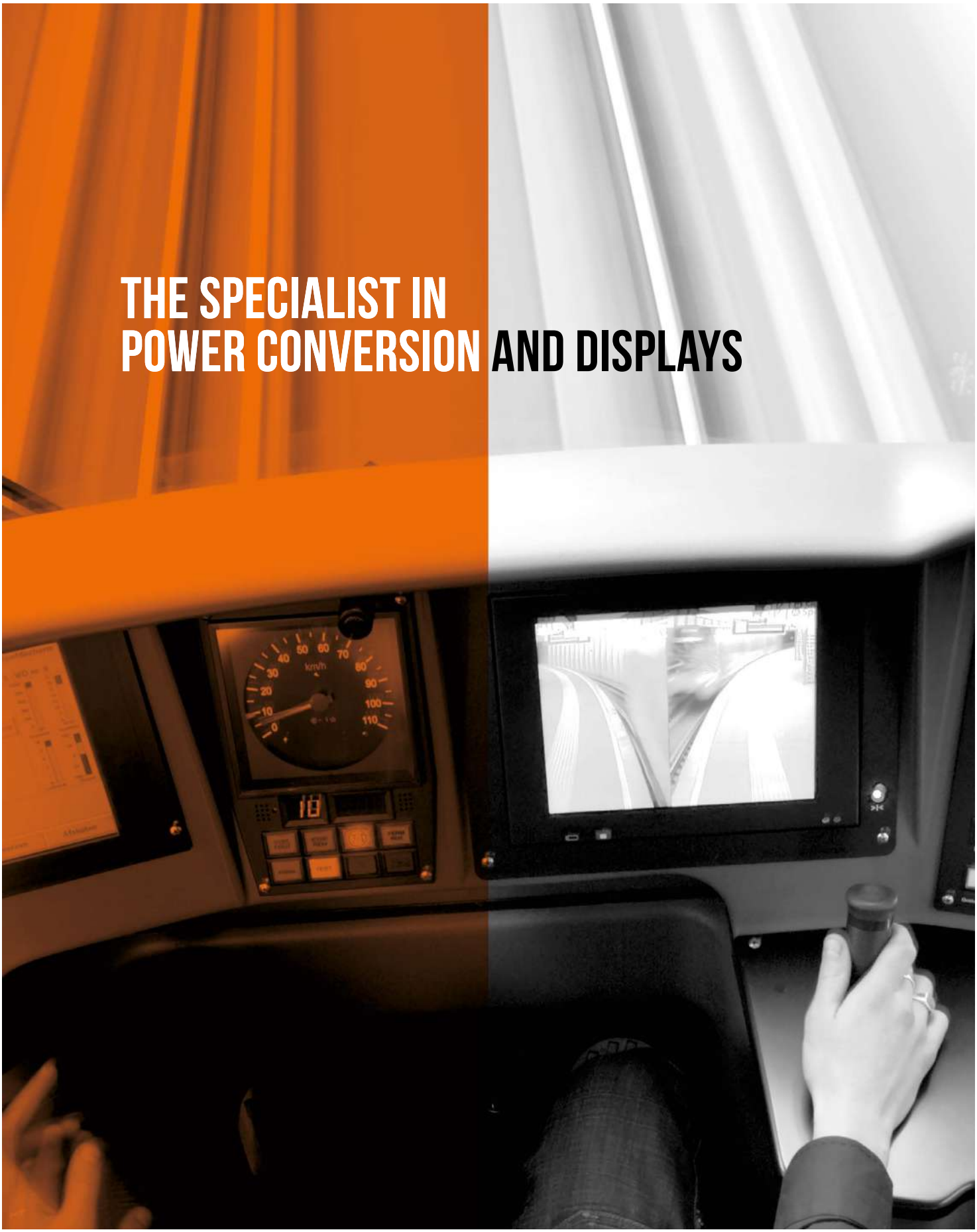


RELEC

STANDARD IS JUST THE BEGINNING

WHO WE ARE

STANDARD IS JUST THE BEGINNING

RELEC Electronics Limited was established in 1978 with the aim of providing specialist power conversion and display products to support professionals in the electronics industry.

If you want a 'standard' solution, we can of course provide one. RELEC has an expert understanding of applications and resulting specifications, combined with the ability to source the most appropriate products.

But standard is just the beginning. A RELEC solution doesn't only give you what you want, it gives you what you need.

Our aerospace background means we will consistently and meticulously deliver the best-performing and most robust power and display solutions available. This sometimes means going the extra mile to customize a product or a feature to achieve optimum performance and service delivery.

We have continued with this philosophy and operate in specific fields, specialising in AC DC power supplies, DC DC Converters, displays and EMC filters.

We were also one of the first companies in our industry to be granted ISO9002 in 1991. This was achieved in-house by existing personnel without the use of consultants.

CONTENTS

HOW WE WORK

1

REQUEST

Tell us what you're looking for by phone, email or webform. RELEC's sales and technical support personnel are all qualified engineers and are committed to fully understanding your application before talking through a possible solution.

2

REFINE

Because a standard solution is just the beginning, where appropriate, we will refine our initial recommendations to include bespoke features and benefits.

THAT'S JUST THE BEGINNING...

3

RESULT

Power for monitoring systems

All weather touch screens

Touch sensitivity with gloves

RELEC's goal is to make a measurable difference to every project by achieving optimum performance and service delivery for your power conversion or display applications.

ANY REQUESTS?

01929 555800

Discover more
www.RELEC.co.uk/Case_Studies.html

REQUEST

"WE WANT A DC DC CONVERTER TO PROTECT OUR HULL FROM CORROSION"

POWER CONVERSION

An AC DC power supply is a key component in the design of nearly all mains powered electrical and electronic equipment.

We can source and supply the widest range of AC DC PSUs from a 5W plugtop, desktop or PCB mounting device, through to very large battery backed standby systems that can be 19" rack mounted.

RELEC can provide you with a variety of chassis mounting power supplies, including single, dual and quad output industry standard modules, with configurable power supplies, starting at 300W and going up to 2kW in output power.

We can also supply in-depth technical advice on a range of specialist AC DC power supplies for medical, railway and DIN rail mounting applications.

If we cannot fulfil your demands from our standard range of AC DC power supplies, we work closely with our suppliers to develop full custom and variant solutions.

Our DC DC converters cover power ranges from 1 to 500W, input ranges from 3 to 1200Vdc and output voltages from 0.8Vdc upwards. If you cannot find the perfect DC DC converter, we would again be happy to discuss custom specifications.

We offer a wide range of fully regulated converters with fixed input and wide inputs (2:1 range and 4:1 range) as well as industry standard brick formats.

REFINE

"YOU NEED A CONVERTER WITH 0 - 100% CONTROL OF THE OUTPUT VOLTAGE"

JONATHAN SMITH
RELEC power conversion specialist

Jon specialises in bespoke power conversions, dedicated to creating solutions that go the extra mile.

Standard is just the beginning.

TALK TO JON
01929 555800

E: JON@RELEC.CO.UK

AC DC CONVERTERS

DIN RAIL MOUNT

DIN rail mounted power supplies offer a simple, uncomplicated method of integrating power conversion to both equipment and installations.

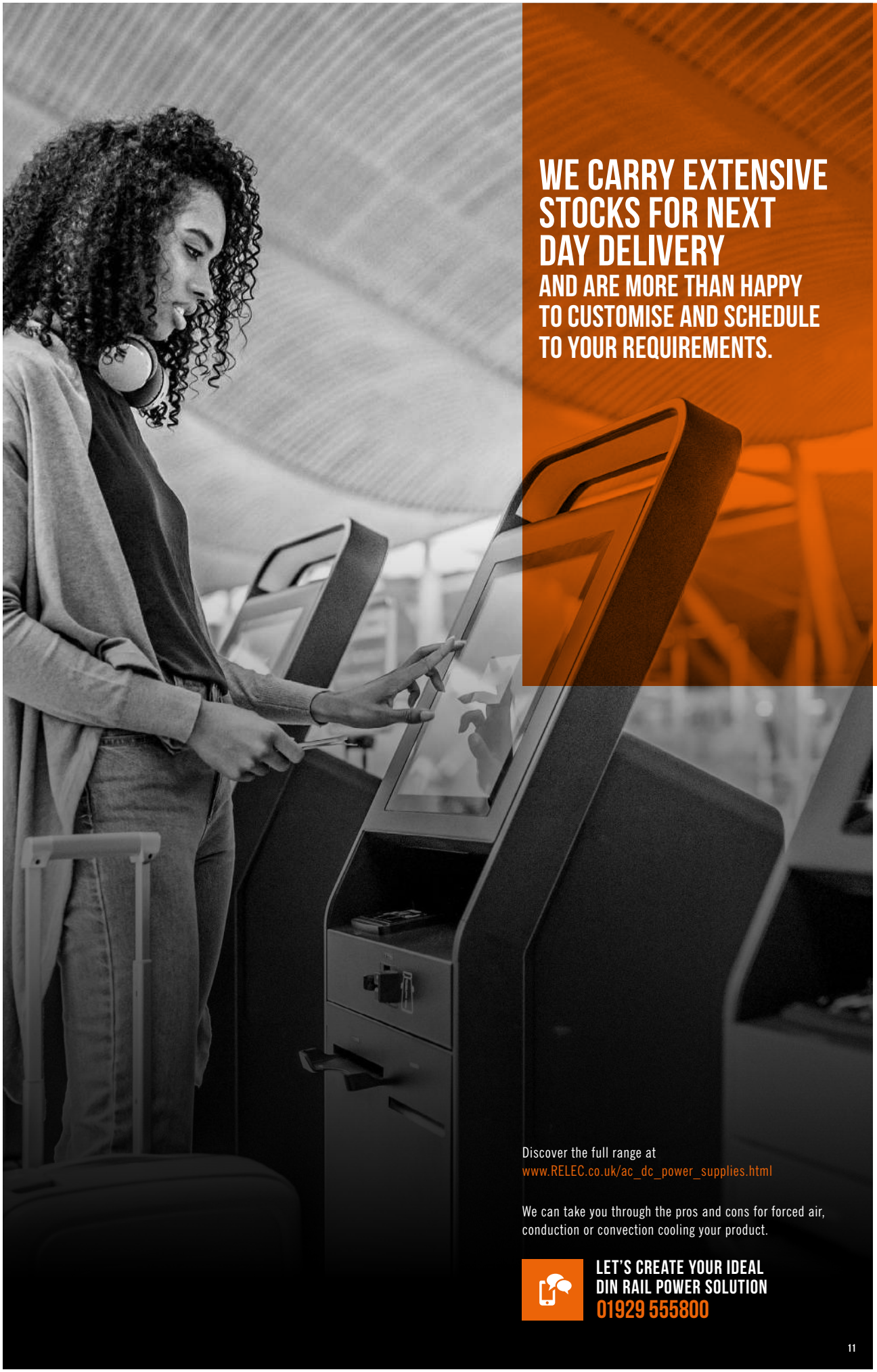
Typical applications include process control panels, machinery, building automation, outdoor telemetry, ticketing machines and network security equipment.

