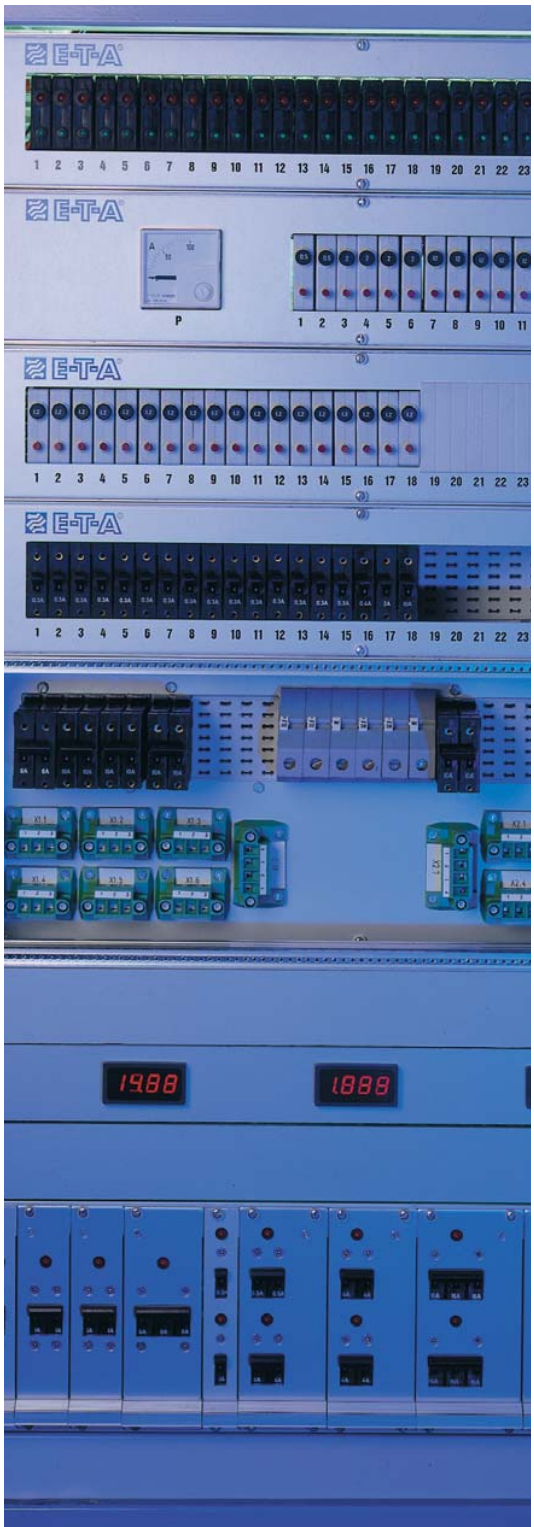
E-T-A®
Circuit Protection & Control

E-T-A System Technology
Solutions for Every Application.

Photo: Eurocopter/Jérome Deulin

E-T-A:
Safety first



For nearly six decades the E-T-A registered mark has been recognised as a symbol of safety and reliability throughout the field of equipment protection. With headquarters in Altdorf, Germany, E-T-A is an international group of companies and a world leader in the design, development and manufacture of circuit breakers for the protection of components, equipment and systems against the potentially catastrophic effects of electrical overload and short circuit. Today the E-T-A product range is one of the widest available with a solution for almost every application.

Research & Development.
As a privately owned group, we are committed to maintaining a high level of research and development investment to ensure we remain at the forefront of circuit protection technology. E-T-A has 1400 highly qualified personnel worldwide with 150 in research and development alone. Our products combine innovative, leading-edge designs with proven low cost of ownership, and exceptional safety and reliability. They are fully approved by internationally respected authorities including VDE, UL and CSA.

In addition to our own R & D activity we work closely with universities and are funding several advanced technology programmes addressing industry's needs for tomorrow.
Our commitment to environmental protection and conservation of natural resources has been widely acclaimed and is a high priority throughout the E-T-A organisation, including our other manufacturing sites in the USA, Tunisia and Indonesia.

Latest-state-of-the-art production lines.
E-T-A products are manufactured utilising ultra-modern production means and assembly lines which meet the highest quality requirements and have been certified to ISO 9001:2001.

Worldwide Support.
E-T-A's network of subsidiary companies and representatives provide sales and support in approximately 60 countries around the world. Product specialists will assist in the selection of the correct solution for your application. Whether you require individual circuit breakers, a complete system solution, sensors or control devices you will be able to specify E-T-A products confident in the knowledge you will not be disappointed.

E-T-A
System Technology

E-T-A also specialises in complete solutions in the system technology sector. For over ten years we have been offering comprehensive solutions for power distribution and protection of loads and lines, tailored to the requirements of the customer and the application. We supply to many industries including telecommunications, process control and factory automation, petrochemical, pharmaceutical and automotive, as well as marine and aerospace. We are also able to provide individual solutions for very specific projects in other industries.

We aim to offer fully customised solutions at attractive terms and conditions, no matter whether it is a one-off requirement or a large-volume industrial application.

