REM 610
Motor Protection Relay

Installation Manual

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Contents

1. Introduction

This manual contains instructions for unpacking and installing the protection relay REM 610, as well as general information about different mounting kits available.

In addition to the relay and this manual, the delivery includes:

- Certificate of verification
- Operator's Manual
- Technical Reference Manual
- Snap ferrite ring for CT connections

1.1. About this manual

This document provides instructions on how to install the protection relay REM 610.

2. Safety Information

	Dangerous voltages can occur on the connectors, even though the auxiliary voltage has been disconnected
	National and local electrical safety regulations must always be followed
	The device contains components which are sensitive to electrostatic discharge. Unnecessary touching of electronic components must therefore be avoided
	The frame of the device has to be carefully earthed
	Only a competent electrician is allowed to carry out the electrical installation
	Non-observance can result in death, personal injury or substantial property damage
	Breaking the sealing tape on the upper handle of the device will result in loss of warranty and proper operation will no longer be guaranteed
	When the plug-in unit has been detached from the case, do not touch the inside of the case. The relay case internals may contain high voltage potential and touching these may cause personal injury.

3. Unpacking

Relay products, although of robust construction, require careful handling prior to installation on site. Examine the delivered products to ensure that they have not been damaged during transport.

If a product has been damaged, a claim should be made to the transport contractor and the local representative of ABB should be promptly notified.

3.1. Identifying the product

Compare the order number of the relay with the ordering information to verify that you have received the right product. The order number is found on a label under the lower handle of the relay:

	Warning! When checking the order number of the relay plug-in unit, be careful not to lift the handle beyond 25° (approx. 40 mm). Lifting the handle any further will detach the plug-in unit from the case. α = 25° y = 40 mm

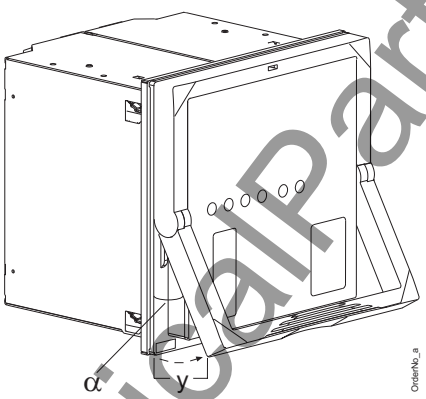

Fig. 3.1.-1 Checking the order number of the relay

3.2. Electrostatic discharge (ESD)

The relay products contain components that are sensitive to electrostatic discharge. The electronic circuits are well protected by the enclosure and therefore unnecessary removals of the plug-in unit and the Human-Machine Interface (HMI) must be avoided.

3.3. Disposal of packing material

The packing material of cardboard is 100% recyclable.

4. Mounting

REM 610 can be flush mounted, semi-flush mounted, mounted in a rack or wall mounted. You will need separate mounting kits for the different methods except for the flush-mounting method.

The relay's construction with a detachable plug-in unit allows an easy installation. Before mounting the relay, the plug-in unit has to be detached from the relay case.

4.1. Detaching and installing the plug-in unit

Prior to detaching the plug-in unit from the case, the auxiliary voltage must be disconnected. To detach the plug-in unit, lift the lower handle until the spring-loaded locks on both sides of the handle are released and the unit is pushed about 6 mm out of the case. This will separate the connectors and you can easily pull the unit out of the case.

The relay features an automatic short-circuit mechanism in the current transformer (CT) connector. Therefore, detaching the plug-in unit will not open the secondary circuit of the CT which otherwise could cause dangerously high voltages.

Signal connectors will be left open when the plug-in unit is detached.

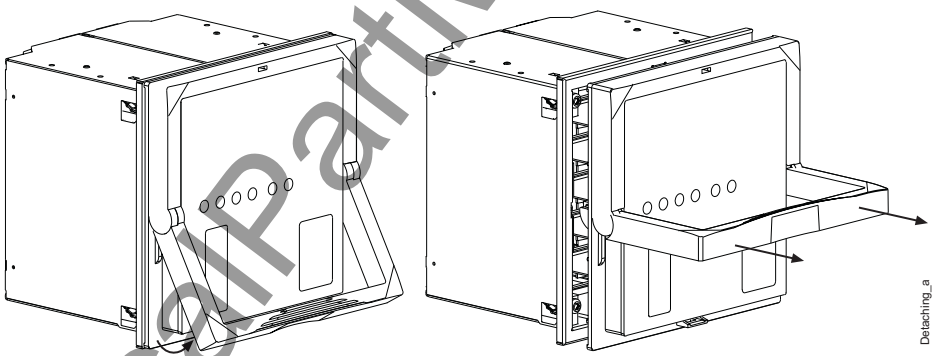

Fig. 4.1.-1 Detaching the plug-in unit from the case

Note!

