MRO Solutions

February 2020

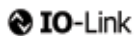## Smart Maintenance

Increase operational efficiency while predicting and preventing breakdowns with our range of smart products and solutions

au.rs-online.com

We're the people engineers turn to for help and advice.

We carry more than 600,000 industrial and electronics products from over 2,500 leading suppliers. From the niche specialists to the big global brands, we stock every brand you're likely to have heard of, and many more besides. This includes our own-brand RS PRO, which offers more than 50,000 products.

With fast and easy access to a broad range of products, reliable delivery, expert technical advice and solutions to streamline your processes, we'll help you keep things running smoothly.

Customer Service

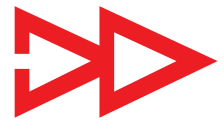Take advantage of our customer support, technical advice & dedicated account managers.

Competitive Quotes

Local team dedicated to quoting you the best price possible for all your orders.

Flexible Delivery

Free next-working-day, scheduled deliveries, or plan ahead with advance orders.

Easy Ordering

Order online, by phone, by fax, or on your mobile phone via our easy-to-use website.

From same day delivery to procurement solutions, visit RS Online to connect to a wide range of helpful services to increase productivity, save you time and money.

How can we help you today?

Order Your Way!

- **Online** at au.rs-online.com
- **On the go** with the RS Online mobile site
- **On the phone** at 1300 656 636
- **Email** ozorder@rs-components.com

Customer Services & Technical Support

Mon - Fri (8am - 6pm AEST)
T: 1300 656 636 | F: 1300 656 696
Email quotes: quotesandtenders@rs-components.com

Welcome

We are proud to bring you our new series of magazines, MRO Solutions. Through these magazines, we aim to deliver you relevant industry articles and showcase our wide range products as part of our service to you.

This month's issue focuses on a critical subject for a large number of our customers. The continuous need for maintenance of production lines and machinery will never disappear, however, new approaches and technologies can help you maintain smarter. Educating yourself on how to drive efficiency from your maintenance activities and maximising uptime is crucial.

In this guide we provide insight on products and technologies which can help you work smarter, avoid unforeseen downtime and work more effectively. Smart can refer to anything from using wireless technologies to easily access data to using predictive tools in identifying problems before they cause a breakdown.

We hope that by investing a little time looking at our articles you will discover practical ways to improve your business into the future! **Smart test and measurement** using thermal imaging is discussed on page 25, while on page 20 it is the future for smart, easy sensor connectivity using open standard **IO-Link**. More information on these solutions, featured products and our wider ranges from all the leading brands is available on the RS website, visit au.rs-online.com/mro-solutions.

Regards,

Cuong Vo

Vice President
RS Components ANZ

Contents

Terms & Conditions

Take ownership of your procurement costs

You need a supplier you can depend upon, a strategic partner who does more than deliver the right product at the right time.

Not only do we offer more than half a million products. By making MRO procurement easier, faster, and smarter, we can help you save time, effort and money.

Procurement and engineering teams face increasing pressures with the design, build & maintenance of assets and facilities. These issues can stem from a fragmented supply base, multiple product categories, stakeholder management, and a pressure to reduce costs.

Fragmented supply base	Random negotiating	Searching & sourcing	Spot buying

RS can offer new platforms and productivity drivers leading towards a more efficient way of working throughout your procure to pay (P2P) process.

Processes are integral into the functioning of any organisation, and the number, and complexity of processes are increasing.

RS is your partner, providing you with solutions to streamline your processes and reduce your hidden costs, generating quantifiable value for your business.

But have you considered the time it takes staff to research products, check availability, negotiate prices and arrange delivery? Then there's seeking internal approval, issuing purchase orders, processing invoices and payments ...It all adds up. In fact, sourcing and processing costs are typically more than twice your product costs.

End inefficient and costly procurement processes

If multiple people across your organisation are placing large numbers of low-value orders and you have little control over who's ordering what, you are almost certainly wasting both resources and money.

