Instruction manual
MTL HMI and visualisation

July 2022
INM MTL GECMA RT Ex Rev 7

CROUSE-HINDS SERIES

MTL GECMA Work Station - Remote Terminal

Remote terminals for hazardous areas - Zone 1/2 (Gas)

Powering Business Worldwide

1 FOREWORD

Please read the entire operating instructions before starting the assembly, connection, installation and commissioning.

The MTL GECMA RT Remote Terminals 19, 22 and 24 and associated Safe Area Units must be installed or uninstalled by qualified personnel only. This individual must be qualified to perform the installation of electrical equipment for use in potentially explosive atmospheres, and in accordance to the relevant rules and regulations pursuant to the classification of zones under IEC 60079-14.

The information in the IECEx or EC-type examination certificate should be fully adhered to.

If you have any questions or require technical support, please contact:

Eaton's Crouse-Hinds division

Eaton Electric Limited
Great Marlings, Butterfield,
Luton, Bedfordshire. LU2 8DL
United Kingdom

Tel: +49 2273 9812 0

Website www.eaton.com/gecma
Customer service CSCGecma@Eaton.com
Technical support technicalsupportgecma@Eaton.com

The peripherals used on the Gecma Work Station are separately certified by:

Cooper Crouse-Hinds GmbH
Neuer Weg-Nord 49
69412 Eberbach, Germany

Contact Cooper Crouse-Hinds GmbH via Eaton Crouse-Hinds regarding peripherals if required

Technical Developments

The given data is only intended as a product description and should not be regarded as a legal warranty of properties or guarantee. In the interest of further technical developments, we reserve the right to make design changes.

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CONTENTS

continued on following page

2 GENERAL REFERENCE

2.1 General safety information

The following methods are used in this manual to alert the user to important information:-

NOTE
These are used to give general information to ensure correct operation

IMPORTANT
These are used to indicate information that is important to the user

Safety instructions for installation and operating personnel

The operating instructions provided here contain essential safety instructions for installation personnel and those engaged in the operation, maintenance and servicing of the equipment.

	WARNING!
	Failure to comply with these instructions can endanger the lives or health of personnel and risk damage to the plant and the environment.

	WARNING!
	Failure to comply with these instructions can endanger the lives or health of personnel, risking injury from electric shock.

	WARNING!
	Failure to comply with these instructions can endanger the lives or health of personnel, risking injury from electric shock through improper earthing.

Disclaimer:

The operating instructions in relation to warning and caution set out in these operating instructions are in lieu of all other representations, conditions, occurrences, warranties, express or implied, statutory or otherwise regarding events that might require caution or warning or otherwise, all of which are hereby excluded to the extent permitted by applicable law.

2.2 Provisions for general operational safety

2.3 Application

The MTL GECMA RT is a Remote Terminal which is used for operating and visualisation purposes. It may be installed in Zone 1 and Zone 2.

Product	Certificate	Product marking
MTL GECMA RT system	ATEX: SIRA 14ATEX5064X IECEX: IECEx SIR 14.0033X	All models (fitted with keyboard, trackball, touchpad, joystick or mouse options): II 2(2)G Ex eb mb[ib] ib op is IIC T4 Gb Ta =-30°C to +60°C (Ta =-20°C to +60°C if trackball fitted)

The MTL GECMA RT certification shown above fully certifies the terminal for use in Zone 1 and Zone 2. No other certificates are required.

The MTL GECMA RT system includes a number of separately certified components, and details of these are given below for reference.

Additional manuals for these components are not required in order to operate an MTL GECMA RT WS terminal.

Product	Certificate	Product marking
MTL GECMA RT COM module	ATEX: SIRA 14ATEX5062X IECEx: IECEx SIR 14.0031X	Copper: I 2(2)G Ex mb[ib] IIC T4 Gb Ta =-30°C to +75°C Fibre: II 2(2)G Ex mb[ib] op is IIC T4 Gb Ta =-30°C to +75°C
MTL GECMA AC/DC WS PSU module	ATEX: SIRA 14ATEX5061X IECEx: IECEx SIR 14.0030X	II 2G Ex eb mb IIC T4 Gb Ta = –30°C to +60°C
MTL GECMA 19" display module	ATEX: SIRA 14ATEX5063X IECEx: IECEx SIR 14.0032X	II 2G Ex mb ib IIC T4 Gb Ta = -30°C to + 75°C
MTL GECMA 22" display module	ATEX: SIRA 14ATEX5063X IECEx: IECEx SIR 14.0032X	II 2G Ex mb ib IIC T4 Gb Ta = -30°C to + 75°C
MTL GECMA 24" display module	ATEX: SIRA 14ATEX5063X IECEx: IECEx SIR 14.0032X	Ex mb ib IIC T4 Gb Ta = -30°C to + 75°C
MTL Gecma RT Safe Area Unit	ATEX: SIRA 14ATEX9328X IECEx: SIR 14.0115X	Copper: II 2(2)G [Ex ib Gb] IIC Ta =-30°C to +60°C Fibre: II 2(2)G [Ex op is IIC T4 Gb] Ta =-30°C to +60°C

In the event a module needs to be replaced, please refer to the appropriate individual manual which is included with modules when supplied separately.

2.4 Safety guidelines

These safety guidelines contain information and precautions that must be taken into account for safe operation in the conditions described.

The Safety Provisions chapter must be studied carefully and adhered to.

The Operating Instructions must be read before installing or using the terminal.

All information contained under this INM MTL GECMA RT is provided "AS – IS". Eaton waives any liability or responsibility for errors or omissions in the contents of this INM MTL GECMA RT. No warranties of any kind are made in connection with the information contained under this INM MTL GECMA RT.

2.5 ATEX/IECEx Safety Instructions

The following information is in accordance with the Essential Health and Safety Requirements (Annex II) of the EU Directive 2014/34/EU [the ATEX Directive- safety of apparatus] and is provided for those locations where the ATEX Directive is applicable.

General

a. This equipment must only be installed, operated and maintained by competent personnel. Such personnel shall have undergone training, which included instruction on the various types of protection and installation practices, the relevant rules and regulations, and on the general principles of area classification. Appropriate refresher training shall be given on a regular basis. [See clause 4.2 of IEC/EN 60079-17].

b. This equipment has been designed to provide protection against all the relevant additional hazards referred to in Annex II of the directive, such as those in clause 1.2.7.

c. This equipment has been designed to meet the requirements of IEC/EN 60079-0, IEC/EN 60079-7, IEC/EN 60079-11, IEC/EN 60079-18 and IEC/EN 60079-28.

Installation

a. The installation must comply with the appropriate European, national and local regulations, which may include reference to the IEC code of practice IEC 60079-14. In addition, particular industries or end users may have specific requirements relating to the safety of their installations and these requirements should also be met. For the majority of installations the Directive 1999/92/EC [the ATEX Directive- safety of installations] is also applicable.

b. Unless already protected by design, this equipment must be protected by a suitable enclosure against:

   i. mechanical and thermal stresses in excess of those noted in the certification documentation and the product specification

   ii. aggressive substances, excessive dust, moisture and other contaminants.

Inspection and maintenance

a. Inspection and maintenance should be carried out in accordance with European, national and local regulations which may refer to the IEC standard IEC 60079-17. In addition specific industries or end users may have specific requirements which should also be met.

b. Access to the internal circuitry must not be made during operation.

c. This equipment must be installed as shown in Appendix A, GECMA RT Remote Terminal assembly drawing.

WARNING!

When the MTL GECMA RT Safe Area Unit Desktop or Rack Copper version is connected to the MTL GECMA RT Com Module, the two devices at each end of the Ethernet cable shall be connected to the same equipotential earth.

Repair

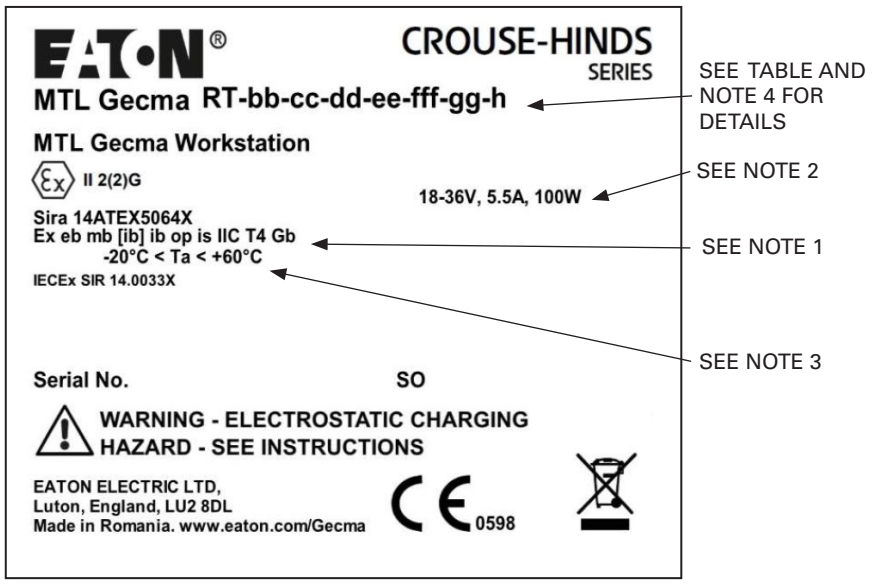
a. This product cannot be repaired by the user and must be replaced with an equivalent certified product.

b. The Keyboard module has a special condition of use that requires it must be grounded to the housing. In the event that the keyboard module needs to be removed, ensure that the grounding connection is restored when the keyboard is replaced.

Marking

Each device is marked in compliance with applicable EU directives.

Markings will show either AC or DC power depending upon which MTL GECMA WS PSU has been fitted.



GECMA WS PRODUCT ID (See Note 4)

Gecma	bb	cc	dd	ee	fff	gg	h
Gecma RT	AC or DC	Cu, MM or SM	19, 22 or 24	Touch or blank	KBi or blank	Ji, Mi, TBi, TPi or blank	G

Notes:

1. (*op is)* only appears on MM or SM versions.
2. AC or DC PSU specification to appear as appropriate:
   AC: 100-230Vac, 50/60Hz, 1.2A
   DC: 18-36Vdc, 5.5A, 100W
3. Systems with Trackball fitted have an operating temperature range of-
   -20°C < Ta < +60°C
4. Configuration codes are as follows-
   bb: AC = 100-230Vac 50/60Hz mains PSU, DC = 24Vdc PSU
   cc: Cu = Copper communications, MM = multi-mode fibre communications, SM = single-mode fibre communications
   dd: 19 = 19" 4:3 1280x1024 display, 22 = 22" 16:9 1920x1080 display, 24 = 24" 16:10 1920x1200 display
   ee: Touch = with resistive glass touch screen, blank = without touch option
   fff: KBi = with standard keyboard, blank = without keyboard
   gg: Ji = Joystick option, Mi = three-button-mouse option, TBi = trackball option, TPi = touchpad option, blank = no pointing device
   h: G = gas certified only

Instructions for safe use

1. Electrical equipment mounted in the safe area and connected to the safe area terminals of interfaces is unspecified except that it must not be supplied from or contain under normal or abnormal conditions a source of potential w.r.t earth in excess of 250V ac rms or 250V dc.
2. If used in an ambient temperature above 50°C the installer must use an input power cable that is rated at 90°C minimum.
3. The internal module enclosures are manufactured from aluminium alloy. In rare cases, ignition sources due to impact and friction sparks could occur. This shall be considered during installation and operation.
4. The intrinsically safe circuits are not isolated from the internal or external enclosures; this shall be considered during installation.

5. When the Gecma COM module RT – Copper is connected to another device via an Ethernet cable, the two devices at each end of the Ethernet cable shall be connected to the same equipotential earth. This is the responsibility of the installer.
6. When the Gecma RT Safe Area Unit – Copper is connected to another device via an Ethernet cable, the two devices at each end of the Ethernet cable shall be connected to the same equipotential earth. This is the responsibility of the installer.

2.6 Safety provisions

	**WARNING!**
	Use of the device assumes that the user has observed the standard safety provisions in order to prevent incorrect operation of the device.

	**WARNING!**
	The responsibility for planning, installation, commissioning, operation and maintenance, particularly with respect to applications in explosion-hazard areas, lies with the plant operator.

General:

- The national safety and accident prevention regulations apply.
- MANUAL HANDLING – HEAVY LIFT. MTL GECMA RT Remote Terminals have an unpackaged weight that can exceed 70kg. Care must be exercised in the manual handling of these items. Two or three persons, or appropriate machinery, is recommended when lifting and positioning these items.
- Incorrect, impermissible use or non-compliance with these operating instructions may invalidate any warranty.
- All other instructions, notes and regulations contained in these operating instructions must be complied with and observed.
- The MTL GECMA RT may be used in Safe Area, Zone 1 and/or Zone 2 applications corresponding to the Ex marking.
- All MTL GECMA safe area units must be connected directly to the PC. Only components that are recommended by Eaton can be used for KVM ServSwitch applications.
- The device must only be operated in an undamaged condition as damage can negatively impact the safe operation of the Ex protection.
- The IP rating of the outer RT housing applies only when the rear door is closed and latched.
- The maximum permissible altitude for the operation of the system is 2000 metres.

Before commencing installation or commissioning:

- Read and understand the contents of these instructions.
- Ensure that any operating instructions are fully understood by the personnel responsible.
- Use the device only for its intended purpose.
- The installation and commissioning may only be performed by professional personnel who are trained according to the applicable regulations, standards and guidelines.
- All equipment must be installed, connected and operated correctly and in accordance with the applicable assembly and installation regulations, standards and guidelines.
- It must be ensured that the provisions, e.g. EN 60079-14, the IECEx or EU type examination certificate, and other relevant and applicable standards are followed and observed.
- The equipment must be operated in accordance with the electrical parameters and other information prescribed in the operating instructions and IECEx or EU-type examination certificate.
- The recommended ambient operating temperature range for the MTL GECMA RT is-10°C <= Ta <= +50°C, however the ambient certified temperature range is-30°C <= Ta <= +60°C (-20°C if trackball is fitted).
- The MTL GECMA Safe Area Unit (Desktop Version) and MTL GECMA Safe Area Unit (Rack Version) transmission units must be installed outside the hazardous

area.

- Only devices which correspond to the electrical characteristics of the IECEx or EU-type examination certificate or the operating instructions may be connected.
- All earth connections must be made prior to connectivity to any power.
- Ensure that the terminal and its components have been installed correctly and any wiring is undamaged before the terminal is operated.
- The data cable (optical) must not be bent, cut or otherwise stressed.
- Modifications and changes to the terminals and its components are not permitted and may affect the safe operation of the EX protection.

During operation:

- Make these instructions available at all times to the operating personnel.
- Servicing, maintenance work or repairs not described in this manual must not be performed without prior agreement with the manufacturer.
- Electrostatic hazard. Clean only with a moist cloth and detergent.
- Avoid using aggressive acids or bases when cleaning.
- In the event of any damage to the front glass screen, the display must be switched off immediately.

WARNING!

Operational safety cannot be guaranteed in the event of non-compliance or contravention of these safety provisions and will invalidate any warranty claim.

Deviations require the written approval of Eaton

IMPORTANT

Exposure to extremes in temperature will affect the performance of the MTL GECMA RT.
It is recommended that the unit is installed out of direct sunlight and where all day shadowing of the unit can be achieved.

Depending on the how the MTL GECMA RT is installed the maximum ambient temperature may be reduced if it is mounted in an additional housing.

WARNING!

Extremely low ambient temperatures can affect the display and may cause it to darken.
Excesively high temperatures may affect the life time of the display.
The MTL GECMA RT is certified and marked to operate within the temperature ranges of -30°C to +60°C (-20°C if trackball is fitted). Please see section '2.3 Application' in this manual for a full overview of certification and marking.

2.7 Performance risks and damage

At any time unusual performance is observed or physical damage is noted, the HMI (Human-Machine Interface) could potentially be unsafe and must be taken out of service until the problem is corrected. Examples of possible safety risks include:

WARNING!

As soon as the device safety has been compromised, the terminal must be taken out of service immediately to avoid any unintended restarts. We recommend that in this situation the terminal should be returned to the manufacturer for inspection.

The device safety could be compromised if, for example:

- damage to the housing is visible,
- the device has been subjected to excessive loads,
- the device has been improperly stored,
- the device has been damaged in transit,
- the device certification is illegible,
- malfunctions occur,
- the permissible threshold values have been exceeded.

3 OVERVIEW

The MTL GECMA RT (19, 22 and 24) is a display and control panel for use in hazardous areas. Its modular design consists of a display module, power supply, COMs module, safe area unit and individual peripherals such as; keyboard and pointing device (mouse, trackball, touch pad, joystick). Refer to sections 7 & 8 for details of the peripherals.

The safe area unit transmits the PC data in an intrinsically safe manner to the MTL GECMA RT (19, 22 and 24) terminal with distances up to 10.000 metres fibre or 100m copper.

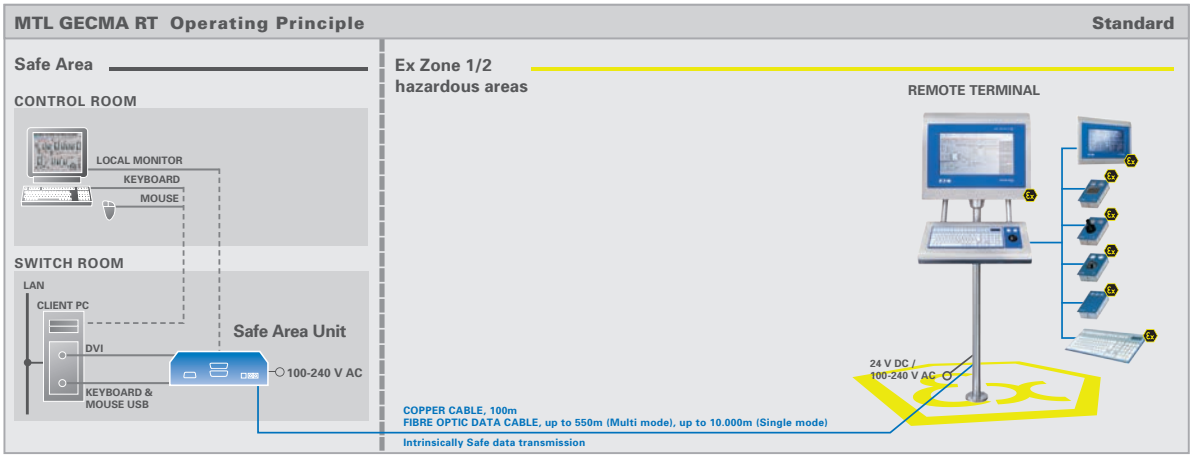
The safe area unit is installed outside the hazardous area and connected directly to the PC. DVI graphics for the video signal and USB ports for the keyboard and mouse are then connected directly to the unit. The only system requirement for operation is an IBM-compatible PC. The data-imaging PC requires no system-specific graphics cards or software drivers.

The transfer of the image, keyboard and pointing device data takes place via the safe area unit using a fibre optic cable connected to the MTL GECMA RT remote terminal.

The receiver electronics and ports for keyboard and pointing devices such as mouse/ trackball are housed in the MTL GECMA housing. The display module and the COM module are supplied by the PSU power supply module.

3.1 Operating principle

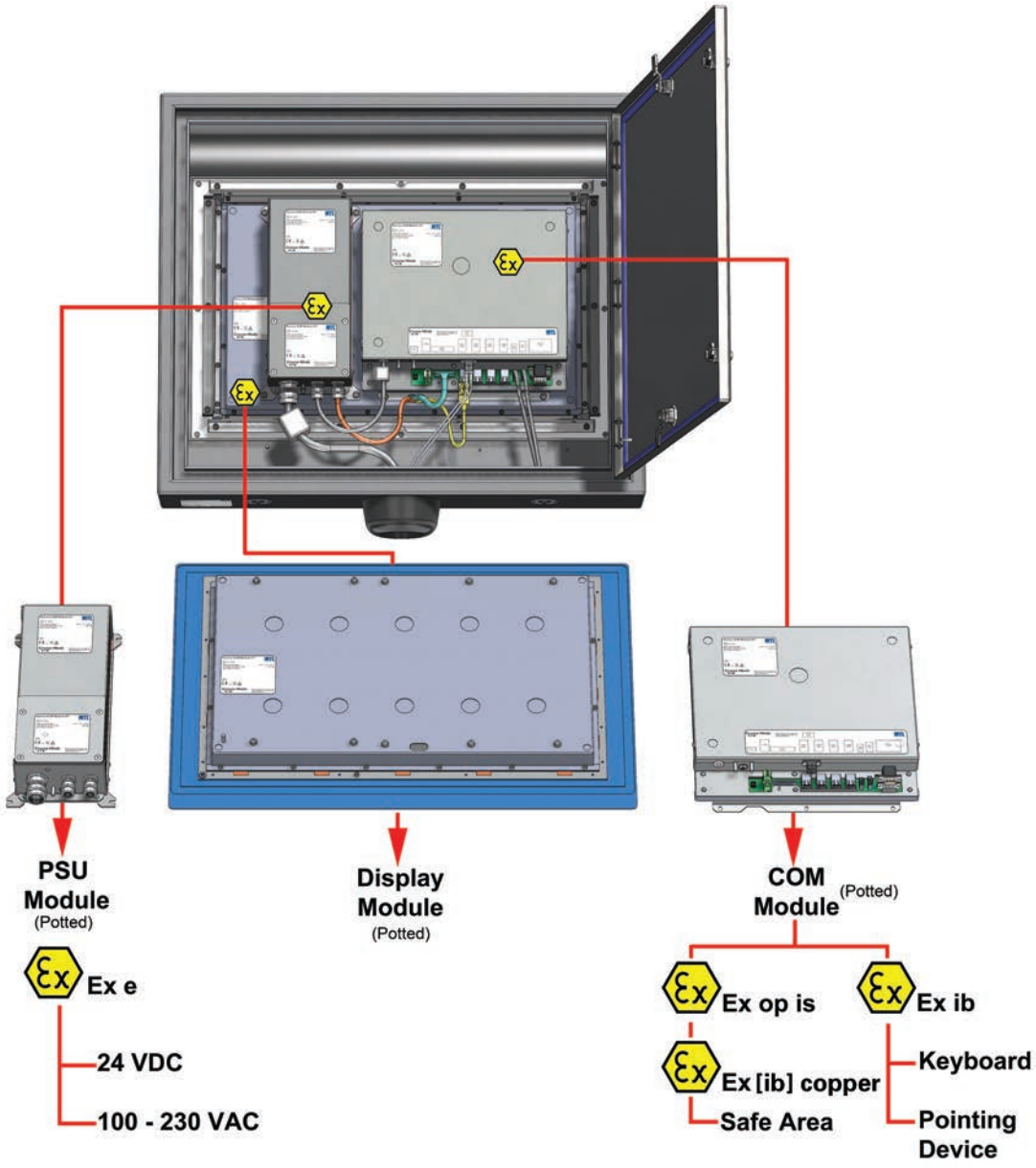
The video, USB and serial data from the local PC are combined within the safe area unit before being sent via an intrinsically safe connection to the remote display.