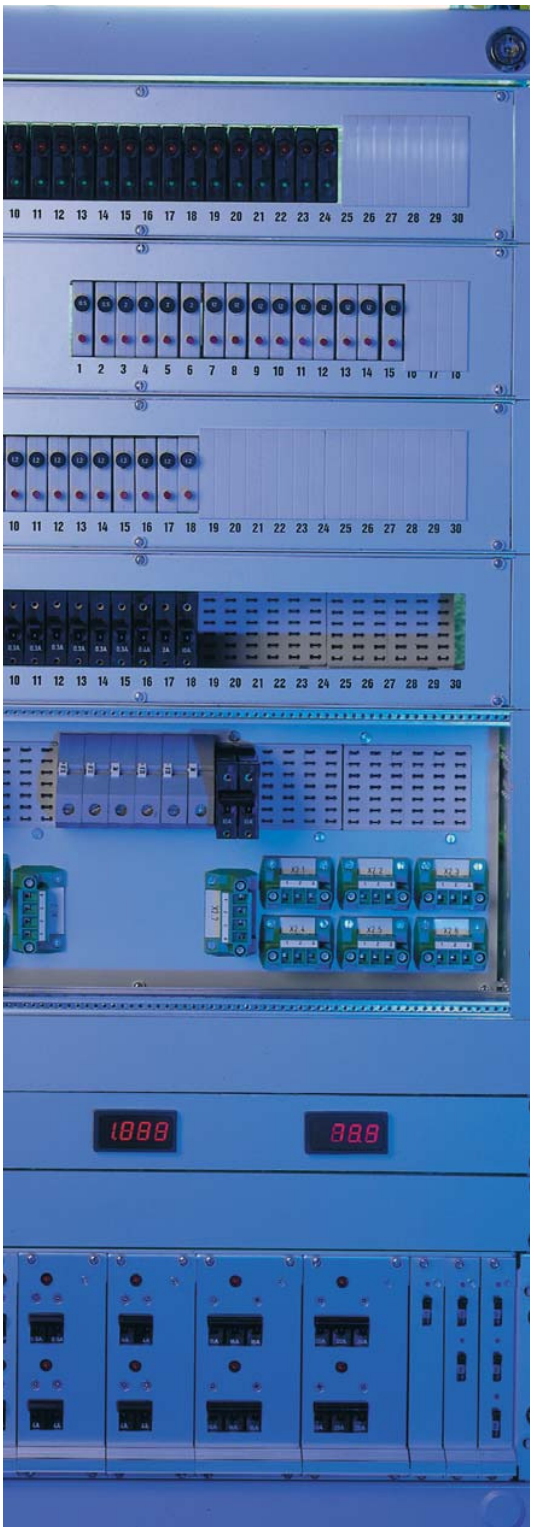
Crucial to a properly designed and reliable power distribution system is the correct selection of circuit protection, including current ratings and trip characteristics, to ensure that neither the cables nor the load itself are damaged by overload or short circuit. It is also of paramount importance to avoid any adverse effects on the power supply or loads adjacent to a faulty circuit. E-T-A electro-mechanical and electronic circuit breakers and protectors are ideally suited to this purpose.

A variety of mounting configurations is available to help provide the best solution for individual applications. Some models are pluggable, utilising E-T-A mounting sockets, offering versatility and convenience - particularly during service and maintenance - while track-mountable products are available for installation in control cabinets. As a further option, securely fixed panel mounted circuit breakers will enhance overall system robustness.

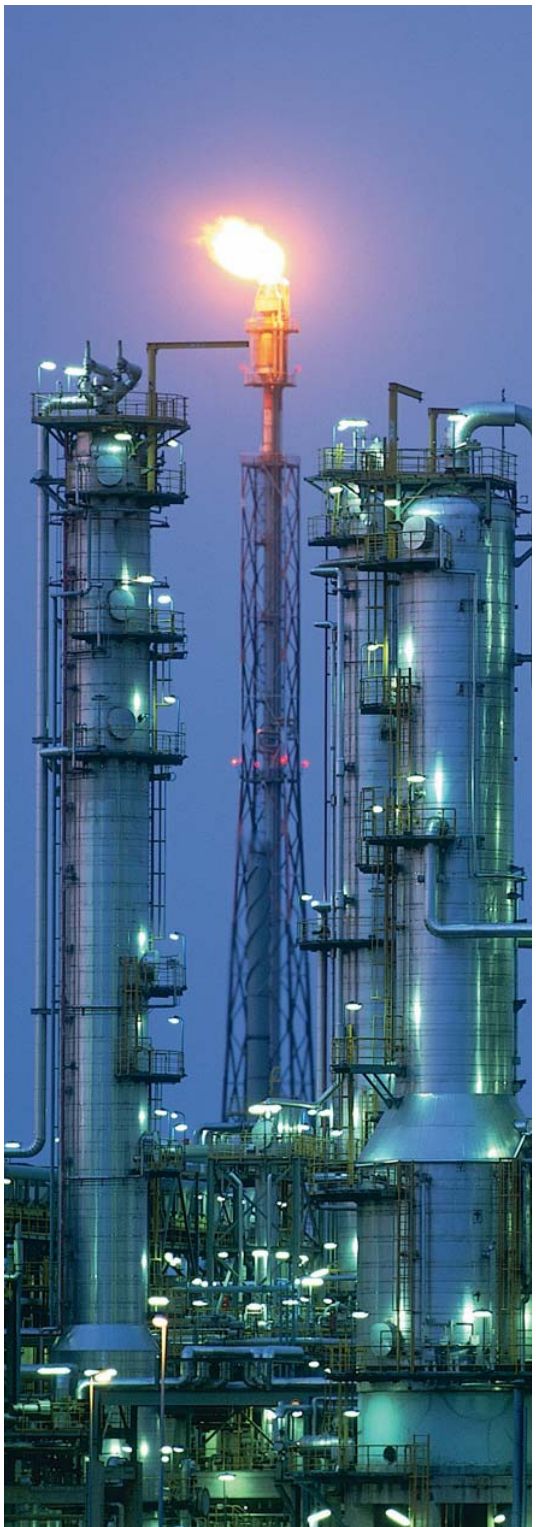
Many E-T-A circuit breaker models offer optional auxiliary contacts which facilitate remote diagnostics and monitoring. Push-button, toggle and rocker actuators are available to suit a wide range of different needs, and we offer actuator guards to prevent inadvertent operation.

