

The complete guide to transformers and packaged substations



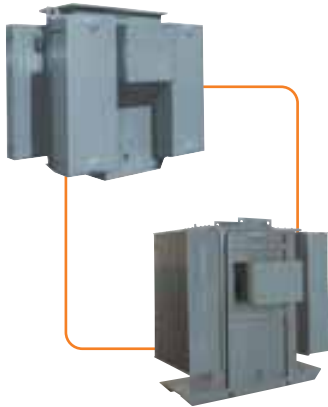
Contents



Merlin Gerin transformers

An introduction to the complete range of Merlin Gerin transformers and package substations. Offering ease of selection and total flexibility.

pages
4 - 5



Ground mounted transformers

Offering you a choice of:

- Free breathing transformers
- Free breathing conservator transformers
- Hermetically sealed transformers

pages
6 - 7



When transformers become substations

The range includes:

- Metalclad Distribution Substations (MDS)
- In-line package substations
- Unit substations
- Padmount substations
- One-stop engineered package substations
- Fast-Trans transformers and substations (see page 14)

pages
8 - 13



Fast-Trans transformers and substations **Guaranteed fast delivery service**

A rapid transformer and substation delivery service. Fast Trans meets the demand for transformers and substations to be on site in the shortest possible time.

pages
14 - 15



Trihal cast resin transformers **When safety indoors is paramount**

Available in ratings from 160kVA to 10MVA with voltages up to 36kV.

pages
16 - 17



Merlin Gerin transformers **quick reference guide**

Summary of the product range, type and options available

pages
18 - 19



Merlin Gerin transformers

*A complete range giving you
ease of selection and total flexibility*

When you need a transformer or package substation, turn to us first.

Did you know that Merlin Gerin Transformers manufactures a vast range of MV/LV transformers and distribution substations?

Or that these come in a multitude of configurations and with many options to meet virtually any application's demands?

Whether you are a contractor, specifier, panel builder, consultant or end user, simplify your purchasing process by making Merlin Gerin Transformers your first point of enquiry. The chances are that you won't need to waste time looking any further.

Our market research has shown us that although our individual ranges of transformers and substations are well known, few people are fully aware of the total scope of our offer.

This brochure puts the whole picture together.

Need the convenience of a complete factory-built substation?

Our **Metalclad Distribution Substation (MDS)** is a fully fitted, fully assembled substation package that's ready to install. Simply mount on a plinth, cable up and the job's done. Save weeks of civil engineering work and cut your complete installation costs dramatically.

See page 9 for more details.

Need a choice of fluid filled transformers for various applications?

Our range of transformers can be provided in many different styles and types, suitable for varied applications. Choices can be made from free breathing or hermetically sealed; mineral oil filled or high fire point fluids; a variety of voltage ratios; options on termination arrangements; ratings up to 50MVA and beyond - the choice is yours.



When you need convenience, flexibility, fast delivery and safety, then look no further than Merlin Gerin

Need a compact substation for a rural installation?

Lower rated transformers and substations are becoming more of a requirement for rural applications, whether it be for the growing telecommunications market, or for housing developments and pumping stations. Tackle these markets with our **Padmounted** series of products. Compact, cost effective and available right now.

See page 12 for more details.

Need a fast delivery service that reduces lead times by weeks?

Fast-Trans is the answer. We have created a special fast delivery service for our most commonly ordered options. This means you can get a transformer on site within six working weeks of your order and often even faster. Fast-Trans transformers can be supplied with a selected range of MV and/or LV switchgear in only eight working weeks.

See page 14 for more details.



Need a fluid filled transformer for extra fire safety?

No problem. In addition to our mineral oil filled transformers, our extensive range of transformers can be chosen with either Midel or Silicone high fire point fluid fillings to meet the most demanding fire risk requirements.

Need a cast resin transformer for an indoor application?

For the ultimate in fire safety for indoor installations, the **Trihal** range of cast resin transformers is unbeatable. This distribution transformer has 'F1' fire behaviour class certification – the best fire rating available for distribution transformers. In addition, Trihal is environmentally classified 'E2' and climatically classified 'C2', providing peace of mind.