Although a special graphics card is not required, we recommend that you use a GFX card that is capable of displaying the native resolution of the hazardous area display module.

The specially designed electronics in the safe area unit and MTL GECMA RT allow for data transmission paths of up to 10.000 metres fibre or 100m copper.

The following diagram shows the internal modules of the housing that is located in the hazardous area and illustrates the Ex safety features of the MTL GECMA RT system showing the interconnections and other protective measures.



3.2 Overview of the MTL GECMA RT variants

Device Type:	Model:
MTL GECMA 19	19'' built-in LED-backlight display
MTL GECMA 22	22'' built-in LED-backlight display (Full HD)
MTL GECMA 24	24'' built-in LED-backlight display
MTL GECMA Keyboard KBi	Built-in keyboard
Challenger Mi-PS2	Built-in industrial mouse module
Trackball GECMA TBi	Built-in trackball module
Gecma Workstation Touchpad TPi	Built-in touch pad module
MTL GECMA Joystick Ji	Built-in joystick module
MTL GECMA 19/22/24-FH	Housing for 19/22/24" display
MTL GECMA 19/22/24-FHP	Console housing for 19/22/24" display
MTL GECMA SAFE AREA UNIT FIBRE MULTIMODE - RACK	19" rack for transmission unit (1 to 4)
MTL GECMA SAFE AREA UNIT SINGLEMODE - RACK	
MTL GECMA RT SAFE AREA UNIT COPPER - RACK	
MTL GECMA SAFE AREA UNIT FIBRE MULTIMODE - DESKTOP	Desktop transmission unit
MTL GECMA SAFE AREA UNIT SINGLEMODE - DESKTOP	
MTL GECMA RT SAFE AREA UNIT COPPER - DESKTOP	
MTL GECMA WS DISPLAY MODULE 19	Internal DISPLAY module for MTL GECMA RT 19
MTL GECMA WS DISPLAY MODULE 22	Internal DISPLAY module for MTL GECMA RT 22
MTL GECMA WS DISPLAY MODULE 24	Internal DISPLAY module for MTL GECMA RT 24
MTL GECMA RT COM MODULE FIBRE MULTIMODE	Internal COM module for MTL GECMA RT 19/22/24
MTL GECMA RT COM MODULE SINGLEMODE	
MTL GECMA RT COM MODULE COPPER	
MTL GECMA WS PSU MODULE AC	Internal AC power supply for MTL GECMA RT 19/22/24
MTL GECMA WS PSU MODULE DC	Internal DC power supply for MTL GECMA RT 19/22/24

3.3 Areas of application

The MTL GECMA RT 19, 22 or 24 can be used wherever operation or visualisation is required indoors or outdoors.

MTL GECMA RT 19:

Software running on any IBM-compatible PC with a resolution of 1280 x 1024 pixels (True Colour 32-bit) can be used.

MTL GECMA RT 22:

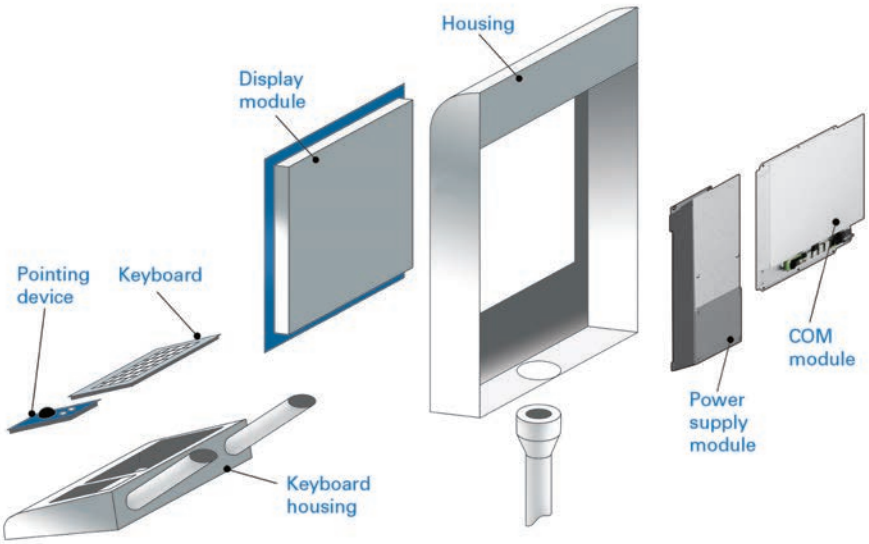
Software running on any IBM-compatible PC with a full HD resolution of 1920 x 1080 pixels (True Colour 32-bit) can be used.

MTL GECMA RT 24:

Software running on any IBM-compatible PC with a high resolution of 1920 x 1200 pixels (True Colour 32-bit) can be used.

3.4 MTL GECMA RT components in detail

The MTL GECMA RT has a modular design with the individual components shown in figure below:



Appendix A includes a system diagram showing the interconnection of the individual modules.

3.5 Dimensions

For system dimensions refer to Appendix F, G and H.

4 MECHANICAL & ELECTRICAL INSTALLATION

4.1 Mechanical

WARNING!

The responsibility for planning, installation, commissioning, operation and maintenance, particularly with respect to applications in explosion hazard areas, lies with the plant operator.

WARNING!

Ensure that you have read and understood all of the safety provisions within section 2.6 prior to commencing installation, in particular the instructions for safe use.

Refer to section 15- Appendices for further detailed installation instructions.

4.2 Electrical

Refer to Section 10- MTL GECMA WS power supply unit and Appendix E- Earthing.

5 MTL GECMA RT 19 / 22 / 24 WS DISPLAY MODULE

IMPORTANT

Do not install the terminal where the display screen will be subjected to direct sunlight. Regular exposure to ultra-violet (UV) rays will reduce the lifetime of the TFT display panel. Speak to your MTL GECMA representative if you need further guidance on this matter.

The display units are available in the following dimensions: 19, 22 and 24 inches.

Please refer to Appendix F, G and H for the mechanical layout of MTL GECMA RT range.

5.1 Technical data:

Designation	MTL GECMA 19	MTL GECMA 22	MTL GECMA 24
Screen Size	19"	21.5"	24"
Display Type	TFT with 16 million colours		
Resolution	1280 x 1024 (5 : 4)- lower resolutions are interpolated	1920 x 1080 (16 : 9)- lower resolutions are interpolated	1920 x 1200 (16 : 10) - lower resolutions are interpolated
Protection	IP20 as a standalone module IP66 from the front when mounted in housing		
Front Panel	Anodised aluminium		
Dimensions mm (WxHxD)	610 x 628 x 130	710 x 600 x 130	760 x 648 x 130
Weight	12 kg	16 kg	20 kg
Power Supply	100-230Vac +/-10% / 18-36VDC via internal PSU		
Power Input	70W (average) 100W (maximum)		
Certified Ambient Temperature	-30°C <= Ta <= +60°C (-20°C <= Ta <= +60°C if Trackball fitted)		
Operating Ambient Temperature	-10°C <= Ta <= +50°C		

6 TOUCH-SCREEN SOFTWARE INSTALLATION PROCEDURE

If a touch-screen option has been chosen, then in order to use the touch-screen facility on the display it is necessary to install a USB driver on the PC.

The driver release version approved by GECMA Engineering is

eGalaxTouch_5.12.0.12204-Release131204.

(Newer versions of the driver are available from the manufacturer's homepage but they are not yet approved by GECMA Engineering.)

This Driver is suitable for both 32-bit and 64-bit Windows Operating Systems and the operating system we recommend is Windows 7.

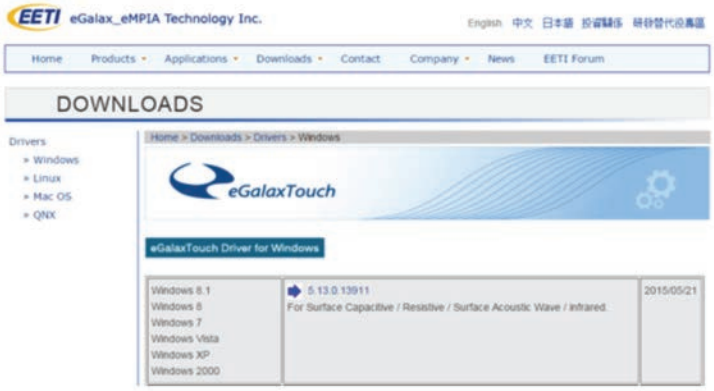
The driver is obtainable from two web sites

Recommended download Homepage: **www.eaton.com/gecma**

Official manufacturers Homepage: **http://www.eeti.com/drivers_Win.html**

View of **www.eaton.com/gecma** download area

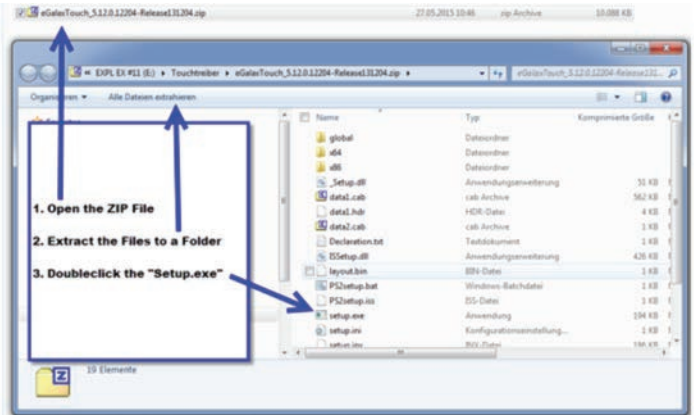
View of **www.eeti.com** download area



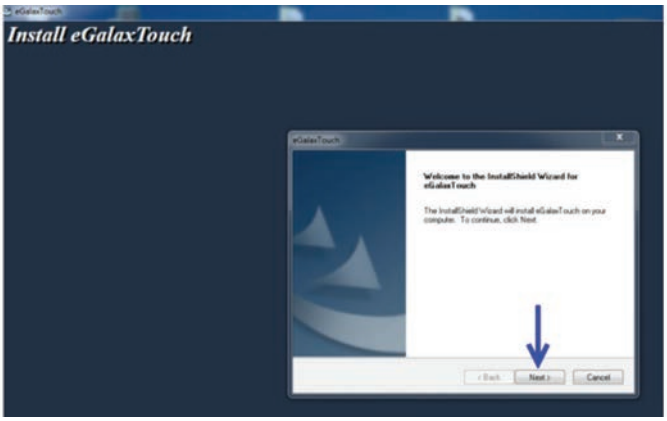
NOTE
The "Touch Controller" USB connection from the display can be plugged into the COMs unit before the Driver is installed.

NOTE
The person installing the driver will require "Administrator" rights. Check with your local IT Support before attempting to install.

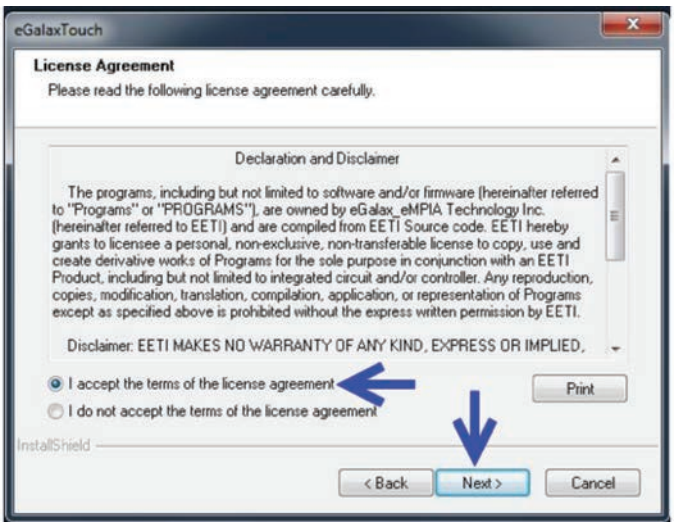
Download the driver and extract the files from the ZIP archive.



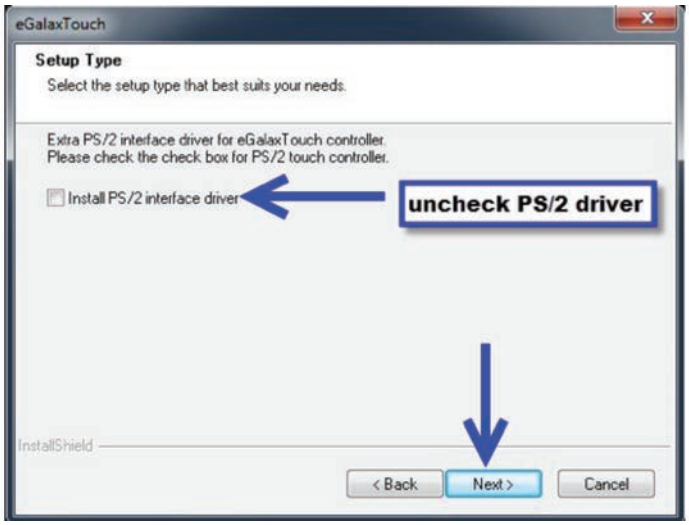
Start the Setup Process with the **"Setup.exe"** application.
In the Installation Window proceed with the **"Next"** Button



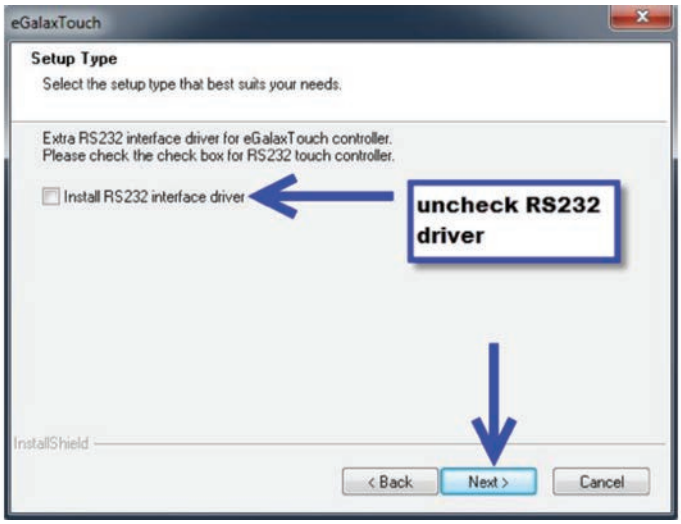
Accept terms and conditions and click **"Next"** again.



Uncheck the **"Install PS/2 interface driver"** option and proceed with **"Next"**.

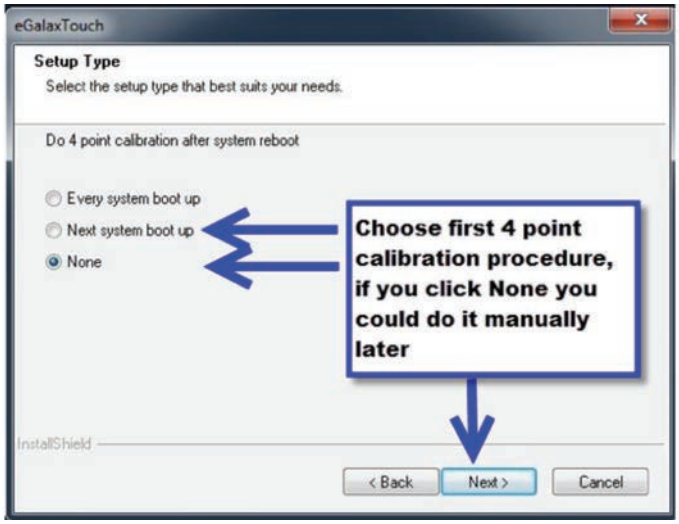


Uncheck the "Install RS232 driver" option and proceed with **"Next"**.

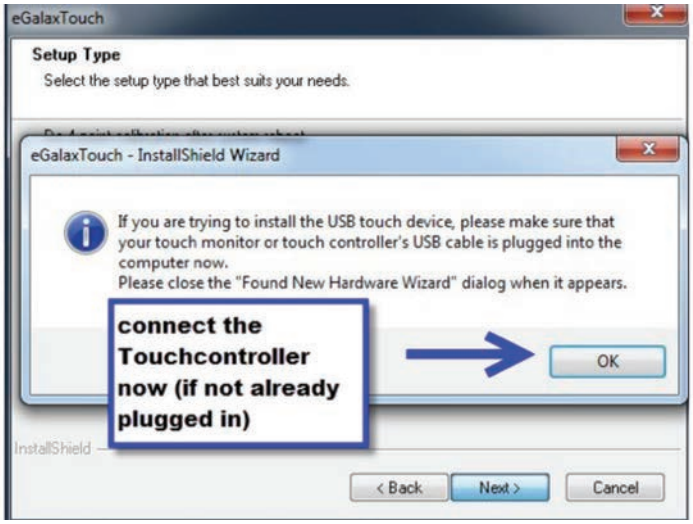


For the Setup Type, choose the **"None"** option for the 4 point calibration.

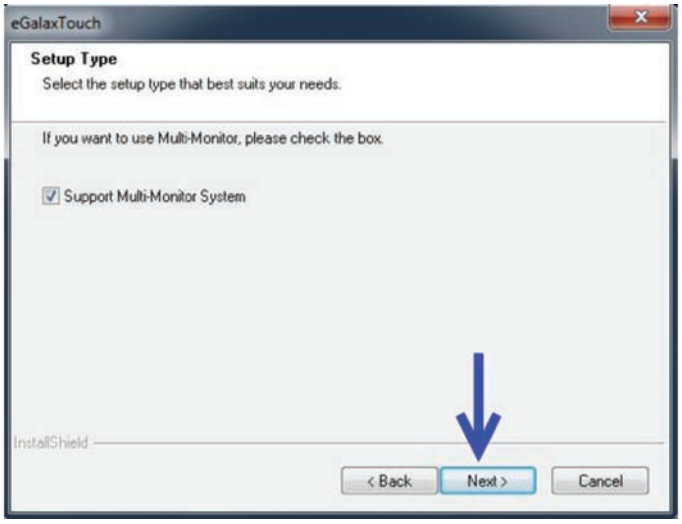
NOTE
The Controller is factory calibrated and the data is stored on it. When the driver is installed, the controller is able to use the calibration settings. A new calibration is therefore not normally required.



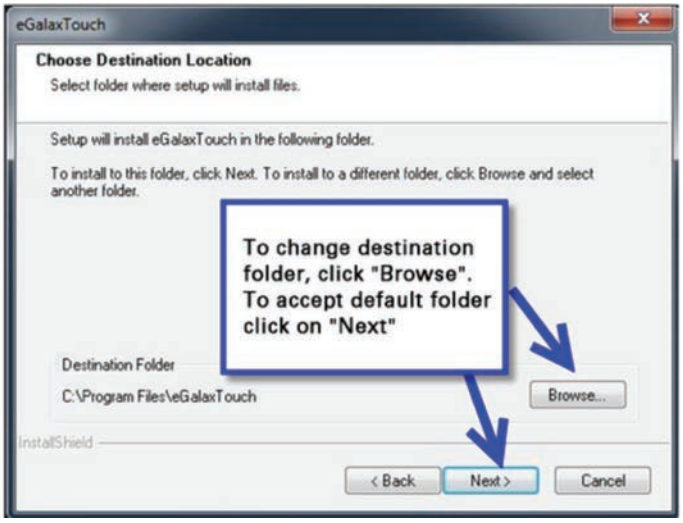
The **“touch controller“** USB connection from the display must now be plugged into the COMs unit (if not already plugged in) then click **“OK”**.



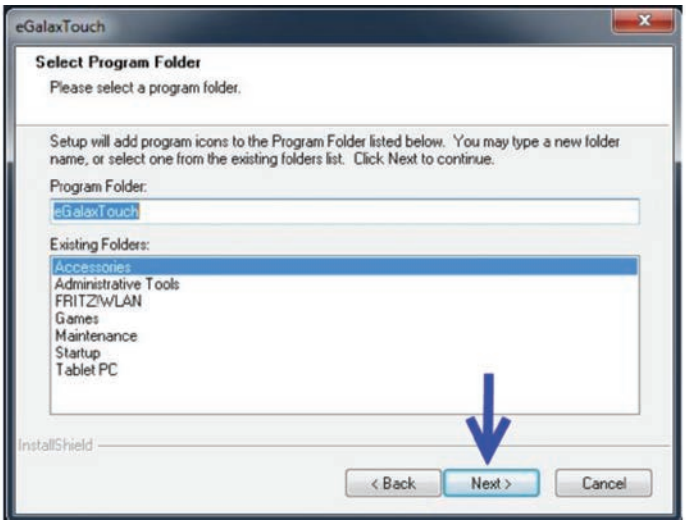
If you require a **“Multi-Monitor”** system then do not change the default setting, just click the **“Next”** Button, otherwise uncheck the checkbox.



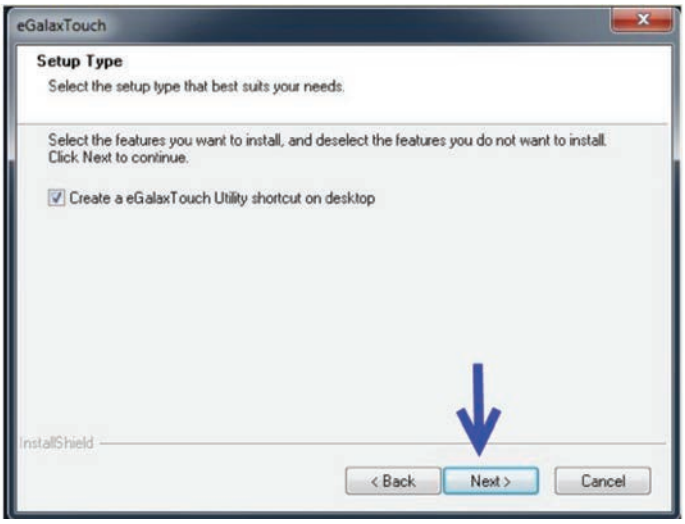
Next you can specify the installation folder, or accept the default location.



