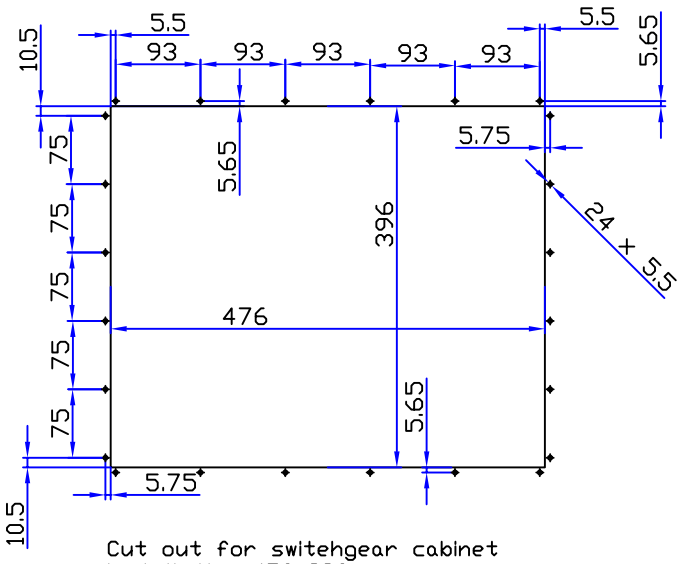


Side view



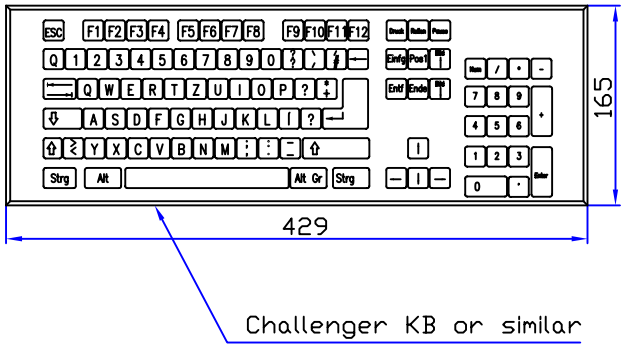
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				checked by:	date:
				scale: 1 : 1	weight:
				Material:	surface:
				max. tolerance fein DIN 7168	
				title: Cut out dimension FMO, KB, TB	
a	details	21.07.99	A.Jung	GeCma Components GmbH D-50169 Kerpen, Germany	drawing no: 30100133
rev.	modification	date	name		sheet: 1/1

Assembly–View 18–FMO or similar



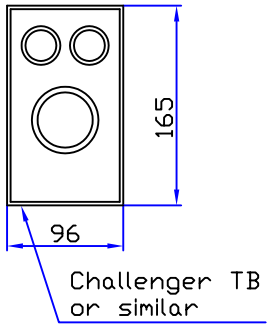
Cut out for switehgear cabinet
installation 476x396
Depth incl. Connector 107mm
outside dimension front frame 506x426
Mounting by bolts and nuts

Plan–View



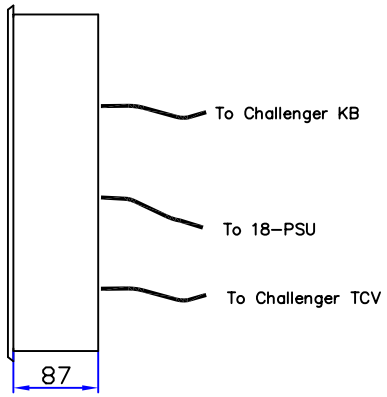
Cut out for switehgear cabinet
installation 417x153
Depth incl. Connector 60mm
Mounting by mountingclamps

Plan–View

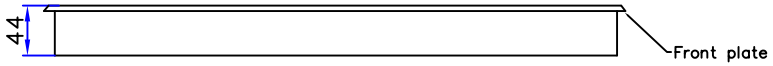


Cut out for switehgear cabinet
installation 84x153
Depth incl. Connector 60mm
Mounting by mountingclamps