Let's begin as we mean to go on!

We carry extensive stocks for next day delivery, but we are more than happy to customise and schedule to your requirements. Let us have as much application information as possible and we will take care of the rest based on price, reliability and availability.

RANGE		FEATURES	OPTIONS
Inputs	AC single phase / three phase	**Low profile (building automation)**	**Conformal coating**
	DC 90 – 375V / 480 – 820V	**High density (process control)**	**Field bus solutions**
Outputs	5V to 56V	**Pulse load capability**	**Custom labelling**
Power rating	5 to 960W	**UL / cUL / TUV / CE approvals**	**Screw terminals / Cage clamp solutions**
Temperature	-40 to +60 degrees (typical)	**Wide temperature range**	**EN50155 Railway versions**
		Parallel operation	



WE CARRY EXTENSIVE STOCKS FOR NEXT DAY DELIVERY

AND ARE MORE THAN HAPPY TO CUSTOMISE AND SCHEDULE TO YOUR REQUIREMENTS.

Discover the full range at
www.RELEC.co.uk/ac_dc_power_supplies.html

We can take you through the pros and cons for forced air, conduction or convection cooling your product.

LET'S CREATE YOUR IDEAL DIN RAIL POWER SOLUTION
01929 555800

DIN RAIL
SUPPLEMENTARY MODULES

Whilst the power supply is the heart of any process control system, RELEC can help add extra functionality to your design.

Typical applications include remote telemetry, emergency lighting and access control systems.

Our range includes maintenance free capacitive buffer modules, fully protected DC UPS chargers and controllers, redundancy modules for N+1 systems as well as options for field bus monitoring.

There's no such thing as standard!

Our extensive stock means that we can react to your demands quickly. We are always happy to schedule your orders, so you can call off your stock as and when you need it.

RANGE	FEATURES	OPTIONAL FEATURES
Redundancy modules	Low profile (building automation)	Battery packs
Battery chargers / temperature sensors	High density (process control)	Conformal coating
DC UPS controllers	Pulse load capability	Field bus solutions
Buffer modules	UL / cUL / TUV / CE approvals	Custom labelling
Surge / transient protection	Wide temperature range	
Field programmable modules	Parallel operation	





CHASSIS MOUNT
CASED / CONVECTION COOLED

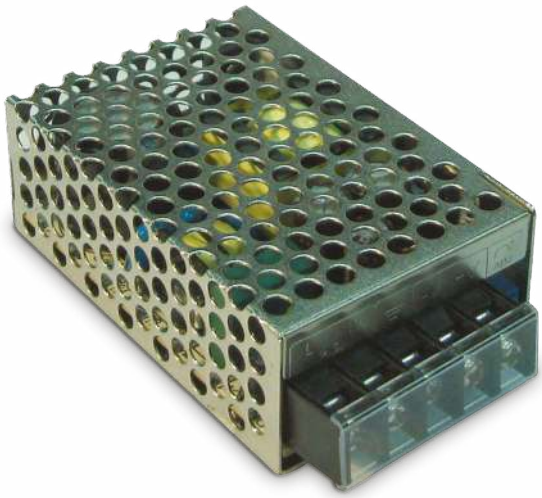
High efficiency, low cost cased converters ideal for process control and other industrial applications. We have a range of units which can operate down to -40 degrees and altitudes in excess of 4800m.

Typical applications include information terminals, vending / gaming machines, office equipment and control panels.

The latest generation products are designed to meet the latest ErP standards for high average efficiency and low standby power.

As well as standard industrial options we can also supply medical grade products, including solutions for 2 x MOPP applications.

Tell us what you need your power supply to do and we will find a solution for you. Samples are generally available for next day delivery.



RANGE		FEATURES	OPTIONAL FEATURES
Inputs	AC single phase 85 – 264Vac (Typ) DC 120 – 380Vdc (Typ)	**Up to 5 year warranty**	**Conformal coating**
Outputs	5V to 48V	**High average efficiency**	**Output voltage adjustment**
Power rating	5 to 500W	**Low standby power**	**Medical – EN60601**
Temperature	-40 to +71 degrees	**UL / cUL / TUV / CE approvals**	**Remote on / off**
		Wide temperature range	
		Active PFC (>100W)	

CHASSIS MOUNT
OPEN FRAME

Ultra-miniature, high efficiency AC DC converters for systems which already have a circulating airflow. We have a range of products starting at 40W in a 3” x 2” package, right the way through to 550W in a 5” x 3” footprint.

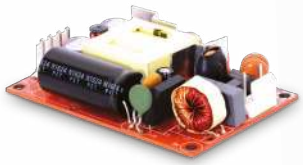
These products are ideal for telecom, datacom, instrumentation and other industrial applications requiring high power density.

We also offer an extensive range of medical versions (EN60601) including 2 x MOPP isolation.

Designed in. Shipped out!

Our technical sales team will talk you through all stages of designing these products into your equipment. Call us today and we’ll be happy to advise.

RANGE		FEATURES	OPTIONAL FEATURES
Inputs	AC single phase 85 – 264Vac (Typ)	**High efficiency**	**Output voltage adjustment**
Outputs	5V to 48V	**Active PFC**	**Medical – EN60601 (2 x MOPP)**
Power rating	40 to 550W	**UL / cUL / TUV / CE approvals**	**Remote on / off**
Temperature	-40 to +70 degrees	**Industry standard footprints**	**Class II options**
		Low height profile (<0.75”)	**Screw terminals / Molex connection**
		Low standby power	




CHASSIS MOUNT
RUGGED

Ultra-reliable and robust power supplies from an industry leader for applications which are mission critical. Modules can be either chassis or 19” rack mounted with a full range of accessories available from stock.

We have active projects in the military (naval, land-based vehicles and avionic) sectors, railway signalling, radar and high integrity communication systems.

These power supplies are extremely well protected against surges and transients and also come conformally coated as standard. They are suitable for applications which are susceptible to high shock and vibration, local lightning strikes and high levels of moisture and other contaminants.

Whatever you’re looking for, you’ve just found it!

If you’re struggling to find a product to meet all of your requirements, please call us. We may just have the perfect product.

RANGE		FEATURES	OPTION / ACCESSORIES
Inputs	AC single phase 85 – 264Vac (Typ)	**High galvanic isolation**	**Convection or conduction cooled options**
	DC 88 – 372Vdc (Typ)	**Isolated outputs**	**Output / input voltage monitoring**
Outputs	5V to 56V	**UL / cUL / TUV / CE approvals**	**Inrush current limitation**
Power rating	50 to 300W	**Excellent transient immunity**	**Mating connectors**
Temperature	-40 to +70 degrees	**Fully short circuit protected**	**Front panels**
			Base plates
			Anti vibration clips
			DIN rail mounting

CHASSIS MOUNT
FAN COOLED

We are pleased to be able to offer a range of high efficiency, high density fan cooled AC DC power units providing the ultimate in flexibility.

Typical applications include automotive test, battery chargers, cathodic protection and medical perfusion equipment.

Whether you need simple bulk power or the ability to remotely control the output voltage or current we have an ideal product for you. Either through analogue control or via an I²C or RS232 interface we can find a solution which meets your requirements.

Tough products. Easy choices.

All of our products are extremely rugged in terms of temperature, EMC performance and vibration and come with a 3 year warranty as standard.

RANGE		FEATURES	OPTIONS
Inputs	AC single phase 90 – 264Vac (Typ)	**Programmable voltage**	**EN60601 medical versions**
	DC 127 – 370Vdc (Typ)	**Programmable current**	**Convection cooled options**
Outputs	12V to 60V	**I²C / RS232 Control**	**Extended warranty**
Power rating	800 to 3000W	**CC current limit**	**Redundancy ORing**
Temperature	-40 to +60 degrees	**Selectable standby voltages**	**PMBus**
		1U footprints	**Conformal coating**
		Remote on / off	

BATTERY CHARGERS
RACK MOUNT

High efficiency battery chargers and power distribution systems for both telecom (48V) and industrial (24V) applications. Our racks can be integrated into both 19” and 23” cabinets as standard.

Applications include street side cabinets, exchanges, data centres, radar systems or other critical systems which cannot be affected by power outages.