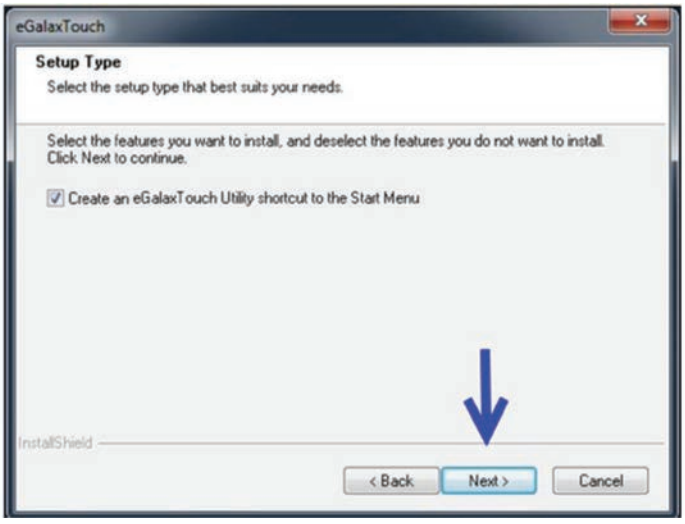
Specify the Program Folder name and click **"Next"**



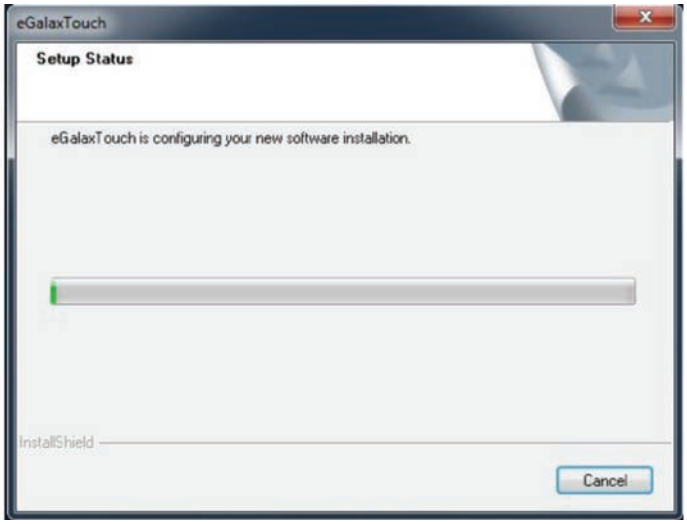
Uncheck the Shortcut checkbox if you don't want to have a Desktop Shortcut.

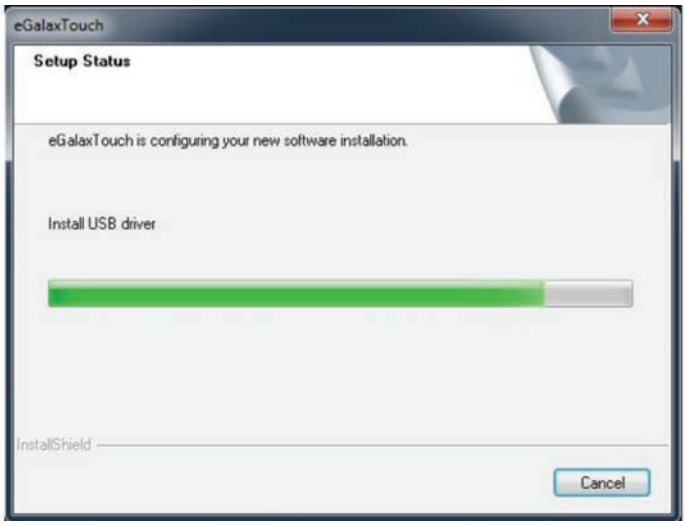


If you want a Start Menu shortcut to the Galaxy Driver accept the default and click on **"Next"**.

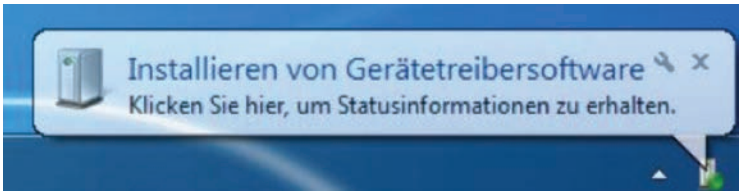


The installation starts now, please wait till it is finished.





Windows should now display that the new device has been recognized.

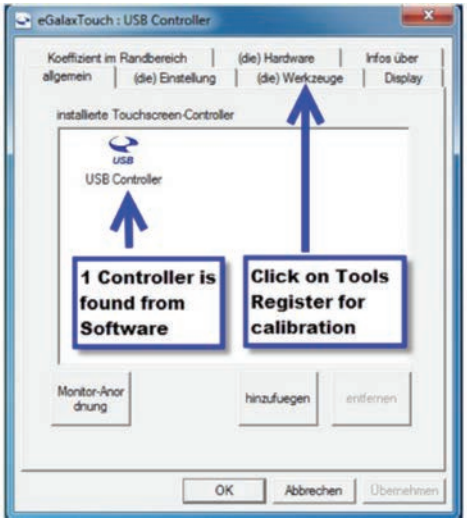


Normally the Touchscreen should now work as expected and you can finish here. But if you think a new calibration is needed or you want to test some functions go on with the next steps.

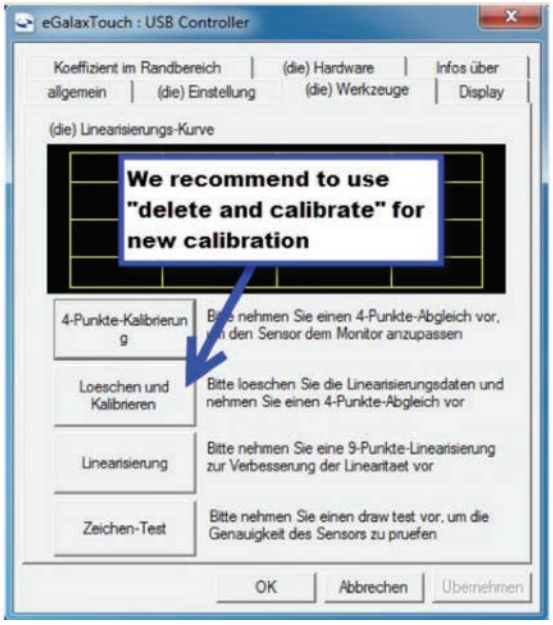
Calibration

Open the eGalaxTouch program. If this option is selected, a shortcut icon will appear on your desktop.

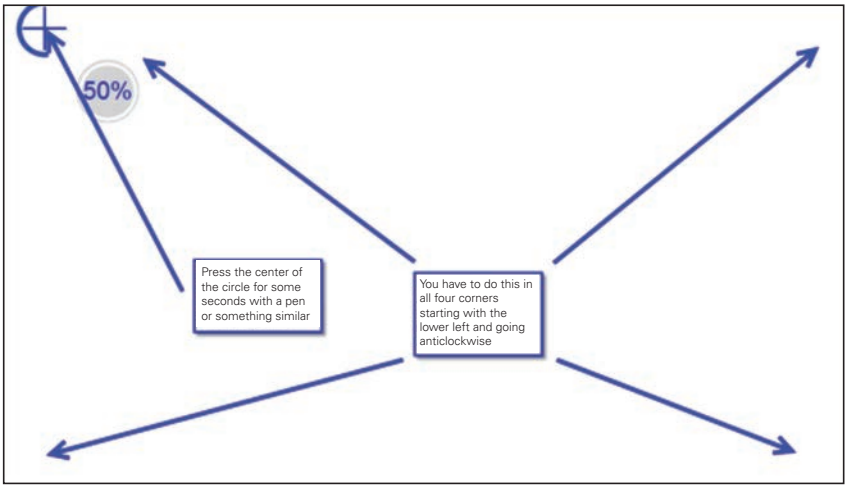
When the program opens it shows the connected controllers. In the Tools Register you can start a new calibration.



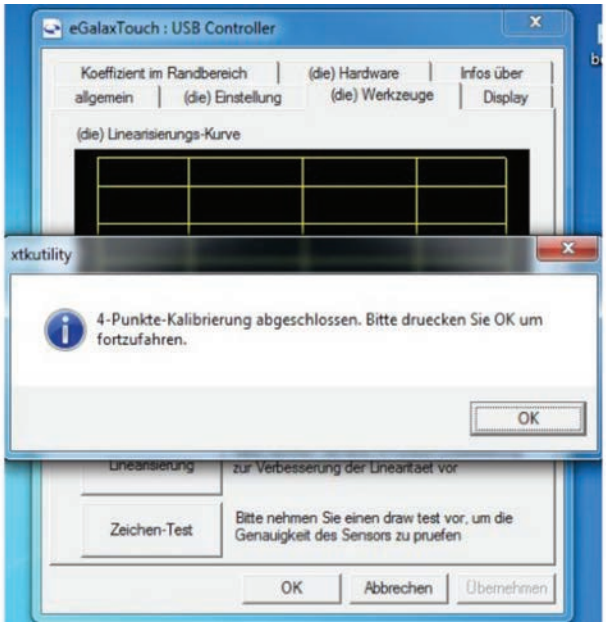
In the Tools Register tab please click on **“Delete and Calibrate”**



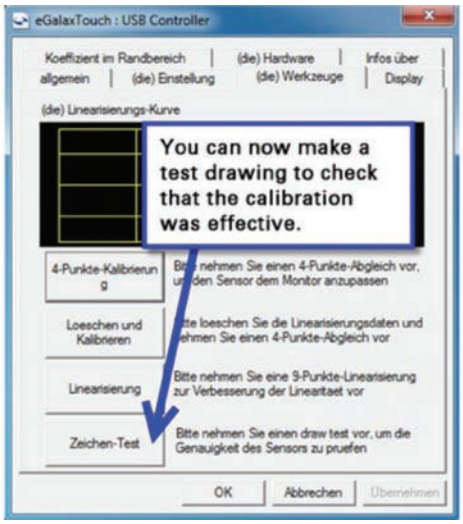
A new Window appears where you have to press the centre of the circles for some seconds with a pen or something similar.



Afterwards, you should see a window for the positive calibration result.



You can make a test drawing to check how precise the calibration was.



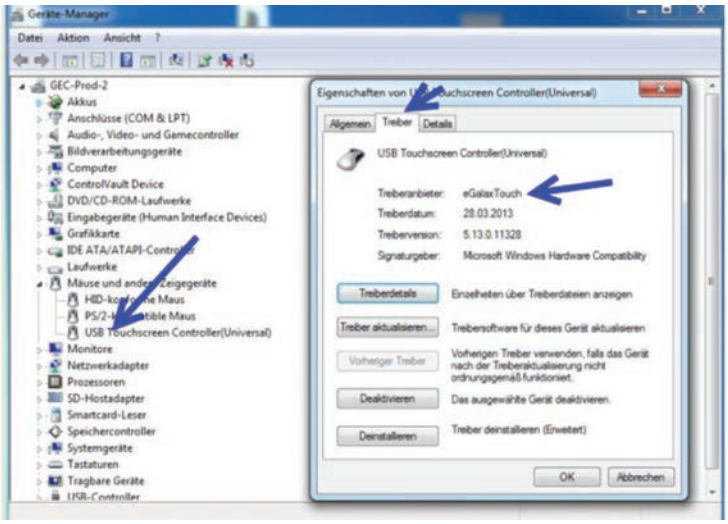
If calibration was effective you should see what you have written on the screen. It is important to check that all the corners of the screen have been reached during the calibration process.

Check also that the controller is using the correct driver (it should use the eGalaxTouch driver and not Windows Universal driver).

Go to the **"Device Manager"** screen in your **"System"** settings.

Right-click the item under the **"Mouse and other Pointing Devices"** heading and choose **"Properties"**.

The Driver tab should show the provider as **"eGalaxTouch"**.



7 MTL GECMA KEYBOARD KBi

The MTL GECMA Keyboard KBi is a 105-key keyboard which essentially corresponds to the standard Windows keyboard.

7.1 Technical data

Designation	MTL GECMA Keyboard KBi
Keys	105, film-protected short-travel keys
Standard Layout	German, English, French
Film Material	Technoplast – resistant to most solvents
Operating Ambient Temperature (10 to 90% RH, non-condensing)	-10°C <= Ta <= +50°C
Protection	IP20 as a standalone module IP66 from the front when mounted in housing

	CERTIFICATION DETAILS
International ignition protection:	II 2 G Ex ia IIC T4 Gb
Certified temperature range:	Ta: -40°C ... +70°C
Certificate:	BVS 05 ATEX E 174 X IECEx BVS 05.0012

The MTL Gecma Keyboard is separately certified IS equipment manufactured by:

Cooper Crouse-Hinds GmbH
Neuer Weg-Nord 49
69412 Eberbach, Germany.

8 MTL GECMA POINTING DEVICES

8.1 Challenger Mi-PS2

The Challenger Mi-PS2 is a Microsoft-compatible industrial mouse module and is often used in conjunction with the MTL GECMA Keyboard KBi.

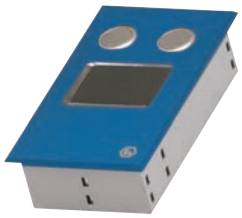
The 4-stage pressure-sensitive mouse allows precise control of the speed and direction of the cursor.

8.2 Trackball GECMA TBi

The Trackball GECMA TBi is a Microsoft-compatible industrial trackball and is often used in conjunction with the MTL GECMA Keyboard KBi. The 55 mm trackball allows high-precise control of the cursor.

8.3 GECMA Workstation Touchpad TPi

The GECMA Workstation Touchpad TPi is a Microsoft-compatible touchpad and is often used in conjunction with the MTL GECMA Keyboard KBi. The design allows for fast cursor control.



8.4 MTL GECMA Joystick Ji

The MTL GECMA Joystick Ji is a Microsoft-compatible industrial joystick and is often used in conjunction with the MTL GECMA Keyboard KBi. The design allows for precise cursor control.

The pointing devices are separately certified IS equipment manufactured by:

Cooper Crouse-Hinds GmbH
Neuer Weg-Nord 49
69412 Eberbach, Germany.

8.5 Technical data

Designation	Challenger Mi-PS2	Trackball Gecma TBi	Gecma Workstation Touchpad TPi	MTL GECMA Joystick Ji
Description	Industrial mouse with FSR technology	55 mm trackball	Industrial touchpad with resistive touch film	Industrial joystick
Pushbuttons	2			
Front panel	Anodised aluminium			
Operating Ambient Temperature (10 to 90% RH, non-condensing)	-10°C <=Ta <= +50°C			
Protection	IP20 as a standalone module IP66 from the front when mounted in housing (IP65 for Trackball)			

8.5.1 Challenger Mi-PS2 (Certification overview)

	CERTIFICATION DETAILS
Ignition protection:	II 1 G EEx ia IICT4 II 2 G EEx ia IICT4 Ex ia IICT4
Certified operating temperature	ATEX Zone 0 Ta: -20°C ... +60°C ATEX Zone 1 Ta: -30°C ... +70°C IECEx Ta: -30°C ... +70°C
Certificates:	BVS 05 ATEX E 175 X IECEx BVS 05.0013

8.5.2 Trackball Gecma TBi (Certification overview)

	CERTIFICATION DETAILS
International ignition protection:	II 2 G Ex ib IICT4 Gb Ex ib IICT4 Gb Ex ia IICT4 Gb
Certified operating temperature:	Ta: -20°C ... +60°C
Certificates:	BVS 05 ATEX E 048 IECEx BVS 05.0004

8.5.3 Gecma Workstation Touchpad TPi (Certification overview)

	CERTIFICATION DETAILS
International ignition protection:	II 1 G Ex ia IIBT4 Ga II 2 G Ex ia IICT4 Gb Ex ia IIBT4 Ga Ex ia IICT4 Gb
Certified operating temperature:	Ta: -40°C ... +70°C
Certificates:	TÜV 04 ATEX 2458 IECEx TUN 04.0020

8.5.4 MTL GECMA Joystick Ji (Certification overview)

	CERTIFICATION DETAILS
International ignition protection:	II 1 G Ex ia IIBT4 Ga II 2 G Ex ia IICT4 Gb Ex ia IIBT4 Ga Ex ia IICT4 Gb
Certified operating temperature:	Ga Ta: -20°C ... +60°C Gb Ta: -40°C ... +70°C
Certification:	TUV 04 ATEX 2459 IECEx TUN 04.0019

9 SYSTEM SET-UP

The following table itemises the weights of individual modules and components to allow a user to assess the weight of an assembled system, either in pedestal housing format (FH) or console mounting (FHP).

MTL GECMA RT Work Station	19"	22"	24"
Electronics			
WS Display Module	12,0kg	16,0kg	20,0kg
RT Com Module	5,3kg		
Power Supply AC Module	3,5kg		
Power Supply DC Module	3,0kg		
Keyboard	1,9kg		
Keyboard-Mouse-Unit	2,0kg		
Trackball	0,5kg		
Joystick	0,5kg		
Mouse	0,5kg		
Touchpad	0,5kg		

Housing			
Display Housing	16,0kg	16,5kg	18,0kg
Keyboard Housing (with struts)	6,1kg		
Coupling	2,1kg		
Pedestal			
Pedestal	7,3kg		
Elbow	5,2kg		

Safe Area Unit	
Safe Area Unit Desktop	1,6kg
Safe Area Rack Unit 1 Terminal	4,1kg
Safe Area Rack Unit 2 Terminal	4,4kg
Safe Area Rack Unit 3 Terminal	4,7kg
Safe Area Rack Unit 4 Terminal	5,0kg

Maximum System Weight			
FHP Version	**19"**	**22"**	**24"**
Electronics	23,3kg	27,3kg	31,3kg
Housing	24,2kg	24,7kg	26,2kg
Pedestal	7,3kg	7,3kg	7,3kg
Total	**54,8kg**	**59,3kg**	**64,8kg**

FH Version	**19"**	**22"**	**24"**
Electronics	20,8kg	24,8kg	28,8kg
Housing	18,1kg	18,6kg	20,1kg
Pedestal	7,3kg	7,3kg	7,3kg
Total	**46,2kg**	**50,7kg**	**56,2kg**

9.1 General information

IMPORTANT
Do not install the terminal where the display screen will be subjected to direct sunlight. Regular exposure to ultra-violet (UV) rays will reduce the lifetime of the TFT display panel. Speak to your MTL GECMA representative if you need further guidance on this matter.

	WARNING!
	The 'Safety guidelines and provisions' and 'Installation and Connection Instructions' must be studied and strictly adhered to in order to ensure safe and reliable operation.

	WARNING!
	The installation may only be carried out by trained specialists who have the appropriate training certification. These personnel must be able to demonstrate familiarity with the specific nature of potentially explosive atmospheres.

	WARNING!
	Safe Area Units are not suitable for mounting in hazardous areas.

	WARNING!
	When installing the safe area unit – rack option, adequate space must be ensured for ventilation.

	WARNING!
	All earthing connections must be connected or wired prior to commissioning. The connection points are labelled with the symbol shown here on the right. 

	WARNING!
	When the MTL GECMA RT Safe Area Unit Desktop or Rack Copper version is connected to the MTL GECMA RT Com Module, the two devices at each end of the Ethernet cable shall be connected to the same equipotential earth. 

IMPORTANT
This work station will be supplied with a number of M20x1.5 and M25x1.5 cable glands. These glands are certified Ex eb for use in Zone 1 installations. The manufacturer's instructions for these glands have been supplied with this manual and must be followed when installing the cable glands.

9.2 Assembly of the MTL GECMA housing

The MTL GECMA housing is assembled as follows, please refer to the relevant Appendix within this document for further assistance.

1. Various mounting options are available. Floor mounted (bottom housing connection), wall mounted (elbow, top/bottom housing connection) or ceiling mounted (top/bottom housing connection). This work should be performed only by qualified personnel.
2. An assembly coupling is mounted on the pedestal/elbow- see Appendix B.

3. The power and data cables are fed through the pedestal – see Appendix C.
4. The MTL GECMA housing is screwed to the assembly coupling or the mounting plate- see Appendix B.
5. All remaining earth connections are made.

9.3 MTL GECMA RT Safe Area Unit - copper version

The function of the safe area unit is to combine and transfer intrinsically safe data through cables to the MTL GECMA RT terminal in the hazardous area.

	WARNING!
⚠	When the MTL GECMA RT Safe Area Unit Desktop Copper version is connected to the MTL GECMA RT Com Module, the two devices at each end of the Ethernet cable will be connected to the same equipotential earth.

	WARNING!
⚠	The Safe Area Unit must have a high integrity earth with 4mm² cross section minimum.

Two versions of the safe area unit- copper are available:

- Safe Area Unit- Copper / Desktop
- Safe Area Unit- Copper / Rack (1 – 4 channels)

9.4 MTL GECMA RT Safe Area Unit - desktop copper version

The desktop safe area unit, as a single device, connects the controlling PC to the MTL GECMA RT.

The MTL GECMA RT connection can be easily plugged into the safe area unit. This is done via the "I.S. Copper" connection.

The connections on the front are as follows:

RS232 IN: for user devices with serial interfaces

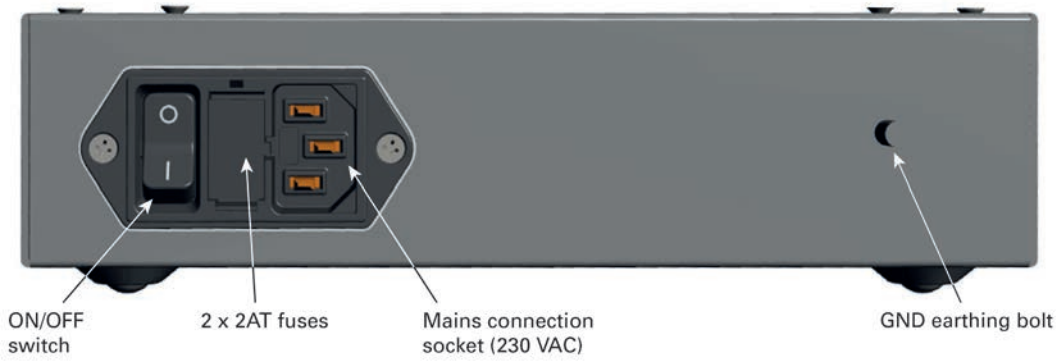
DVI / VGA IN: for the video signal feed. DVI-D with optional VGA

DVI / OUT for the video signal transmission e.g. to a local display or another safe area unit (cascading the signal). DVI-D

USB IN USB port for connecting peripherals in the field, e.g. keyboard, trackball etc., to the local PC unit.

I.S. Copper data connection to the MTL GECMA RT remote terminal. Keyboard, video & mouse (KVM) data, along with USB & serial data is transmitted via the copper cable to/from the remote terminal allowing the user to interact with the safe-area mounted PC.

The connections on the back are as follows:



Power is supplied via the mains connection socket on the back.

An IEC connector cable with 3 x 1.0mm conductors should be used for the AC supply.

The fuses are also recessed next to the ON/OFF switch.

9.5 MTL GECMA RT Safe Area Unit - rack copper version

The safe area unit is also available in a rack-mount version. This allows up to four remote MTL GECMA RT terminals to be connected to between 1 (cascade) and 4 (point-to-point/direct) PCs located in the safe area. The connections for the fully built rack version are shown in the following figure.

For the sake of clarity, the possible connections are described in only one of the four units. The other three are absolutely identical.