The selection criteria to determine the most suitable circuit breaker type for a particular application include general design requirements, current rating, number of output circuits and space available, termination, and cable size to be protected, as well as mechanical parameters such as mounting method preferred and marking. In designing our systems we take every preference into account: with the wide product range we have available we are certain to be able to match the correct product to the customer's requirements.

Many internationally renowned companies depend on the reliability and quality of E-T-A products, as well as our long-standing experience in the design and development of power distribution systems for almost every application.



Superior products for your application
in system technology



Module 17plus
Flexible power distribution

The E-T-A power distribution system Module 17plus offers maximum safety and flexibility for all manufacturers of control cabinets. In addition it helps to save time both during initial installation and routine maintenance. The Module 17plus features spring-loaded terminals which are vibration-proof, maintenance-free and require only minimal wiring time. Their excellent clamping force provides perfect and durable connection. Supply feed is via plug-in distribution bus bars.

The Module 17plus has integral bus connections for signal contact functions and is suitable for accommodating E-T-A circuit breaker types 2210, 3600 and 3900, the electronic circuit breaker type ESS20 as well as the E-T-A solid state remote power controller E-1048-7.. The plug-in design of these E-T-A devices facilitates their replacement, even with the system live.

Module 17plus fitted with electronic circuit breakers ESS20 from E-T-A.

Module 17plus fitted with E-T-A SSRPC type E-1048.

Voltage rating:
AC 433 V; DC 65 V

Current rating range:
LINE – group line entry max. 50 A
LOAD – individual load output max. 25 A

Module 17plus fitted with E-T-A circuit breaker type 2210.

Benefits at a glance:

- Narrow profile minimises space required
- Cost-saving through ease of mounting
- Quick installation through internal pre-wiring
- Modular design for long-term flexibility
- Track mountable on all standard rails
- Ease of CBE replacement, even with power on

Power distribution systems X8340-S
Systematic protection, supply and distribution

Power distribution system series 8340-S exemplifies our system solutions capabilities. We manufacture systems for mobile radio installations, and transmission and switching technology, enabling the distribution of power – to a maximum of 100A per complete unit – systematically, conveniently and cost-effectively. E-T-A system solutions embody advanced design features to minimise the risk of failures. Load output connectors, for example, are protected against reverse polarity to avoid damage and cost in the event of connection errors.

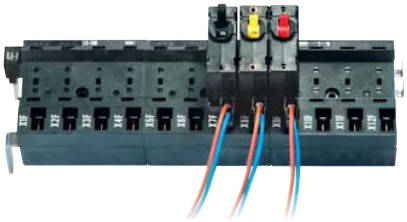
Ease of installation and maintenance, as well as their compact design, characterise X8340-S power distribution systems.

Power distribution system X8340-S02

X8340-S02
Voltage rating:
AC 230 V; DC 80 V

Current rating range:
max. 25 A per plug-in unit
max. 100 A per total unit

Benefits at a glance:
- modular double slots
- terminal block with screw terminals for main in- and outgoing line
- group signalling
- load output protected against reverse polarity plug-in connected from the front



Power distribution system X8340-SZ4

X8340-S04
Voltage rating:
AC 230 V; DC 80 V

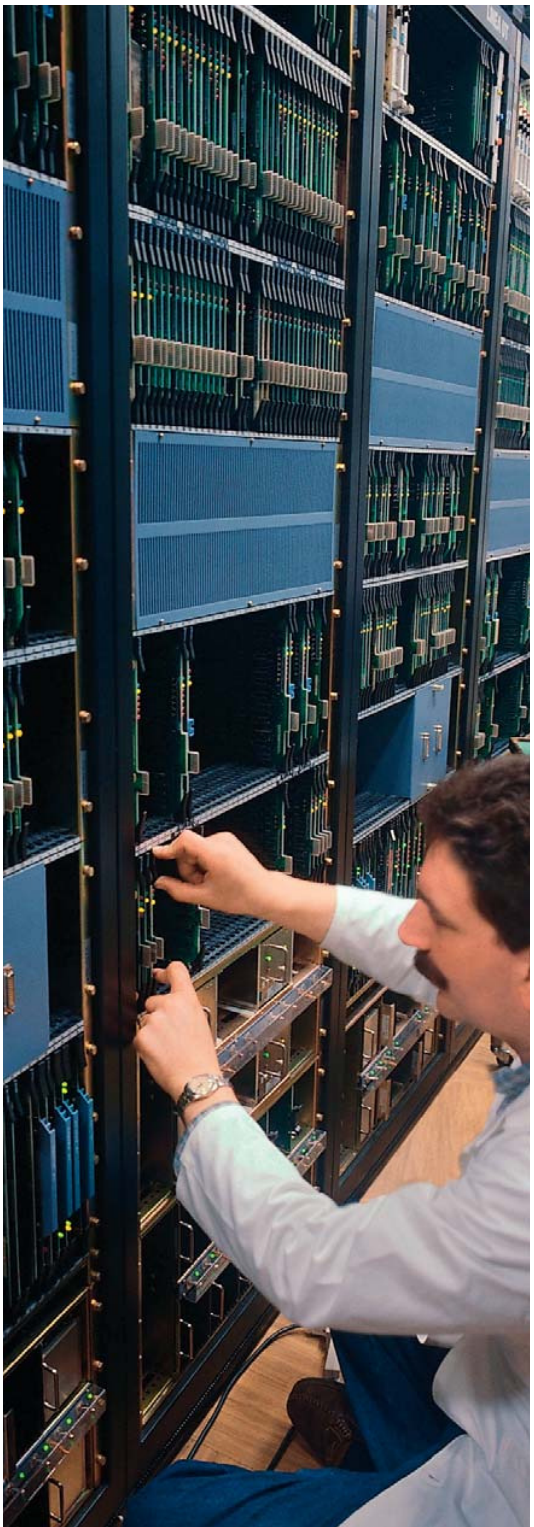
Current rating range:
max. 20 A per plug-in unit
max. 80 A per total unit