All of our solutions are modular and based around standard subracks, high efficiency rectifiers and cross platform controllers. Configuration of your system is easy. We just need to understand your requirements based on your connected loads and battery size. We can do the rest. Our solutions start at 400W and can grow up to 30kW through the addition of extra subracks.

Go figure!

We have over 20 years’ experience configuring these products. Give us a call and let’s see what we can do for you.

RANGE		FEATURES	OPTIONS
Inputs	AC single phase 85 – 264Vac (Typ)	**>95% efficiency**	**Modular DC breaker panels**
	AC three phase (with neutral)	**Field replaceable controller**	**Choice of battery breakers**
Outputs	24V or 48V nominal	**LED status / alarms**	**GMT fuse option**
Power rating	400W to 30kW	**Modular DC distribution**	**Partial load disconnect**
Temperature	-20 to +60 degrees	**19” / 23” all in one package**	**Ethernet / SNMPv3 comms**
		3 year warranty	**Interface with DC AC inverters**




RACK MOUNT
FRONT ENDS

A wide range of front ends and rack mounted solutions suitable for high power density industrial, datacom or telecom applications.

Our front ends are used anywhere where bulk DC power is required. Primarily designed for the datacom market, we also have applications in the military and super computer sectors.

Systems can be configured for 12V / 24V or 48V outputs and we can even offer solutions with mixed DC Voltages (24V / 48V).

Our modules cover the range 400W to 3000W. They can either be integrated into your equipment or simply slid into our own bespoke subracks.

Tailored to your needs!

Systems are fully scalable and hot swappable and can be tailored to your needs quickly and easily – just call for more information.

RANGE		FEATURES	OPTIONS
Inputs	AC single phase / three phase DC 180 – 350V (Typ)	**Very high efficiency (Platinum level)**	**PMBus control**
Outputs	12V to 56V	**12V, 24V or 48V outputs**	**Mixed output voltage racks**
Power rating	400 to 12kW	**Hot pluggable**	**Scalable systems**
Temperature	-20 to +60 degrees	**I^2C communication**	**Ethernet / SNMPv3 comms**
		Active current sharing	**DC distribution**
		Active PFC	**DC power shelves**

BATTERY CHARGERS
INDUSTRIAL

A range of industrial grade battery chargers and DC UPS controllers which can be used as stand alone chargers or as part of a standby battery backed solution.

Typical applications include automotive, radio communications and telemetry systems.

Our products feature 3 or 4 stage charging characteristics (float / boost modes) depending on the battery type and technology you choose. All units have reverse polarity protection as standard and those designed for standby applications are also provided with deep discharge protection.

You talk. We listen!

We would love to discuss your application and find the ideal solution for you. Just pick up the phone and speak to one of our experienced technical sales team. It begins by being good listeners.

RANGE		FEATURES	OPTIONS
Inputs	AC single phase 85 – 264Vac (Typ)	**Li-ion, lead-acid batteries**	**RS232 control**
Outputs	12V, 24V or 48V batteries	**Automatic boost / float modes**	**Variable fan speeds**
Power rating	100 to 1000W	**LVD and polarity protection**	**Temperature compensation**
Temperature	-25 to +70 degrees	**Rugged construction**	**Terminal block / connector / faston**
		Automatic changeover	**Base plate / DIN rail options**
		Alarm contacts	




EXTERNAL POWER SUPPLIES

High quality external power supplies covering power levels from 5W to 300W (All convection cooled) with outputs up to 56V. Modules can be easily customized with your choice of IEC inlet, cable length and DC termination.

Our external power supplies are suitable for a wide variety of applications including chargers, set top boxes, motor control and other office automation products.

We have plugtop style products starting at 5W and desktop modules going up to 300W with outputs available from 3V3 up to 56V.

It's all about you!

Our warehouse carries extensive stock to help you with prototyping, but we really want you to tell us more about your application. Call us with your power requirements as well as cable length and termination type and we'll provide a competitive quote and fast turn around on samples.

RANGE		FEATURES	OPTIONS
Inputs	AC single phase 100 – 240Vac (Typ)	**CEC Level VI compliant**	**Active PFC**
Outputs	3V3 to 56V	**RoHS / REACH compliant**	**C6, C8, C14 and C18 input options**
Power rating	5 to 300W	**UL / cUL, TUV, CB, CE, FCC, CCC certified**	**Choice of barrels**
Temperature	-10 to +40 degrees		**Locking connectors**

AC DC CONVERTERS

CONFIGURABLE

Are you looking for a power supply with multiple rails or maybe a unit with an odd output voltage? Our configurable power supplies provide solutions in a single, low profile chassis mounting enclosure. Products are available which meet both industrial and medical standards.

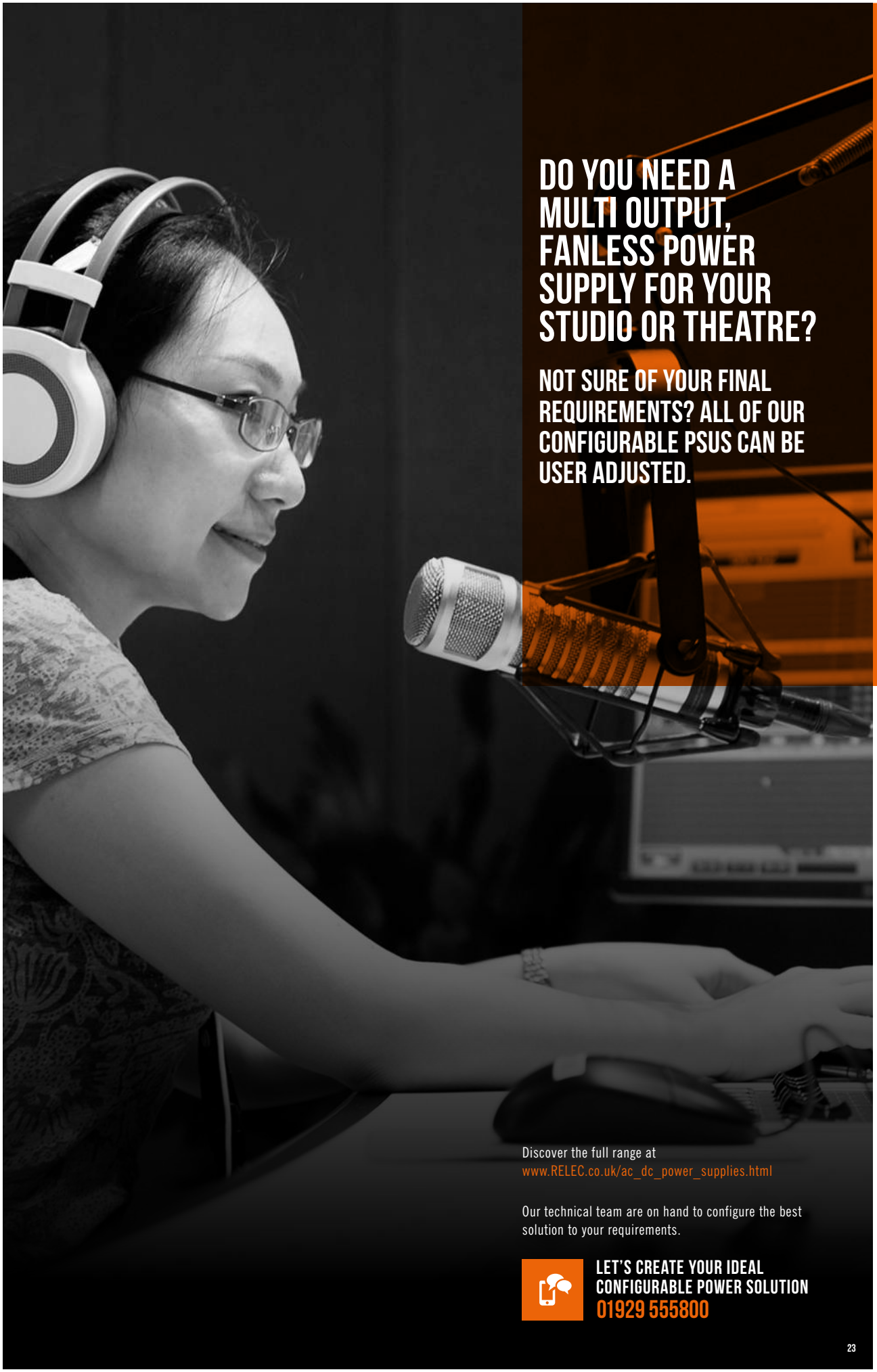
Typical applications are widespread include ticketing machines, medical, military, broadcast and industrial. In fact anywhere that needs unusual voltages or multiple outputs can be built quickly and easily.

We can supply units which are either fan or convection cooled (fanless = silent) with chassis options available between 200W and 1400W.

Fast enough for you?

We will configure solutions for next day delivery with up to 12 outputs.
Just give us a call. We're sure you won't be disappointed with our reactions.

RANGE		FEATURES	OPTIONS
Inputs	AC single phase 85 – 264Vac (Typ)	**60950 and 60601 approvals**	**Convection or fan cooled**
	DC 120 – 380 (Typ)	**User and field configurable**	**Conformal coating**
Outputs	1 to 56V per output (336V system)	**Very high efficiency**	**Reverse air flow**
Power rating	200 to 1400W	**Series and parallel connection**	**Additional ruggedisation**
Temperature	-40 to +60 degrees	**5V isolated standby voltage**	
		<1U height profile	
		Low acoustic noise	
		Fully floating outputs	



DO YOU NEED A MULTI OUTPUT, FANLESS POWER SUPPLY FOR YOUR STUDIO OR THEATRE?

NOT SURE OF YOUR FINAL REQUIREMENTS? ALL OF OUR CONFIGURABLE PSUS CAN BE USER ADJUSTED.