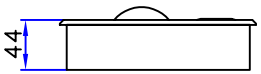
Side view



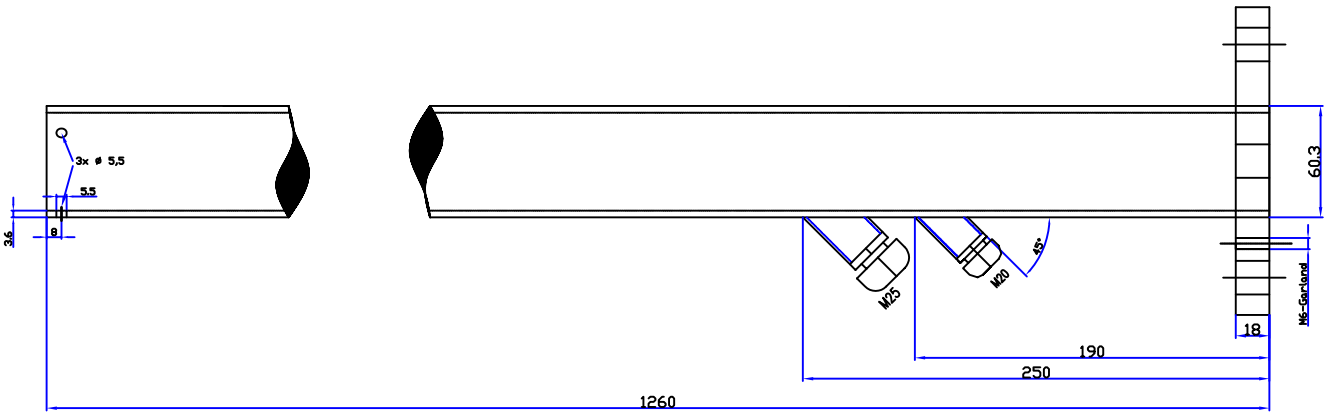
Side view

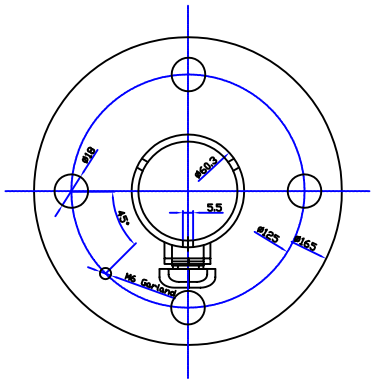


Side view

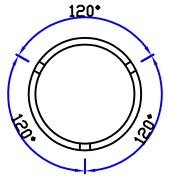


				created by: A.Jung	date: 13.03.02
				checked by:	date:
				scale: 1 : 1	weight:
				Material:	surface:
				max. tolerance fein DIN 7168	
				title: Cut out dimension FMO, KB, TB	
a	details	21.07.09	A.Jung	GeCma Components GmbH D-50169 Kerpen, Germany	drawing no.: 30100136
rev.	modification	date	name		sheet: 1/1