RS232 IN: for user devices with serial interfaces

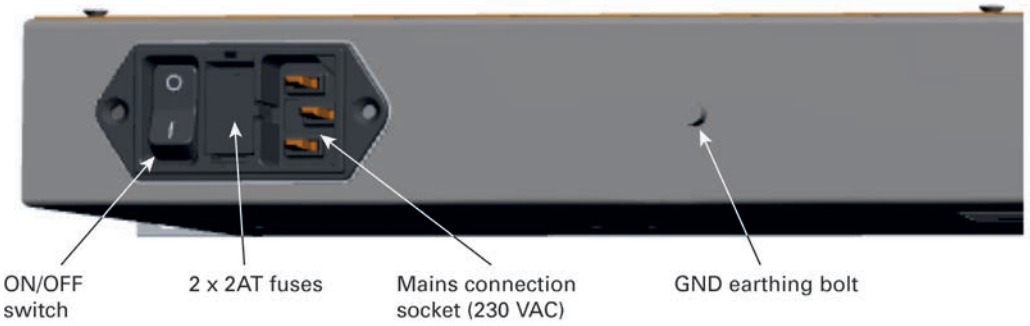
DVI / VGA IN: for the video signal feed. DVI-D with optional VGA

DVI / OUT for the video signal transmission e.g. to a local display or another safe area unit (cascading the signal). DVI-D

USB IN USB port for connecting peripherals in the field, e.g. keyboard, trackball etc., to the local PC unit.

I.S. Copper connection to the MTL GECMA RT remote terminal. Keyboard, video & mouse (KVM) data, along with USB & serial data is transmitted via the copper cable to/from the remote terminal allowing the user to interact with the safe-area mounted PC.

The connections on the back are as follows:



Power is supplied via the mains connection socket on the back.

An IEC connector cable with 3 x 1.0mm conductors should be used for the AC supply.

The fuses are also recessed next to the ON/OFF switch.

	WARNING!
	All earthing connections for the MTL GECMA RT Safe Area Unit Desktop Copper and Rack Mount Copper version must be connected or wired prior to commissioning. The connection points are labelled with the symbol shown here on the right.

	WARNING!
	When the MTL GECMA RT Safe Area Unit Desktop Copper and Rack Mount Copper version is connected to the MTL GECMA RT Com Module, the two devices at each end of the Ethernet cable shall be connected to the same equipotential earth.

	WARNING!
	The Safe Area Unit must have a high integrity earth with 4mm² cross section minimum.

9.6 Technical data - MTL Gecma Safe Area Unit - copper versions

Designation	MTL GECMA Safe Area Unit Desktop Copper	MTL GECMA Safe Area Unit Rack Copper
Housing	Desktop housing	19" plug in, 1HE (U)
Power Supply	100 - 240 V AC	100 - 240 V AC
Power Input	6 W	25 W (with 4 outputs)
Connections	DVI/VGA IN, DVI OUT, RS232 IN, USB IN, I.S. Copper	4x (DVI/VGA IN, DVI OUT, RS232 IN, USB IN, I.S. Copper)
Fuses	2 x 2 AT	
Dimensions mm (WxH xD)	203 x 52 x191	430 x 44 x 220 Total: 483 x 44 x 264
Weight	1.6 kg	5.0 kg
Operating Ambient Temperature (10 to 90% RH, non-condensing)	0°C <= Ta <= +40°C	

Refer to section 2.3 for details of hazardous area certification.

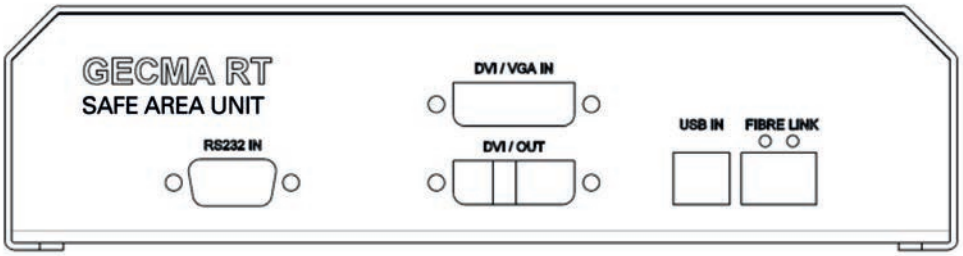
9.7 MTL GECMA RT safe area unit - fibre versions

The function of the safe area unit is to combine and transfer intrinsically safe data through cables to the MTL GECMA RT terminal in the hazardous area.

	WARNING!
	Warning of injury to eyes: The SFP Transceiver in the 'Fibre link socket' operates with a CLASS 1 laser. However, avoid direct and prolonged contact with the eyes.

Two versions of the safe area unit are available:

- Safe Area Unit / Desktop
- Safe Area Unit / Rack (1 – 4 channels)



9.8 Safe area unit / desktop

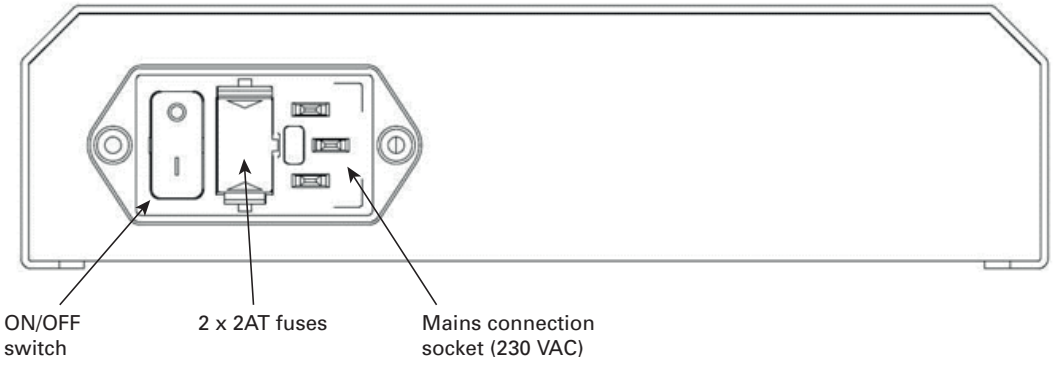
The desktop safe area unit, as a single device, connects the controlling PC to the MTL GECMA RT.

The MTL GECMA RT connections can be easily plugged into the safe area unit. This is done via the "FIBRE LINK" connection.

The connections on the front are as follows:

RS232 IN:	for user devices with serial interfaces
DVI / VGA IN:	for the video signal feed. DVI-D with optional VGA
DVI / OUT	for the video signal transmission e.g. to a local display or another safe area unit (cascading the signal). DVI-D
USB IN	USB port for connecting peripherals in the field, e.g. keyboard, trackball etc., to the local PC unit.
FIBRE LINK	Fibre-optic connection to the MTL GECMA RT remote terminal. Keyboard, video & mouse (KVM) data, along with USB & serial data is transmitted via the fibre-optic cable to/from the remote terminal allowing the user to interact with the safe-area mounted PC.

The connections on the back are as follows:



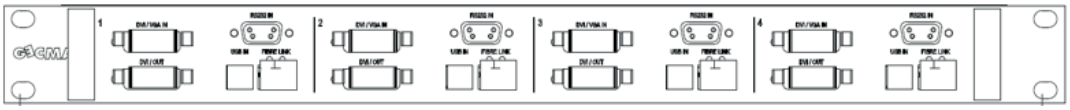
Power is supplied via the mains connection socket on the back.

An IEC connector cable with 3 x 1.0mm conductors should be used for the AC supply.

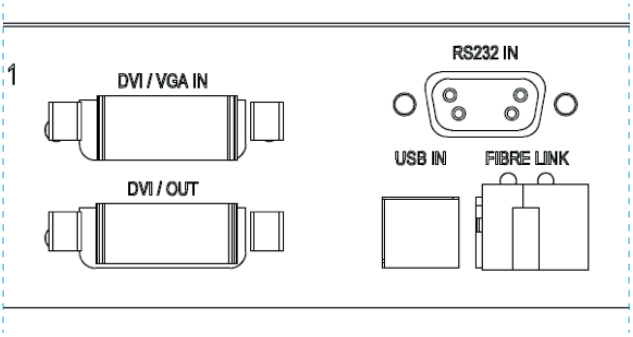
The fuses are also recessed next to the ON/OFF switch.

9.9 Safe area unit / rack

The safe area unit is also available in a rack-mount version. This allows up to four remote MTL GECMA RT terminals to be connected to between 1 (cascade) and 4 (point-to-point/direct) PCs located in the safe area.The connections for the fully built rack version are shown in the following figure.



For the sake of clarity, the possible connections are described in only one of the four units. The other three are absolutely identical.



RS232 IN: for user devices with serial interfaces

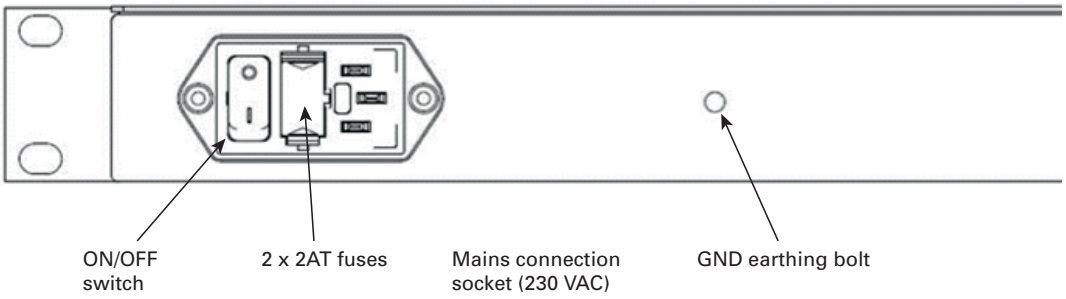
DVI / VGA IN: for the video signal feed. DVI-D with optional VGA

DVI / OUT for the video signal transmission e.g. to a local display or another safe area unit (cascading the signal). DVI-D

USB IN USB port for connecting peripherals in the field, e.g. keyboard, trackball etc., to the local PC unit..

FIBRE LINK Fibre-optic connection to the MTL GECMA RT remote terminal. Keyboard, video & mouse (KVM) data, along with USB & serial data is transmitted via the fibre-optic cable to/from the remote terminal allowing the user to interact with the safe-area mounted PC.

The connections on the back are as follows:



Power is supplied via the mains connection socket on the back.

An IEC connector cable with 3 x 1.0mm conductors should be used for the AC supply.

The fuses **are** also recessed next to the ON/OFF switch.

	WARNING!
	All earthing connections must be connected or wired prior to commissioning. The connection points are labelled with the symbol shown here on the right. 

9.10 Technical data

Designation	MTL GECMA Safe Area Unit / Desktop / Fibre	MTL GECMA Safe Area Unit / Rack / Fibre
Housing	Desktop housing	19" plug in, 1HE (U)
Power Supply	100- 240 V AC	
Power Input	6 W	25 W (with 4 outputs)
Connections	DVI/VGA IN, DVI OUT, RS232 IN, USB IN, FIBRE LINK	4 x (DVI/VGA IN, DVI OUT, RS232 IN, USB IN, FIBRE LINK)
Fuses	2 x 2 AT	
Dimensions mm (WxH xD)	203 x 52 x191	430 x 44 x 220 Total: 483 x 44 x 264
Weight	1.6 kg	5.0 kg
Operating Ambient Temperature (10 to 90% RH, non-condensing)	0 °C <= Ta <= +40 °C	

Refer to section 2.3 for details of hazardous area certification.

10 GECMA WS PSU, POWER SUPPLY MODULE AC (ALTERNATING CURRENT)

Important information concerning connection

	**WARNING!**
	The installation may only be carried out by individuals who have the appropriate training. These personnel must be able to demonstrate familiarity with the specific nature of operationally reliable systems.

	**WARNING!**
	The equipment should be installed as per local codes and practices. It is recommended that a disconnecting switch which complies with the requirements of IEC 60947-1 & IEC 60947-3 is installed within easy reach of the operator. This switch must be marked to clearly show its function. European regulations recommend that fuses are fitted in both the live and neutral of the mains supply to the instrument.

IMPORTANT:
The switch located beside the equipment MUST be fused as directed on the following pages for the AC or DC power supply input.

10.1 Connecting the AC power cable for MTL GECMA RT via the built-in power supply

The modules inside the MTL GECMA RT housings are pre-wired and interconnected at the factory. During installation on site, only the incoming power, protective ground (earthing) and data connections are required.

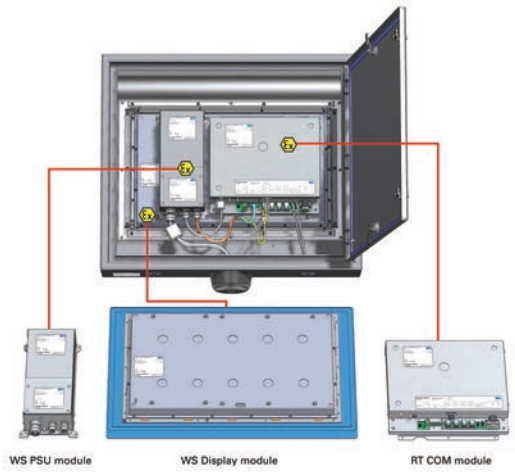
10.2 Preparing the AC input connection

The housing door must be opened to allow connection of the power supply. This can be achieved by rotating the four latches on the rear of the housing using the key provided.

The power cables are fed through the M25 cable gland of the pedestal/elbow and connected directly to the power supply.

The size of wires in the power cable must meet a cross-sectional area between 1.5mm^2 and 2.5mm^2. Stranded wire rated to a minimum of-30°C to +85°C is recommended.

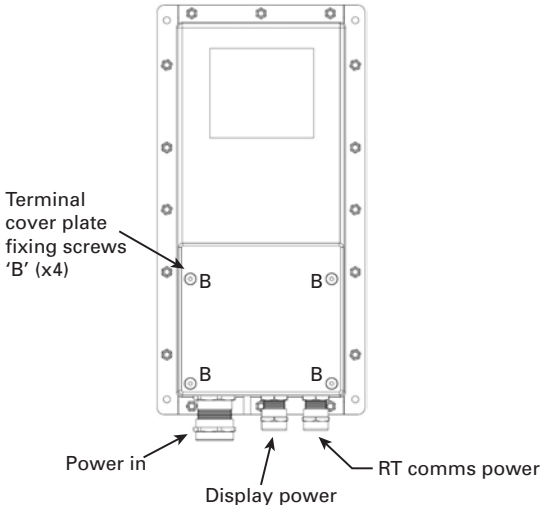
The MTL GECMA RT COM module is mounted to the right and the MTL GECMA WS PSU power supply module is mounted on the left as shown in the following diagram.



Rear view of an enclosure showing the PSU module and other related components

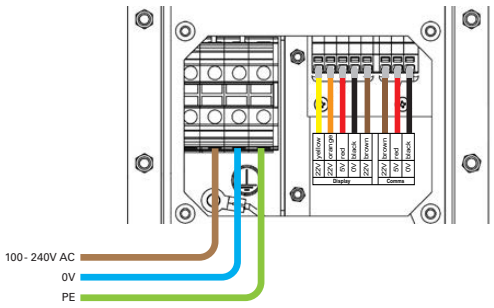
The MTL GECMA WS PSU module mounts on the left-hand side of the display module (when viewed from the rear) as shown above.

A terminal cover plate providing access to the input and output terminals is located at the lower end of the power supply as shown below and is secured with four 2.5mm hex screws. Remove these screws to obtain access to the terminals.



The right terminal block is pre-wired and no modifications are permitted.

The left terminal block connections should be made in accordance with the diagrams shown below. Use of a small flathead screwdriver is required to open the terminals. The cable is fed through the left cable gland (M25) of the power supply and connect the power cable wiring to the screw terminal as indicated below. Screw terminal connector screws should be tightened to a torque setting of 1.5-1.8Nm.



incoming AC power wiring

NOTE
The cable terminal can be unlocked using a suitable screwdriver and the connecting cable can be inserted. After the power connections have been made, the cover should be replaced securely using the four screws provided. The AC power installation is then complete. Please refer to the 'Connecting the data cable' section

A protective-ground cable, with a cross-sectional area of 4mm^2 or greater, must be installed between the metalwork of the RT terminal and a suitable low-impedance, site safety, ground point. Both the standpipe and elbow assemblies are provided with a threaded hole at their base to accept a screw that enables a protective ground wire to be connected. If a custom housing has been specified, that requires no STF or EBF piping, it will be provided with a threaded hole or stud to which the ground wire can be attached.

Ring terminals should be installed at each end of this protective-ground cable to provide a simple and secure method of connection and tightened to a torque setting of 1.5-1.8Nm.

11 GECMA WS PSU, POWER SUPPLY MODULE DC (DIRECT CURRENT)

Important information concerning connection

	**WARNING!**
	The installation may only be carried out by individuals who have the appropriate certification. These personnel must be able to demonstrate familiarity with the specific nature of operationally reliable systems.

	**WARNING!**
	The equipment should be installed as per local codes and practices. It is recommended that a disconnecting switch which complies with the requirements of IEC 60947-1 & IEC 60947-3 is installed within easy reach of the operator. This switch must be marked to clearly show its function. European regulations recommend that fuses are fitted in both the live and neutral of the mains supply to the instrument.

IMPORTANT:
The switch located beside the equipment MUST be fused as directed on the following pages for the AC or DC power supply input.

NOTE
For DC PSU screened power cable must be used with the screen grounded at both the bulk PSU and the MTL GECMA WS PSU.

11.1 Connecting the DC power cable for MTL GECMA RT via the built-in power supply

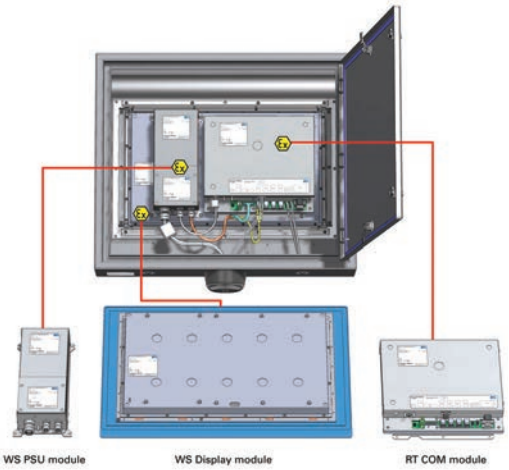
The modules inside the MTL GECMA RT housings are pre-wired and interconnected at the factory. During installation on site, only the incoming power, protective ground (earthing) and data connections are required.

11.2 Preparing the DC input connection

The housing door must be opened to allow connection of the power supply. This can be achieved by rotating the four latches on the rear of the housing using the key provided.

The power cables are fed through the M25 cable gland of the pedestal/elbow and connected directly to the power supply.

The MTL GECMA RT COM module is mounted to the right and the MTL GECMA WS PSU power supply module is mounted on the left as shown in the following diagram.



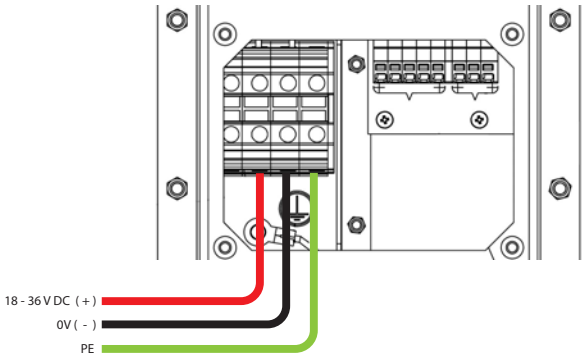
Rear view of an enclosure showing the PSU module and other related components

The power supply cover is secured using four screws. These screws must be removed to allow access for the mains connection. When replacing the power supply cover the four screws should be tightened to a maximum torque setting of 2 nm.

Inside there are two connection terminals.

The right terminal block is pre-wired and no modifications are permitted.

The left terminal block connections should be made in accordance with the diagram shown below. Use of a small flathead screwdriver is required to open the terminals. The cable is fed through the left cable gland (M25) of the power supply and connect the power cable wiring to the screw terminal as indicated below. Screw terminal connector screws should be tightened to a torque setting of 1.5-1.8Nm.



NOTE
The cable terminal can be unlocked using a suitable screwdriver and the connecting cable can be inserted. After the power connections have been made, the cover should be replaced securely using the four screws provided. The DC power installation is then complete. Please refer to the 'Connecting the data cable' section

A protective-ground cable, with a cross-sectional area of 4mm^2 or greater, must be installed between the metalwork of the RT terminal and a suitable low-impedance, site safety, ground point. Both the STF and EBF assemblies are provided with a threaded hole at their base to accept a screw that enables a protective ground wire to be connected. If a custom housing has been specified, that requires no STF or EBF piping, it will be provided with a threaded hole or stud to which the ground wire can be attached.

Ring terminals should be installed at each end of this protective-ground cable to provide a simple and secure method of connection and tightened to a torque setting of 1.5-1.8Nm.

11.3 Dimensions of the auxiliary power cable

The following values relate to a supply voltage of 24 VDC and a current of 3A. The maximum voltage drop along the cable must not exceed 4 VDC. The recommended wire type is stranded and must be rated to minimum of-30°C to +85°C.

Cable length [m]	Cable cross-section [mm²]
< 50	1.5
< 85	2.5
< 140	4.0
< 220	6.0
< 370	10
< 600	16

NOTE
Wire connections to the terminal blocks using cables with cross-sectional areas exceeding 2.5mm² will need to be prepared such that the strand bundles are reduced to 2.5mm² in order to be installed into the terminal blocks.

Please refer to the 'Connecting the data cable' section.

After the power connections have been made, the cover should be replaced securely using the four screws provided. The DC power installation is then complete.

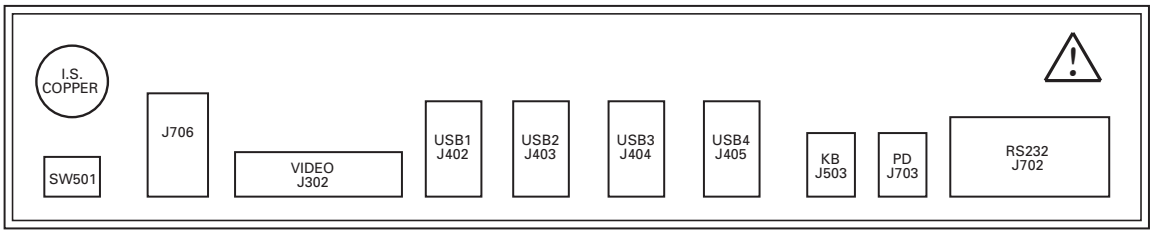
12 MTL GECMA RT COM MODULE

12.1 Connections to the COM module - COPPER

All of the MTL GECMA RT products specified in Sections 5 & 6 may be connected to the appropriate ports on the rear of the COM unit module. Before connecting any other device to the COM unit ensure that it is compatible with the entity parameters for that port as shown in the following table.