With ratings from 160kVA right up to 10MVA, selected Trihal transformers can be delivered with lead times as short as six working weeks.

See page 16 for more details.

Need flexibility?

All our transformers can be supplied as package substations with MV and/or LV switchgear from Merlin Gerin's range of products. Many options are available - just ask the question.



Ground mounted transformers

Our range includes:

- Free breathing
- Free breathing with conservator
- Hermetically sealed

The extensive range of Merlin Gerin's ground mounted transformers is all about choice.

The Merlin Gerin transformer range covers from 200kVA to 5000kVA, with a highest voltage level up to 36kV on the primary, with a selection of voltage ratios available. These transformers are easy to choose and easy to specify, even when unusual configurations are required.

In addition, transformers larger than 5000kVA can be supplied by Merlin Gerin Transformers, manufactured by our sister company, France Transfo. These transformers are available in ratings up to 60MVA with highest voltage levels up to 36kV; 50MVA with highest voltage levels up to 72kV and 40MVA with highest voltage levels of 123kV.

The Merlin Gerin range of transformers is available with a choice of dielectric insulating fluids – mineral oil to BS 148, Midel 7131 transformer fluid (high fire point fluid) or Silicone fluid (high fire point fluid suitable for use with hermetically sealed transformers only).

Transformers can be ordered with a choice of losses including standard loss, low loss, or capitalised losses.

A wide range of standard fittings are available including off circuit tapping switches, drain sampler valves, liquid level indicators and more.





Free breathing transformer



*Hermetically sealed transformer
(shown with ring main unit)*

Free breathing transformers

The Merlin Gerin range of free breathing transformers is the most cost effective option for the majority of outdoor sites.

The transformers are filled as standard with mineral oil in accordance with BS 148. For instances in which a higher fire rating is needed, the transformers are available filled with high fire point fluid (Midel 7131). This transformer coolant has a fire point in excess of 300°C and provides additional security when the installation is adjacent to buildings.

Free breathing conservator transformers

These free breathing transformers are fitted with a conservator vessel to reduce the area of oil that is in contact with air. This can substantially cut the fluid's degradation, lowering maintenance costs. Conservators are at their most beneficial for higher rated transformers from 2500kVA and above.

Hermetically sealed transformers

When maintenance is a key issue, or when an installation is needed in harsh conditions, look no further than our hermetically sealed transformer range.

Once installed, these transformers need no maintenance of the dielectric insulating fluid. Merlin Gerin manufacture hermetically sealed transformers using either a nitrogen gas cushion above the fluid level, or by using fully filled corrugated tanks.

These arrangements completely eliminate air in the transformer tanks, which avoids oxidation and sludging occurring to the dielectric fluid.

Being completely sealed, the transformer unit can cope with harsh operating conditions, moisture-laden atmospheres, dust, pollution or other contaminants. This makes it ideal for petrochemical complexes, water plants, sewage treatment works and many other industrial applications.

<p><i>Choice of</i></p> <p>MV/LV</p> <p><i>Switchgear</i></p>	<p><i>Ratings</i></p> <p>200kVA-50MVA</p> <p><i>Options</i></p> <p><i>Larger ratings available if required</i></p>	<p><i>Popular ratings</i></p> <p>✓</p> <p><i>Held in stock</i></p>	<p><i>Highest voltage level up to</i></p> <p>72kV</p> <p><i>Higher voltages available if required</i></p>	<p><i>Fluid options</i></p> <p>Oil/Midel/Silicone</p>	<p><i>Free breathing or</i></p> <p>✓</p> <p><i>Hermetically sealed option</i></p>
--	---	--	--	--	---



When transformers become substations

Our range includes:

- Metalclad Distribution Substation (MDS)
- In-line packaged substation
- Unit substation
- Padmount substation
- One-stop engineered package substation
- Fast-Trans transformers and substations

When it's more than a transformer that you need, Merlin Gerin Transformers can provide a complete range of distribution and protection equipment to create a packaged substation precisely matched to your requirements.

These substations are tailored to your needs and because you get everything from one manufacturer, your purchasing is so much easier. A single point of contact is all that you need from initial enquiry through to manufacture, delivery, commissioning and after-sales service. What could be easier?