Before fitting a relay plug-in unit into a relay case, check that the unit and the case have the same order number. The order number of the case is printed on the bottom plate inside the case. However, if a substitute plug-in unit has to be used instead of the original unit, ensure that at least the first ten characters in the order numbers of the case and the plug-in unit are identical, as in the following example:

Order number of the relay case	**REM610A55H**CMP
Order number of the plug-in unit	**REM610A55H**CNR

In order to obtain the identical functionality to that of the original product, all characters in the order number, except for those indicating a spare part, should match the ones of the case.

The relay features a built-in mechanical coding system that helps to prevent dangerous situations from arising, should a non-suitable plug-in unit be fitted into a relay case.

	Danger! Forcing a non-suitable plug-in unit into a case will break the relay and may cause dangerous situations.

To install a plug-in unit into a case, first check that the lower handle is down in its initial position and then push the unit into the case until the locks click; see the figure below:

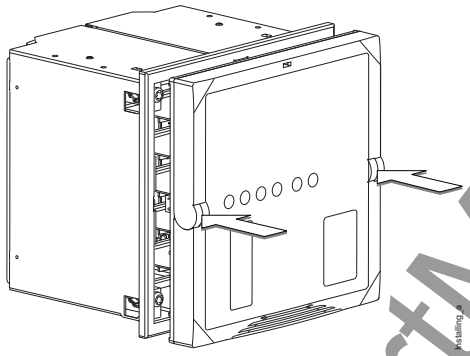

Fig. 4.1.-2 Installing the plug-in unit into the case

4.2. Mounting dimensions

Frame width mm	Frame height mm	Frame depth mm
177	177	149.3

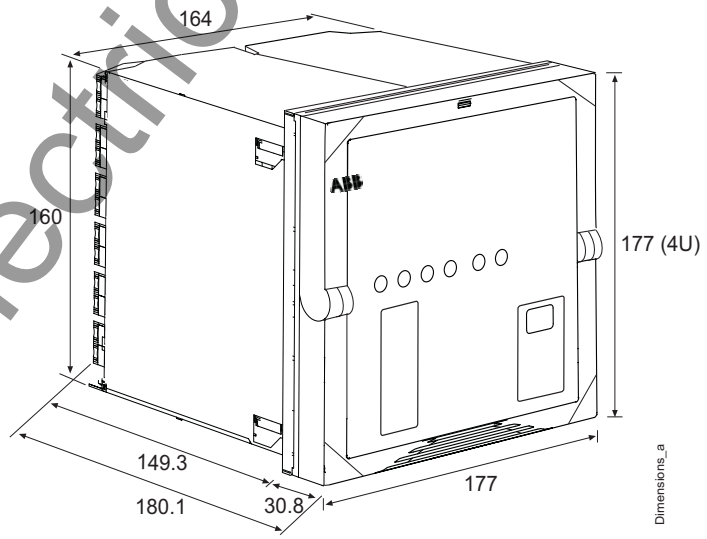

Fig. 4.2.-1 Main dimensions of REM610

4.3. Flush mounting

You will not need a separate mounting kit when flush mounting the case. All mounting accessories are included in the case.

To flush mount the case to the cut-out in the panel, first loosen the 4 M5 fixing screws approximately 7 turns. Mount the case to the mounting cut-out and tighten the screws; see Fig. 4.3.-1. The allowed value range for the fixing screws' tightening torque is 0.7...1Nm.

The enclosure class of the flush-mounted device is IP 54 on the front side, while the rear side fulfils the IP 20 requirements (top of the relay: IP 40).

⚠	Caution! A device equipped with optic connections requires a minimum depth of 180 mm.