	RS232 port	USB port 1	USB port 2	USB port 3	USB port 4	External keyboard port	External pointing device port	LVDS (to Display Module)	Ethernet
Ui	12 V	0	0	0	0	0	0	4.935 V	3.3 V
Ii	-	-	-	-	-	-	-	3.275 A	2.986 A
Pi	-	-	-	-	-	-	-	3.927 W	2.463 W
Ci	0	11 nF	11 nF	11 nF	11 nF	0	0	0	0.24 µF
Li	0	0	0	0	0	0	0	0	0
Uo	6.015 V	5.355 V	5.355 V	5.355 V	5.355 V	5.5 V	5.5 V	4.935 V	2.94 V
Io	26 mA	972 mA	972 mA	972 mA	972 mA	267 mA	126 mA	3.266 A	2.66 A
Po	39 mW	1.676 W	1.676 W	1.676 W	1.676 W	613 mW	264 mW	3.917 W	1.955 W
Co	37 µF	57.9 µF	57.9 µF	57.9 µF	57.9 µF	58 µF	58 µF	100 µH	99 µF
Lo	52 mH	37 µH	37 µH	37 µH	37 µH	498 µH	2239 µH	3.3 µH	1.12 µH
Lo/ Ro	-	-	-	-	-	-	-	-	8.07 µH/Ω

Once the power supply has been connected, all remaining connections are made to the MTL GECMA RT COM module. These are illustrated in the following diagram:



SW501 for internal use

J706 for internal use

J302 video signal to the display – already connected

USB1 to 4 USB ports for other devices on the terminal

I.S. data cable connection

KB keyboard connection – already connected

PD connection for pointing device such as mouse/trackball – already connected

RS232 connection for devices with serial interface

12.2 Copper Connector for Safe Area Unit and Com Module

The assembly instruction is provided by the manufacturer of the connector.

The used connector is a shielded 8 position plug in and cable connector.

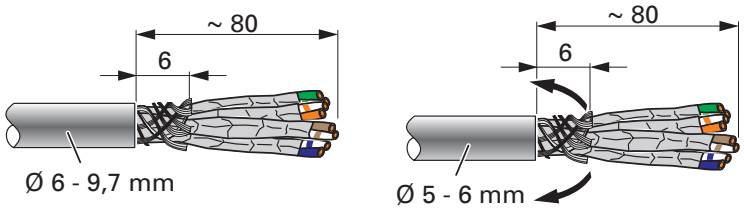
Manufacturer: Phoenix Contact GmbH & Co. KG

Article: SACC-MSX-8QO SH PN SCO

Suitable for a shielded twisted pair cable with 5 to 9.7 mm outer diameter.

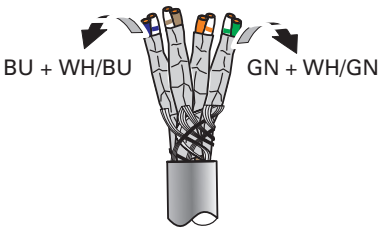
12.2.1 Connecting the cable (1 – 8)

1.



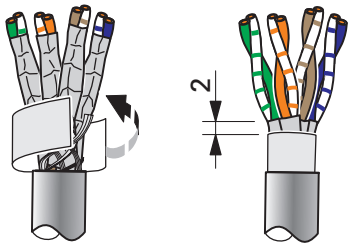
- Strip approximately 80 mm off the cable (1).
- Trim the overall shield to 6 mm (1).

2.



- Arrange the pairs of wires according to the color coding on the splice body. It may be necessary for the wire pairs BU a nd W H/BU and GN a nd WH/GN to cross (2).
- For an outer diameter below 6 mm place the overall shield on the cable sheath (1).
- Glue the supplied protective foil onto the folded down overall shield.
- If present, trim the shield of the wire pairs to 2 mm from the cable sheath.

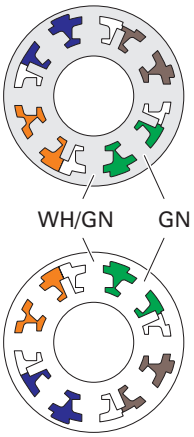
3.



For an outer diameter above 6 mm glue the protective foil to the overall shield (3).

If present, trim the shield of the wire pairs to 2 mm from the overall shield (3).

4.



Ethernet 10G		
WH/OG	1	D1+
OG	2	D1-
WH/GN	3	D2+
GN	4	D2-
WH/BN	5	D4+
BN	6	D4-
WH/BU	7	D3+
BU	8	D3-

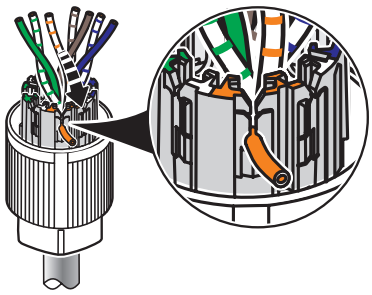
Ethernet 4P	
WH/OG	1
OG	3
WH/GN	2
GN	4

PROFINET 4P	
YE	1
OG	3
WH	2
BU	4

Guide the wire pairs through the pressure nut until the stop in the splice body. Hold the cable in this position. Take note of the assignment of the wire colors in respect to the splice body, to avoid unnecessary crossing of wires (4).

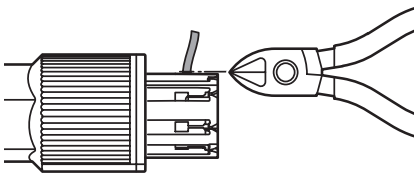
NOTE
Un-twisting the individual twisted pairs makes it easier to get the wires through the connector and reduces the risk of damaging the insulation.

5.



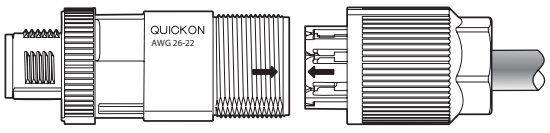
Secure the wires in the corresponding holders of the slice body.
We recommend starting with the single-color wires. The singlecolor wires must be secured in the holders which have the same color on both sides (5).

6.

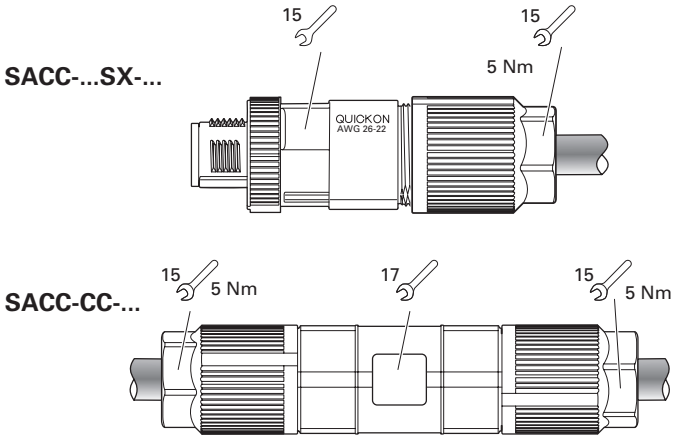


- Use a diagonal cutter to cut off the wires flush on the splice body (6).

7.



- Guide the pressure nut with the splice body into the housing so that the arrows point at each other (7).



8.

- Using two wrenches, screw the pressure nut and the housing to 5 Nm (8). Tightening by hand is not sufficient.

12.2.2 Reconnection

- The plug-in and cable connector can be wired up to 10 times with the same conductor cross section or larger.
- Using two wrenches, release the pressure nut from the housing.
- Make sure that at least two turns of the pressure nut are still on the splice body. The splice body can then be pulled out of the housing using the pressure nut.
- Pull the cable to the rear and out of the splice body.
- It is possible that shielding clips could be bent out of shape during removal of the cable. Use a screwdriver to bend the shielding clips back into the correct position.
- Completely remove any cable residue.
- Trim off the used section of cable.

12.2.3 Technical Data

Nominal Voltage	57V
Nominal Current	0.6 A
Overvoltage Category	II
Flammability rating according to UL94	V0
Pollution degree	3
Core Cross section including insulation	0.75 mm ... 2 mm
Outside diameter	5 mm ... 9.7 mm
Connection cross section	0.25 mm^2 ... 0.50 mm^2 / AWG 24 ... 20
Wire insulation material: PVC, PE, PP, rubber	√
Ambient temperature operation	-40°C ... +85°C
Ambient temperature assembly	-5°C ... +50°C

12.3 Connections to the COM module - FIBRE

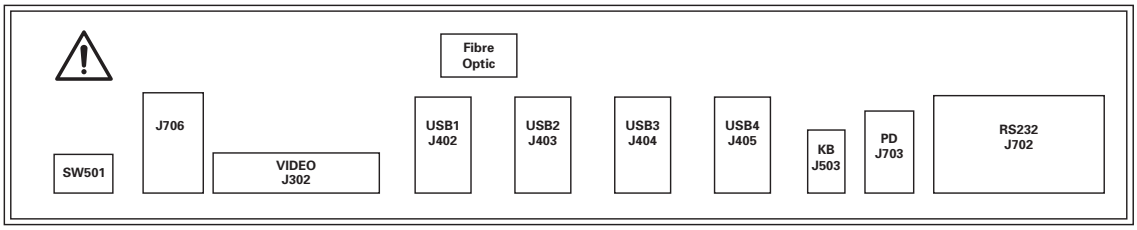
All of the MTL GECMA RT products specified in Sections 5 & 6 may be connected to the appropriate ports on the rear of the COM unit module. Before connecting any other device to the COM unit ensure that it is compatible with the entity parameters for that port as shown in the following table.

	RS232	USB 1	USB 2	USB 3	USB 4	External keyboard port (KB)	External pointing device port (PD)	LVDS (to Display Module 22)
Ui	12 V	0	0	0	0	0	0	4.935 V
Ii	-	-	-	-	-	-	-	3.275 A
Pi	-	-	-	-	-	-	-	3.927 W
Ci	0	11 nF	11 nF	11 nF	11 nF	0	0	0
Li	0	0	0	0	0	0	0	0
Uo	6.015 V	5.355 V	5.355 V	5.355 V	5.355 V	5.5 V	5.5 V	4.935 V
Io	26 mA	972 mA	972 mA	972 mA	972 mA	267 mA	126 mA	3.266 A
Po	39 mW	1.676 W	1.676 W	1.676 W	1.676 W	613 mW	264 mW	3.917 W
Co	37 uF	57.9 uF	57.9 uF	57.9 uF	57.9 uF	58 uF	58 uF	100 µF
Lo	52 mH	37 uH	37 uH	37 uH	37 uH	498 uH	2239 uH	3.3 µH

Once the power supply has been connected, all remaining connections are made to the MTL GECMA RT COM module. These are illustrated in the following diagram:

SW501 for internal use

J706 for internal use



J302 video signal to the display – already connected

USB1 to 4 USB ports for other devices on the terminal

Fibre Optic data cable connection (fibre optic cable) with latch

KB keyboard connection – already connected

PD connection for pointing device such as mouse/trackball – already connected

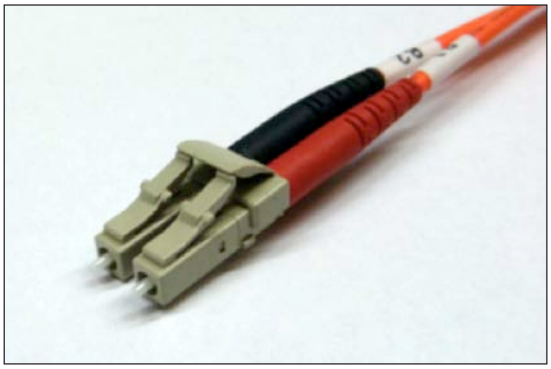
RS232 connection for devices with serial interface

12.4 Connecting the data cable

The data cable is a fibre optic cable with optical transmission (FOC). The advantage of using this is fast loss-free data transmission over long distances.

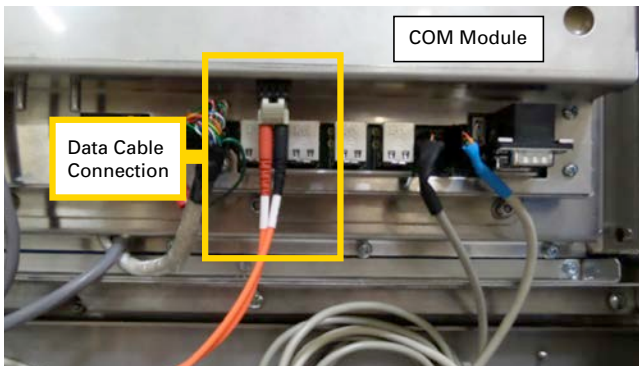
The cable is sensitive and therefore it is essential to make sure that the cable is handled and laid with great care and without sharp kinks.

The fibre optic cable uses LC connectors on both sides:



The data cable is carefully fed through the M20 cable gland in the base, screwed and connected to the display (COM module). If the data cable provides an outer cable diameter not suitable to seal off the cable gland, then a reducer must be used to ensure a valid IP rating.

The fibre optic data cable is inserted into the COM module at the position shown below and should be locked in place.



	WARNING!
	Warning of injury to eyes: The SFP Transceiver in the 'Fibre link socket' operates with a CLASS 1 laser. However, avoid direct and prolonged contact with the eyes.

13 POWER UP

Before switching on the system, check again to make sure everything is mounted, connected and installed as prescribed so as to ensure safe operation of the terminal.

We recommend that all types of power management in the PC are deactivated.

The power is controlled by the local power switch (there is no power switch on the terminal)

13.1 Brightness Regulation

As the video signal is digital almost all settings can be changed at the host PC. To adjust the display brightness follow the steps below:

1. Press CTRL+ALT+A+S+D simultaneously on the hazardous area keyboard
2. The three keyboard LEDs will begin to flash
3. Press up or down to adjust display luminance as required
4. Press CTRL+ALT+A+S+D to exit the luminance adjustment mode

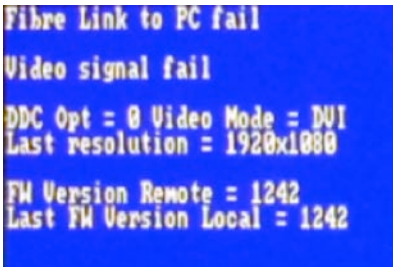
If there is no keyboard installed the brightness has to be adjusted through the PC graphics adapter.

13.2 Operation and settings

Upon successful installation of all components the image of the controlling PC shall appear on the MTL GECMA RT WS display. All functions are available on the terminal.

If the data connection is interrupted or unavailable, the MTL GECMA terminal will signal this immediately.

- With an onscreen message referring to an interrupted data connection (Fibre Link to PC fail)

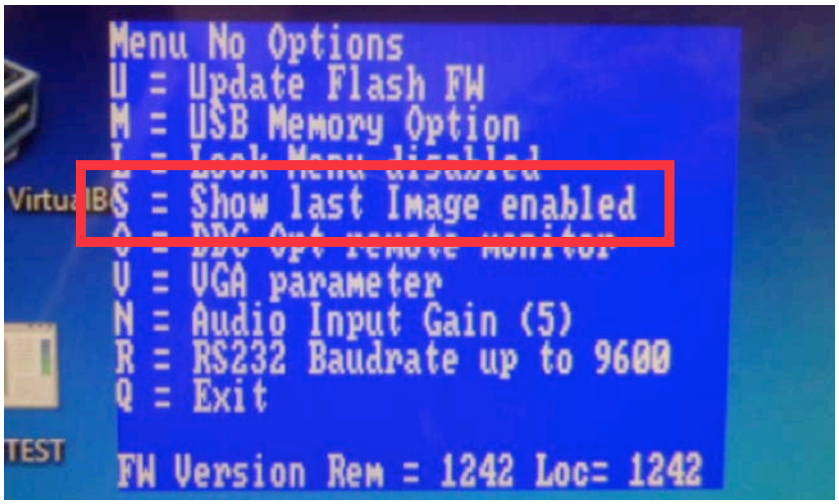


- A bright, red, visable alarm indicator will flash around the border of the display and will contain the most recent displayed image.

NOTE
This mode of operation where a red border is displayed upon loss of signal can be enabled via the onscreen menu.

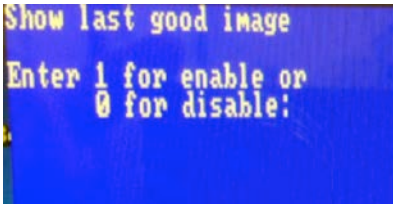
- This menu can be accessed by pressing the 'Scroll Lock' key five times during the first five minutes of operation.

On-screen menu:



To enable the 'Show last image enabled' feature select 'S'.
The option can be changed by pressing 'S' again.

Key 1 for display option on
Key 0 for display option off



To exit the on-screen menu press **'Q'.**

NOTE
The corresponding firmware version is visible on this on-screen menu.

IMPORTANT
Indiscriminate adjustment of the other options may lead to malfunctions.

14 MAINTENANCE

At regular intervals, depending upon the particular location of the RT terminal, the general state of the terminal should be assessed for both its electrical and mechanical condition.

The following item checks should be considered for inspection.

1. Check for any signs of wear, tampering, or impact damage to the RT housing and its display. The terminal must be taken out of use immediately if the damage is judged to be affecting the Ex protection of the equipment.
2. Check all ground (earth) connections for integrity and condition. Check for any signs of corrosion at terminals, and that all screw connections are adequately tightened.
3. Check power connections and the state of the cables carrying the power. If there are signs of wear or cable damage the equipment must be taken out of service immediately and not restored to use until any damaged cables have been replaced.
4. Check the tightness of all mechanical fastenings, especially those supporting the terminal housing and its connecting bolts to a pedestal (STF) or elbow (EBF).
5. Check for the presence or build-up of dust, dirt or contaminants on the housing and its components and deal with any accumulations appropriately.
6. Check for any other maintenance issues that may be dictated by site rules.
7. Avoid using aggresive acids or bases when cleaning.

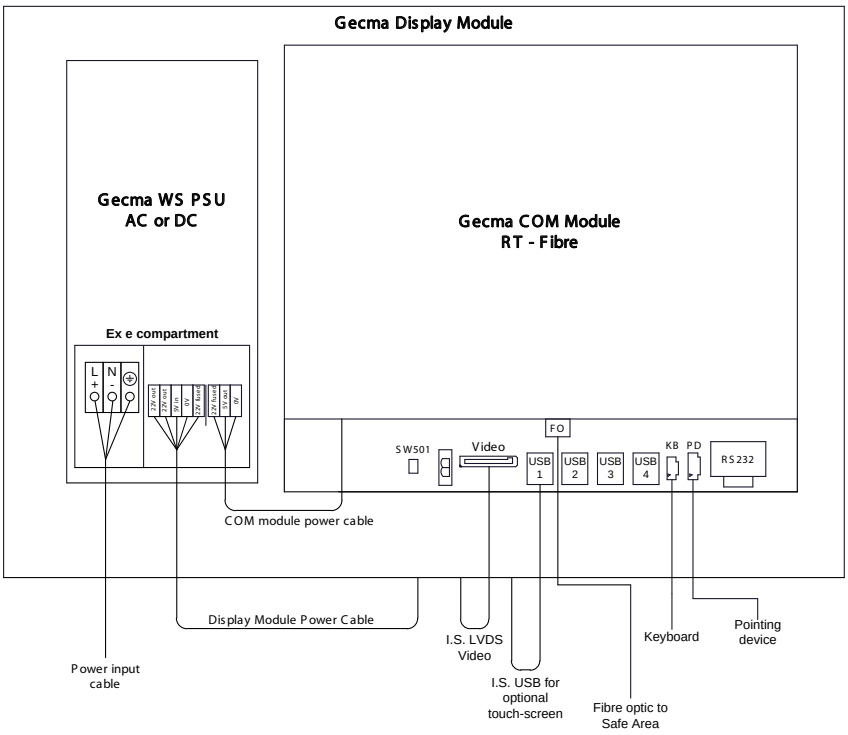
All maintenance activity must be conducted in accordance with IEC / EN 60079-17.

15 Appendices

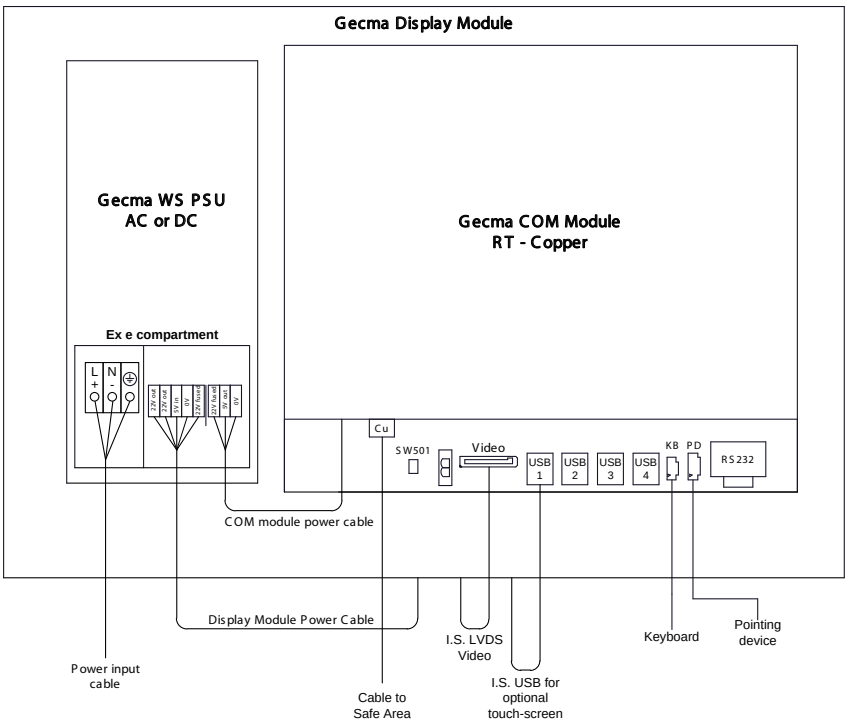
Appendix A - system diagrams

All connections are made at the factory. Only the respective power supply cables and the data cables (fibre optic cable or copper) are to be connected to the safe area unit on-site.

FIBRE OPTIC SYSTEM DIAGRAM



COPPER SYSTEM DIAGRAM

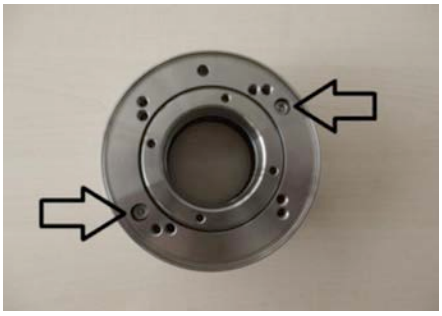


Appendix B - Assembling the coupling unit

The coupling is the connection element between the stand- or mounting pipe and the terminal. This allows the terminal to be rotated for optimal use.

- First, the two Allen screws are to be unscrewed in order to remove the casing from the main coupling element.

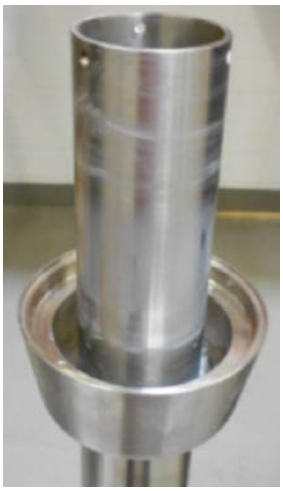
  The screws are replaced later.



- The sealing ring of the casing should be extensively lubricated (use ca. ½ tube of the supplied assembly paste).