Discover the full range at
www.RELEC.co.uk/ac_dc_power_supplies.html

Our technical team are on hand to configure the best solution to your requirements.

LET'S CREATE YOUR IDEAL CONFIGURABLE POWER SOLUTION
01929 555800

AC DC CONVERTERS

PCB MOUNT

Component level AC DC converters for integration into a broad range of equipment and applications. All of the products are approved to the latest safety and EMC standards, but we are on hand to support you at every step through the design process.

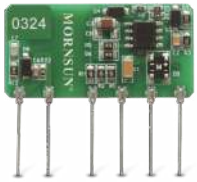
Typical applications include home automation, motor control, ventilation, pumps, signalling etc. In fact, any applications where the PSU has to be integrated onto the main PCB.

Products start with low profile single in line solutions from 1W to 5W and dual in line modules from 3W through to 100W.

PCB? PSU? AOK....

Samples are generally available from stock. Simply give us a call and we could have a converter on your desk the next day.

RANGE		FEATURES	OPTIONS
Inputs	AC single phase 85 – 264Vac (Typ)	**Low cost**	**Custom outputs**
	DC 120 – 380 (Typ)	**UL / cUL / TUV / CE approvals**	**Chassis / DIN rail mount**
Outputs	5V to 48V / ±5V to ±24V	**EN55022 Class B**	**Heatsinks**
Power rating	1 to 100W	**Industry standard footprints**	**Active PFC**
Temperature	-40 to +70 degrees	**Low standby power**	



DC DC CONVERTERS

FIXED INPUT
UNREGULATED

An extensive range of high quality, low cost, low power DC DC converters available with very short production lead-times. Our modules are designed to operate from a fixed input DC source with either single or bipolar outputs. Outputs are regulated to + / - 10% over a 10 - 100% load range.

Typical applications include RS232 / RS485 interfaces and OP amp supplies. Anywhere a simple isolation barrier is required. Standard products start with 1500V isolation, with options for 3000V, 6000V and 12000V as off the shelf solutions.

We're only just scratching the surface!

Surface mount or through hole? Single or Dual in line? We can supply solutions in whatever package you need.

RANGE		FEATURES	OPTIONS
Inputs	DC 3V3, 5V, 12V, 15V, 24V + / - 10%	**No external components**	**1.5kV, 3kV, 6kV or 12kV isolation**
Outputs	3V3 to 24V / ±5V to ±24V	**High efficiency**	**Reinforced isolation**
Power rating	0.2 to 3W	**Standard pin outs**	**Single or dual outputs**
Temperature	-40 to +105 degrees	**Short circuit protection**	**Wide choice of inputs**
		Low cost	**Through hole or surface mount**
		Short delivery time	

FIXED INPUT
REGULATED

Similar to the unregulated products on the previous page, but there are occasions where tighter regulation is required for more sensitive loads.

Typical applications include remote monitoring, RS232 / RS485, communications and biometrics.

We can offer a range of 1W and 2W products with 3% load regulation with options for single in line through hole, or low profile surface mount.

We think we're the perfect match!

If you're at all unsure about what you think you might need, please call us and we'll help you specify the right product to match your application.

RANGE		FEATURES	OPTIONS
Inputs	DC 5V, 12V, 15V, 24V + / - 10%	**No external components**	**1.5kV, 3kV isolation**
Outputs	3V3 to 48V / ±5V to ±24V	**High efficiency**	**Single or dual outputs**
Power rating	1 to 2W	**Standard pin outs**	**Wide choice of inputs**
Temperature	-40 to +85 degrees	**Short circuit protection**	**Choice of footprint**
		Low cost	
		Short delivery time	

WIDE INPUT
2:1 LOW POWER

Industry standard footprint DC DC converters with wide 2:1 inputs and tightly regulated outputs. We have a choice of 3 input ranges all based around standard battery voltages of 12V (9 – 18V), 24V (18 – 36V) and 48V (36 – 75V).

Typical applications include instrumentation, breaker control, fire detection and numerous industrial control systems.

Products come in a wide variety of industry standard footprints including SIP8, SMD24, DIP24 1" x 1", 2" x 1" packages with options to chassis or DIN rail mount many of the modules.

All of our families are available with a choice of output voltages and currents with isolation options up to 3kV on standard products.

Fast and furious

Simply pick up the phone. It's the quickest way to find the best fit and to talk to one of our highly experienced engineers.

RANGE		FEATURES	OPTIONS
Inputs	DC 4.5 – 9V, 9 – 18V, 18 – 36V, 36 – 75V	**No external components**	**Heatsinks**
Outputs	3V3 to 24V / ±5V to ±24V	**High efficiency**	**1.5kV, 3kV isolation**
Power rating	1 to 50W	**Standard pin outs**	**Single or dual outputs**
Temperature	-40 to +105 degrees	**Class A EMC without filters**	**Wide choice of inputs**
		Short circuit protection	**Choice of footprint**
		Low no load power	**Chassis / DIN rail options**
		Short delivery time	**Remote on / off**

DC DC CONVERTERS

WIDE INPUT
4:1 LOW POWER

A complementary range of products but with wider inputs often covering 2 battery ranges. Our three ranges cover 12 & 24V (9 – 36V), 24 & 48V (18 – 75V) as well as 72 & 110V (40 – 160V).

Typical applications include emergency lighting, railway information systems, instrumentation, audio and access control systems.

Footprints including SMD16, DIP24 1”x 1”, 2”x 1” with options to chassis or DIN rail mount many of the modules.

In addition to the above choices we can also support a wide range of output voltages and currents and isolation requirements up to 3kV with standard products.

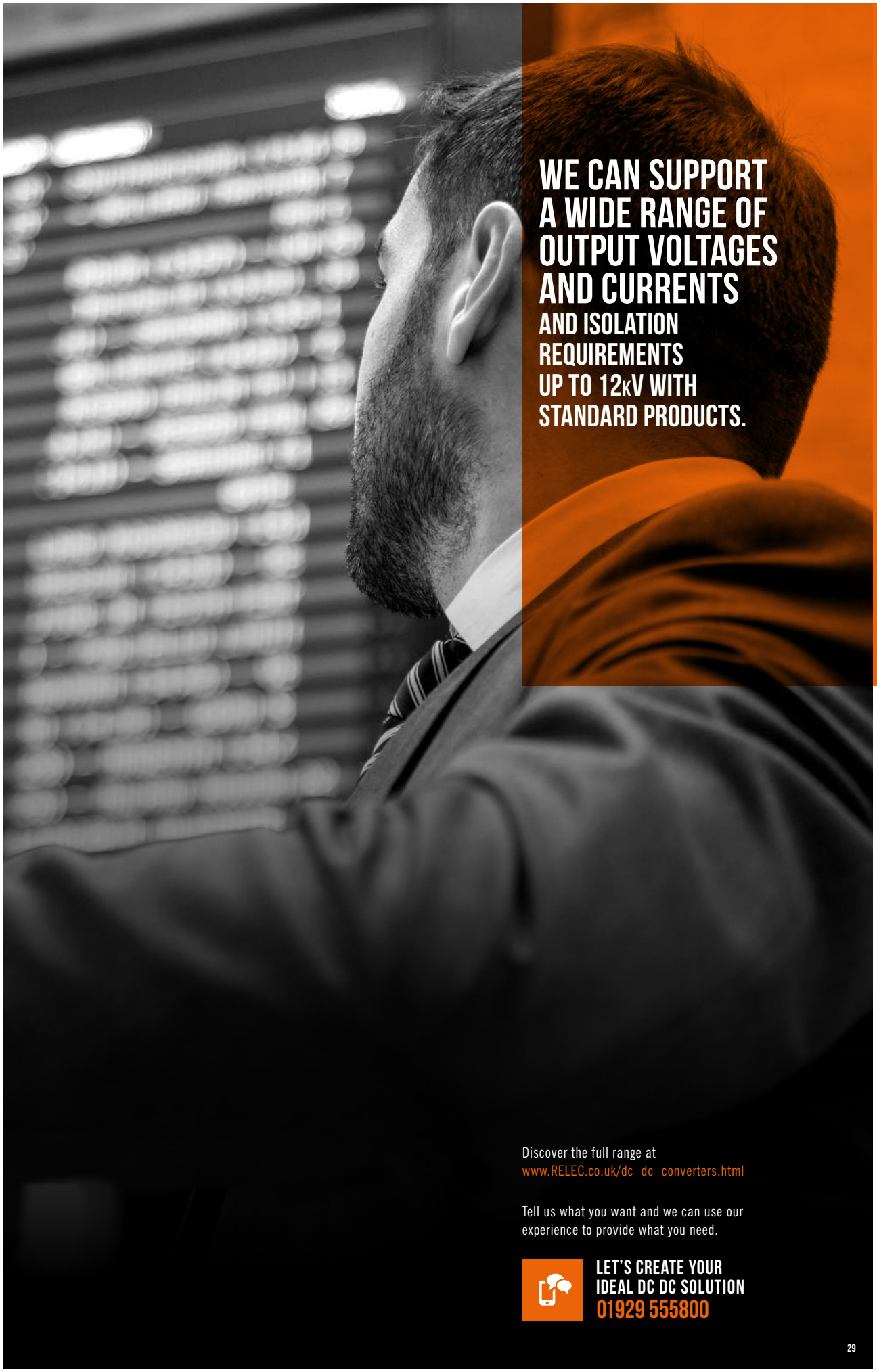
Let’s hear it...

We want to hear everything there is about your requirements. That’s when we can be sure to find a solution to fit both your commercial and technical needs.