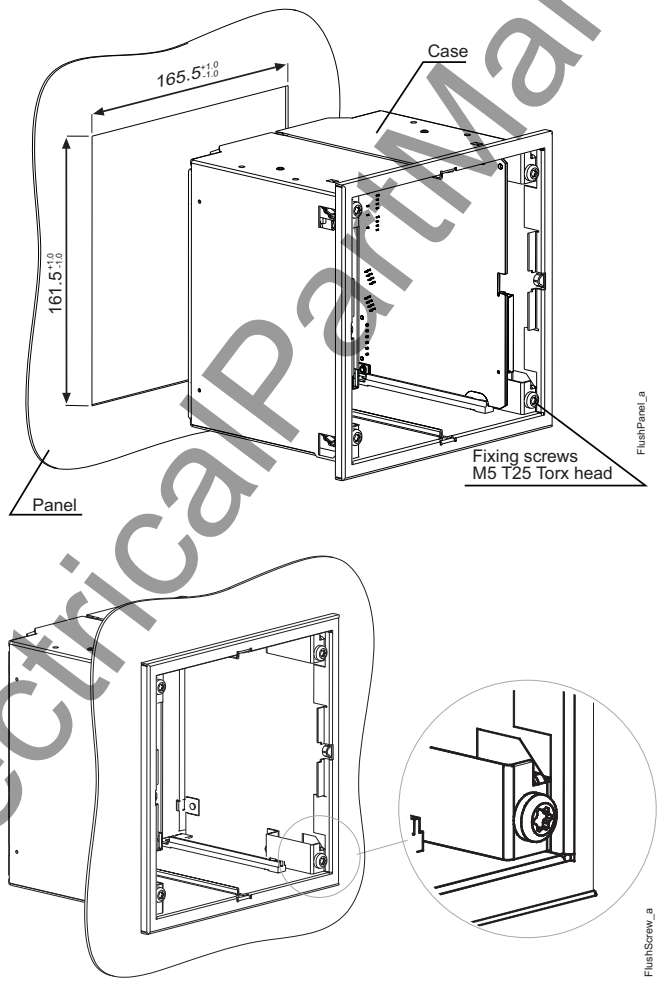

Fig. 4.3.-1 Flush mounting of a case

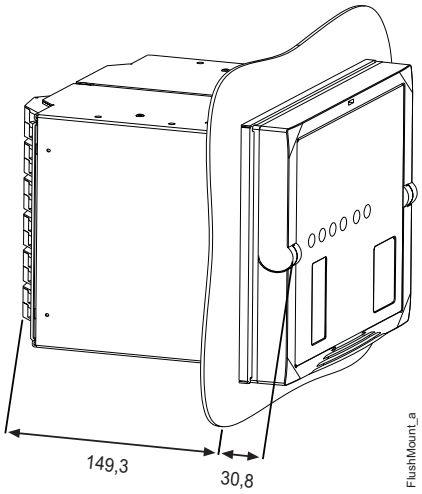

Fig. 4.3.-2 Relay (case and plug-in unit) flush mounted

4.4. Semi-flush mounting

The semi-flush mounting kit (1MRS050696) includes a raising frame, a gasket and screws and is needed for the semi-flush mounting of a case. The gasket is used when an IP 54 degree of protection (according to the IEC 60529) is required for the front side. If the gasket is not used, an IP 50 degree of protection is obtained.

Mount the raising frame to the cut-out in the panel with four screws according to Fig. 4.4.-1.

⚠	Caution! A device equipped with optic connections requires a minimum depth of 130 mm