Benefits at a glance:
- four-way slots
- ease of front mounting with spring-loaded terminals for load output and group signalling
- screw terminals on the rear for main line entry (2-pole)

X8340-SZ4
Voltage rating:
AC 230 V; DC 80 V

Current rating range:
max. 25 A per plug-in unit
max. 150 A per total unit

Benefits at a glance:
- modular double slots
- ring cable lugs for main in- and outgoing line
- group signalling
- load output protected against reverse polarity to be plug-in connected from the front or the rear



Power distribution system X8345-D01
Powerful – compact – unique

Do you need to start complex systems faster or re-configure systems on-line without stoppages; simplify installation in areas difficult to access; or reduce maintenance time and costs?

The E-T-A power distribution system X8345-D01 has been designed specially for demanding applications across industry. The system facilitates the start-up of complex machinery and the re-configuration without downtime of operational equipment. Ease of connection is ensured even in locations difficult to access, providing easy retro-fit capability as well as reducing maintenance and service costs. Furthermore the space saving benefits offered by the X8345-D01 are such that it is ideally suited to use as a basis for standard customer specific distribution systems for load currents ranging form 0.05 A through 125 A.

In combination with E-T-A hydraulic-magnetic plug-in circuit breakers type 8345, the X8345-D01 represents a comprehensive power distribution system for the protection of Wireless or Wireline equipment, whether switching technology, transfer mode systems, network access technology or mobile radio systems. The X8345-D01 is a compact and flexible solution for all power distribution and protection applications.

Power distribution system X8345-D01

Rated voltage:
DC 80 V
other voltage ratings upon request

Current rating range:
max. 125 A per position
max. 600 A per complete module

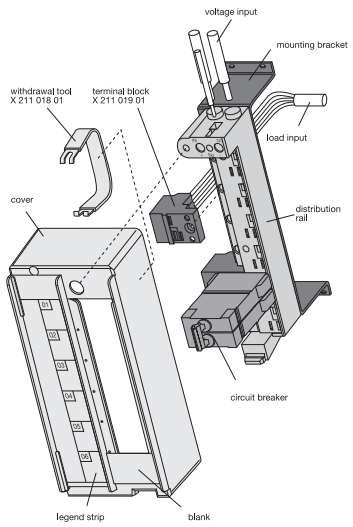
Benefits at a glance:
- hot swap capability
- max. total current 600 A, load per output 125 A
- modular design minimises redundancy
- compact size – space-saving design: 2U
- suitable for use with 19", 21" or ETSI racks
- front protected against brush contact (IP20)

Distribution rail X2210-S06
Power distribution according to standard

E-T-A rails distribute electrical power in telecommunications, automation, data and control systems. They have been designed to industry standard requirements and are suitable for mounting in ETSI control cabinets. These distribution rails are supplied with mounting bracket, cover, 6 blanks and withdrawal tool.

Live parts in terminals areas are protected against brush contact (VDE 0106, part 100).

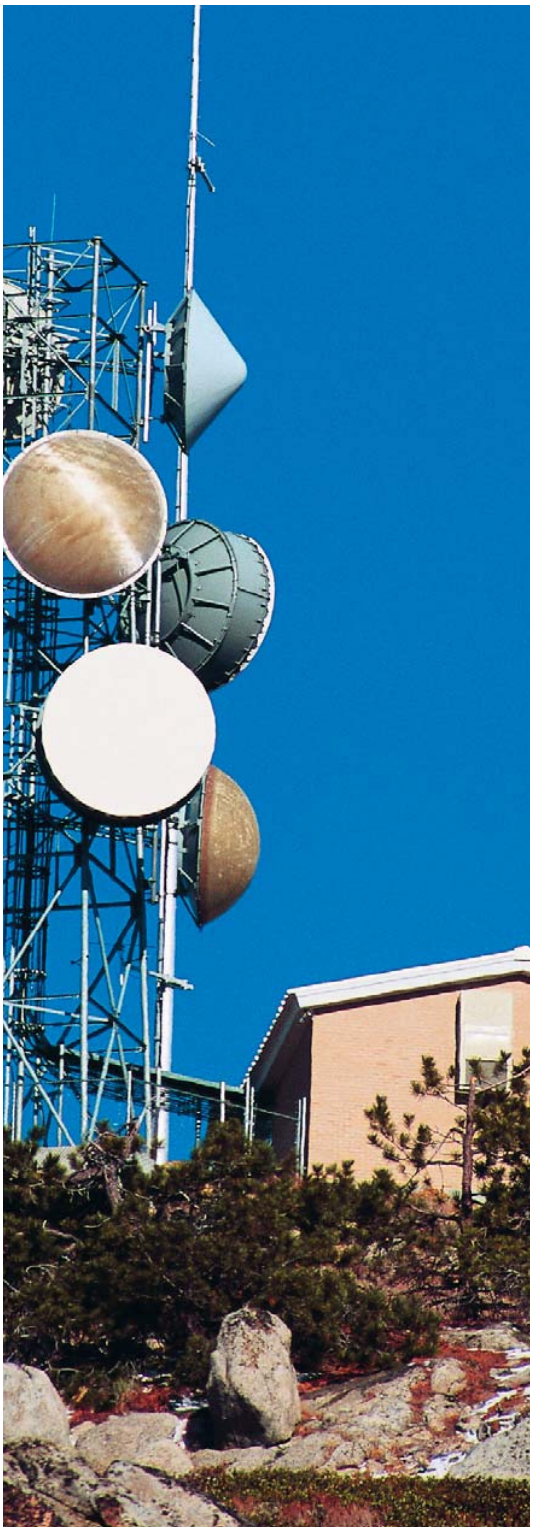
Distribution rail X2210-S06



Rated voltage:
AC 250 V; DC 65 V

Current rating range:
max. 25 A per position
max. 80 A per complete module

Typical applications:
- Telecommunications systems
- Measuring equipment
- Control systems



19BGT-2-X rack

Systematic protection – ease of wiring and installation

Installation racks are sophisticated and future-proof solutions when it comes to saving time and money regarding energy supply and safety. The compact 2U 19” rack features profiled aluminium cross members with an anodized front plate. The panel cut-out accommodates up to 30 positions which can be fitted with circuit breakers type 2210 even with the system live. Blanks are available to cover unused sockets.