RANGE		FEATURES	OPTIONS
Inputs	DC 9 – 36V, 18 – 75V, 40 – 160V	**No external components**	**Heatsinks**
Outputs	3V3 to 48V / ±5V to ±24V	**High efficiency**	**1.5kV, 3kV isolation**
Power rating	3 to 50W	**Standard pin outs**	**Single or dual outputs**
Temperature	-40 to +105 degrees	**Class A EMC without filters**	**Wide choice of inputs**
		Short circuit protection	**Choice of footprint**
		Low no load power	**Chassis / DIN rail options**
		Short delivery time	**Remote on / off**







WE CAN SUPPORT A WIDE RANGE OF OUTPUT VOLTAGES AND CURRENTS

AND ISOLATION REQUIREMENTS UP TO 12kV WITH STANDARD PRODUCTS.

Discover the full range at
www.RELEC.co.uk/dc_dc_converters.html

Tell us what you want and we can use our experience to provide what you need.

LET'S CREATE YOUR IDEAL DC DC SOLUTION
01929 555800

WIDE INPUT
BRICKS (OPEN FRAME)

High efficiency, high power density bricks with ultra-low profiles in industry standard 1/16, 1/8, 1/4 and 1/2 brick formats. All feature wide input voltage ranges, high input-transient withstand capabilities and start-up into pre-biased loads. Models are compliant with the DOSA standards.

Typical applications include super computers, avionic systems, datacom and communication systems.

Background checks

With a little background we will help you design in the optimum product for your application. We have solutions with tightly regulated as well as intermediate bus converters. If you are looking to generate a localised lower voltage DC bus for downstream point of load devices, look no further.

RANGE		FEATURES	OPTIONS
Inputs	DC range 9 to 154V	**4:1 input voltage ranges**	**Through hole or surface mount**
Outputs	1V to 54V	**No minimum load**	**Heatsink options available**
Power rating	Up to 1000W	**Up to 1000g shock**	**+ve and –ve control options**
Temperature	-40 to +85 degrees	**Remote sense**	**EMC filters**
		Very high power density	**Avionic versions**
		Wide trim ranges	




WIDE INPUT
BRICKS (CONDUCTION COOLED) 50 -700 WATTS

Industry standard DC DC converters in conduction cooled, 1/4, 1/2 and full brick formats.
Products are designed to be PCB mounted with cooling provided either from an extensive range of standard heatsinks, or cold wall mounted for optimal thermal performance.

Typical applications include passenger information, rugged communication or solar powered control systems to name a few.

Products are available with a choice of 2:1 or 4:1 inputs, high isolation levels and excellent efficiency.

Expert-to-expert (that's you!)

Our expert sales team are standing by waiting to hear from you. We want to know all about your application and what you want to achieve. We will walk you through the design process with all of the tools you'll ever need.

RANGE		FEATURES	OPTIONS
Inputs	DC 9 – 18V, 18 – 36V, 36 – 75V 9 – 36V, 18 – 75V, 40 – 160V	**Very high efficiency**	**Heatsinks / thermal pads**
Outputs	3V3 to 48V	**Excellent thermal performance**	**Single or dual outputs**
Power rating	50 to 700W	**Short circuit protection**	**Customised output voltages**
Temperature	-40 to +105 degrees	**Five side metal case**	**Chassis / DIN rail kits**
		EN / UL60950 approved	
		Trimmable output voltage	
		Remote on / off	

NON ISOLATED
POINT OF LOADS

Point of load (POL) converters are the ideal solution for providing tightly regulated voltages for individual ICs, circuits or sub-assemblies. We have a range of products optimised for intermediate bus architectures or for wide inputs up to 72V.

Typical applications include alarm systems, remote monitoring, instrumentation and temperature control systems.

Let us stick to the point

Our extensive range of POLS is available in a choice of industry standard footprints and options. Our experts are waiting to find the best solution for you. And there are lots of them.

RANGE		FEATURES	OPTIONS
Inputs	DC 5V, 12V, 9 – 36V, 18 – 72V	**Industry standard footprints**	**Through hole or surface mount**
Outputs	0.5V to 24V	**Convection cooled**	**Heatsink options available**
Power rating	500mA to 100A	**Remote sense**	**+ve and –ve control options**
Temperature	-40 to +105 degrees	**Wide trim ranges**	**EMC Filters**
		Thermal protection	**Avionic versions**
		Short circuit protection	

CHASSIS MOUNT
AND EUROCASSETTE

A range of high reliability DC DC converters for railway / transportation and other demanding industrial applications running from DC system voltages.

Typical applications include trainborne wifi, lighting, windscreen wipers and HVAC control systems.

Power ranges from 20 to 1000W are available with inputs covering all standard battery voltages of 12, 24, 48, 72 and 110Vdc. Products are also available with a 10:1 range allowing operation on any system voltage between 24 – 110Vdc.

We have extensive experience in the railway industry with full understanding of railway norms EN50121 / EN50155 and RIA12. Call us today for a detailed proposal which will meet your requirements.

Keeping you on track…

Our extensive experience in the railway industry is backed up by a full understanding of railway norms EN50121 / EN50155 and RIA12 to keep you pointed in the right direction.

RANGE		FEATURES	OPTIONS
Inputs	DC range 9 to 154V	**Extremely rugged designs**	**Convection or conduction cooled options**
Outputs	5V to 96V	**EN45545 fire and smoke compliant**	**Output / input voltage monitoring**
Power rating	20 to 1000W	**EN50155 / EN50121**	**Inrush current limitation**
Temperature	-40 to +100 degrees	**Wide output trim range**	**Mating connectors**
		External inhibit	**Front panels**
		Low inrush currents	**Base plates**
			Anti vibration clips
			DIN rail mounting





ULTRA WIDE, HIGH INPUT VOLTAGE

A range of wide input DC DC converters originally designed for the photovoltaic industry. They provide a regulated supply voltage used for linking multiple panels together in series, helping reduce copper losses in the interconnecting wiring.

These modules can also be used with rectified mains voltages to provide solutions for low power DC systems operating from both single phase and three phase supplies. As well as PV projects, typical applications include telemetry, process control and signaling systems.

Ready when you are!

Our technical team are on hand, ready to talk you through designing these modules into your system.

RANGE		FEATURES	OPTIONS
Inputs	DC 100 to 1500V	**100 to 1000V or**	**PCB mounting**
Outputs	5V to 24V	**200 to 1500V inputs**	**Chassis or DIN rail options**
Power rating	15 to 40W	**4000Vac isolation**	**Optional EMC filters**
Temperature	-40 to +70 degrees	**UL / CSA / CE approvals**	
		Output short circuit protection	
		Input under voltage protection	

RACK MOUNT INVERTERS

19” rack mounted DC to AC inverters with power outputs from 1kVA to 6.4kVA. They have a host of features making them extremely versatile in a number of applications. Typically used where a battery provides the primary source of supply and mains output is required or can be used as part of the DC backed UPS system.

Typical applications include telecom exchanges and server rooms, military grade UPS systems and track side signalling equipment.

We have a choice of inverters in 1U and 2U formats with options for static transfer switches and / or parallel / 3 phase operation. We also have the ability to offer hot swappable configurations rated at 6400VA, which can be parallel connected up to 51kVA.

It’s all about communication

Speak to us and we’ll have your inverter talking to the rest of your system. With RS232 / 485 or SNMP option you’ll always know what your inverter is doing. We also have the ability to offer hot swappable configurations in a 2U rack rated at 6400VA, which can be parallel connected for systems up to 51kVA.

RANGE		FEATURES	OPTIONS
Inputs	DC 24V or 48V	**Positive or negative ground systems**	**Hot swappable**
Outputs	115Vac or 230Vac	**True sine wave outputs**	**Static transfer switches**
Power rating	Up to 6400VA	**Parallelable configurations**	**3 phase configurations**
Temperature	-25 to +55 degrees	**RS485 / RS232 / SNMP control**	**Integration with rack mount battery chargers**
		High efficiency	

INDUSTRIAL INVERTERS

A series of industrial / transportation grade DC to AC inverters rated from 250 to 4500 VA. Designed for the harshest environments, the units come conformally coated as standard and can be used both in mobile and static environments.

Typical applications include, HVAC control, 'at seat' power on trains and buses, network security systems.

When the going gets tough...

In addition to the usual 24V and 48V inputs we also supply inverters which run from 12V, 36V, 72V or 110V battery systems, with approvals available to international rail standards EN50155 and EN50121-3-2.

Need a prototype? We hold stock of many of the items highlighted below. We will go through all the mounting options with you to ensure you get the right product for your application. Call us today.

RANGE		FEATURES	OPTIONS
Inputs	DC 12V, 24V, 36V, 48V, 72V, 110V	**True sinewave output**	**Base plates**
Outputs	115Vac or 230Vac	**Adjustable output voltage**	**DIN rail mount**
Power rating	250 to 4500VA	**Output failure alarm**	**Connectors / cage clamp / faston**
Temperature	-25 to +70 degrees	**Remote inhibit**	**19" rack mount**
		Railway versions (EN50155)	**RIA12 compliant products**
		Fire and smoke to EN45545	
		Input polarity protection	

POWER ENTRY FILTERS
PCB AND PANEL MOUNT

With over 30 years experience supplying EMC filters we are pleased to be able to offer a wide range of modules with different form factors to suit your application.

Power entry modules
Available in C8, C14, C18 or C20 formats we have a products starting at 1A through to 16A with options for fuses, switches and circuit breakers integrated within them.

PCB mount modules
Rated from 0.6A to 16A and ideal to complement our board mount AC DC converters.

PCB mount chokes and inductors
Component level solutions if you are designing your own bespoke filter or need extra attenuation.