The high quality and choice of transformers is matched by the exceptional performance and wide selection of our MV switchgear and LV distribution products.

The MV options are made up from Ringmaster switchgear including compact ring main units, circuit breakers or disconnecting switches.

LV options can be chosen from either Switched And Insulated Fusegear (SAIF), Shielded fusegear, MCCBs or ACB's.



*Ringmaster
MV switchgear*



SAIF LV fusegear



Shielded LV fusegear

Metalclad Distribution Substation (MDS)

200kVA to 1000kVA



One of our most innovative products, the Metalclad Distribution Substation (MDS) incorporates a distribution transformer, Ringmaster MV switchgear and LV equipment; all factory built into a stainless steel enclosure. Delivered complete and ready to go, MDS needs only to be placed onto a prepared foundation, connected up and commissioned.

This makes obsolete the traditional way of buying transformers, switchgear, ancillary electrical items and enclosures from different suppliers and then assembling them on site. No time is wasted dealing with several suppliers, there are no costs for on site assembly and minimal civil engineering is needed.

What's more, MDS is so compact it can be slotted into a much smaller site space than a substation with separate components. The small profile makes MDS surprisingly easy to install discretely in environmentally sensitive locations.

Features and benefits

- Delivered fully factory assembled
- Reduced civil work requirements
- Certified internal arc control at 21kA
- Integral corrosion resistant painted stainless steel enclosure
- Integral bunding system
- Excellent access for cabling, installing and maintenance
- Small and compact
- Choice of insulating fluid
- Can be used for many varied applications and projects



Choice of
MV/LV
Switchgear

Ratings
200-1000kVA
Options

Fluid options
Oil/ Midel

Free breathing
✓
Option

Factory
✓
Assembled





In-line packaged substation with/without enclosures 200kVA to 2500kVA



In-line packaged substations have their MV and LV terminations positioned on opposite ends of the transformer tank. MV and LV switchgear can be directly mounted onto the transformer to provide a single lift package substation.

These substations can be ordered with a variety of enclosures to provide weatherproof and vandal resistant protection. Enclosures available include Glass Reinforced Plastic (GRP), stainless steel, powder coated or painted stainless steel and powder coated or painted galvanised steel.

Features and benefits

- Factory assembled
- Delivered ready for commissioning
- Optional enclosures available
- Single point of contact
- Wide choice of MV/LV switchgear
- Directly coupled switchgear



Ratings

**200-
2500kVA**

Options

*Free
breathing or*



*Hermetically
sealed option*

Choice of

MV/LV

Switchgear

Factory



Assembled

Fluid options

**Oil/
Midel/
Silicone**

Unit substation

200kVA to 2500kVA



Manufactured particularly for electrical utility customers, but also available to any other user, we offer a range of unit substations which have both the MV and LV terminations/switchgear mounted on one side of the transformer tank.

The MV and/or LV switchgear is directly mounted onto the transformer flanges which provides a compact arrangement.

The complete substation can be lifted as one unit and delivered direct to the customers' site, reducing site installation and eliminating site assembly requirements.

Features and benefits

- Small and compact
- Factory assembled
- MV/LV switchgear directly mounted
- Single lift arrangement
- Reduced civil foundation costs
- Direct to site delivery
- Wide range of MV/LV switchgear products available



Choice of
MV/LV
Switchgear

Ratings
**200-
2500kVA**
Options

Fluid options
**Oil/
Midel/
Silicone**

*Free
breathing or*
✓
*Hermetically
sealed option*

Factory
✓
Assembled





Padmounted transformers 50kVA to 315kVA

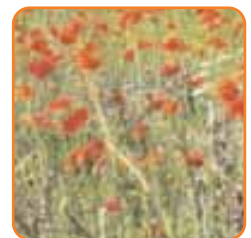


Suitable for a variety of rural distribution applications, these three-phase, fluid immersed padmounted transformers and substations are a compact and economic alternative to traditional package substations.

Padmounted transformers are an attractive, environmentally sensitive alternative to pole-mounted units that need unsightly overhead lines, which are unacceptable in many areas. With a compact padmounted unit, outdoor installations can blend easily into most rural surroundings.