Rack version 19BGT-2 accommodates plug-in type circuit breakers 8340, 8345, 3600/3900, 2210, electronic circuit breaker ESS20 or electronic circuit protector ESX10. The circuit breakers plug fit into integral terminal blocks type 63-P10-Si (6 positions each). Other space-saving solutions are 19” 3U racks with a maximum of 60 circuit breakers and 1U racks with up to 12 circuit breakers.

Rated voltage:
AC 230 V; DC 80 V

Current rating range:
max. 25 A per position
max. current for total module is design dependent

Benefits at a glance:

- standardised installation technology for 19"/23" or ETSI systems
- “plug & play”
- modular configuration
- customer-specific system technology with screw terminals or spring-loaded terminals
- single or group signalling
- space-saving design

19BGT, *customised for electronic circuit breakers, front view*

19BGT, *rear view*

19BGT, *standard version for circuit breaker type 2210, front view*

19BGT, *rear view*

19BGT-2-X rack
Compact and flexible

The 19BGT-2-X is a compact 19" 2U power distribution rack incorporating E-T-A plug-in circuit breakers type 2210-S291, 8340-F or 8345-.01.-W0. These are installed in pre-wired E-T-A power distribution rails X2210-S, X8340-S02, X8340-S04, X8340-SZ4 or X8345-D01. Options available include separate circuits, redundant circuits and customer-specific marking.

The rack is manufactured in aluminium with a satin finish front panel.

19BGT-2-X8345 rack

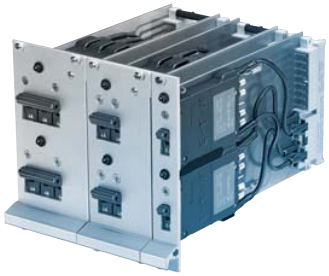
Rated voltage:
AC 230 V
DC 110 V; DC 80 V; DC 65 V

Power distribution for:
max. 600 A for total module
max. 125 A per position

Suitable circuit breaker types:
- thermal-magnetic
- hydraulic-magnetic

Circuit breaker assemblies E2210, 2215
Switching and protecting

For use in 19" racks to DIN 41494 for industrial control and measuring systems and in telecommunications equipment thermal-magnetic circuit breakers type 2210 or 2215 are mounted on a Euro Card E2210 or E2215. Each Euro Card can accept up to max. three independent single pole, double pole or three-pole circuit breakers. Convenient toggle actuation enables circuit breakers to be used additionally as ON/OFF switches. A red LED is located on the front frame of the Euro Card, indicating the switching status of the circuit breaker (via an auxiliary circuit).



Type E2210
Mounting: Euro card

Type E2215
Mounting: Euro card

Circuit breaker 2210:
Rated voltage:
AC 250 V (50/60 Hz)
DC 65 V
Current rating range:
0.1…16 A
Circuit breaker type:
thermal-magnetic

Circuit breaker 2215:
Rated voltage:
AC 250 V (50/60 Hz)
DC 48 V
Current rating range:
0.05…10 A
Circuit breaker type:
thermal-magnetic

Customer-specific solution:
1U Compact Rack

19" 1U rack (also for ETSI systems) accommodating plug-in thermal-magnetic circuit breakers type 2210-S or similar types, single or double pole, with or without signal contact.

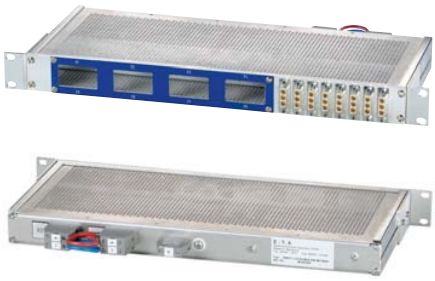
8 single pole (or 4 double pole) circuit breakers are fitted transversely as vertical pairs, line entry is at the rear by means of screw terminals with 16 mm^2 cable cross section capacity. Redundant design of the system (2 x 4 circuit breakers) is also available.

The load terminals are connected from the front by means of high current sub-D connectors or optionally from the rear by means of screw terminals. Auxiliary contact terminals can be connected from the rear (serial or parallel connection possible).