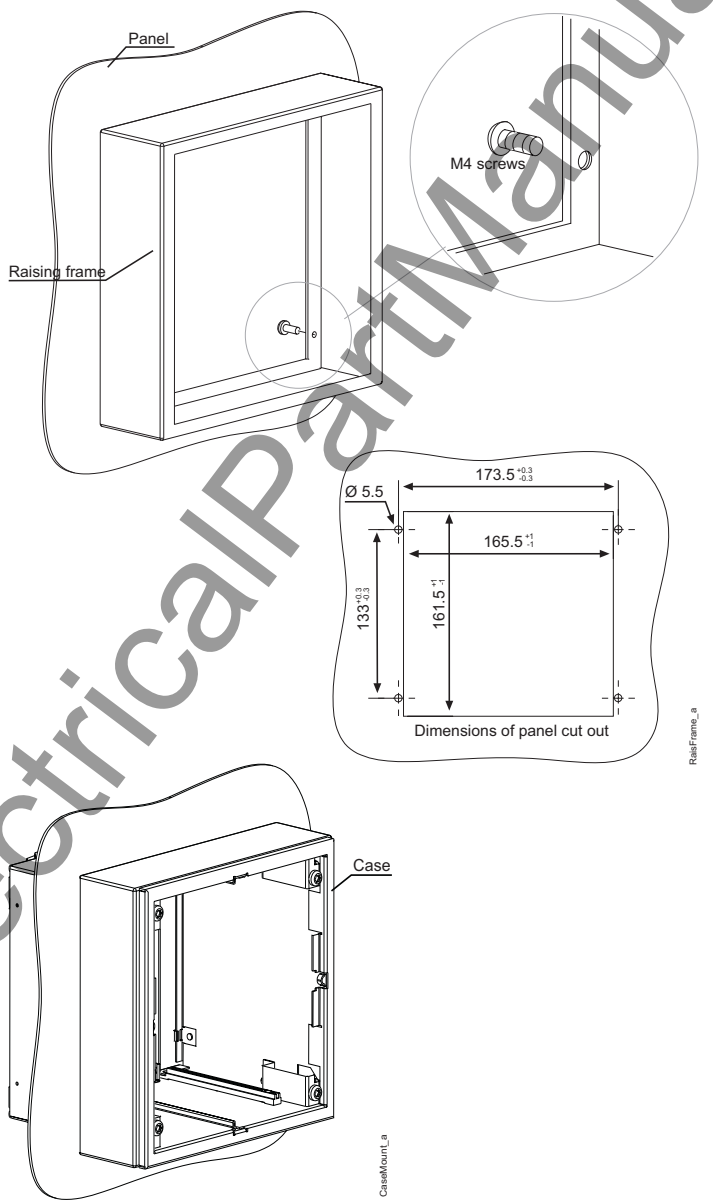

Fig. 4.4.-1 Semi-flush mounting

For instructions on how to mount the case to the raising frame, refer to section Flush mounting.

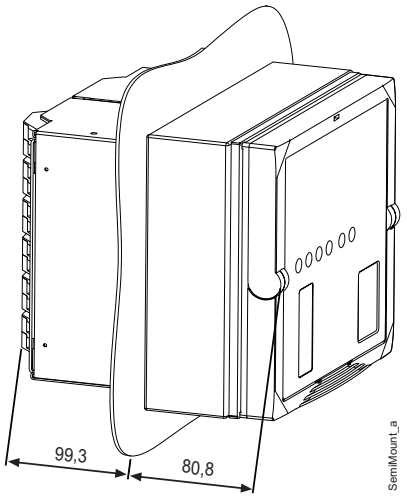

Fig. 4.4.-2 Relay (raising frame, case and plug-in unit) semi-flush mounted

4.5. Rack mounting

The case can be mounted in a 19" rack using one of two different mounting panels. The type of mounting panel required depends on the number of cases mounted. When mounting only one relay, use mounting kit number 1MRS050694. When mounting two relays next to each other, use mounting kit number 1MRS050695.

	Caution! A device equipped with optic connections requires a minimum depth of 180 mm.

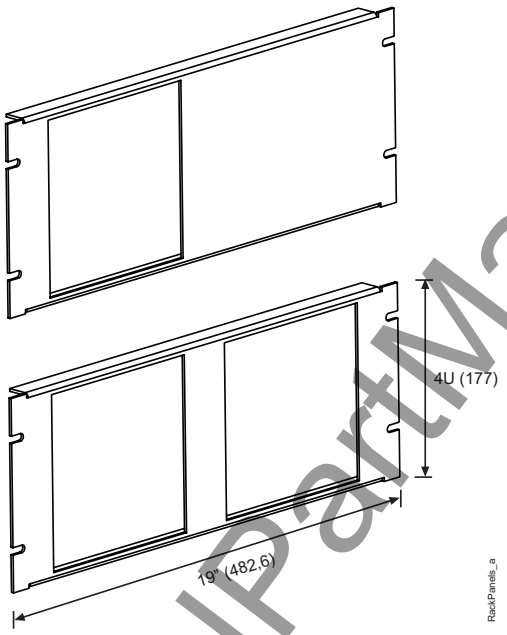

Fig. 4.5.-1 19”- rack mounting panels

For instructions on how to mount the case to the panel, refer to section Flush mounting.