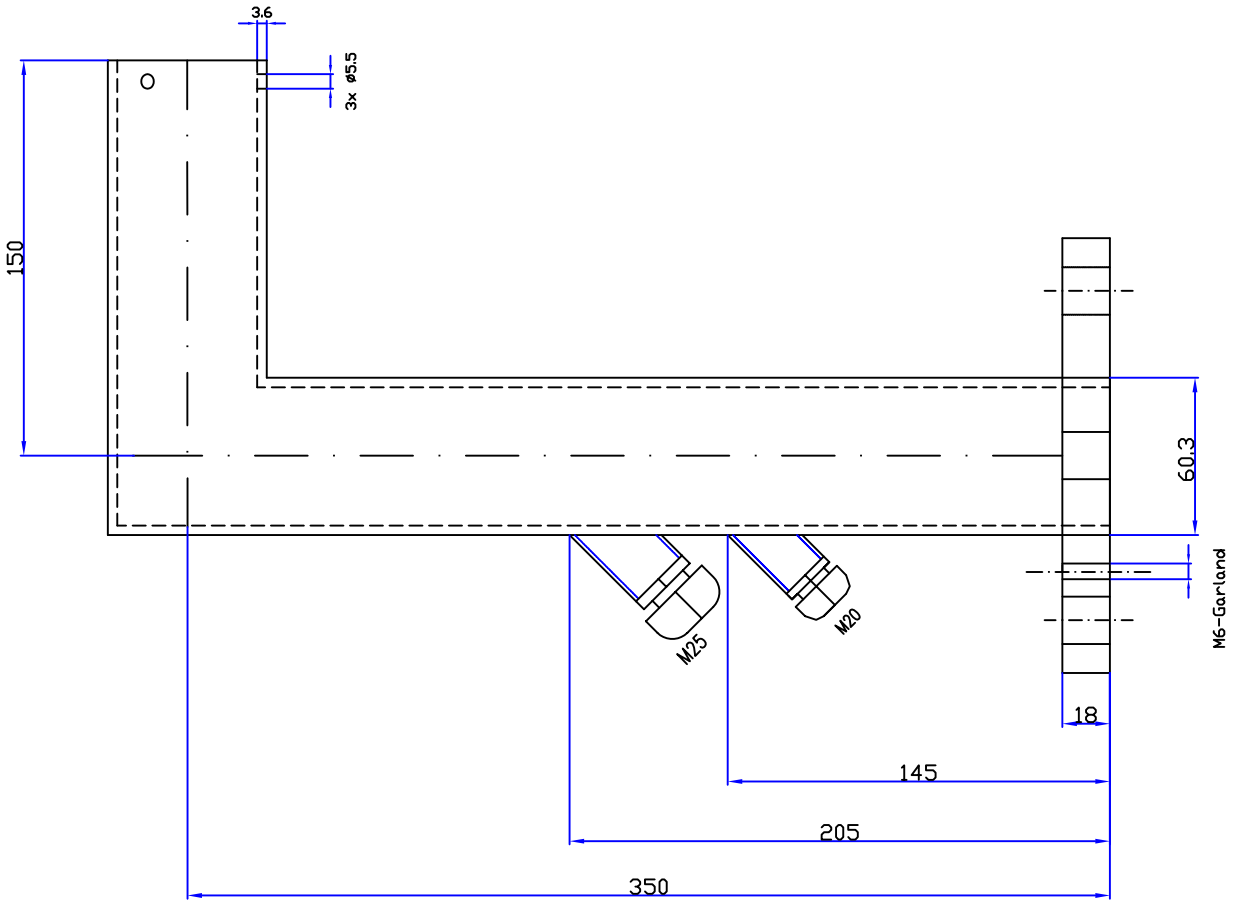


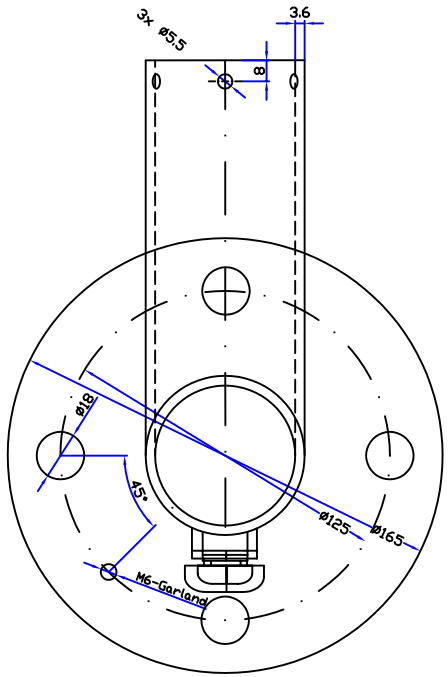


Position of 5,5mm holes (top view to pipe)

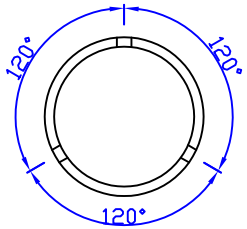


				Ersteller: A.Jung	Datum: 07.08.06
				Geprüft:	Datum:
				Maßstab: 1 : 1	Gewicht:
				Werkstoff:	Oberfläche:
				Zul.Abw.: Allgemeintoler. mittel DIN 7168	
				Titel: STF STD L=1260	
Rev.	Änderung	Datum	Name	GeCma Components GmbH D-50169 Kerpen, Germany	Zeichnungsnummer: 10100918 / Blatt: 1/1