You could also be losing valuable production time if the ordering process only starts when a part or item needs replacing. Delays can occur while the purchasing process lumbers into action – meaning costly downtime.

The good news is there's a simple and effective way to cut your company's procurement costs and gain control of your budget spend. By understanding the complex needs of our customers, we have a suite of e-Commerce Solutions to support each individual, by delivering a world-class experience throughout the customer journey, with the target of reducing waste, and streamlining your processes.

Procurement Solutions

Enables you to have greater control, and greater simplicity in the purchasing process.

Sourcing Capabilities

We can help to obtain items that you can't find on our website, saving you time and money by consolidating more of your purchases.

Inventory Solutions

Solves supply related issues to ensure minimum down time, and maintain productivity

Whether it's ordering online or via your procurement system, RS e-Commerce Solutions cater for all business sizes, types, needs, technology and processes to make ordering easier. We are committed to offering you a connected and individual experience that relates to what is at the heart of our Brand, "Let's Make It Happen".

From same day delivery to procurement solutions, visit RS Online to connect to a wide range of helpful services to increase productivity, save you time and money.

"Here at RS, we understand the complex nature of MRO and industrial supplies, So, if you are looking to streamline your procurement process, eliminate wasteful practices and reduce costs, we have a range of e-Commerce and inventory solutions that can be tailored to your business. Reach out to RS today - we are here to help"

CRAIG MITCHELL
Commercial Manager - Value Added Services ANZ

RS

Whether you're looking for the latest components from leading global brands or innovative technologies from up-and-coming manufacturers, RS Components can help you to find it.

Visit au.rs-online.com/new

Gas Soldering Iron

- Compact and portable gas soldering iron, ideal for soldering work where access is limited and there are no live power sources
- The power range of the soldering iron is equivalent to 25-80 Watt
- The built-in Piezo ignition system allows the iron to be used 30 seconds after ignition

1923668   80W, 185MM

Light Grey Hermetically Sealed Enclosure Ip65, Ik08

- Manufactured using ABS offering excellent scratch and chemical corrosion resistance
- Light grey in colour, ideal for general purpose use in a range of environments
- IP65 rating offering protection from water and dust ingress
- IK08 rating offering enhanced shock absorbance

1920721   105 x 70 x 40mm

3pc Spindle Mounted Wire Brush Set

- Suitable for use on Rust, Metal & Paint
- Crimped wire for general purpose applications
- 4,500rpm Maximum safe speed

1884097   6mm Fixing Size

Yellow Push Button Head

- 22mm Diameter
- Spring return head
- Contact block mounting clip included
- Stackable design for contact blocks (max 9)

1881126   22mm Round Flat

3 Piece Shears Set - Left Cut, Straight Cut, Right Cut

- Multi-purpose shears with a straight blade for clean and precise cutting
- Each shear has a sharp, micro-serrated blade for anti-slip operation and easy cutting through fibrous materials
- The high-leverage design requiring minimal cutting effort for the user, especially when the shears are in use for long periods of time

1829988   250 mm Overall Length

3 Hole Push Button Enclosure

- Made with durable ABS plastic
- IP66 protection
- Three 22.5 mm cutout diameter for push button
- Supplied with 4 plastic screws

1828657   70 x 180 x 80 mm

High Strength Bopp Backed Tape

- High-strength, polyester backed, fiberglass reinforced mono filament tape
- High tack and high shear resistant adhesive system
- Excellent aging properties and assures clean removal from many substrates

tesa

1859513   25mm x 50m   53398 38mmx50m

RS PRO 316 Stainless Steel Ball Lock Cable Tie

- Uncoated version, for high temperature applications, quick installation
- Ideal for petrochemical, food industry, industries, power stations, mining, ship-building, offshore and any other aggressive environments

1834237   200mm x 7.9 mm (Bag of 100)

Ergo™ Stainless Steel Slotted/Phillips Screwdriver Set

- ERGO™ stainless steel screwdriver set, 6 pieces
- For slotted and Phillips head screws
- Comes presented in a cardboard box