A - Lubricant Paste.
B - x4 (M6 12) socket head screws for housing.
C - x3 (M6 16) self-tapping screws.
D - Casing
E - Main coupling element

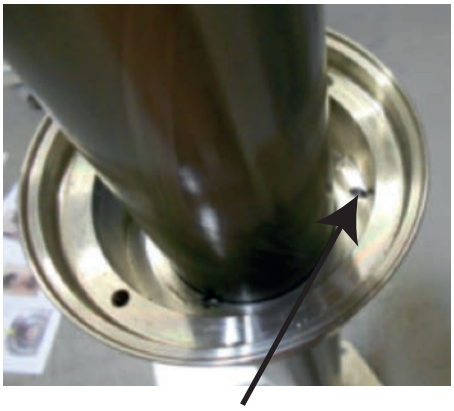
- The casing is now inverted with the narrow opening over the pipe and pushed so far down that approx. 20 cm of the mounting tube is exposed above.



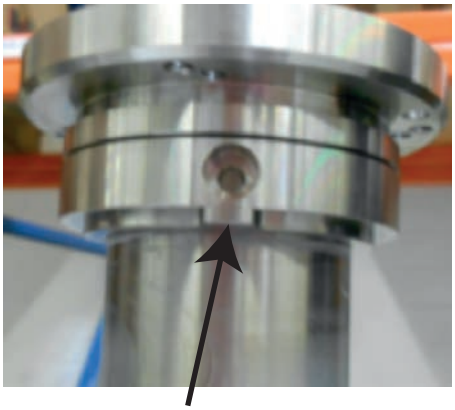
- The main coupling element is placed on the end of the pipe.

  The 3 bore holes are overlaid with the drill openings of the pipe by rotating the main coupling element.

IMPORTANT
Pay attention to the orientation of the notch in the casing. This should be opposite the groove on the coupling element, i.e. about 180°. Only then is a maximum turning radius for the terminal guaranteed.



Notch in the casing



Groove in the main coupling element

- The main coupling element is connected to the pipe end by tightening the three self-tapping Allen screws to a maximum torque setting of 9 nm.

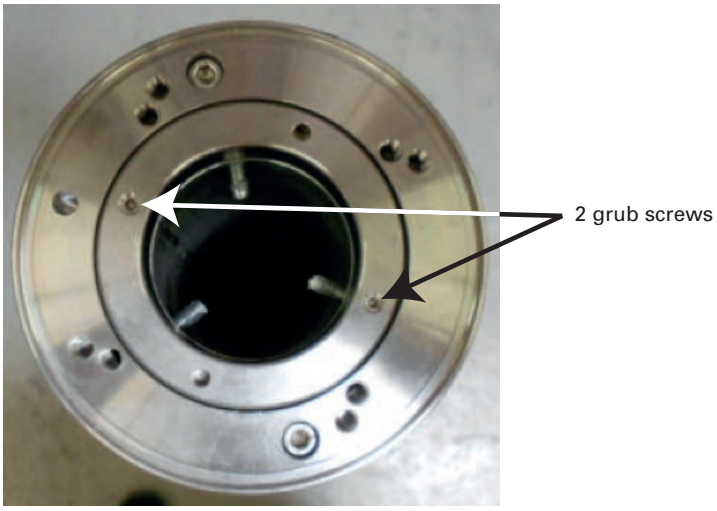
  There are three holes present in the pipe end for the screws to go into. These are the correct size for the self-tapping screws supplied and should not be drilled out.

- The main coupling element is now firmly attached to the mounting pipe.
  Now slide the lubricated casing up to the main coupling element.

IMPORTANT
CAUTION Risk of Injury: Clasp your hands around the casing as illustrated in the photograph. Otherwise, there is an increased risk of injury due to the jerky movement of the lubricated casing, since the fingers grip the upper rim of the casing.

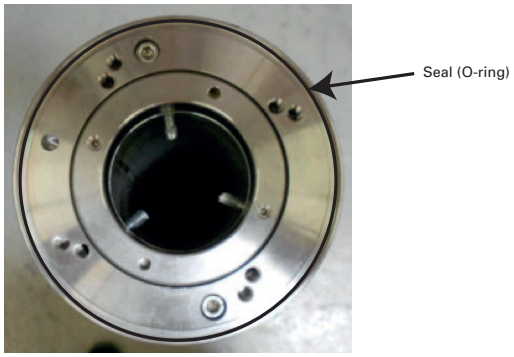
- The two parts are now reconnected rotating the main coupling element until it aligns with the two outer screw holes.
  Then the two Allen screws are tightened to a maximum torque setting of 6nm

- Now check the rotational resistance of the coupling. This is an optional process because a certain resistance is set at the factory. However, you should be aware of the adjustment function since the resistance decreases over time and the monitor can be moved back and forth easily after some use.

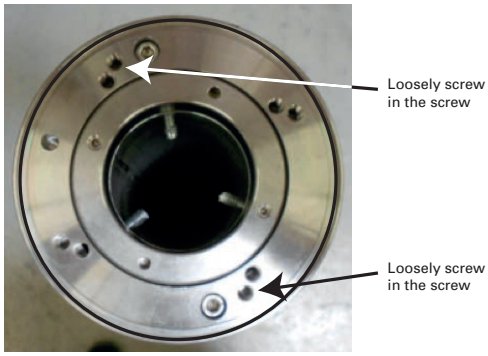


- Loosen the two grub screws completely. The rotatable inner ring has a thread. Using a suitable object (e.g. hammer) the resistance can be increased through clockwise rotation or decreased through anticlockwise rotation. If you can rotate the outer ring just barely by hand then the resistance is sufficient, since the mounted monitor acts as a lever.
  Replace the the grub screws to a maximum torque setting of 2nm.

- Now attach the seal (O-ring) and apply the remaining half tube of the supplied lubricant there.

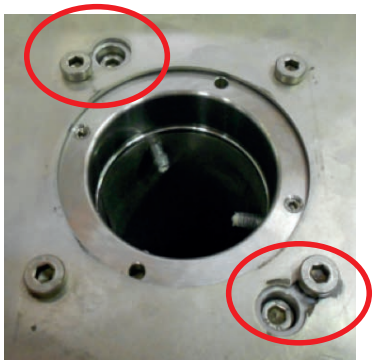


- Loosely screw in two of the four Allen screws in the areas shown, i.e. with three to four turns.



NOTE
Before mounting the terminal housing, we recommend at this point that the required cables (power supply and data cable) be fed through the pedestal as described in appendix D.

- The terminal housing is then ready to be mounted onto the coupling unit. This is achieved by placing the elongated holes on the housing over the screws that have just been fixed to the coupling unit as shown below.



- When the housing is stable and in position, insert the remaining x2 screws and tighten all four screws evenly to a maximum torque setting of 9-10nm.
- The terminal can now be positioned in place and rotated to the desired angle.

Appendix C - Fixing the pedestal/elbow to a surface

The mounting procedure will normally depend upon the mounting surface. The following method is suggested but local rules and guidelines must be followed whenever they are provided.

1) Prepare holes in the mounting surface, on the centres shown in Appendix I & J, depending on mounting requirements, to accept suitable screws/bolts for mounting.

Recommended bolts sizes:
Wall mount is M10
Floor / Ceiling / Elbow mount is M16

2) Fit washers onto fixing bolts and tighten all fixing bolts to the manufacturers recommended torque value.

Recommended torque settings:

Standard torque setting for M10 with minimum 6.8 quality (stainless steel) is 37Nm.

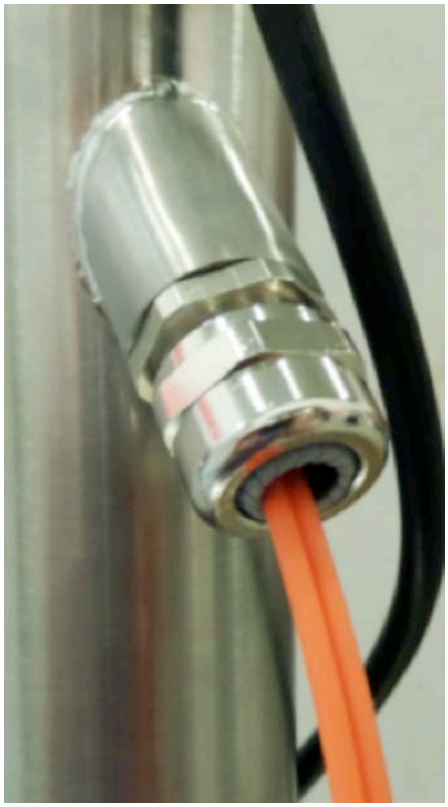
Standard torque setting for M16 with minimum 6.8 quality (stainless steel) is 160Nm.

NOTE
Please note that dependant upon the type of anchor fitting the values may be different. Refer to fixing bolt manufacturer if required.

Appendix D - Installing the power & data cable

Cable gland entry points (M20 & 25) are provided in the pedestal as a method of routing the power and data cables. Remove the glands and feed the cable through the pedestal. The cable glands can then be fastened securely.

NOTE
Please handle the fibre cable with extra care to ensure no breakages occur during installation and ensure that all glands are sealed to IP54. Where possible, only single cables should be used in each gland. If multiple cables are necessary in a single gland then an additional sealing element should be used around the cables in order to ensure that the gland seal is IP54.

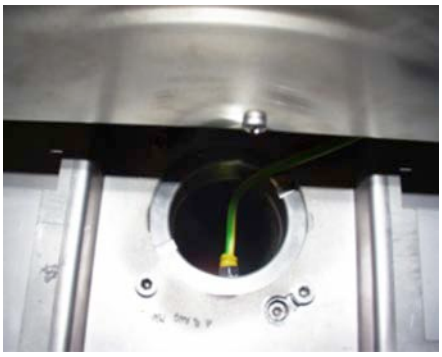


NOTE
Unused cable gland entry points must be sealed with a suitable Ex approved blanking plug. These can be sourced from Eaton if required.

Appendix E - Earthing between the STF or EBF and housing

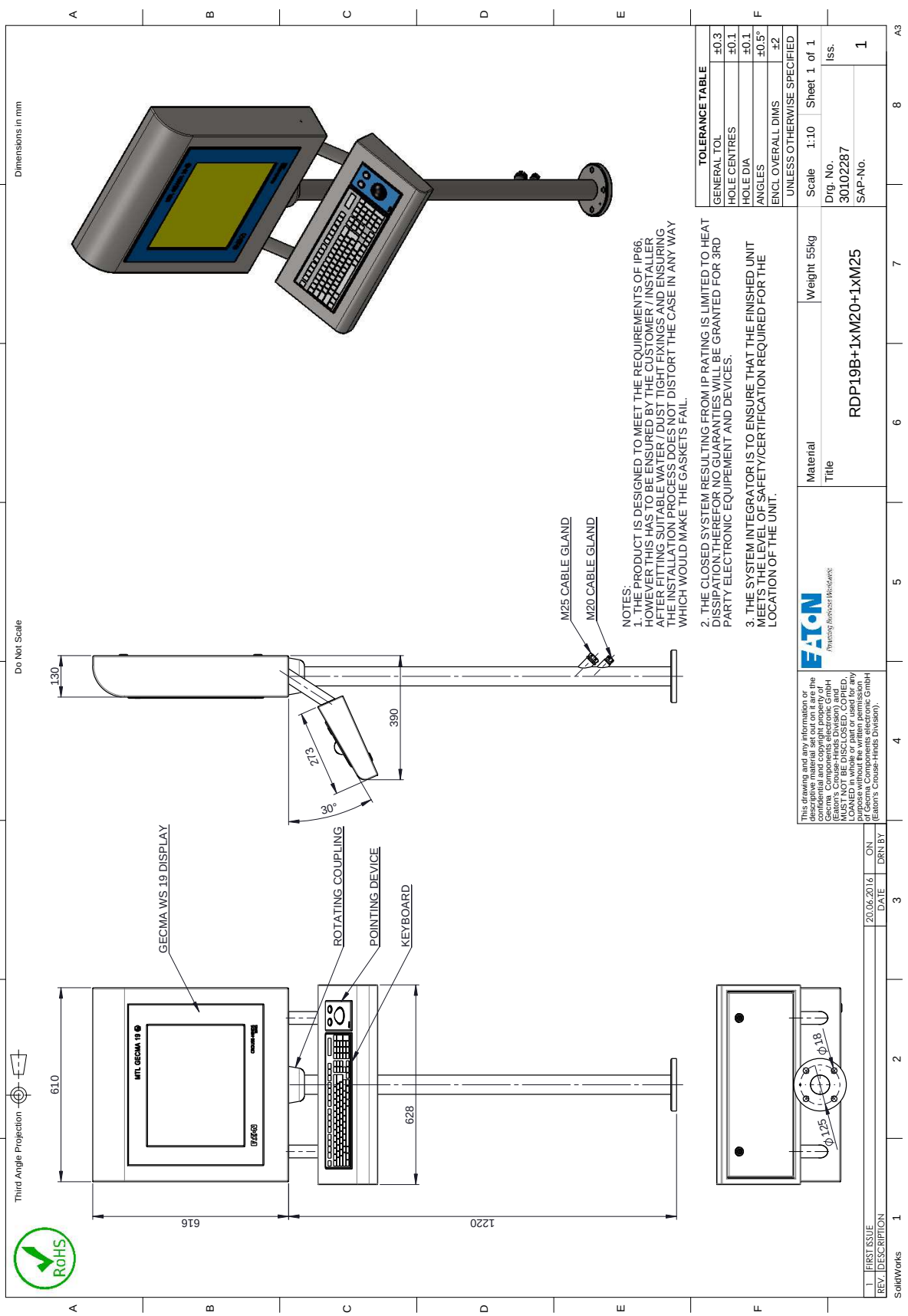
	WARNING!
	When using a pedestal (STF) or an elbow (EBF) and a rotatable coupling, the pre-installed earthing cable on the FH/FHP housing must be connected to one of the self-tapping coupling screws (inside the pedestal) M6x20.

Earthing of the coupling to the housing (Similar to image)



Earthing on the inside of the STF to a coupling screw

NOTE
You can also refer to Appendix B for more information.


Dimensions in mm
Do Not Scale
Third Angle Projection
SolidWorks
RoHS
GECMA WS 19 DISPLAY
ROTATING COUPLING
POINTING DEVICE
KEYBOARD
M25 CABLE GLAND
M20 CABLE GLAND
610
616
1220
628
130
390
213
30°
ϕ18
ϕ125
NOTES:
1. THE PRODUCT IS DESIGNED TO MEET THE REQUIREMENTS OF IP66. HOWEVER THIS HAS TO BE ENSURED BY THE CUSTOMER / INSTALLER AFTER FITTING SUITABLE WATER / DUST TIGHT FIXINGS AND ENSURING THE INSTALLATION PROCESS DOES NOT DISTORT THE CASE IN ANY WAY WHICH WOULD MAKE THE GASKETS FAIL.
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3. THE SYSTEM INTEGRATOR IS TO ENSURE THAT THE FINISHED UNIT MEETS THE LEVEL OF SAFETY/CERTIFICATION REQUIRED FOR THE LOCATION OF THE UNIT.
TOLERANCE TABLE
GENERAL TOL ±0.3
HOLE CENTRES ±0.1
HOLE DIA ±0.1
ANGLES ±0.5°
ENCL OVERALL DIMS ±2
UNLESS OTHERWISE SPECIFIED
Material
Weight 55kg
Title
RDP19B+1xM20+1xM25
Scale 1:10
Sheet 1 of 1
Drg. No. 30102287
Iss. 1
SAP-No.
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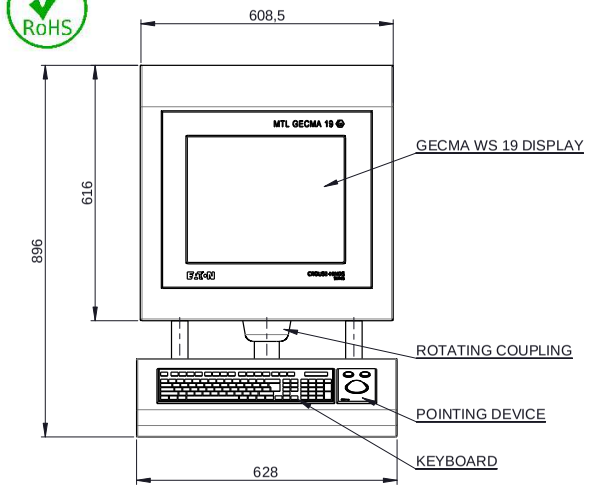
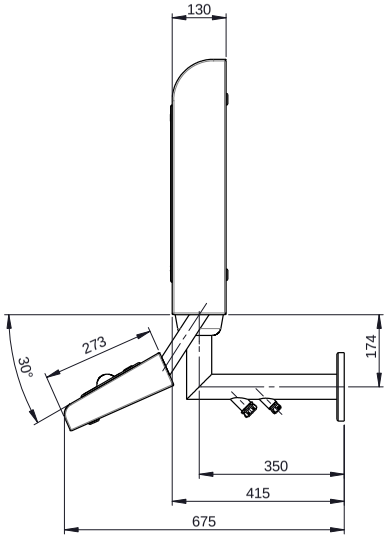
REV. DESCRIPTION DATE DRN BY
1 FIRST ISSUE 20.06.2016 ON

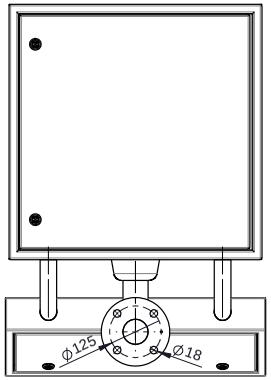
Third Angle Projection

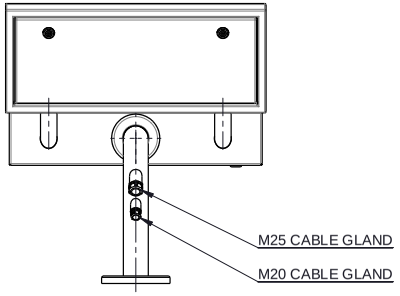
Do Not Scale

Dimensions in mm









NOTES:
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3. THE SYSTEM INTEGRATOR IS TO ENSURE THAT THE FINISHED UNIT MEETS THE LEVEL OF SAFETY/CERTIFICATION REQUIRED FOR THE LOCATION OF THE UNIT.

TOLERANCE TABLE	
GENERAL TOL	±0.3
HOLE CENTRES	±0.1
HOLE DIA	±0.1
ANGLES	±0.5°
ENCL OVERALL DIMS	±2
UNLESS OTHERWISE SPECIFIED	

REV.	DESCRIPTION	DATE	DRN BY
1	FIRST ISSUE	20.06.2016	ON

Material	Weight 49kg	Scale 1:10	Sheet 1 of 1
Title: RDP19B EBF+1xM20+1xM25		Drg. No. 30102288	Iss. 1
		SAP-No.	

SolidWorks

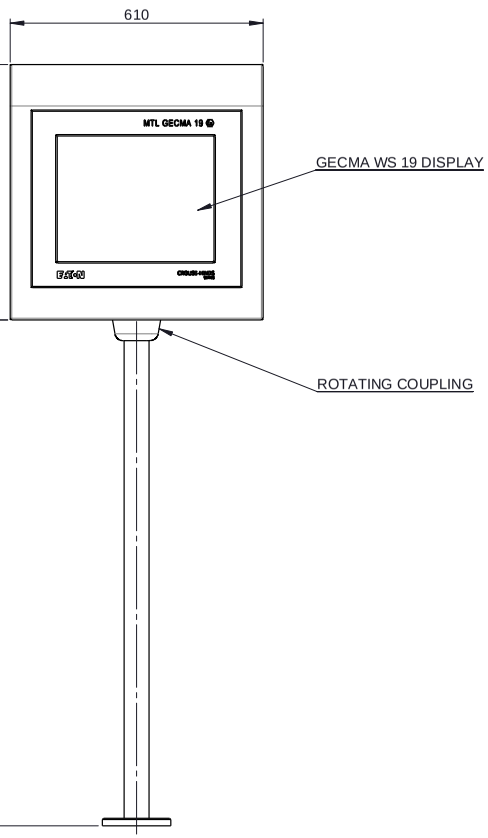
A3

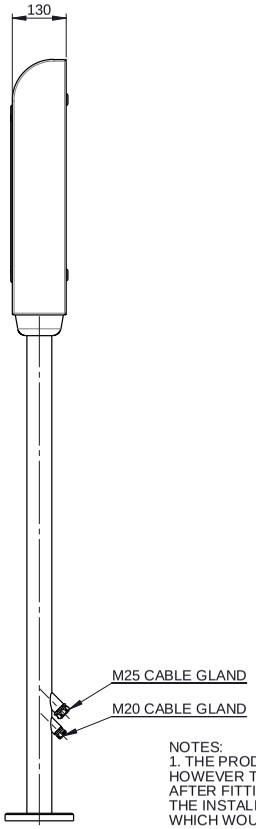
Third Angle Projection

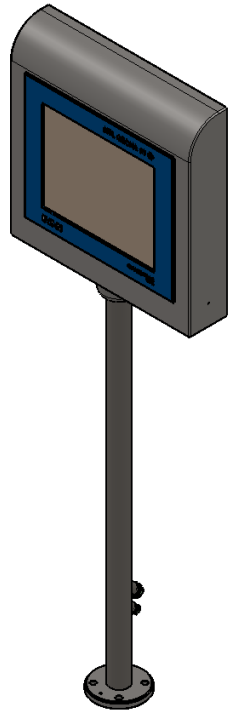
Do Not Scale

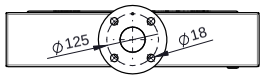
Dimensions in mm

RoHS









NOTES:
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3. THE SYSTEM INTEGRATOR IS TO ENSURE THAT THE FINISHED UNIT MEETS THE LEVEL OF SAFETY/CERTIFICATION REQUIRED FOR THE LOCATION OF THE UNIT.