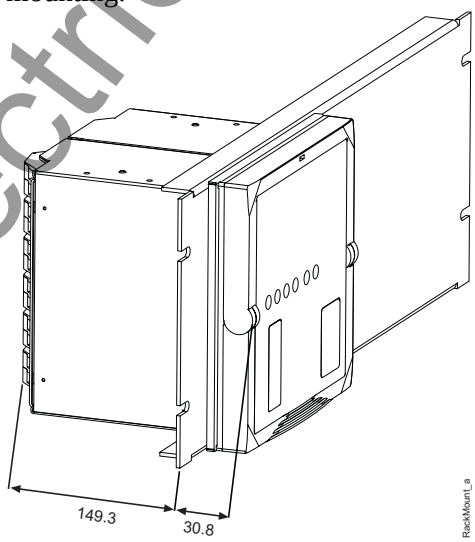

Fig. 4.5.-2 Relay (case and plug-in unit) rack mounted.

4.6. Wall mounting

Kit 1MRS050697 is used for mounting the case on a wall, i.e. projection mounting, and contains two two-piece mounting brackets (frame and rail parts), a backplate and screws. The mounting brackets are made of prepainted (light-grey, Pantone 420) steel sheet. The kit also includes detailed mounting instructions and dimensions for screw holes.

A wall-mounted case can be pulled out 160 mm and turned 45 (or 90) degrees downwards (or upwards) when the wires are to be connected. Part “A” locks the case to selected (pushed-in or pulled-out) position, see figures below. The case is released by pushing the locks. By loosening the knurled-head screw “B”, the case can be rotated, see Fig. 4.6.-2.