Features and benefits

- MV fuse protection immersed in fluid
- Small and compact
- Delivered fully assembled
- Integral stainless steel enclosures
- LV distribution options



Ratings

**50-
315kVA**

Options

Fluid options

**Oil/
Midel**

*Free
breathing or*



*Hermetically
sealed option*

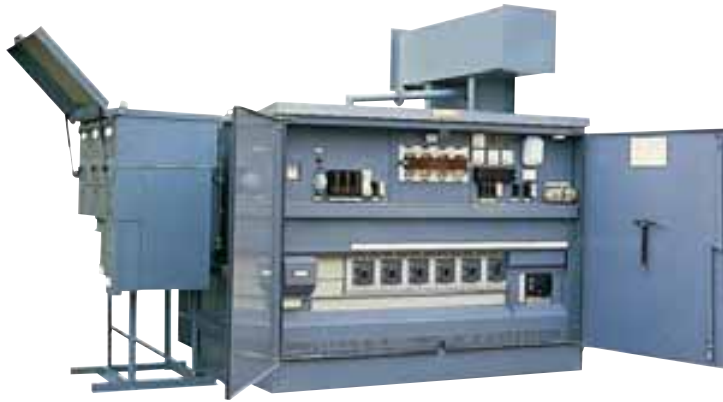
Factory



Assembled

One stop engineered package substations

200kVA to 2500kVA



Substations are tailored to customer requirements using products from our comprehensive range of distribution transformers, MV switchgear and LV equipment.

Features and benefits

- Simple specification
- Factory assembled
- Variety of MV/LV options
- Flexible, tailored configurations to customer needs
- Single lift arrangements
- Directly mounted switchgear
- Choice of arrangements of terminations
- Operator protected
- Minimised costs



Choice of
MV/LV
Switchgear

Ratings
**200-
2500kVA**
Options

Fluid options
**Oil/
Midel/
Silicone**

*Free
breathing or*
✓
*Hermetically
sealed option*

Factory
✓
Assembled





Fast-Trans... transformers and substations on fast delivery

Merlin Gerin have created a rapid transformer and substation delivery service called Fast-Trans. Designed to meet your demand for transformers and substations on site in the shortest time possible.

We have selected the most popular transformer ratings from 315kVA to 2000kVA and put them into our two Fast-Trans ranges.

Free breathing Fast-Trans is available in eight ratings (315kVA to 2000kVA) with a voltage ratio of 11000/433 volts at no load.

Hermetically sealed Fast-Trans is available in four ratings (315kVA to 1000kVA) with a voltage ratio of 11000/433V at no load.

The result is that transformers with cable boxes and standard accessories can be delivered to your site within six working weeks of your order placement.

What's more, because we are continually building many items in the range for stock, you can often get your transformer even faster.

Even if you choose transformers fitted with a range of optional MV switchgear and LV cabinets, the transformer substation can be on your site in only eight working weeks.

The fast paced benefits of the Fast-Trans range begin before you even order. We strive to return all Fast-Trans tenders within 48 hours and each tender is accompanied by full drawings and technical specifications, so you can see exactly what's included.

Today, project build schedules are constantly being squeezed and less time is allowed for electrical equipment installation. Even with the best forward planning, project specifications can change, leaving you with less time than you had anticipated.

With Fast-Trans, you know that the substation will be on your site exactly when you need it.





Fast-Trans Hermetically sealed



Fast-Trans free breathing

Fast-Trans transformers are:

- Ground mounted type (terminations on opposite sides of transformer tank)
- Free breathing or hermetically sealed
- 11000 / 433 volts at no load
- 8 various kVA ratings for free breathing Fast-Trans; 315kVA, 500kVA, 800kVA, 1000kVA, 1250kVA, 1500kVA, 1600kVA, 2000kVA
- 4 various kVA ratings for hermetically sealed Fast-Trans; 315kVA, 500kVA, 800kVA, 1000kVA
- Mineral oil filled or Midel fluid filled

Features and benefits

The Fast Trans service provides easy and fast specifying, tendering, manufacture and installation of transformers and package substations. In addition, it offers the added benefit of guaranteed fast delivery with:

- All equipment available from one source
- One point of contact
- Premium quality of Merlin Gerin
- Direct coupled MV and LV equipment (RMU supplied separately on free breathing Fast-Trans)
- Saves time and cost in assembly
- All equipment is compatible
- Simplified design, civil works and planning
- Quotation includes drawing and technical specifications, sent within 48 hours of receipt of enquiry

Choice of
MV/LV
Switchgear

Free breathing rating
315-2000kVA
Hermetically sealed rating
315-1000kVA

Popular ratings
✓
Held in stock

Voltage ratio
**11000/
433V**
At no load

Fluid options
**Oil/
Midel**

Free breathing or
✓
Hermetically sealed option

Delivered in
6-8
working weeks



Trihal cast resin transformers... when safety is essential



Trihal cast resin transformer IP00 (core & coils)

Merlin Gerin Trihal range of cast resin transformers are available in ratings from 160kVA to 10MVA, with highest voltage levels up to 36kV.

The Merlin Gerin patented method of casting uses Trihydrated Alumina within the epoxy resin. This provides the Trihal transformer with its excellent fire behaviour characteristics that has been accredited 'F1' certification according to BS EN 60726:2003 standard; the best classification available for distribution transformers.

Trihal transformers are designed for indoor applications and can be supplied as IP00 (core & coils only) for use in switchboards, or they can be supplied complete with an integral IP31 sheet steel enclosure, with termination boxes and switchgear if required.

The trihydrated alumina produces 3 anti-fire effects if the transformer is exposed to flames.



1st anti-fire effect:
Refracting shield



2nd anti-fire effect:
Barrier of water vapour



3rd anti-fire effect:
Temperature held below the fire point

The result of the combination of the 3 anti-fire effects is immediate self extinguishing of the Trihal transformer

Classifications:

- Environmental classification: E2
- Climate classification: C2
- Fire behaviour classification: F1



Trihal cast resin transformer IP31 enclosure

When safety is of paramount importance, it is time to take a closer look at the Trihal cast resin transformer range.

Trihal is ideally suited for use in large office buildings, or any building where the transformer is to be located indoors.

With this in mind, the Trihal range has been rigorously tested and achieved an 'F1' classification in accordance with BS EN 60726:2003 fire behaviour test; a 'C2' classification in the BS EN 60726:2003 S1 climatic tests; and an 'E2' classification in the BS EN 60726:2003 environment test.

Features and benefits

- Suitable for indoor applications
- Core & coils IP00
- Integral IP31 enclosure with removable access panels
- Cable entry directly into enclosure or into termination boxes
- Choice of closely coupled MV/LV switchgear available

<i>Choice of</i> MV/LV <i>Switchgear</i>	<i>Ratings</i> 160kVA- 10MVA <i>Options</i>	<i>Highest voltage level up to</i> 36kV	<i>Core & coils</i> IP00	<i>Integral enclosure</i> IP31 <i>option</i>	<i>Indoor applications</i>
---	--	---	--	---	----------------------------



Merlin Gerin transformers... quick reference guide

Transformers

	Product	Ratings	Mineral oil to BS 148	Midel 7131 transformer fluid	Silicone fluid	Highest voltage for equipment (r.m.s.)
Free Breathing transformers	Ground mounted (free breathing)	200kVA - 50MVA	Yes	Yes (up to 5000kVA)	N/A	Up to 72kV
	Fast Trans ground mounted (free breathing)	315kVA - 2000kVA	Yes	Yes	N/A	Up to 12kV (11000/433V at no load only)
	Ground mounted (free breathing conservator)	200kVA - 50MVA	Yes	Yes (up to 5000kVA)	N/A	Up to 72kV
Hermetically Sealed transformers	Ground mounted (hermetically sealed)	200kVA - 50MVA	Yes	Yes (up to 5000kVA)	Yes	Up to 72kV
	Fast Trans ground mounted (hermetically sealed)	315kVA - 1000kVA	Yes	Yes	N/A	Up to 12kV (11000/433V at no load only)
	Trihal cast resin	160kVA - 10MVA	N/A	N/A	N/A	Up to 36kV