BAHCO

1876978	6 Pcs	BE-9881I

H7.2 Led Head Torch

- CREE Power+ LED Light Chip (250 lumens on Boost mode)
- Advanced Focus System™ Optics.
- Patented reflector and lens combination
- Smart Light Technology(SLT) featuring three pre-set light programs utilising five light options (High Power, Low Power, Boost, Dim, Signal)

LEDLENSER

7924219	250 lm	7297 - H7.2

Fluke Ti300+ Infrared Camera

- 320 x 240 resolution
- 2 meter drop test
- LaserSharp™ Auto Focus
- Manual or automatic focus
- Measure up to 650 °C

FLUKE

1935400	9Hz	FLK-TI300+ 9HZ

Raspberry Pi 4 Model B Sbc

- The Raspberry Pi 4 has received a performance boost with an upgraded processor giving it similar power to an entry level PC
- There is now a choice of memory size; 2GB and 4GB to enable more complicated processes to run efficiently
- Dual micro-HDMI ports enables a dual screen set-up - previous versions featured 1 standard HDMI port
- Up to 4K video decoding

1822095	2GB	Raspberry Pi 4 2G Model B
1822096	4GB	Raspberry Pi 4 4G Model B

Raspberry Pi 4 Power Supplies

- An OKdo high quality and reliable plug-in AC-DC adapter for converting AC mains current into a 3A, 5.1V power using a USB-C type connector
- With a power rating of 15.3W, this power supply comes with four regional interchangeable heads

OKDO DESIGN THE WORLD

|		
1871381		T7715DV
1871380	(Pack of 60)	T7715DV_Bulk

Leavyseal Housing For Female Terminals

- IP67 sealing provides brilliant protection
- Strong a rugged durability, designed for use in pressuring scenarios
- Operating temperatures of -40°C to +140°C

TE

1642895	4 mm, 5 mm Pitch, 62 Way, 7 Row (Box of 117)	2-1418883-1

Xinabox Stem Micro:Bit Kit

- The XinaBox STEM micro:bit Kit (XK04) is a great way to upgrade your BBC micro:bit and unlock some exciting opportunities for learning and fun.

IN A BOX
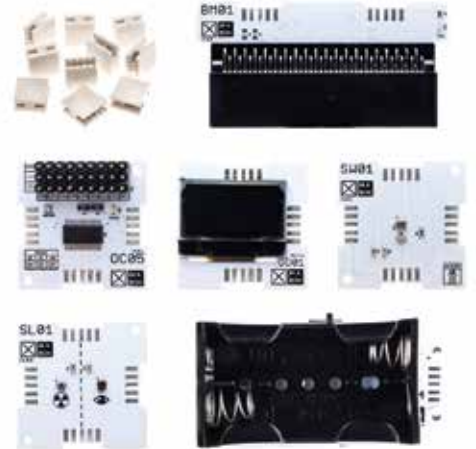
1918680	STEM Micro Bit Kit	XK04

D-Sub 25-Pin To D-Sub 25-Pin Male Cable & Connector

- Assembled, shielded, halogen-free round cable
- Connection 1: D-SUB pin strip (1x 25-position), Connection 2: D-SUB pin strip (1x 25-position)
- Cable length: 3 m

PHOENIX CONTACT

1914350	25 V ac, 60 V dc	1066671

RS

Our Range **got bigger**
Your Choice **got better**

RS PRO is the only global brand that gives you every part you need across all industries at the quality and price you expect

LED Machine Light

- Low Voltage Power
- Reinforced Lens for high resistance
- Furnished with 1.8 meters cord without plug

7777974   24 V, 12 W, Adjustable Arm

Sealed Lead-Acid Battery

- 5 years standby design Float Standby use
- Low gas emissions 99% plus recombination
- Excellent recovery from deep discharge

5375488   12v 7ah

88 Piece VDE Approved Electricians Tool Kit

- Ergonomic multi-component handles
- Optimum balance of torque and control
- High quality and professional tools