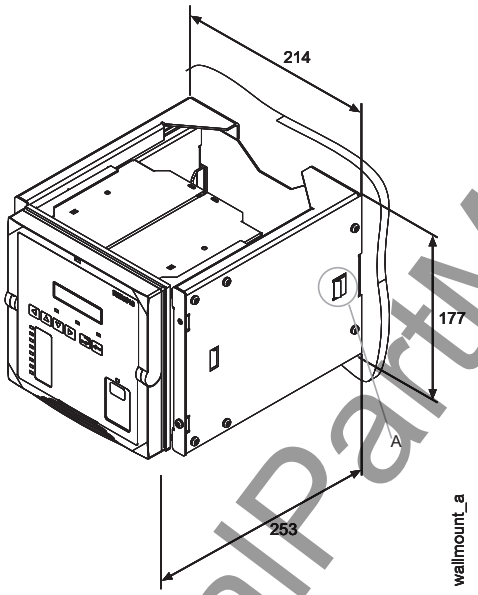

Fig. 4.6.-1 Relay (case and plug-in unit) wall mounted

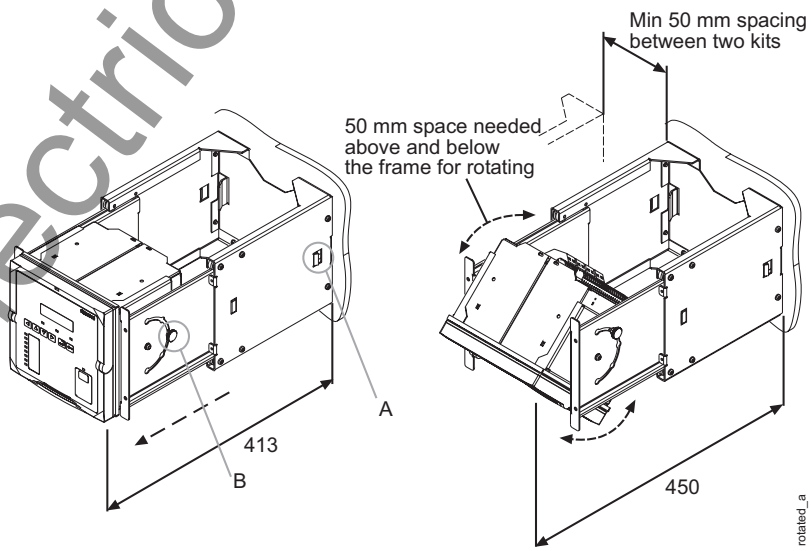

Fig. 4.6.-2 Wall-mounted relay in pulled-out position and rotated

5. Connections

Connection terminals are described in the Technical Reference Manual. Each contact has its own identification number, X2.1, for instance. The numbering of the contacts runs from top to bottom, except the connectors X2.1 and X5.5 which are numbered from bottom to top; see Fig. 5.1.-1.

Terminal blocks of screw-compression and ring-lug type are used for electrical connections while transceivers of snap-in type are used for plastic fibre-optic connections. If terminals of screw-compression type are used:

1. Open the screw terminal before inserting a wire into it for the first time. To open the screw terminal, turn the fixing screw anticlockwise until the terminal hole is wide open (the inside of the terminal hole is surrounded by metal).
2. Insert the wire and turn the fixing screw clockwise until the wire is firmly fixed.

Only use screwdriver and insert bits for Phillips (PH 1) cross-recessed head screws (M3.5) when handling CT terminals (X2.1) of screw-compression type.

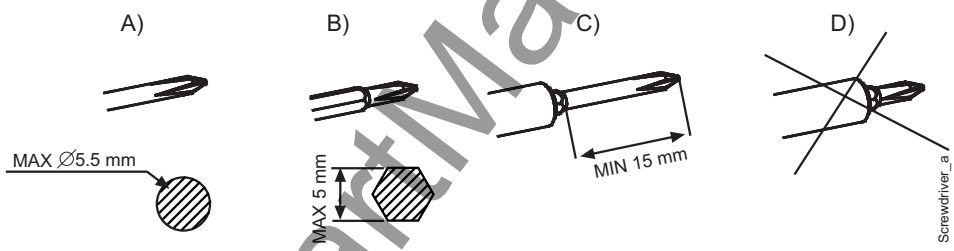

Fig. 5.-1 Screwdriver and insert bits for CT terminals of screw-compression type

It is also possible to use terminals of ring-lug type for the CTs. If using terminals of ring-lug type:

1. Open the lid that covers the ring-lug fixing screw (every fixing screw has its own lid) with the tip of a screwdriver.
2. Screw off the screw, slide it through the terminal lug and screw it back on.
3. Close the lid.

When the wires for the CTs have been connected, install the snap ferrite ring, provided with the relay, around the wires as close to the relay terminals as possible.

5.1. Electrical connections

All connections are made on the rear of the case. No soldering is needed.

Each signal connector (X3.1 and X4.1) terminal is dimensioned for one 0.2...2.5 mm^2 wire or two 0.2...1.0 mm^2 wires.

Connect the wires from the CTs to the right device according to the phase order and the coupling scheme. Each terminal for CTs is dimensioned for one 0.5...6.0 mm^2 wire or for two maximum 2.5 mm^2 wires.

A separate earth lead of at least 2.5 mm^2 has to be connected from the protective earth screw between connectors X4.1 and X3.1 (upper screw; see Fig. 5.1.-1) to the earth bar.

When using RTD sensors or thermistors, use a double shielded cable. Connect the cable shields to the chassis earth screw between connectors X4.1 and X3.1 (lower screw; see Fig. 5.1.-1).

Terminals on the optional RS-485 communication module are dimensioned for one 0.08...1.5 mm^2 wire or for two maximum 0.75 mm^2 wires.