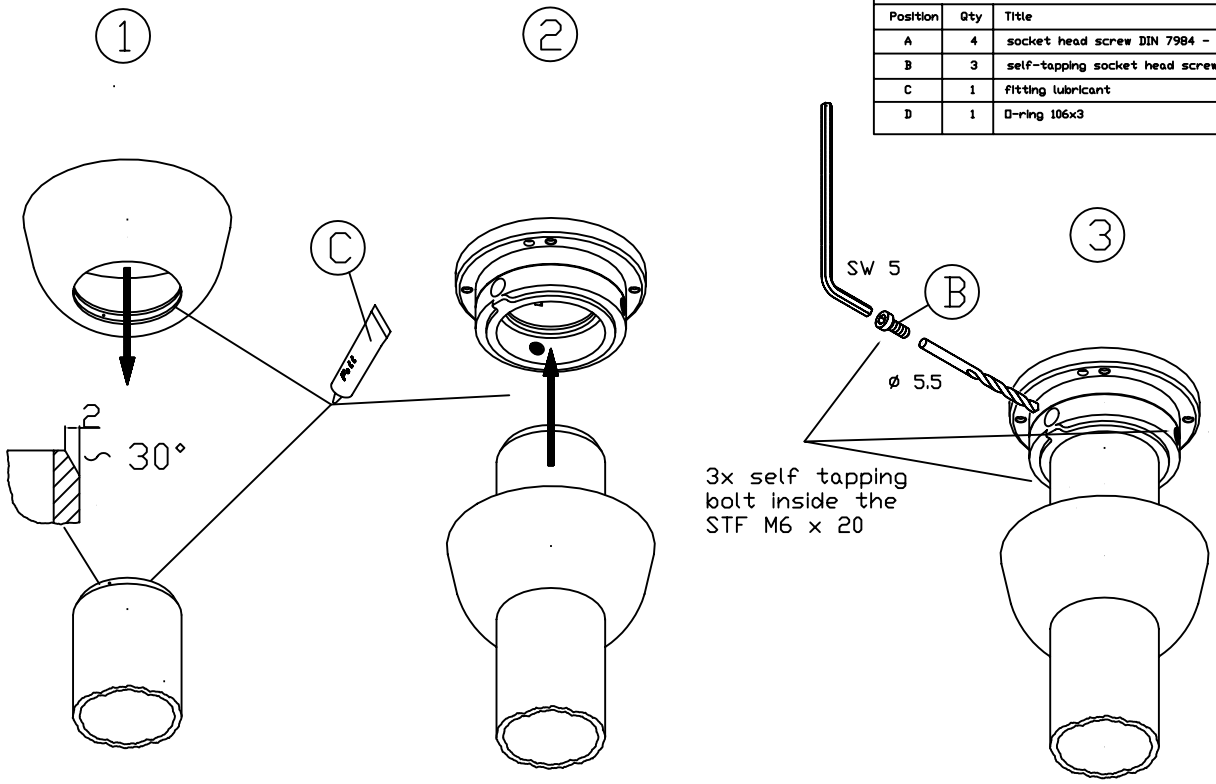


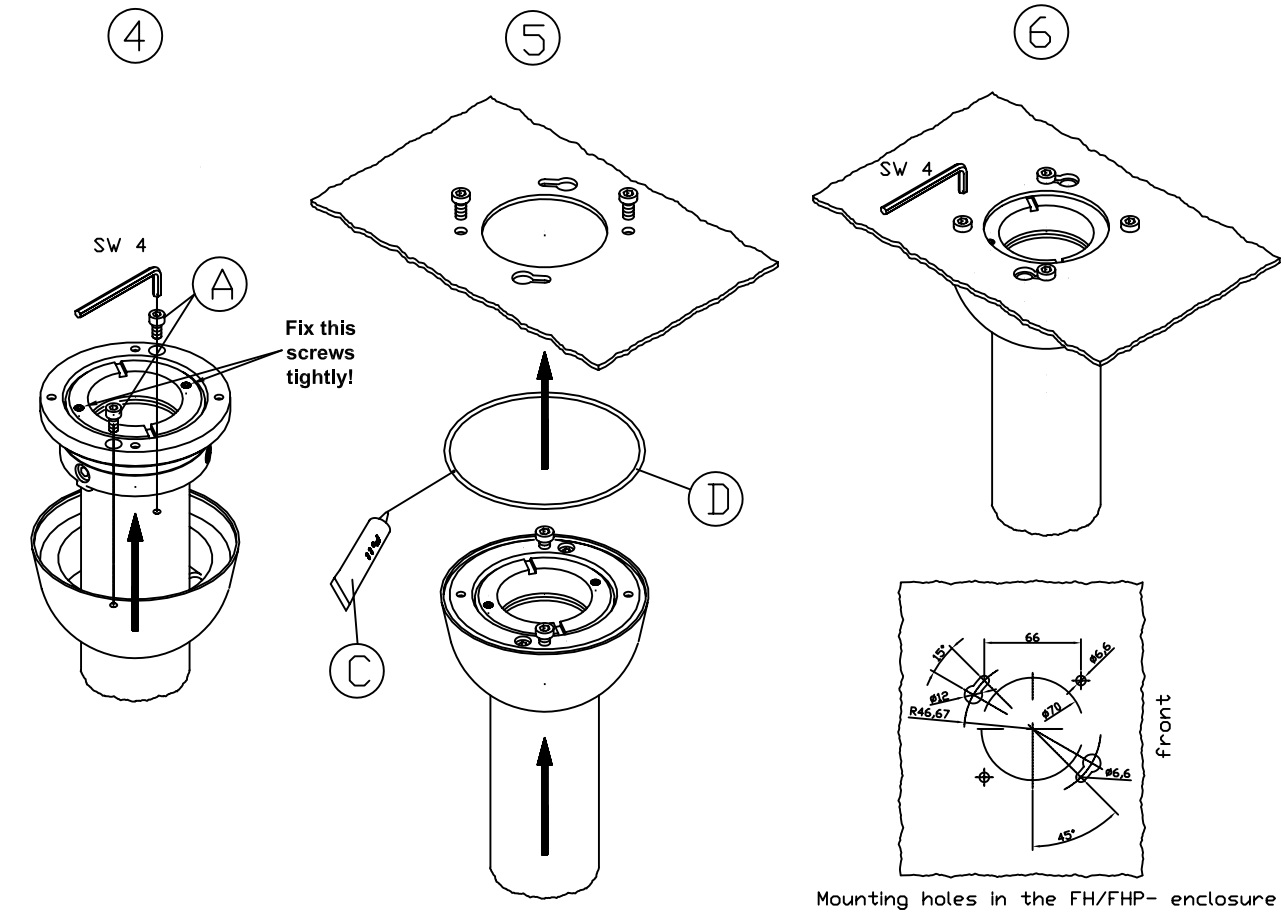
Position of 5,5mm holes (top view to pipe)