7348885   88pc ½in. Socket & Vde Tool Kit

Air Duster

- Inert, pure compressed gas for dust removal
- Ideal for removing particulates from inaccessible areas on delicate equipment

1681644   400 ml

1681646   200ml

Digital Caliper

- Clear LCD display
- Stainless Steel construction
- Origin setting
- Switchable On/Off

8412518   150mm/6"

2061 Piece Brass Screw/ Bolt, Nut & Washer Kit

- A range of slotted pan head brass metric screws, nuts and washers
- Supplied in a storage case

100282   6 → 30mm

Multi-Purpose Cabinet Key

- Four position arm tool, offering five differing drive possibilities
- This universal cross key is made of alloy with excellent workmanship and durability
- Key holes with square, triangle and circle shapes suitable for many especially radiators and electric control cabinet

4393025   Matt Finish

9V Alkaline Batteries

- For general purpose applications

8264435   PP3 (pack of 15)

Precision crimp tool for insulated terminals

- A range of crimp tools for insulated terminals, ferrules and splices
- Options include low-cost tools for occasional use and high reliability, production-ready tooling

533279 For 0.5 mm² to 6.0 mm²

Silicone Grease

- Water repellent with excellent lubrication properties
- Non-toxic and safe on most plastics
- High dielectric strength

494124 100g Tube

Type K Green Miniature In-Line Plug Connector

- Pins made from true thermocouple alloys or compensating material for accurate signal transmission
- IEC colour coding for quick and easy identification
- Polarised flat pin contacts for an accurate connection

4559764 Plug

15pc Briteguard Hex Key Set

- 15 piece ballpoint L wrench set with an excellent variety of key sizes.
- Lengths of keys are fully hardened
- Ball-Plus™ hex keys permit an entry angle up to 25° to work in hard-to-reach areas

5423509 Long Arm, Metric

1.5V AA Alkaline Batteries

- Long life alkaline batteries suitable for a wide range of applications
- Non- rechargeable

7892828 AA (pack of 100)

8 Level Temperature Sensitive Strip

- Suitable for use in high voltage switching, motors, cable overheat detection and wave soldering
- Marked in °F and °C
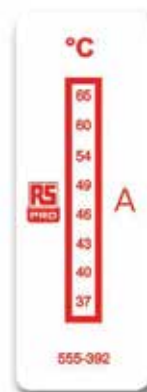
555409 71-110degc (Pack of 10)

SR44 Silver Oxide Button Cell

- Superior discharge characteristics in comparison to alkaline cells
- Good low temperature performance characteristics
- Good resistance to shock, vibration and acceleration

593423 SR44 (pack of 5)

White PTFE Foam Sealing Tape

- Chemically inert material meaning it does not react with other elements • Suitable for aggressive environments where acids, gases and solvents are present
- Non-adhesive
- Prevents fluid/pressure loss when used correctly

512238 12mx12mm

25 piece Cobalt Jobber Drill Set

- HSCo (5%) jobber drills for use on alloy steel, hardened steel, stainless steel, cast iron and titanium
- 135° split point

216690   1mm to 13mm

ATEX Intrinsically Safe Torch, Zone 0

- For use in hazardous locations
- Light modes: High / Low / Flash
- IP67 rated with a tough and durable casing
- High Impact lens and non-slip handle

8903001   3xAAA

Hydraulic Crimping Tool

- Robust hydraulic crimping tool with spring loaded handles
- Single hand operations, letting the other hand free to position the connector
- Replacement die sets are also available separately

6241285   For Tubular Cable Lug

Black 8mm Crimp Bootlace Ferrule

- Made from bright tinned copper with polypropylene insulation
- Suitable for tri-rated and 2491X cables
- Ensure a positive connection when used with terminal blocks and captive terminals

458718   8mm pin, 1.5 mm² wire (Pack of 100)

RS Proximity Switch Test Unit

- Designed to test 3-wire DC proximity switches - either NPN or PNP
- Capable of testing inductive (metal sensing), capacitive, photoelectric or ultrasonic sensors
- Supplied ready to use with a 9V PP3 battery fitted, a great addition to any industrial toolbox!