RANGE		FEATURES	OPTIONS
Inputs	115 / 230Vac mains	**High attenuation**	**Front or rear mount**
Current rating	1A to 18A	**Large current range**	**Screw in or snap in options**
Temperature	-25 to +80 degrees	**Single / dual stage**	**Switches and circuit breakers**
		Short lead-times	**Fuses**
			Solder terminals
			V-lock locking inlets





CHASSIS MOUNT FILTERS

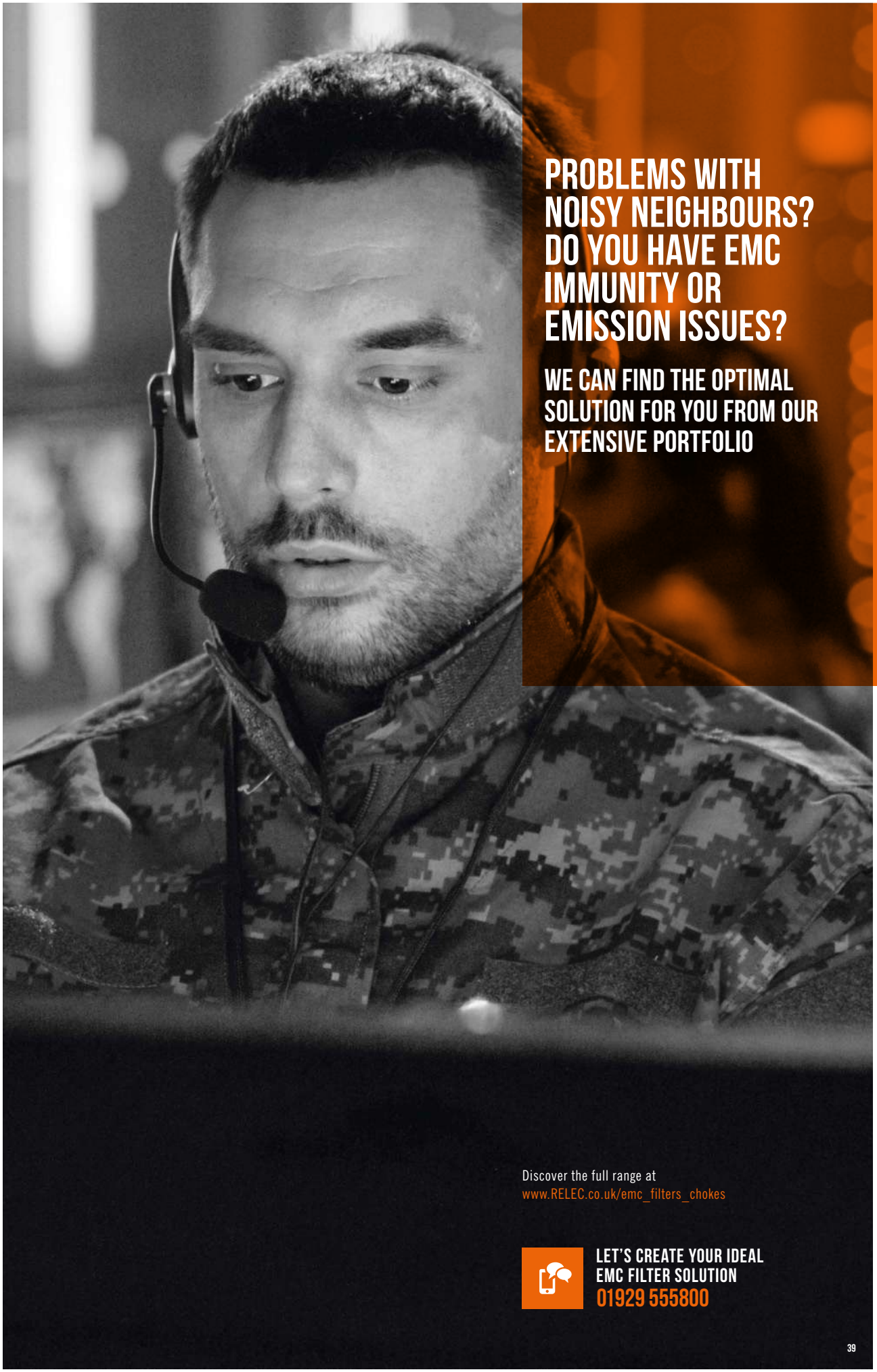
Single phase 115 / 230Vac
1 to 36A filters available with varying degrees of attenuation. Our portfolio includes 1 stage, 2 stage and 3 stage filters ensuring we can find the optimum filter for your application and budget.

3 phase 440 / 480 / 520Vac
Suitable for use in control panels and machines with options available specifically for inverter drives.

3 phase + neutral 277 to 520Vac
Filters rated up to 550A for 3 phase star configured networks with an active neutral conductor.

RANGE		FEATURES	OPTIONS
Inputs	115V / 230V / three phase AC mains	**High attenuation**	**1, 2 or 3 stage filtering**
Current rating	1A to 1100A	**Large current range**	**DIN rail options**
Temperature	-25 to +80 degrees	**Short lead-times**	**Screw terminals / fastons**
			Cabled terminations





PROBLEMS WITH NOISY NEIGHBOURS? DO YOU HAVE EMC IMMUNITY OR EMISSION ISSUES?
WE CAN FIND THE OPTIMAL SOLUTION FOR YOU FROM OUR EXTENSIVE PORTFOLIO
Discover the full range at
www.RELEC.co.uk/emc_filters_chokes
LET'S CREATE YOUR IDEAL EMC FILTER SOLUTION
01929 555800

REQUEST

"WE WANT A BRIGHTER SCREEN FOR DAYLIGHT HOURS"

DISPLAYS

We believe a proud 40 year history in the displays' business constitutes a 'specialist'!

It means RELEC is able to listen, advise and recommend the best products sourced from a wide range of display technologies.

We have supplied literally millions of custom mono displays, standard mono displays and modules to many industries and types of customer.

We believe our range of TFT panels and touch panels, combined with our service, is unrivalled. Working closely with specialist partners, we can easily provide the panel or monitor you need. We are very happy to develop custom solutions for whatever the application, be it light industrial or heavily ruggedised for the harshest of environments.

We have an on-line brochure that gives a comprehensive view of our capabilities, alternatively call us for a chat, or complete a contact form and we will call you straight back.

REFINE

"YOU ALSO NEED TOTAL ENVIRONMENTAL PROTECTION"

MATHEW REHM
HEAD OF DISPLAYS

TALK TO MAT
01929 555800

E : MAT@RELEC.CO.UK

TFT DISPLAYS

SMALL TFT
SIZE 1.77" TO 12.1"

RELEC's standard TFT display products are available in a wide range of sizes, from small 1.77" up to 12.1". These cover all industry standard resolutions, sizes and interfaces. Standard units are available with brightness levels exceeding 1500 cd / m^2.

In addition to supplying standard panels, we also have the ability to offer a range of enhancements to improve the optical, mechanical and environmental performance of your display.

These may include:

- Addition of a touch panel
- Improving the readability in bright and direct sunlight
- Ruggedising
- Improving the optical characteristics by use of treatments, filters and optical bondings

LARGE TFT
SIZE 12.1" TO 31.5" +

We offer a range of larger TFT panels from 12.1" to 31.5" which can be tailored to your specific need.

With access to all the main manufacturers for large TFT displays, we have a wide range of products to use as a base. We then optimise the panel to meet your requirements.

Options include:

- Assembly with a touch panel
- Increasing the backlight brightness
- Improve the viewing angles
- Improving the view-ability in bright and direct sunlight
- Ruggedising
- Optical bonding

IPS PANELS

IPS (In-Plane Switching) was designed to solve the main limitation with conventional TN TFTs of restricted viewing angles and grey scale inversion when viewed away from the preferred viewing direction.

IPS provides true viewing angles from any direction. The technology involves arranging and switching the alignment of the crystal molecules between the glass substrates. This change reduces the amount of light scattered in the matrix.

The benefits not only include having the perfect colour balance from every point, but also allows the LCD to be mounted in either landscape or portrait orientation.

RELEC's range of IPS panels cover all the popular sizes, from 5.0" all the way up to 31.5" and above.

CALL OUR SALES TEAM

AND FIND OUT HOW OUR IPS PANELS CAN HELP YOU SOLVE YOUR PROBLEMS

CALL
01929 555800

SCREEN ENHANCEMENTS

OPTICAL BONDING

TFT LCDs are susceptible to glare and reflection from either bright light or direct sunlight. This can be dramatically improved by optical bonding.

In almost all displays there is an air gap between the TFT panel and the cover lens. This causes refraction in each level: cover lens, air gap and TFT panel.

Optical bonding is where an optical compound is inserted in the air gap between the cover glass and the TFT LCD, creating a single level of refraction. By reducing the internal reflection, the contrast and view-ability is increased. This in turn makes the display more readily seen in bright conditions, without the need to increase the brightness and the corresponding higher power consumption.

