



LAND  
LOGICAL  
POWER

# The complete guide to transformers and packaged substations

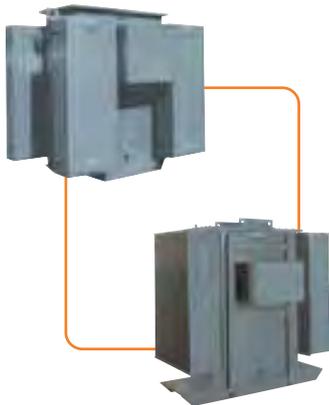


# Contents



## Land Logical Power transformers

An introduction to the complete range of Land Logical Power transformers and package substations. Offering ease of selection and total flexibility.



## Ground mounted transformers

Offering you a choice of:

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



## When transformers become substations

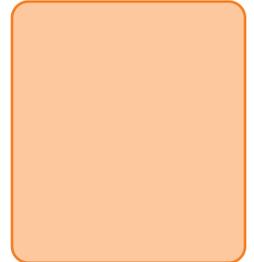
The range includes:

- 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)



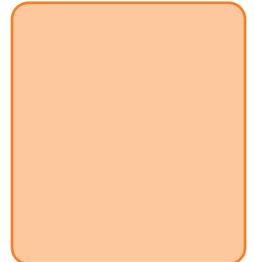
### **Fast-Trans transformers and substations** **Guaranteed fast delivery service**

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.



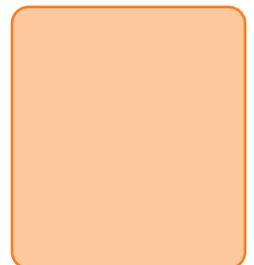
### **Trihal cast resin transformers** **When safety indoors is paramount**

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



### **Land Logical Power transformers** **quick reference guide**

Summary of the product range, type and options available





# Land Logical Power 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 Land Logical Power 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 Land Logical Power 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 Land Logical Power*

### **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?**

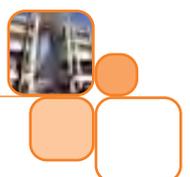
For the ultimate in fire safety for indoor installations, the **Trihal** range of cast resin transformers is unbeatable. This distribution transformer has 'F1' fire behaviour class certification – the best fire rating available for distribution transformers. In addition, Trihal is environmentally classified '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 Land Logical Power'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 Land Logical Power's ground mounted transformers is all about choice.**

The Land Logical Power 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 Land Logical Power 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 Land Logical Power 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 Land Logical Power 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. Land Logical Power 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.

*Choice of*

**MV/LV**

*Switchgear*

*Ratings*

**200kVA-  
50MVA**

*Options*

*Larger ratings  
available if required*

*Popular ratings*



*Held in stock*

*Highest voltage  
level up to*

**72kV**

*Higher voltages  
available if required*

*Fluid options*

**Oil/Midel/  
Silicone**

*Free  
breathing or*



*Hermetically  
sealed option*





## 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, Land Logical Power 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

**Land Logical Power 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 Land Logical Power
- 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)*

### **Land Logical Power Trihal range of cast resin transformers are available in ratings from 160kVA to 10MVA, with highest voltage levels up to 36kV.**

The Land Logical Power 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.**



**1<sup>st</sup> anti-fire effect:  
Refracting shield**



**2<sup>nd</sup> anti-fire effect:  
Barrier of water  
vapour**



**3<sup>rd</sup> 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> <b>MV/LV</b> <i>Switchgear</i>	<i>Ratings</i> <b>160kVA- 10MVA</b> <i>Options</i>	<i>Highest voltage level up to</i> <b>36kV</b>	<i>Core &amp; coils</i> <b>IP00</b>	<i>Integral enclosure</i> <b>IP31 option</b>	<i>Indoor applications</i>
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# Land Logical Power 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