8399875   Hand Held Proximity Switch Tester

Isolpropyl Alcohol Cleaner

- An alternative to CFC-based solvents which are said to destroy the earth's ozone layer
- Leaves no residue meaning you are left with a smooth surface
- Non-aggressive so does not destroy your parts

2274427   1l Tin

Absorbent Standard Weight Maintenance Pad

- Standard Weight Maintenance pad with open back for quick wicking
- High tensile strength spun bond cover stock prevents lint sticking to machine parts and tools
- Absorbency 0.9 litres per sheet
- Size 48 x 38 cm

7716377   Oil Only Pad 90 L Cap (Pack of 100)

Fibreglass Bristle PCB and Flux Brush

- Easy to use for cleaning and preparing
- Retractable brush
- Optional refill

514868   4mm Dia

General Purpose Foot Switch

- Single pedal foot operated switches
- Durable and reliable with steel housing for long life
- Rated 250Vac/30Vdc at 3 A

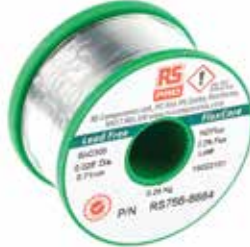**316901**   SPDT, Momentary

Compact Digital Multimeter

- 2000 Counts LCD backlit display
- Voltage 600V ac/dc
- Current 10Aac/dc
- Resistance
- Temperature measurement (RS14)
- Continuity
- EN61010-1 CAT III 600 V

1231938   RS14 Autoranging

Black Polyolefin Heat Shrink Tubing 3:1 (Reels)

- Tough, flexible, general purpose polyolefin tubing
- Excellent physical and electrical performance
- Very good chemical and solvent resistance

7004535   6/2mm i/d (Reel of 7m)

Heatshrink Tubing Kit

- 170 mixed heat-shrink pieces
- Sizes range from 2.4 mm to 12.7mm
- Available in adhesive lined 3:1, and non-adhesive lined 2:1 shrink ratios
- Flame retardant
- Supplied with useful storage box

397679   170 mixed piece kit

Lead Free Solder

- Leaves low level of clear flux residue which can be left safely on the PCB Wets well to all PCB and component finishes
- Ideal for all lead-free applications
- Spreads like a RA flux
- Available in different wire diameters

7568884   0.7mm, 250g reel

94-Piece Mechanics Tool Kit

- Large tool kit for automotive work comprising of a comprehensive socket and bit, spanner and precision screwdriver sets
- Chrome Vanadium construction with Chrome Molybdenum Steel sockets

7348889   94pc Mechanics Tool Kit

Black Nylon cable ties

- Ideal for bundling and organising cables and wires
- Suitable for a multitude of uses
- Black and natural colours available in a range of sizes
- Self-extinguishing to rating UL94V-2

233487   300 x 4.8mm (Pack 100)

Lockout Starter Kit

- Portable electrical department lockout tag out kit
- Provides all the basic Lockout for valves and electrical panels
- Comprises of around 24 different products
- Supplied in a tough LOTO caring bag (with handle and shoulder carrier)

8625247   1 Kit

De-Ionised Water For Circuit Boards

- De-ionised water suitable for the final rinse or "polish" to circuit boards cleaned with Safewash

2513687   5 L Jerrycan

Do you know enough about your processes to optimise them fully?

Data never sleeps; as many manufacturing, logistics and processing industries operate in a 24/7 environment, while being commercially challenged from all directions.

A key element of making fast, incisive operational decisions is having the right information available. And being able to measure, monitor and extract information to make more informed decisions should be top of the agenda – but is it?

IIoT and M2M – what does it all mean?

The Industrial Internet of Things (IIoT) and machine-to-machine (M2M) communication are transforming industrial processes by enabling networked devices to exchange information and carry out more tasks than ever, often without human involvement. These increased levels of machine connectivity and diagnostic data allow for smarter working, through more informed predictive maintenance, greater process flexibility and access to increased levels of operational data.