TOLERANCE TABLE	
GENERAL TOL	±0.3
HOLE CENTRES	±0.1
HOLE DIA	±0.1
ANGLES	±0.5°
ENCL OVERALL DIMS	±2
UNLESS OTHERWISE SPECIFIED	

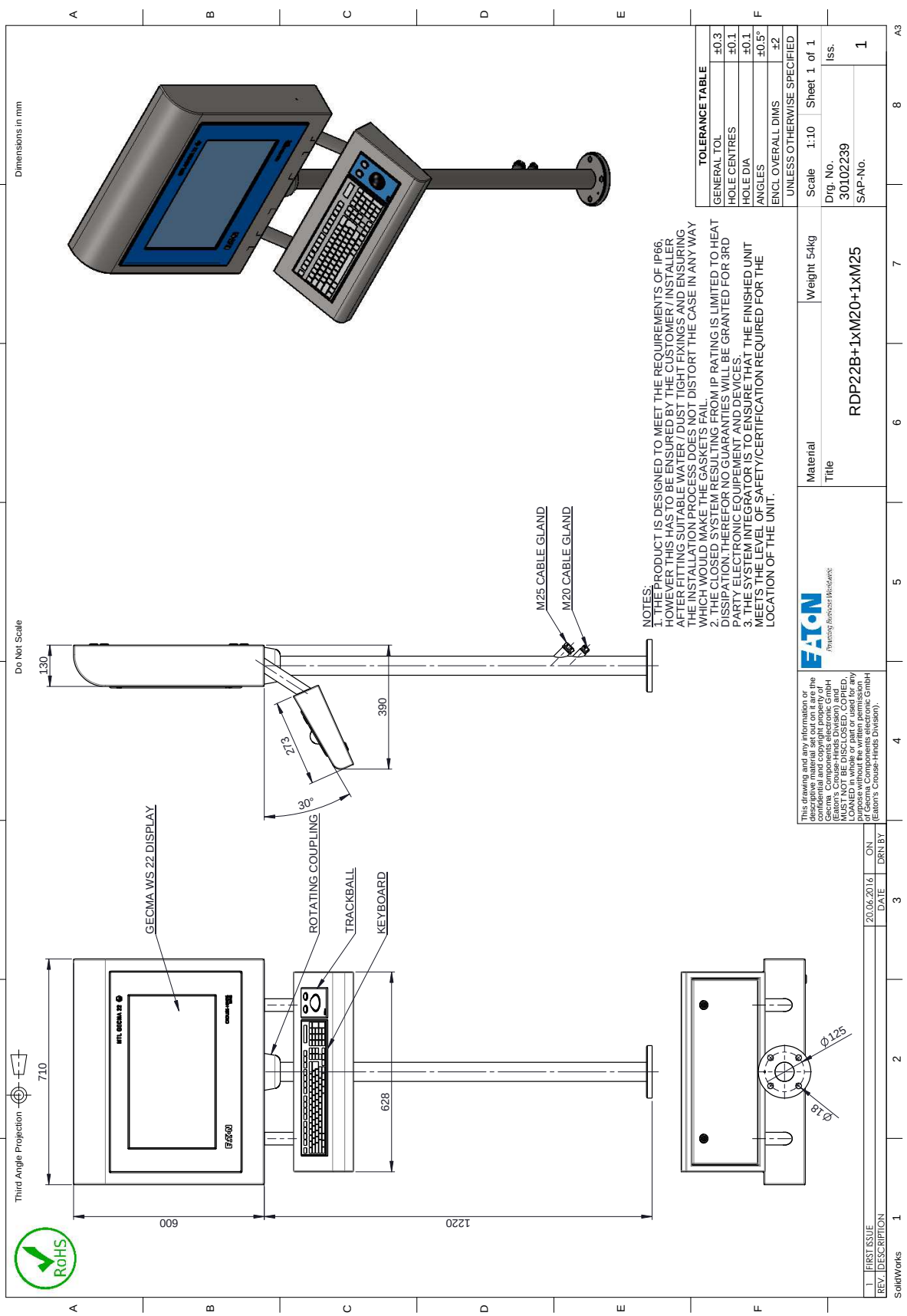
REV.	DESCRIPTION	DATE	DRN BY
1	FIRST ISSUE	20.06.2016	ON

EATON
Powering Business Worldwide

Material	Weight 41kg	Scale 1:10	Sheet 1 of 1
Title: RD19B+1xM20+1xM25		Drg. No. 30102289	Iss. 1
		SAP-No.	

SolidWorks

A3


Dimensions in mm
Do Not Scale
Third Angle Projection
SolidWorks
RoHS
GECMA WS 22 DISPLAY
ROTATING COUPLING
TRACKBALL
KEYBOARD
M25 CABLE GLAND
M20 CABLE GLAND
710
600
1220
628
390
213
130
30°
Ø125
Ø18
NOTES:
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TOLERANCE TABLE
GENERAL TOL ±0.3
HOLE CENTRES ±0.1
HOLE DIA ±0.1
ANGLES ±0.5°
ENCL OVERALL DIMS ±2
UNLESS OTHERWISE SPECIFIED
Material
Weight 54kg
Title
RDP22B+1xM20+1xM25
Scale 1:10
Sheet 1 of 1
Drg. No.
30102239
Iss.
SAP-No.
1
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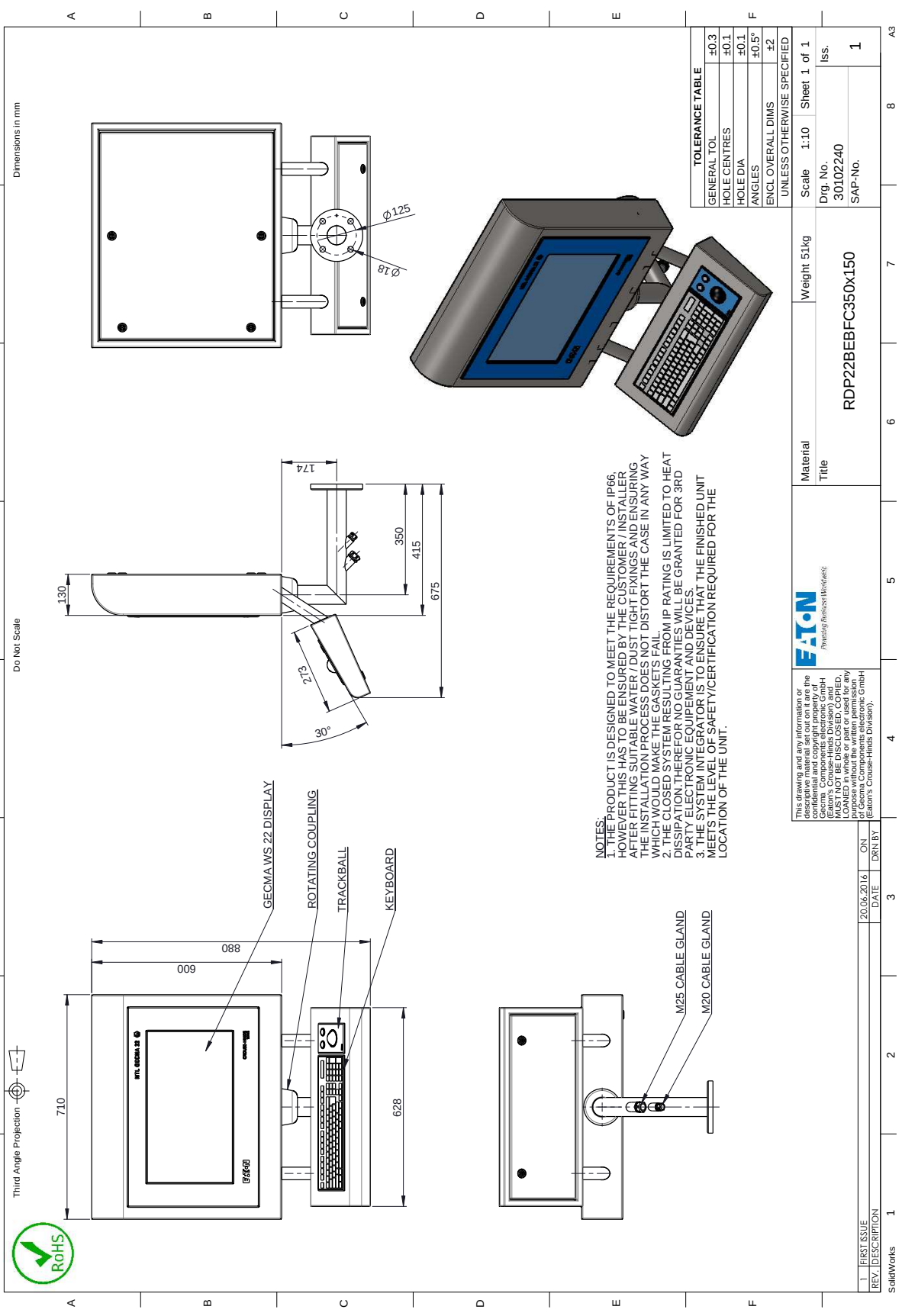
REV. DESCRIPTION DATE DRN BY
1 FIRST ISSUE 20.06.2016 ON


Dimensions in mm
Do Not Scale
Third Angle Projection
SolidWorks
RoHS
GECMA WS 22 DISPLAY
ROTATING COUPLING
TRACKBALL
KEYBOARD
M25 CABLE GLAND
M20 CABLE GLAND
710
088
009
628
130
174
350
415
675
273
30°
ϕ125
ϕ18
NOTES:
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TOLERANCE TABLE
GENERAL TOL ±0.3
HOLE CENTRES ±0.1
HOLE DIA ±0.1
ANGLES ±0.5°
ENCL OVERALL DIMS ±2
UNLESS OTHERWISE SPECIFIED
Material
Weight 51kg
Scale 1:10
Sheet 1 of 1
Title
RDP22BEBFC350x150
Drg. No. 30102240
Iss. 1
SAP-No.
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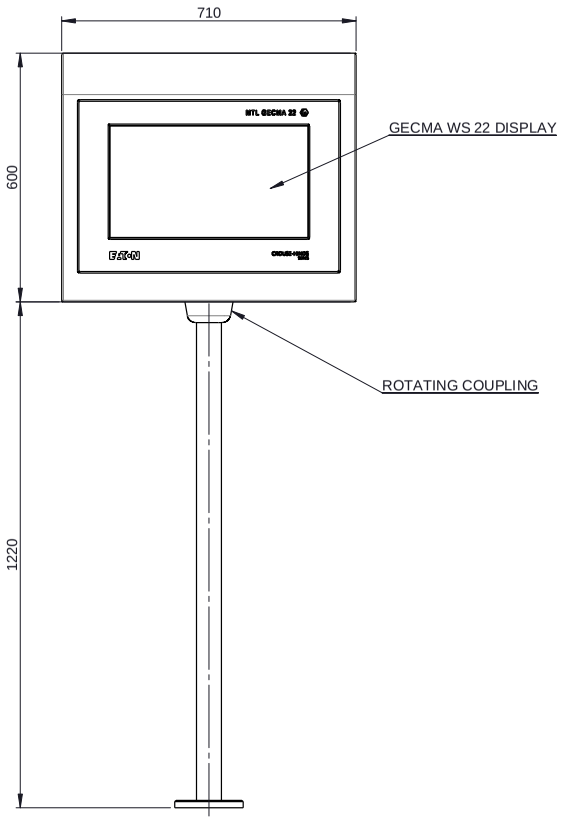
1 FIRST ISSUE 20.06.2016 ON

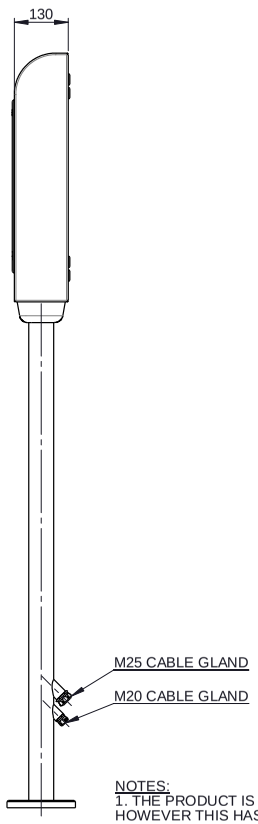
Third Angle Projection

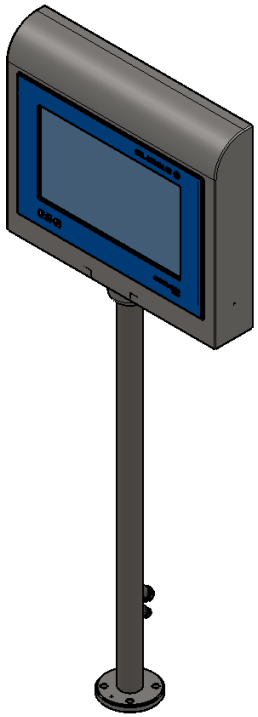
Do Not Scale

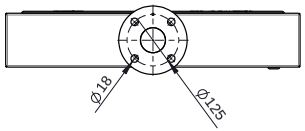
Dimensions in mm

RoHS









NOTES:
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3. THE SYSTEM INTEGRATOR IS TO ENSURE THAT THE FINISHED UNIT MEETS THE LEVEL OF SAFETY/CERTIFICATION REQUIRED FOR THE LOCATION OF THE UNIT.

TOLERANCE TABLE	
GENERAL TOL	±0.3
HOLE CENTRES	±0.1
HOLE DIA	±0.1
ANGLES	±0.5°
ENCL OVERALL DIMS	±2
UNLESS OTHERWISE SPECIFIED	

REV.	DESCRIPTION	DATE	DRN BY
1	FIRST ISSUE	20.06.2016	ON

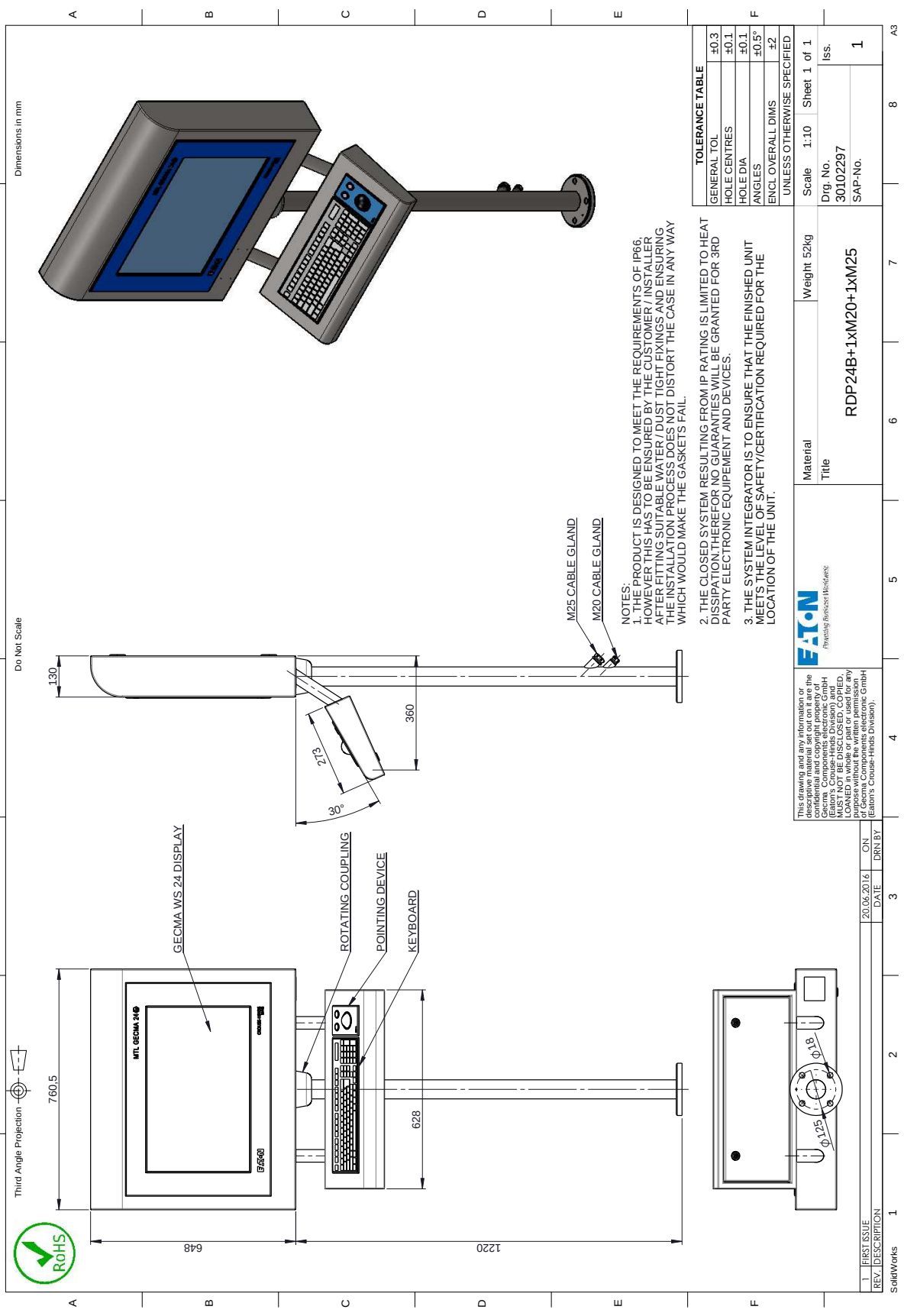
EATON
Powering Business Worldwide

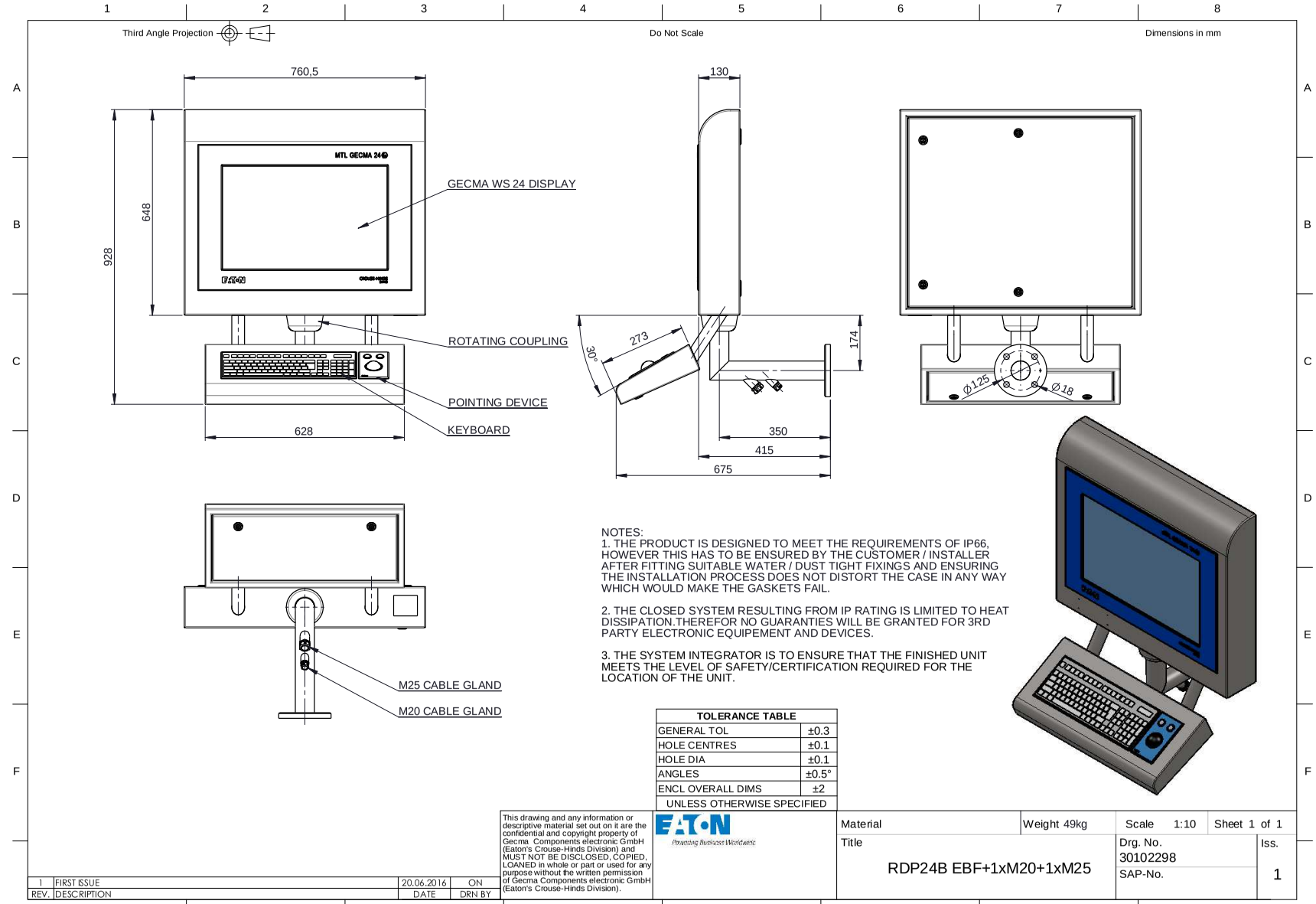
Material	Weight 42kg	Scale 1:10	Sheet 1 of 1
Title: RD22B+1xM20+1xM25		Drg. No. 30102241	Iss. 1
		SAP-No.	

SolidWorks

A3

Appendix H - MTL GECMA RT 24 drawings





NOTES:
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3. THE SYSTEM INTEGRATOR IS TO ENSURE THAT THE FINISHED UNIT MEETS THE LEVEL OF SAFETY/CERTIFICATION REQUIRED FOR THE LOCATION OF THE UNIT.

TOLERANCE TABLE	
GENERAL TOL	±0.3
HOLE CENTRES	±0.1
HOLE DIA	±0.1
ANGLES	±0.5°
ENCL OVERALL DIMS	±2
UNLESS OTHERWISE SPECIFIED	

REV.	DESCRIPTION	DATE	DRN BY
1	FIRST ISSUE	20.06.2016	ON

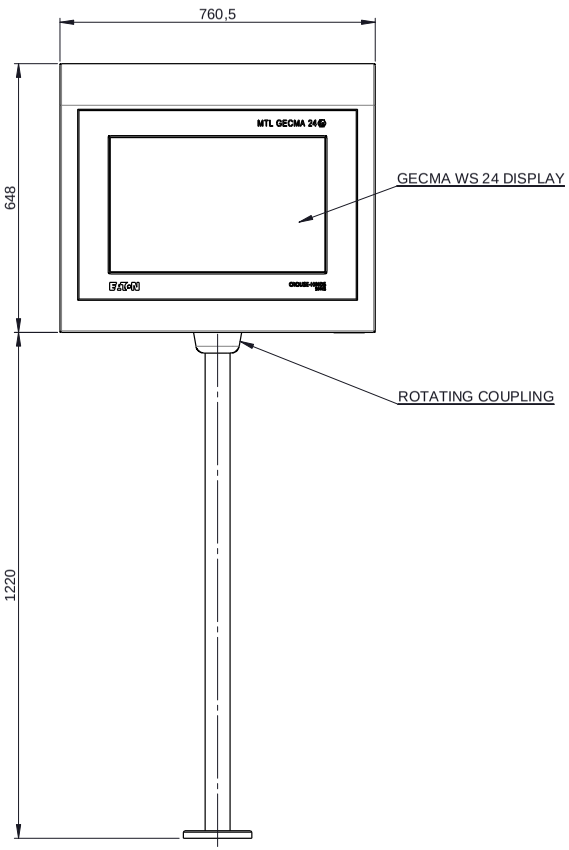
Material	Weight 49kg	Scale 1:10	Sheet 1 of 1
Title: RDP24B EBF+1xM20+1xM25		Drg. No. 30102298	Iss. 1
		SAP-No.	