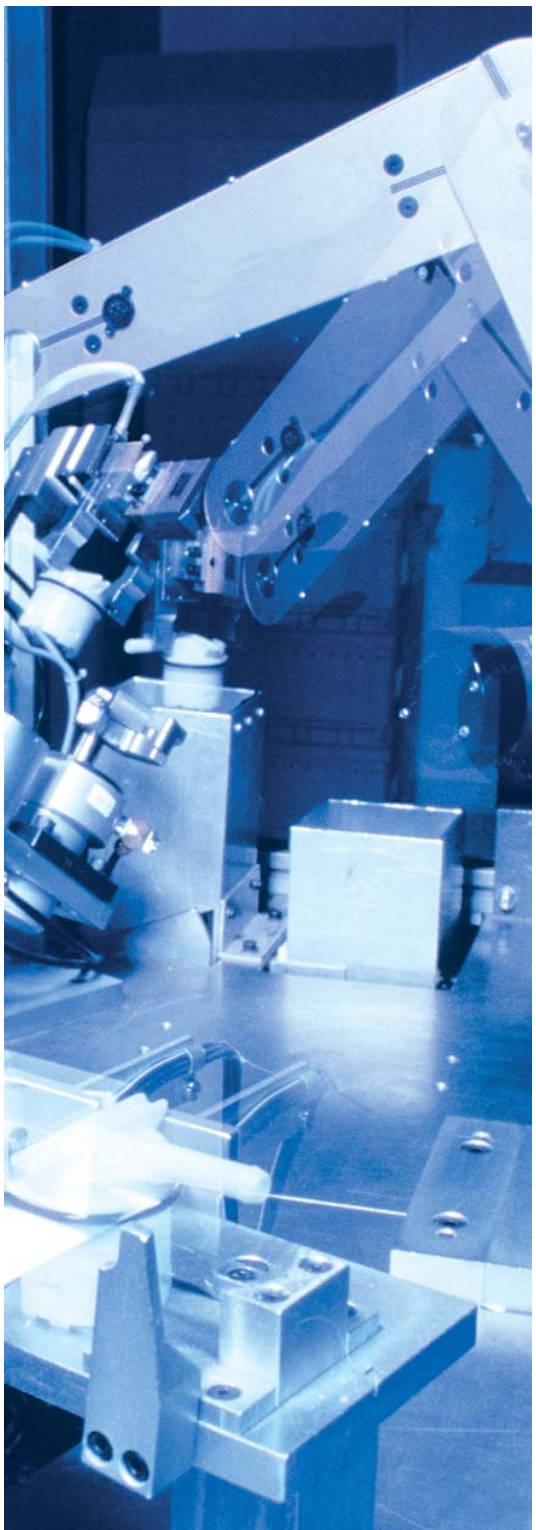
For replacing or retrofitting circuit breakers part of the front plate can be removed.

Above and below the circuit breakers are two narrow strips for customer-specific marking. Permanent marking is available ex factory for the front plate as an option.

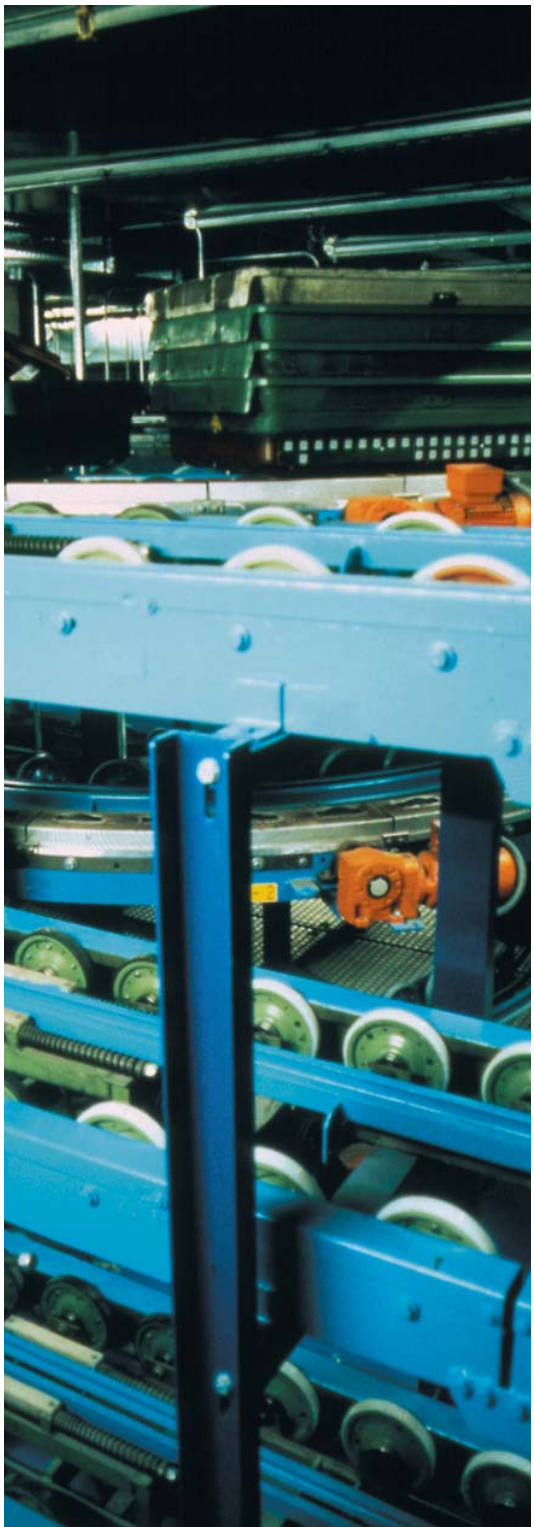
Max. rating per way is 25 A, max. load of the line entry is 63 A at DC 65 V/AC 250 V.



1U compact rack as customised solution



Customer-specific solution:
3U multi-channel rack



19" 3U racks (also for ETSI systems) for accommodating plug-in type 2210-S or similar, single pole or multipole, with or without auxiliary contacts.

Up to 60 single pole circuit breakers can be fitted (in 2 rows above each other). Standard version of the rack is supplied without wiring, but customer-specific wiring is possible upon request.

Type and size of line entry, wiring of load outputs, signal contact connection as well as fitting with connecting terminals will be to order.

For replacing or retrofitting circuit breakers part of the front plate can be removed. Unused ways can be covered with blanking pieces.

Above and below the circuit breakers customer-specific marking is possible. Permanent marking is available ex factory for the front plate as an option.

Max. rating per way is 25 A, max. load of the line entry is 63 A at DC 65 V/AC 250 V.