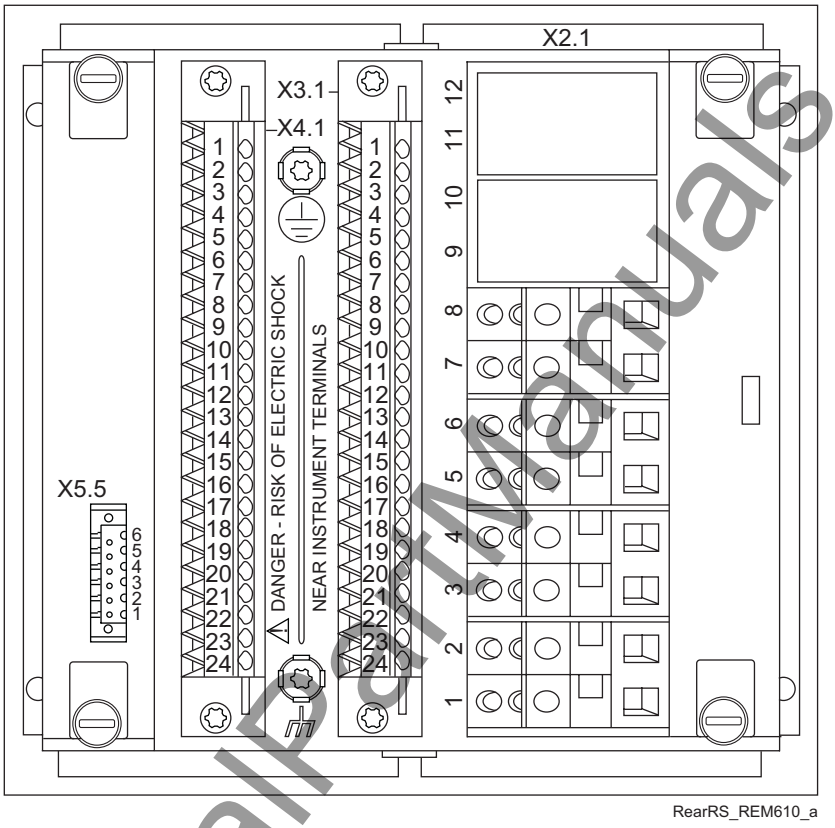

Fig. 5.1.-1 Rear view of REM610 with the RS-485 communication module

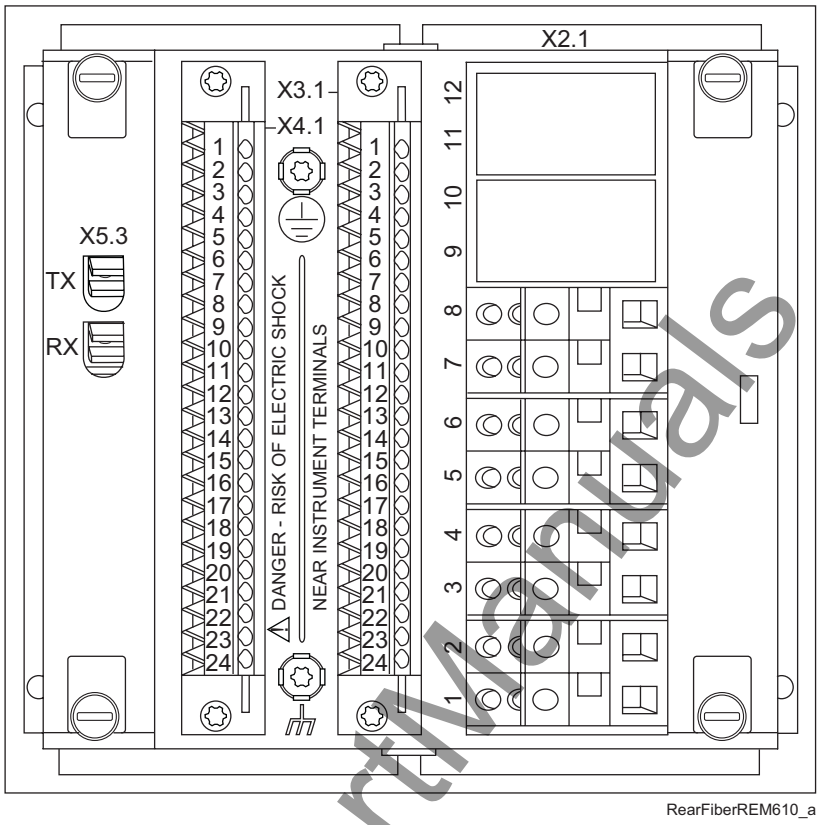

Fig. 5.1.-2 Rear view of REM610 with the fibre-optic communication module for plastic fibre

References

Other available manuals:

- Technical Reference Manual, 1MRS 752263-MUM
- Operator’s Manual, 1MRS 752264-MUM

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