				Ersteller: A.Jung	Datum: 18.08.06
				Geprüft:	Datum:
				Maßstab: 1 : 1	Gewicht:
				Werkstoff:	Oberfläche:
				Zul.Abw.: Allgemeintoler. mittel DIN 7168	
				Titel: Rohrbogen 2xM Verschraubung 350x150 mm	
Rev.	Änderung	Datum	Name	GeCma Components GmbH D-50169 Kerpen, Germany	Zeichnungsnummer: 10100939 / Blatt: 1/1

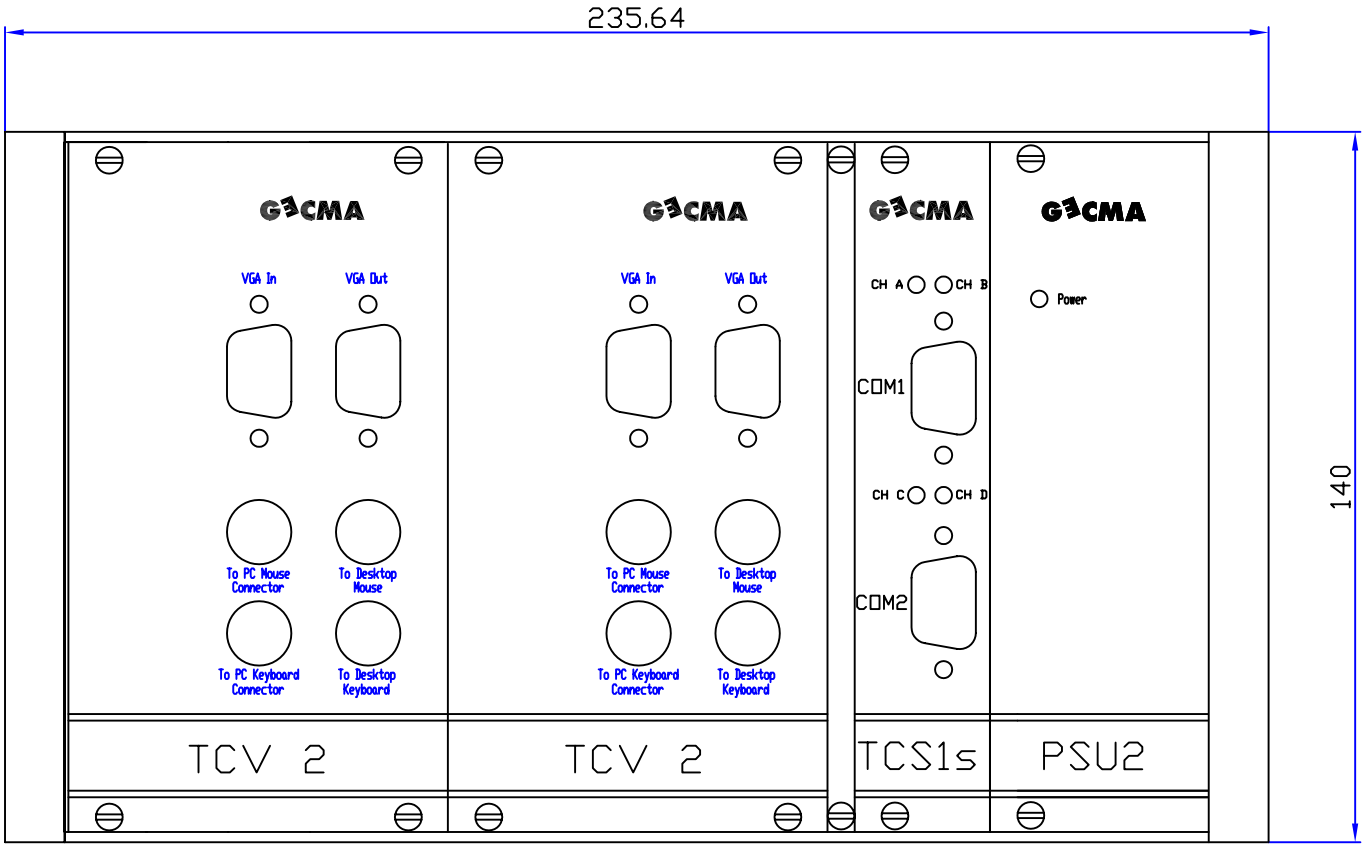
Bill of material		
Position	Qty	Title
A	4	socket head screw DIN 7984 - M6x12 -A2
B	3	self-tapping socket head screw M6x16
C	1	fitting lubricant
D	1	O-ring 106x3