Front view

Rear view

Customer-specific solution
Power distribution system for installation in control cabinets

Power distribution system for direct mounting to the rear wall of a control cabinet. Featuring type X8345-D01 power distribution rail with a variable number of modules possible.

Plug-in type 8345 circuit breakers are installed allowing load output currents of up to 125 A per module, with a maximum of 160 A for two adjacent positions.

Line entry is on the side, connected directly to internal busbars with up to 300 A at max. DC 110 V / AC 230 V.

Optional auxiliary contacts are also connected from the side by means of 2.8 mm blade terminals, all contacts are connected in parallel.

Main and load terminal connections are by means of hexagonal screws.

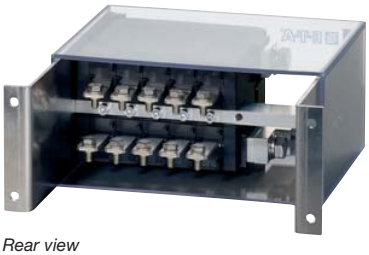
The entire power distribution system is protected against brush contact by a slide-on plexi glass cover.

The system is mounted on the rear wall of a control cabinet by means of aluminium brackets. The system is also available as a version offering system redundancy.

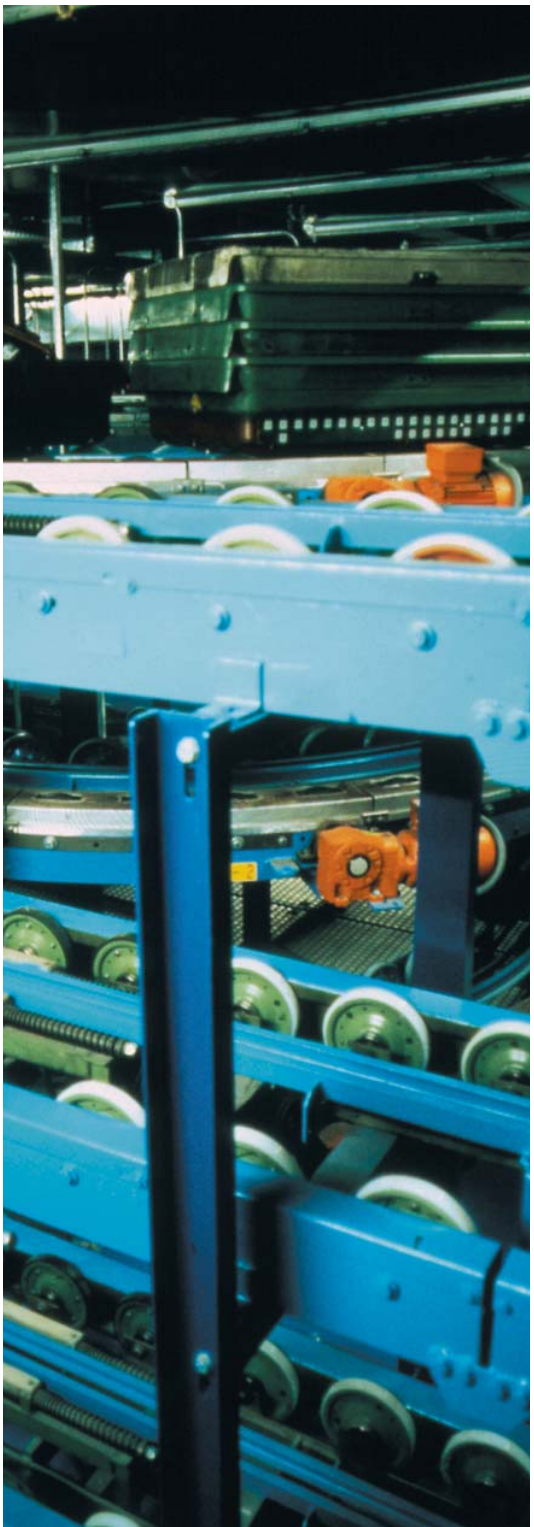
The circuit breakers are hot-swappable without removing the protective cover.

Above and below the circuit breakers customer-specific marking is possible. Permanent marking is available ex factory for the front plate as an option.