OPTICAL BONDING HAS MANY OTHER KEY FEATURES WHICH MAKES IT A POPULAR OPTION, THESE FEATURES INCLUDE:

- Improved sunlight readability
- Reduced reflections and refractions
- Greatly improved durability and ruggedness
- Increased contrast ratios
- Improved resistance to vibration and moisture
- Suitable for harsh temperature environments
- Enhances the backlight performance
- Prevents condensation and other contamination ingress
- High impact absorption

OPTICAL BONDING IS AN IDEAL OPTION FOR THE FOLLOWING APPLICATIONS:

OUTDOOR

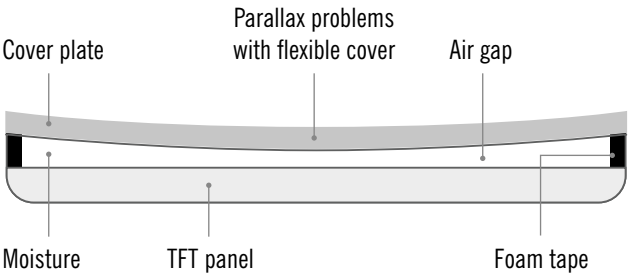
BRIGHT AMBIENT LIGHT CONDITIONS

WHERE A MORE RUGGEDISED DISPLAY IS REQUIRED

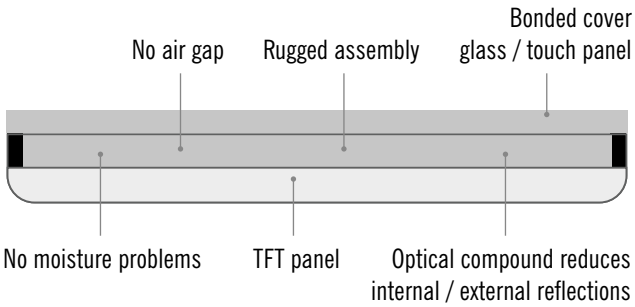
MARINE

MILITARY

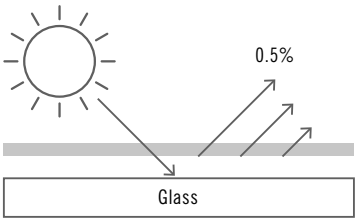
WITHOUT OPTICAL BONDING



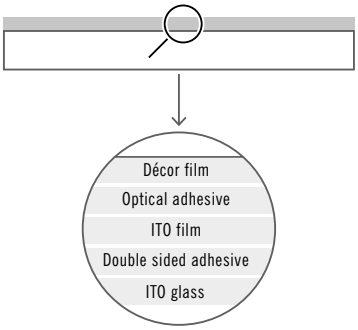
WITH OPTICAL BONDING



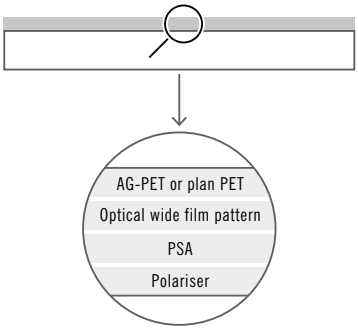
FILMS



Reflection of AR film
(based on 3 x AR coatings)



Touch panel FPC make up



Optical film

ANTI-REFLECTIVE POLARISER

The anti-reflective (AR) polariser is a clear film that is applied to the panel which reduces the amount of reflection created by external bright light.

In a typical TFT display there are three layers which light passes through. These are the cover lens, an air gap, (which can be optionally filled using an optical compound) and the LCD TFT panel.

Within each of these there is a reflection of approximately 5% under direct light, which equals a total of 15%. With the anti-reflective polariser, the reflection is reduced to approximately 9%.

Up to three layers can be applied to a single display to further reduce the reflection. With 2 layers the reflection is reduced to 5% and with three layers the reflection is further reduced to 0.5%.

The AR polarisers can be applied to the top and bottom of the cover glass or both to further reduce reflection. With a display that comes with PCAP (projective capacitive touch panel) the AR polariser can only be applied to the top of the cover glass due to the sensor film.

DÉCOR FILM

Décor film is an individual design option that is available for displays fitted with 4 wire resistive touch panels. The décor film is a customisable decorative surround, framing the TFT module.

The key features of the décor film mean that it can be mounted directly to the touch panel surface and allow the customer to have a flat product design. The film can be supplied with rounded corners for example or formed to a custom shape.

The whole décor film can be customised to allow for different colours, cut outs, indentations and printing with your logo.

This construction is based on a film-film-glass panel. Typically the décor film with a 4-wire resistive touch panel will have the upper ITO film manufactured larger than the bottom ITO glass. This allows for the extra space needed to bend the FPC if applicable.

OPTICAL FILM

The optical film (O-film) polariser increases the viewing angle up to 80° and improves grey scale inversion.

Most TFT LCDs have narrow viewing angles. Without an O-film, viewing the display from an unconventional angle the image would either have a wash out effect (the lighter colours become more visible) or greyscale inversion (the darker colours become more visible).

Both of these effects make the display almost unreadable. With the O-film polariser applied to the TFT LCD from almost all angles it will show the ideal colour balance.

SCREEN ENHANCEMENTS

SURFACE TREATMENTS

ANTI-FINGERPRINT SURFACE TREATMENT

Anti-fingerprint (AF) surface treatments reduce finger print marking when directly handling the display. This is most commonly combined with a touch panel.

The AF treatment is a spray coating which is applied to the front on the module and uses fluoride nano-molecules within the coating. This isolates any natural oil on a person's finger and greatly reduces finger prints being transferred to the display.

The AF treatment also significantly increases the touch panel's sensitivity and accuracy when used in high moisture environments and as a by-product, also provides a softer feel to the panel when touched.

The AF coating has no effect on the optical characteristics on the display or the sensitivity when combined with a touch panel.

ANTI-BACTERIAL SURFACE TREATMENT

The anti-bacterial (AB) surface treatment is a coating that is applied to the cover glass.

Nano-silver technology is widely used in the medical world, and when combined with a SiO2 layer, breaks down the bacterial cell wall and reduces bacteria reproduction by 99.999%.

The AB coating has no effect on any optical characteristics of the display nor does it affect the sensitivity when used with a touch panel. Popular applications of this surface treatment include:

MEDICAL

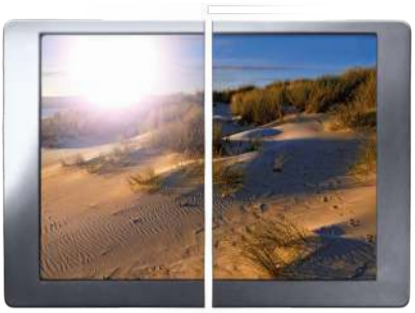
POINT OF SALE

MULTI-USER

ANTI-GLARE SURFACE TREATMENT

The anti-glare (AG) surface treatment is a cost effective solution to reducing glare and any unwanted reflections. In normal circumstances light reflects in a predictable way. This is either specular or diffused.

Once light strikes an AG coated display, it is dispersed in different directions hence reducing the glare. The AG coating has no effect on the optical characteristics or sensitivity when used with a touch panel.



TOUCH PANELS

PROJECTED CAPACITIVE

RELEC is proud to offer a comprehensive range of PCAP touch panels with a variety of options. These include custom cover glass graphics as well as apertures for LEDs or USB ports. We can also incorporate capacitive switches behind the cover glass for more bespoke solutions.

RELEC's range of touch panels are suitable for applications from commercial grade to high end automotive and military. We have solutions with noise immunity up to 32V/m which suit medical, automotive and avionic applications. In fact anywhere where operation and reliability are mission critical.

Projective capacitive touch panels (PCAP) offer the most responsive, sensitive and durable type of touch screen technology.

The PCAP sensor is constructed from a grid of conductive material which is layered on sheets of glass.

An electrostatic field is then created once a voltage is applied. When a conductive object (e.g. finger) comes into contact with the sensor, the PCAP controller measures the change in capacitance at that point which is then accurately converted to the X and Y coordinates.

Because a PCAP panel senses a touch by projection through an outer layer, this means that the top cover lens can be constructed from strengthened glass. This makes it the perfect solution for outdoor or harsh applications.

SMALL TO MID RANGE PCAP
3.5" TO 10.4"

Fully assembled TFT + PCAP touch panels available with a choice of glass thicknesses from 1mm up to 6mm (anti-vandal) with the option of customising the cover lens with print and graphics as required.

We can support multi touch of up to 10 points and provide the source code for popular operating systems (Linux and Android).

LARGE RANGE PCAP
7" TO 31.5"

Solutions designed with quality and performance as the main priority. We use a proprietary chip which has the highest possible signal-to-noise ratio available on the market.

Features and benefits

- Improved EMC immunity (Up to 32V/m)
- Up to 10 points of touch
- Glass thickness of 0.7mm to 10mm+
- Operation with nearly all types of gloves
- Water rejection
- Full operation with water
- Choice of interface; USB, RS232 and I^2C
- Driver support for all major operating systems

MORE THAN ONE TOUCH CAN BE SENSED SIMULTANEOUSLY

HIGH ACCURACY TOUCH POINT

EXTREMELY DURABLE

IMPROVED EMC PERFORMANCE

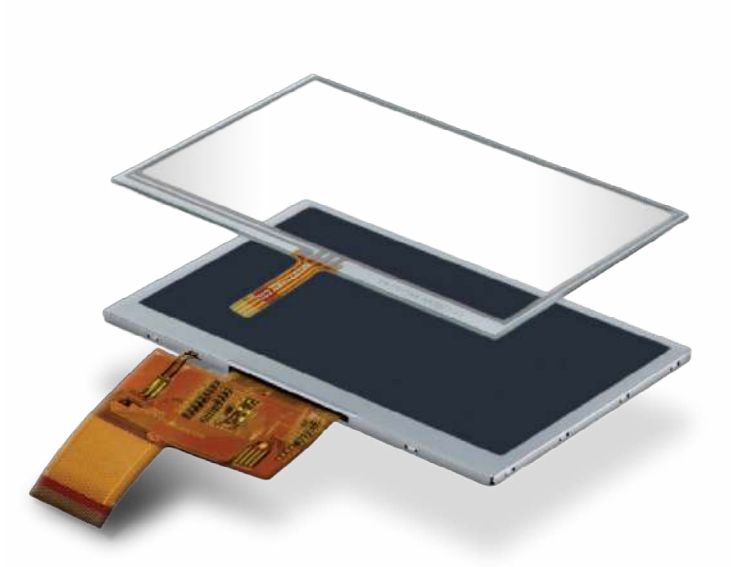
BESPOKE SOLUTIONS THAT WORK WITH THICK GLOVES

RESISTIVE TOUCH PANELS

Resistive touch panels (RTP) have traditionally been the most common touch panel technology in the industrial market.