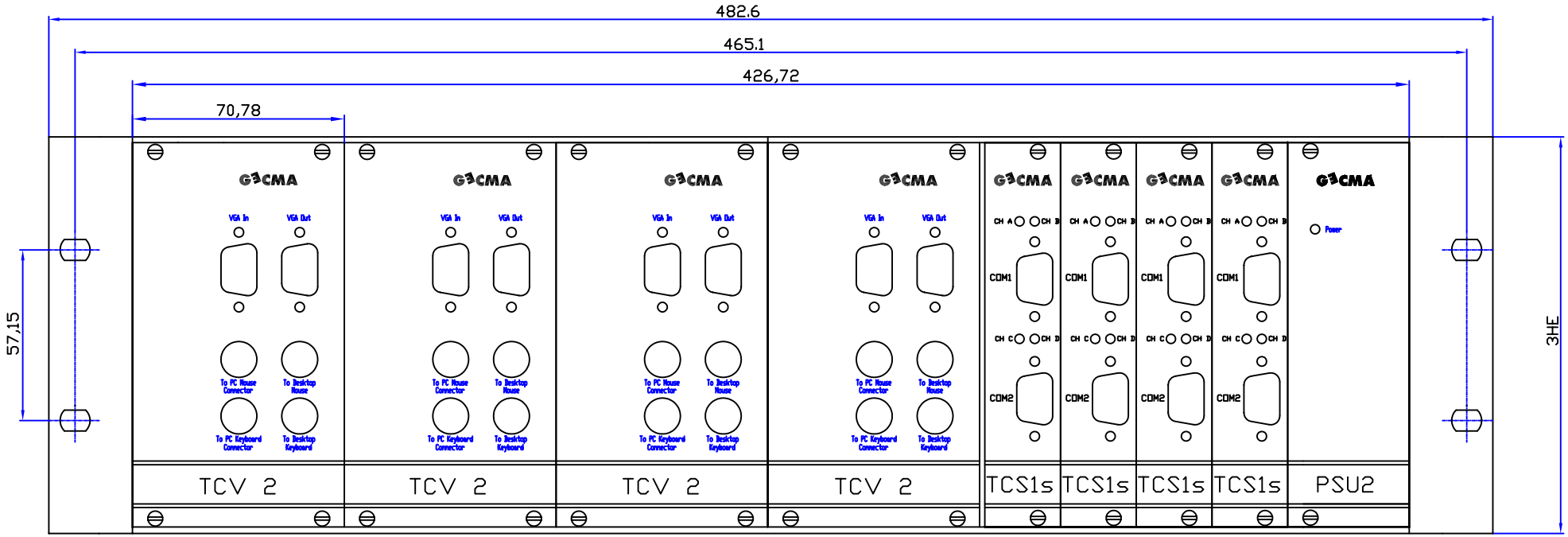


Mounting holes in the FH/FHP- enclosure

					Datum	Name	(Benennung)
				Bearb.	11.01.02	Erschfeld	
				Gepr.			coupling for Ch.- Housing
e	partlist	11.07.08	A.J.	Norm			
d	note	20.06.06	A.J.				
c	3x screws	05.12.05	A.J.	GeCma Componets GmbH			(Zeichnungsnummer) 10100251 eng
b	colors	14.01.02	T.E.				Blatt Bl.
a	position	11.01.02	T.E.				
Zust.	Änderung	Datum	Name	(Urspr.)			(Ers. f.:) (Ers. d.:)