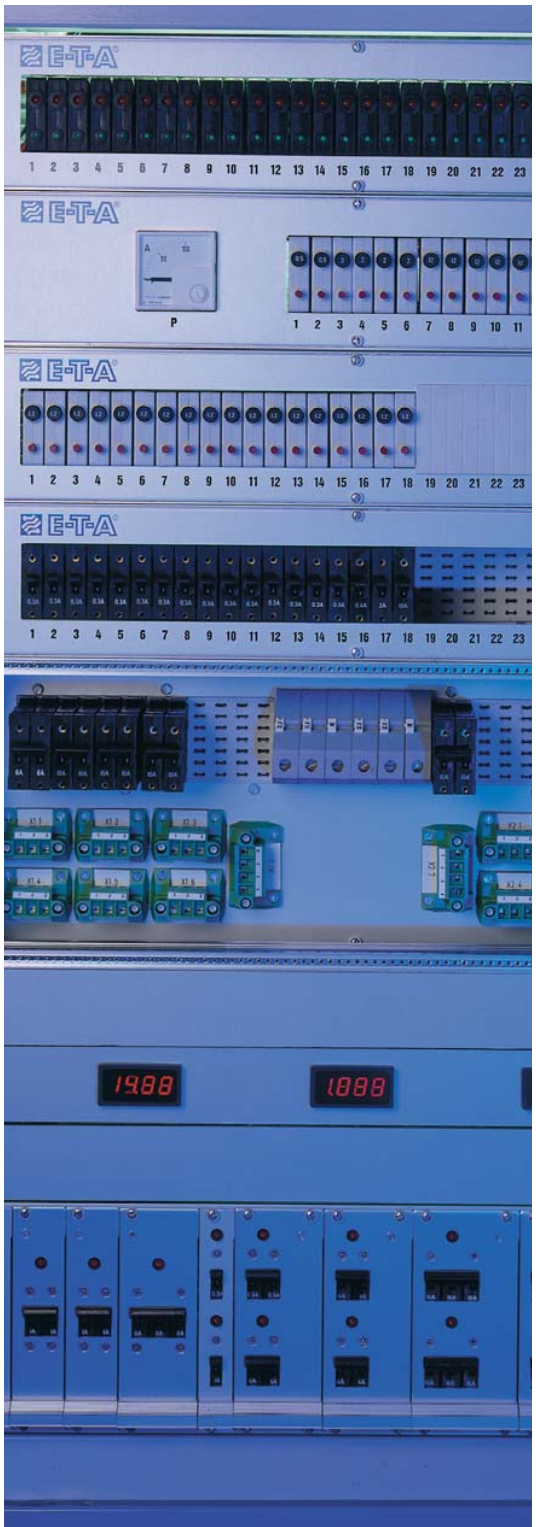
Front view



Rear view



Customer-specific solution
19" rack 2U with printed circuit board



The compact 19" rack with printed circuit board features aluminium profiled cross members with an anodized front plate. The panel cut-out accommodates up to 30 positions. It is possible to have a redundant distribution with up to 2 x 15 positions.

The 19BGT rack accommodates plug-in type circuit breakers 3600/3900 and 2210, solid state remote power controller E-1048-700, electronic circuit breaker type ESS10 and electronic circuit protector ESX10. The required device must be specified in the ordering information as both different installation and pcb pin assignments must be allowed for.

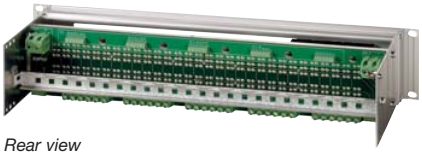
The devices are plugged into corresponding sockets type 63-P10-Si (6 positions each) soldered onto the pcb.

The system is configured with redundancy as standard (2 x 15 positions), but the two groups may be interconnected so as to provide a non-redundant system if required. Supply feed within each group is double pole, odd and even position numbers are integrated into one circuit each of which is connected via a 10mm² screw terminal. This allows connection of single pole and double pole devices. Connection of the load outputs is also via screw terminals up to 4mm² on the rear side of the pcb.

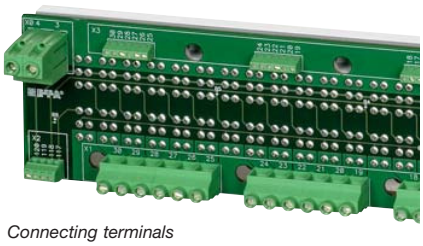
Termination is on the rear side by means of screw terminals up to 1.5mm² (group connection) and up to 1mm² (single signalisation) on the pcb. When using ESS20, ESX10 or E-1048-700, the required control and reset signals will also be connected via the terminals for group or single signalisation.

19BGT with pcb, front view

Terminal blocks with mounting rails



Rear view



Connecting terminals

Rated voltage:
AC 250 V; DC 65 V
Line entry:
2 redundant groups, 2-pole each
(= 4 separate circuits)
rated 50 A max. each
(ambient temperature max. 40 °C)
Load outputs:
30 ways 20 A max. each

Customer-specific solutions:
Examples of applications

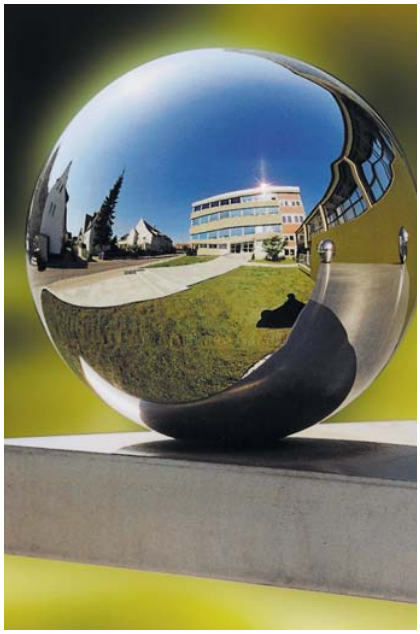
Power distribution system for Diesel locomotives

Operating and fuse panel in helicopters

Protection box for high and low currents

19" rack in the CERN nuclear accelerator

E-T-A
Worldwide Service Network



Europe
- Austria
- Belgium
- Bosnia-Herzegovina
- Bulgaria
- Croatia
- Czech Republic
- Denmark
- Finland
- France
- Hungary
- Ireland
- Italy
- Luxembourg
- Macedonia
- Netherlands
- Norway
- Poland
- Portugal
- Russia
- Serbia-Montenegro
- Slovakian Republic
- Slovenia
- Spain
- Sweden
- Switzerland
- Turkey
- United Kingdom

America
- Argentina
- Brazil
- Canada
- Chile
- USA

Asia
- Brunei
- China
- India
- Indonesia
- Japan
- Korea
- Malaysia
- Philippines
- Singapore
- Taiwan
- Thailand

Africa
- South Africa

Oceania
- Australia
- New Zealand

E-T-A®
Circuit Protection & Control

E-T-A Circuit Breakers Ltd.
100 Leek Crescent, Unit 11
Richmond Hill . Ontario L4B 3E6
Phone: (905) 764-9510 . Fax (905) 764-8003
E-Mail: caninfo@e-t-a.ca

E-T-A Circuit Breakers
1551 Bishop Court
USA-Mount Prospect. IL 60056-6060
Phone: (847) 827-7600 . Fax (847) 827-7655
E-Mail: usinfo@e-t-a.com

B_Systemtechnik_e_221107A