There are two main types of resistive touch panel, 4-wire and 5-wire RTP. Each consists of a two layer construction for determining the X and Y coordinates.

Typical applications include handheld devices or any product that requires a low cost single touch solution.



4-WIRE RESISTIVE TOUCH PANEL

The most cost effective touch panel is the 4-wire RTP. These have an Indium Tin Oxide (ITO) resistive coating on the inner side of each layer to create the X axis and the Y axis. Voltage is then applied to each layer individually. Once touched both layers make a contact, the co-ordinates for the X and Y axis are then calculated using a voltage divider.

One disadvantage to the 4-wire RTP is that the flexible coversheet (top layer) acts as one of the axes as well as a uniform voltage gradient. Certain factors can cause the linearity and accuracy on this axis to decrease, including for example environmental conditions and high frequency of operation.

Occasional re-calibration may be required to maintain a level of touch point accuracy. A typical life time durability for repeated touch on a single spot is 1 million times, based on a finger touch.

5-WIRE RESISTIVE TOUCH PANEL

The 5-wire resistive touch panel offers a similar construction and design concept to the 4-wire RTP. The 5-wire RTP only uses the bottom layer to create both X and Y axis coordinates and the top layer acts as a voltage probe. This results in excellent stability, durability, sensitivity and reliability due to the top layer not being used for one of the axes.

The 5-wire RTP is an ideal touch panel solution for applications where touch durability and reliability are crucial or the touch input is potentially from an inanimate object.

A few benefits of the 5-wire RTP are:

A CONSTANT LEVEL OF ACCURACY, EVEN IF THE TOP LAYER IS DAMAGED

TOUCH RESPONSE AND ACCURACY IS UNAFFECTED BY HARSH ENVIRONMENTAL CONDITIONS

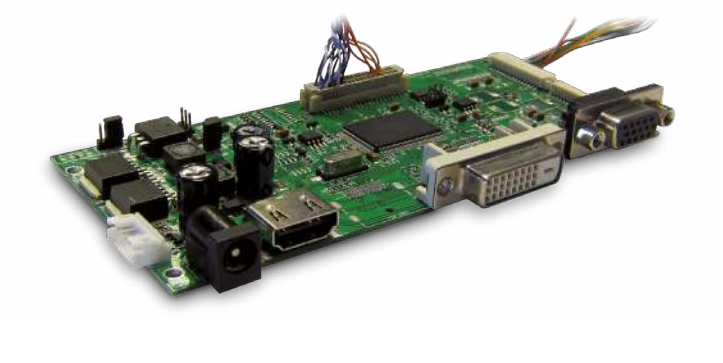
CALIBRATION ONLY REQUIRED AFTER INITIALISATION OF THE SYSTEM

We aim to provide everything you need to integrate your display and touch panel into your system. We can supply controller boards that allow you to easily interface to your systems and equipment. Interface examples include USB, RS232 and PS/2. Operating systems supported include Windows, CE and Linux.

A TYPICAL LIFE TIME DURABILITY FOR REPEATED TOUCH ON A SINGLE SPOT IS 30 MILLION

ACCESSORIES

AD BOARDS AND COVER LENS OPTIONS



AD BOARDS

An AD board is a TFT LCD controller board which provides an analogue connection for the TFT panel. Acting as an interface between the TFT panel and PC systems, the AD board transfers the image created from the PC to the TFT.

RELEC'S OFFERING OF AD BOARDS INCLUDE THE FOLLOWING OPTIONS

- Input connections for VGA, DVI, HDMI, DP or a combination of all 4
- Resolutions from VGA to FHD
- Automatic image scaling
- OSD keypads for basic control settings (e.g. brightness & contrast control and input selection)
- LED driver boards (if not already built in to the TFT)
- All cables

CUSTOM COVER LENS

Available across our entire TFT range, RELEC offers a custom cover lens service. This can be included on any of our products, with or without a touch panel. Suitable when specific mounting methods are required, or custom graphics / logos.

THE CUSTOM COVER LENS CAN INCLUDE THE FOLLOWING

- Cover lens material of either glass or PMMA
- Custom design, size and shape
- Printing graphics in multiple colours (i.e. custom logo)
- Apertures for other connections (i.e. USB sockets or mechanical switches)
- Thick & strengthened cover for rugged & harsh environments
- An array of capacitive switches
- Optical bonding

CUSTOM DESIGNS

RUGGED MONITORS

RELEC's 40 years of expertise in displays means we are able to offer not just components, but also a range of ultra rugged monitors.

Aimed at the extremely harsh environment market, RELEC can provide monitors sealed from IP65 through IP67, IP68 and even IP69K.

Truly meeting these specifications is a difficult requirement but every single monitor built is subjected to testing to the required rating ensuring that when installing in typically high value applications the user can have confidence that the monitor will perform as required.

Typical applications include military, rail, offshore, marine, construction and harsh industrial environments.

Ranging from 4.5" to 42" every project is typically bespoke and tailored to the application.

With our knowledge and access to a wide range of display technologies including resistive touch, PCAP, anti-reflective and more dedicated technologies such as anti-bacterial coatings for the medical industry and anti-finger marking treatments for high use areas, we can combine the best display technologies into a monitor that will be used in the harshest environments for many years.

Most displays up to 12.1" can be modified into rugged solutions. If you need daylight viewing for example, we can modify the backlight and apply surface treatments to provide a complete product which meets your requirements.

We can also offer features such as KVM integration. This allows the monitor to be mounted remotely in its challenging environment, whilst the operating PC can be kept in a clean room. We can also offer bespoke brackets and accessories to allow you to commission and mount your monitor as required.

CHOICE OF FINISHES INCLUDING ANODISING, SPECIAL FINISHES, FDA APPROVED OR WATER REPELLENT

- Up to IP69K
- Sunlight viewing
- Thermal management
- KVM integration
- Machined case
- High brightness
- Touch screen options

CALL OUR SALES TEAM

AND WE WILL WORK WITH YOU TO PRODUCE A VERY SPECIAL MONITOR TAILORED TO YOUR EXACT REQUIREMENTS.

CALL
01929 555800

FUTURE PROOFING

PROVIDING CONTINUITY

FUTURE PROOFING NEW DESIGNS

It is a well-known problem that TFT displays can have a limited production life and it is understandably a major cause for concern for anyone selecting a TFT panel.

Problems are often more acute with smaller displays, typically below 3.5". This is because there are effectively two grades of TFT panel, consumer and industrial. Below 3.5" displays are aimed at the consumer market which of course itself has a short lifespan.

There are a limited number of foundries manufacturing TFT panels. Their capacity is huge but production is driven by the needs of high volume consumer products. Technology changes and requests for cost down mean production of older panels can stop with little or no notice.

All of the above impacts on the supply chain and potentially your product.

"RELEC HAS THE ANSWER TO HELPING INDUSTRIAL COMPANIES ENSURE CONTINUED SUPPLY."

WE CONTROL ALL THE HARDWARE AND CIRCUITRY OF OUR MODULES.

1. We have agreements in place with our suppliers to minimise the effects of component obsolescence. We will firstly give you 6 months' notice of any planned changes. This initially gives us both time to arrange a last time buy and the holding of suitable buffer stocks.

2. We will then source and replace the panel component with an alternative. Often this means other changes to the PCB, bezel and other components to accommodate the new panel. We then build a sample for you to test.

   It will be a form, fit and function identical part, meaning that you don't need to make any changes to your design. The engineering work and sample is supplied free of charge.

   This stage is very important and one of the areas which set RELEC apart. We aim to support all of our customers this way rather than simply replacing a panel with an alternative which is not 100% compatible with the old.

3. After approval we will start supplying the replacement panel. This should allow uninterrupted production of your product.

HELP WITH OBSOLETE PANELS

We have helped many customers who have found themselves in the unfortunate position where the panel they have been buying is no longer available. They have been told that there is either no replacement or the suggested replacement requires the customer to spend huge amounts of time and money to redesign their circuits and hardware.

RELEC can work with you to provide a drop in replacement. When provided with a specification of your obsolete panel we will endeavour to recreate every aspect including cable position, pin out, mechanical constraints, and perhaps even offer to upgrade your equipment by offering a brighter backlight for example.

TALK TO US ABOUT FUTURE PROOF SOLUTIONS
01929 555800

MONO LCDS

STANDARD AND CUSTOM

MONO ALPHANUMERIC AND GRAPHICS
DISPLAY INCLUDING CUSTOM DESIGNS

RELEC has been providing standard and custom mono displays for nearly 40 years. We have been involved in countless projects supplying everything from simple glass through to full modules and complete products using our factories in Asia. We are proud of our quality, we have many long running projects where we have zero failures.

We are able to work with you to develop to your needs. Technologies include TN, STN, IBN, fast response ISTN and BCD. We can also add touch panels where required.

Any design can incorporate other features. For example, to save space we can include other components and circuitry on any PCB. If serial numbering, date coding or use of bar codes is required these can all be included. The aim is to provide a ship to line part, fully tested and meeting your production needs without any further intervention.

CALL OUR SALES TEAM

IF YOU ARE LOOKING FOR EITHER A STANDARD PART, OR WOULD LIKE TO CONSIDER SOMETHING FOR YOUR OWN DESIGN WE'LL BE PLEASED TO HELP.

CALL
01929 555800