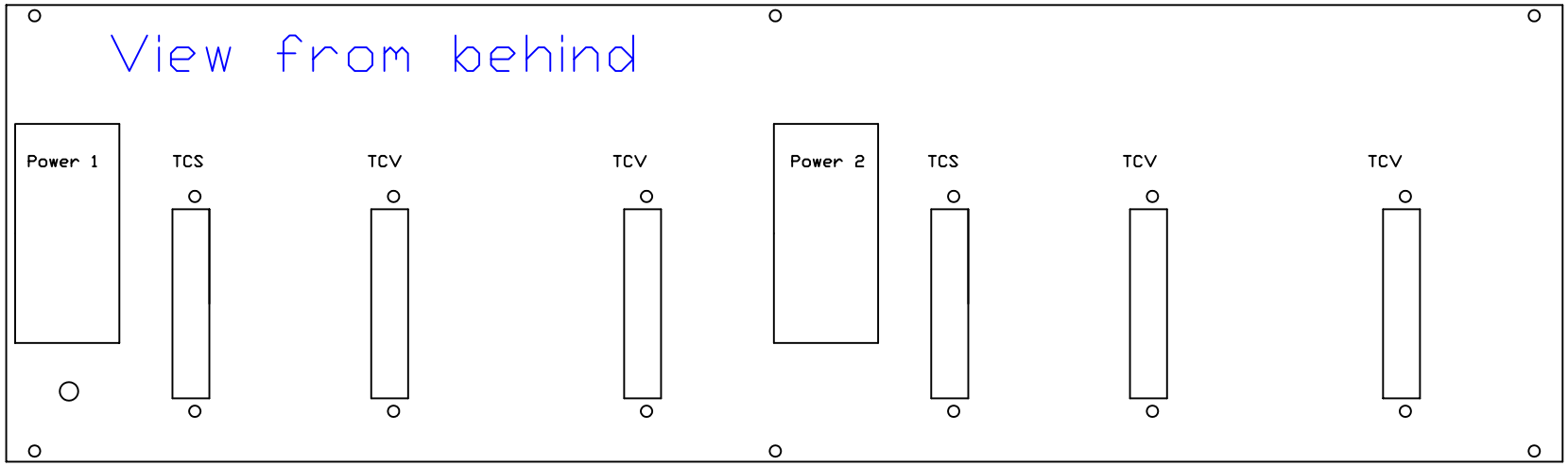


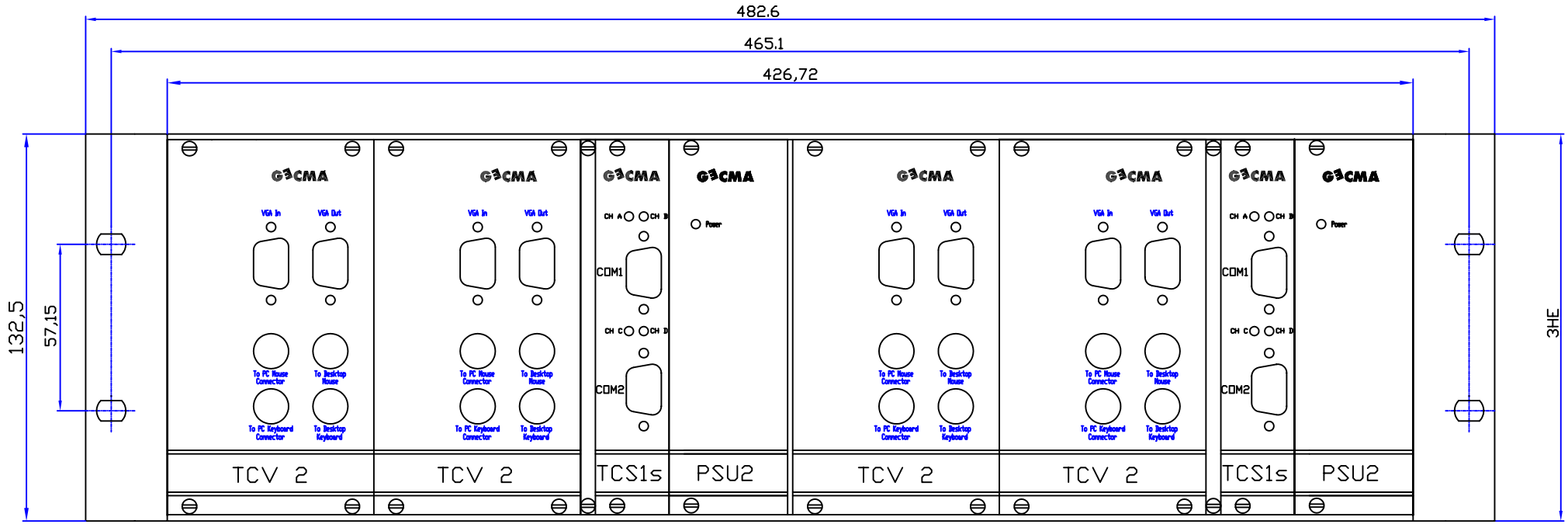
				Ersteller: A.Jung	Datum: 04.09.02
				Geprüft:	Datum:
				Maßstab: 1 : 1	Gewicht:
				Werkstoff:	Oberfläche:
				Zul.Abw.: Allgemeintoler. mittel DIN 7168	
				Titel: Challenger Rack 42-2 NEX Desktopgerät für 2xTCV, 1xTCS1s und PSU2	
b	NEX	04.12.03	T.E.	GeCma Components GmbH D-50169 Kerpen, Germany	Zeichnungsnummer: 10100292
a	Entwicklung entfernt, Front geändert	12.12.02	A.Jung		Blatt: 1/1
Rev.	Änderung	Datum	Name		