Packaged substations

Product	Ratings	Mineral oil to BS 148	Midel 7131 transformer fluid	Silicone fluid	Highest voltage for equipment (r.m.s.)
Metalclad Distribution Substation (MDS) (free breathing)	200 - 1000kVA	Yes	Yes	N/A	Up to 13.8kV
In-line packaged (free breathing)	200 - 2500kVA	Yes	Yes	N/A	Up to 13.8kV
In-line packaged (hermetically sealed)	200 - 2500kVA	Yes	Yes	Yes	Up to 13.8kV
Unit substation (free breathing)	200 - 2500kVA	Yes	Yes	N/A	Up to 13.8kV
Unit substation (hermetically sealed)	200 - 2500kVA	Yes	Yes	Yes	Up to 13.8kV
Padmounted (free breathing)	50 - 315kVA	Yes	Yes	N/A	Up to 24kV
Padmounted (hermetically sealed)	50 - 315kVA	Yes	Yes	N/A	Up to 24kV

For further information please contact the Merlin Gerin transformer division:

Tel: +44 (0)113 290 3702

Fax: +44 (0)113 290 3669

Web: www.schneider.co.uk

Email: TransformersGB@gb.schneider-electric.com

Additional information for each of the products described within this guide can be found in specific product brochures. These brochures can be obtained by contacting our Nationwide Customer Information Centre on Tel: 0870 608 8 608.

Brochure title	Brochure order reference
Fast-Trans Free Breathing transformers and substations	TX5140
Fast-Trans Hermetically Sealed transformers and substations	TX5070
Metalclad Distribution Substations (MDS)	TX5069
Padmount transformers and substations	TX5231
One Stop engineered package substations	W1081
Trihal cast resin transformers	AMTED301020EN



Nationwide support on one number -
call the Customer Information Centre on

0870 608 8 608

Fax 0870 608 8 606

Schneider Electric's local support

Schneider Electric is committed to supporting its customers at every stage of a project. Our 180 sales engineers, the largest dedicated sales force in the UK electrical industry, operate from 4 customer support centres.

Our sales engineers are skilled at assessing individual requirements and combined with the expert support of our product specialists, will develop the most effective and economical answer taking relevant regulations and standards fully into account.

To access the expertise of the Schneider Electric group, please call 0870 608 8 608. Each customer support centre includes facilities for demonstrations and training, and presentation rooms fully equipped with audio visual and video, providing excellent meeting facilities.

Merlin Gerin

Merlin Gerin is a world leader in the manufacture and supply of high, medium and low voltage products for the distribution, protection, control and management of electrical systems and is focused on the needs of both the commercial and industrial sectors. The newly launched VDI Network Solutions offer provides flexible, configurable ethernet systems for all communication needs.

Square D

Square D is a total quality organisation and its business is to put electricity to work productively and effectively, protecting people, buildings and equipment. Its low voltage electrical distribution equipment, systems and services are used extensively in residential and commercial applications.

Telemecanique

Telemecanique is a UK market leader and world expert in automation and control. It provides complete solutions, with its range of components, Modicon range of high technology programmable controllers (PLCs), multiple fieldbus and ethernet communication networks, HMI, motion control systems, variable speed drives and communications software. In addition, it offers power distribution through prefabricated busbar trunking.

Local customer support centres

Scotland
Schneider Electric Ltd
Unit 11000
Academy Business Park
Gower Street
Glasgow G51 1PR

South West
Schneider Electric Ltd
PO Box 41
Langley Road
Chippenham
Wiltshire SN51 1JJ

North West
Schneider Electric Ltd
8 Brindley Road
City Park Business Village
Cornbrook
Manchester M16 9HQ

Product showrooms

Industrial systems and solutions showroom

Schneider Electric Ltd, University of Warwick Science Park, Sir William Lyons Road, Coventry CV4 7EZ

Building systems and solutions showroom

Schneider Electric Ltd, Stafford Park 5, Telford, Shropshire TF3 3BL

Energy and Infrastructure systems and solutions showroom

Schneider Electric Ltd, 123 Jack Lane, Hunslet, Leeds LS10 1BS