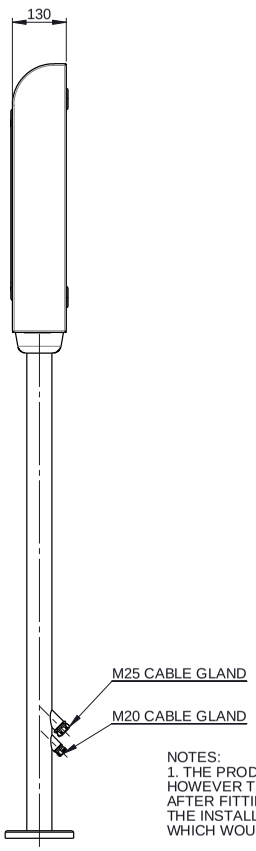
SolidWorks A3

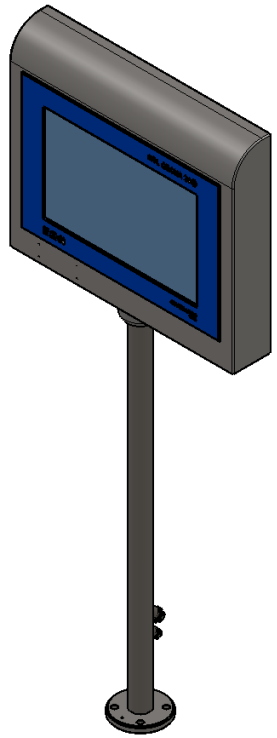
Third Angle Projection

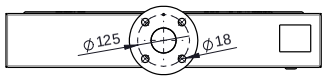
Do Not Scale

Dimensions in mm









NOTES:
1. THE PRODUCT IS DESIGNED TO MEET THE REQUIREMENTS OF IP66, HOWEVER THIS HAS TO BE ENSURED BY THE CUSTOMER / INSTALLER AFTER FITTING SUITABLE WATER / DUST TIGHT FIXINGS AND ENSURING THE INSTALLATION PROCESS DOES NOT DISTORT THE CASE IN ANY WAY WHICH WOULD MAKE THE GASKETS FAIL.

2. THE CLOSED SYSTEM RESULTING FROM IP RATING IS LIMITED TO HEAT DISSIPATION.THEREFOR NO GUARANTIES WILL BE GRANTED FOR 3RD PARTY ELECTRONIC EQUIPEMENT AND DEVICES.

3. THE SYSTEM INTEGRATOR IS TO ENSURE THAT THE FINISHED UNIT MEETS THE LEVEL OF SAFETY/CERTIFICATION REQUIRED FOR THE LOCATION OF THE UNIT.

TOLERANCE TABLE	
GENERAL TOL	±0.3
HOLE CENTRES	±0.1
HOLE DIA	±0.1
ANGLES	±0.5°
ENCL OVERALL DIMS	±2
UNLESS OTHERWISE SPECIFIED	

REV.	DESCRIPTION	DATE	DRN BY
1	FIRST ISSUE	20.06.2016	ON

EATON
Powering Business Worldwide

Material	Weight 40kg	Scale 1:10	Sheet 1 of 1
Title: RD24B+1xM20+1xM25		Drg. No. 30102299	Iss. 1
		SAP-No.	

SolidWorks

A3

Appendix I - MTL GECMA pedestal mount

Dimensions in mm | Do Not Scale | Third Angle Projection

TOLERANCE TABLE	
GENERAL TOL	±0.3
HOLE CENTRES	±0.1
HOLE DIA	±0.1
ANGLES	±0.5°
ENCL OVERALL DIMS	±2
UNLESS OTHERWISE SPECIFIED	

EATON
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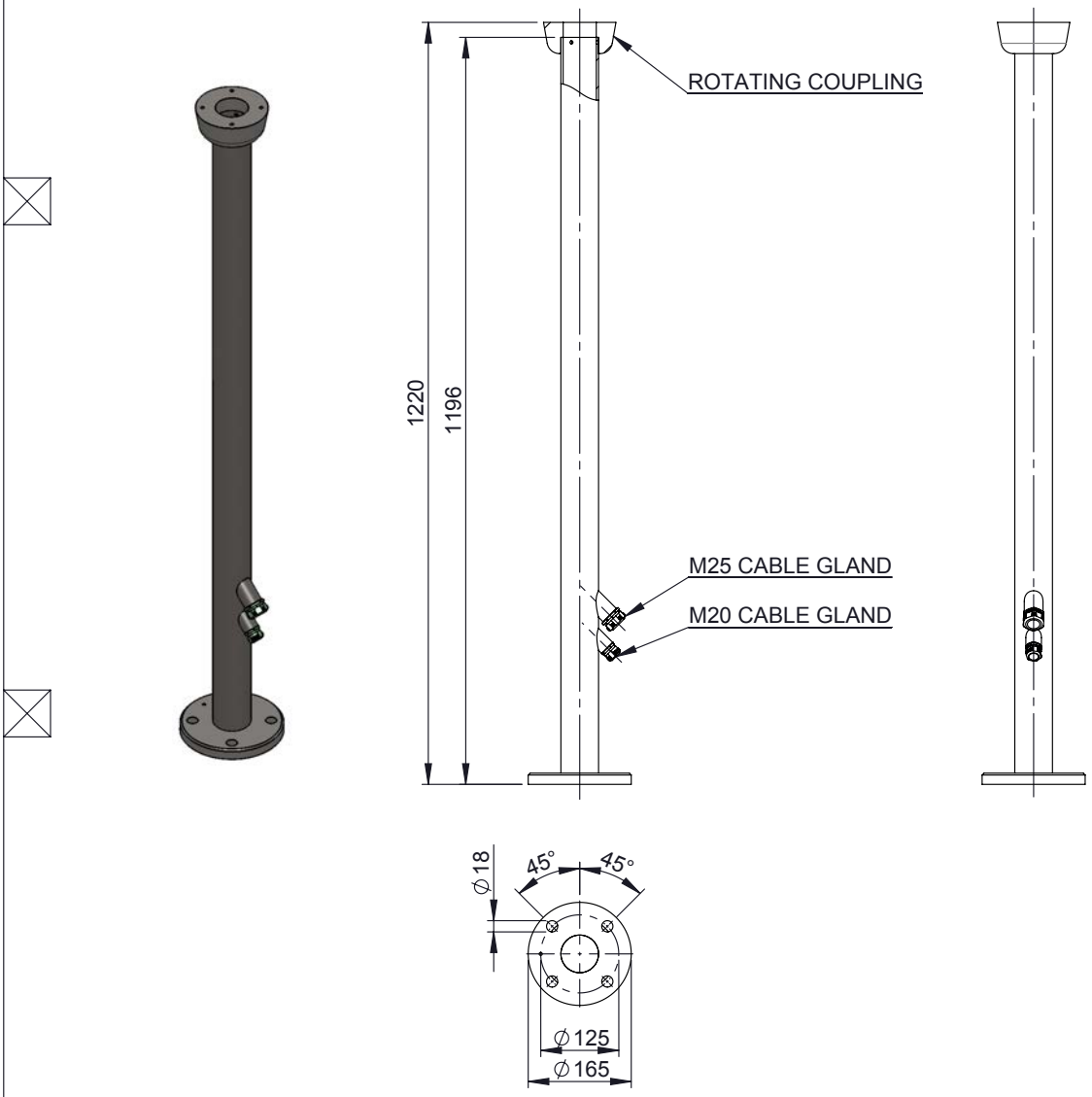

REV.	DESCRIPTION	DATE	DRN BY
A	FIRST ISSUE	19.01.2015	KR

Material	Weight 11kg	Scale 1:10	Drg. No. 30102243	Iss A
Title STFC1196		Sheet 1 of 1	SAP-No.	

SolidWorks A4

Appendix J - MTL GECMA elbow mount

Dimensions in mm | Do Not Scale | Third Angle Projection

TOLERANCE TABLE	
GENERAL TOL	±0.3
HOLE CENTRES	±0.1
HOLE DIA	±0.1
ANGLES	±0.5°
ENCL OVERALL DIMS	±2
UNLESS OTHERWISE SPECIFIED	

EATON
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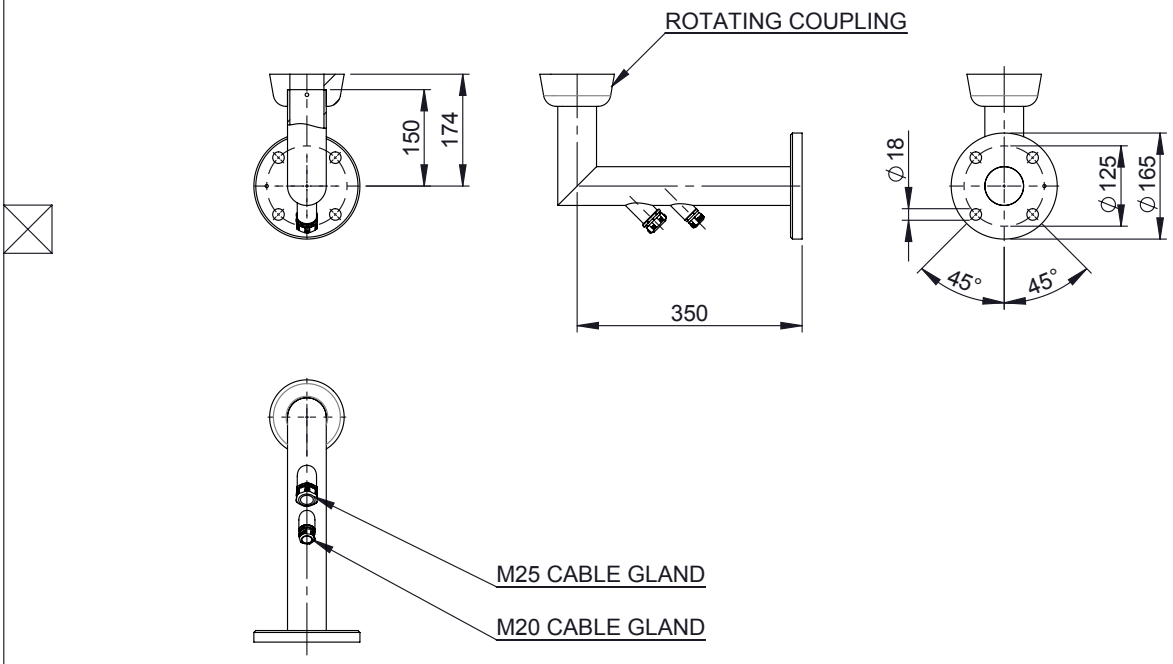
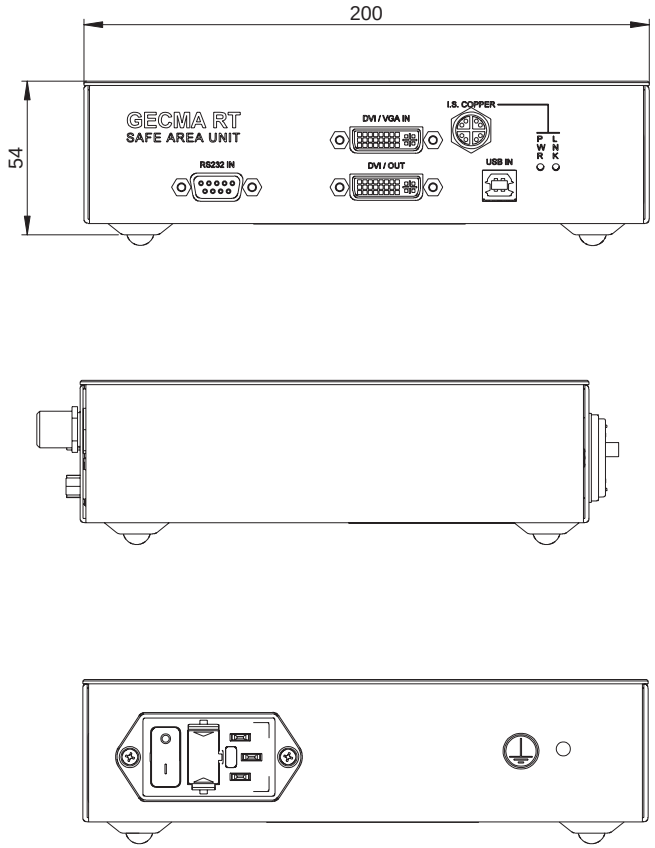


REV.	DESCRIPTION	DATE	DRN BY
A	FIRST ISSUE	19.01.2015	KR

Material	Weight 8kg	Scale 1:10	Drg. No. 30102244	Iss A
Title EBFC350x150		Sheet 1 of 1	SAP-No.	

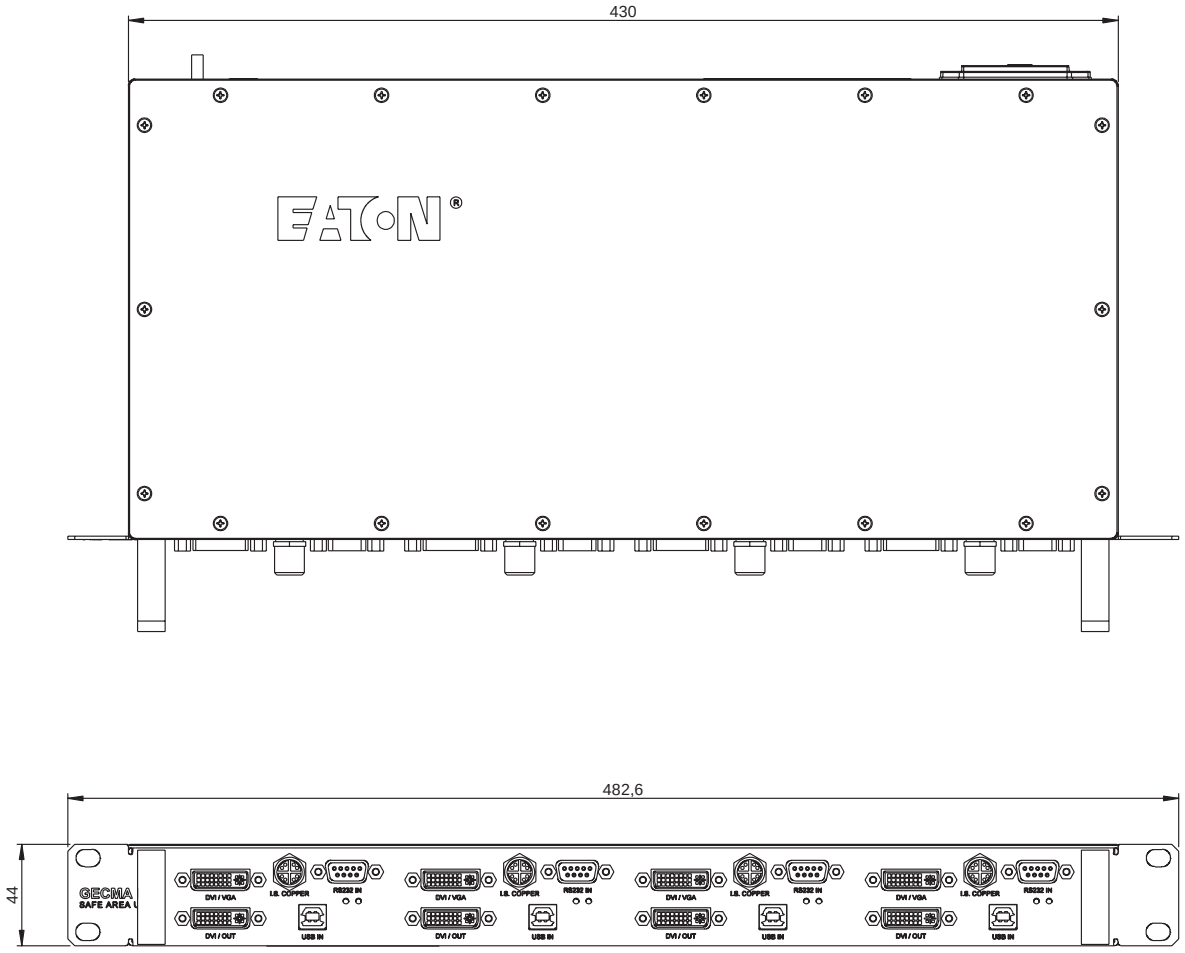
SolidWorks A4

Appendix K - Safe area unit drawings (desktop copper version)



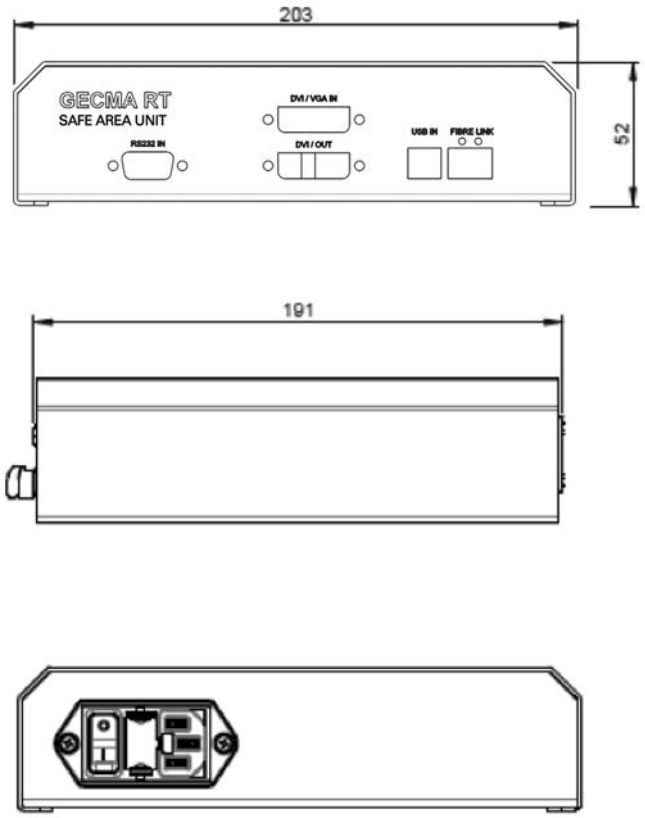
Safe area unit dimensions

Appendix L - Safe area unit drawings (rack copper version)



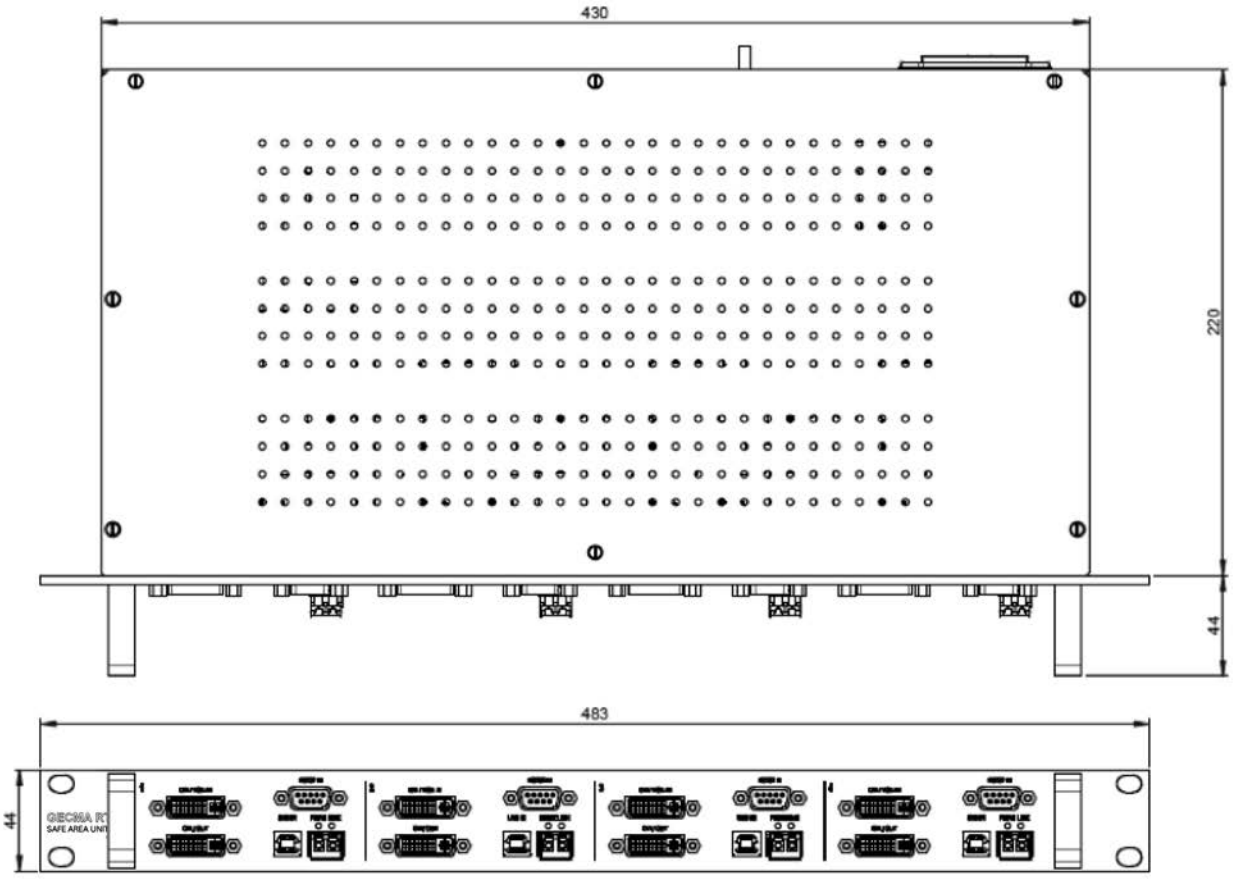
Display shows full configuration with four outputs

Appendix M - Safe area unit drawings (desktop version)



Safe area unit dimensions

Appendix N - Safe area unit drawings (rack version)



Display shows full configuration with four outputs

Appendix O - EU declaration of conformity

A printed version of the Declaration of Conformity has been provided separately within the original shipment of goods.

Appendix P - returns (RMA order)

Dear Customer

Should you find your goods are defective or require a warranty repair, please complete the on-line form on our website at www.Eaton.com/Gecma resources/rma to obtain a RMA reference for the return of your goods

Please note that the processing of your return will take longer if goods are sent back to us without a valid RMA number. An RMA number must be included so that your return can be processed quickly and efficiently.

Please have the following information ready:

- Product name and serial number – you may enter multiple answers where there is more than one product
- An error description with as much detail as possible
- Contact information (responsible person(s) and shipping address)

If you have submitted the form, you shall receive two emails:

- A confirmation email (IMPORTANT: Please check your junk mailbox)
- An email with the RMA number to be used (this will be sent to you as soon as possible)

Please make the RMA number clearly visible on the package and also include this on the delivery note.

WARNING!

Please ensure prior to returning defective devices that the goods being sent back were not used in areas harmful to health and were cleaned according to the applicable provisions of the Occupational Health and Safety Act.

Suitable packaging material can be provided for the return for a surcharge.

If you require further assistance, please use our product support form, which can be found within the resource section at www.eaton.com/gecma, alternatively you can contact us at:

cscgecma@eaton.com

Thank you

Your Customer Service Department Team

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