				Ersteller: A.Jung	Datum: 21.08.02
				Geprüft:	Datum:
				Maßstab: 1 : 1	Gewicht:
				Werkstoff:	Oberfläche:
				Zul.Abw.: Allgemeintoler. mittel DIN 7168	
				Titel: Challenger 19"Baugruppenträger Rack 84-2 NEX für 4xTCV,4xTCS1s und PSU2	
b	NEX	04.12.03	T.E.	GeCma Components GmbH D-50169 Kerpen, Germany	Zeichnungsnummer: 10100285 / Blatt: 1/1
a	Vorschau entfernt, Name TCS	12.12.02	A.Jung		
Rev.	Änderung	Datum	Name		

View from behind





View from front

Depth incl. mounted Connectors 295mm

Depth without mounted Connectors 240mm

Rev.	Änderung	Datum	Name
c	NEX	04.12.03	T.E.
b	view from behind	14.01.03	T.E.
a	Frontblenden, Beschriftung	12.12.02	A.Jung

Ersteller: A.Jung	Datum: 04.09.02
Geprüft:	Datum:
Maßstab: 1 : 1	Gewicht:
Werkstoff:	Oberfläche:
Zul.Abw.: Allgemeintoler. mittel DIN 7168	

Titel:
Challenger 19"Baugruppenträger
R84-2 Redundant
für 4xTCV, 2xTCS, und 2x PSU2

GeCma Components GmbH D-50169 Kerpen, Germany	Zeichnungsnummer: 10100291	Blatt: 1/1



HMI & Remote PC Terminals for industrial and hazardous areas – Ex Zone 1 / 2 / 21 / 22

GECMA Components GmbH, Postfach 4146, D-50155 Kerpen

GECMA
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Erklärung der EG – Konformität

/Declaration of EC – Conformity
/Attestation de Conformité CE

Wir / We / Nous

GeCma Components GmbH
Heisenberstr. 26-40
50169 Kerpen
Germany

erklären in alleiniger Verantwortung, dass unser Produkt,
/ declare under our sole responsibility that the product,
/ attestons sous notre responsabilité que le produit,

Product
Challenger 15-2-FMO; 18-FMO
Challenger Touch 15-2-FMO; 18-FMO
Challenger KB
Challenger KMU
Challenger M
Challenger MTD
Challenger TB
Challenger TCV2
Challenger CR
Challenger FP
Challenger J
Challenger TP
Challenger PSU 14/60
Challenger RS232***1-*
R42-2
R84-2
R84-2 Redundant
PSU-2
Explorer 15/18
USB-Devices USB-**
EFU -1-2-3 Non Ex
BCS-1
BBS-1

auf welches sich diese Erklärung bezieht, den Bestimmungen der folgenden Richtlinien entspricht:
/ to which this declaration relates is in accordance with the provision of the following directives:
/ se référant à cette attestation correspond aux dispositions des directives suivantes:

89/336/EWG — EG-EMV-Richtlinie

73/23/EWG / EN60950 — Niederspannungsrichtlinie

GeCma Components GmbH
Dipl.-Ing. (FH) A.Jung
Entwicklung / Development

Köln, 13.07.2009
Ort und Datum
Place and date
Lieu et date

Für Bestellungen und Verkäufe gelten ausschließlich unsere „Allgemeinen Zahlungs- und Geschäftsbedingungen".
All orders are subject to „GECMA Components GmbH Terms and Conditions of Sale" unless otherwise agreed in writing.

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Frank Kellershohn

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