Think and sync – using smart devices

The majority of new devices offer connectivity in the form of Wi-Fi, Bluetooth, Near-Field Communication (NFC) and Ethernet – and with this level of connectivity, more data is available in the workplace. This can include anything from simple communication, to accessing machinery controls or building systems from anywhere onsite using a laptop, tablet or smartphone. Going forward, technologies such as vision systems, thermal imaging and cloud services will become more prevalent to create smarter solutions.

Harness the benefits for increased productivity

Technology is becoming increasingly more affordable and accessible; with developments making it easier to upgrade or monitor existing machinery, companies are continually becoming more connected. This enables more work to be done, using the same amount of machines and people –

What business wouldn't want that?

RS Sponsors the Smart Manufacturing and Industry 4.0 Forum

RS Components was pleased to be the Gold Sponsor for The Smart Manufacturing and Industry 4.0 Forum and adjoining Digital Supply Chain Forum held at the Langham Hotel in Melbourne.

The 3 day event included a key note address by Scott Philbrook - Head of Corporate Accounts and RS Components hosted round table discussions in both the Smart Manufacturing Forum and Digital Supply Chain Forum.

Thank you to all the participants that met with us over the event. There were over 150 attendees that enjoyed;

• On site tours of installations with technologies demonstrating the advantages of IIoT.

• Key note addresses covering best practice sharing and thought leadership on challenges faced with the development of IIoT in manufacturing environments

• Round table discussions on various topics around the importance of data driven decision making and developing partnerships to manage all components of IIoT

Representatives from a variety of Industries such as Automotive, Food & Beverage, Defence, Education and Manufacturing were present and senior level participants shared their knowledge and experience from their roles including operations managers, procurement, engineering, technology leads and CEO's.

The key note address that was presented by Scott Philbrook was titled "Ecosystem for the Data Age". The presentation covered the key elements of the IIoT Framework, Data Acquisition through the three streams of untapped data, stranded data and new data, the challenge of navigating the Information Technology / Operational Technology divide, under-standing cloud architecture and the strategy RS Components is developing to deliver IIoT as a service.

Vice President of RS Components Cuong Vo along with Craig Mitchell and Scott Philbrook hosted round-tables across the two events where participants shared some of the real-life examples from their IIoT journey and some of the challenges they have faced in developing their own IIoT strategy.

General consensus was that their environments were "data rich" however it was hard to understand exactly what data should be accessed to derive a return on their investment for the new technologies. It was highlighted that there is a talent gap in the manufac-turing industry as they moved from Industry 3 to Industry 4.0.

Participants also shared that their businesses were hesitant to collaborate across other businesses as it involved disclosing their intellectual property and everyone was on different stages of their IIOT journey and Cyber Security was critical.

Get in touch today to see how RS Components can support your IIoT strategy!

QUINT Switch Mode DIN Rail Panel Mount Power Supplies

- Selective Fusebreaking Technology (CRC Technology)
- Worldwide use through wide-range input for DC and AC networks
- Reliable start difficult loads with static power reserve POWER BOOST

540779	18V dc to 29.5V dc, 5A	2866776
6657823	18V dc to 29.5V dc, 40A	1027952
540769	18V dc to 29.5V dc, 10A	2866763
540725	18V dc to 29.5V dc, 3.5A	2866747

QUINT UPS Power Supply

- Maximum service life
- Gives early warning of failures
- Easy handling
- Shuts down before the battery voltage runs out

7397869	24V dc Output	2902689
7397865	24V dc Output	2902686
7512581	18V dc to 30V dc, 5A	2903223

TRIO POWER DIN Rail Power Supply

- Robust design
- Available in single and three phase
- Tool free push in connection
- High MTBF (Mean Time Between Failure) values of over 1 million hours

8837352	24V dc to 28V dc, 5A	2907306

STEP POWER Single Phase Power Supplies

- Easy mounting on the rail and wall
- Maximum energy efficiency through small losses
- Fast commissioning with LED function monitoring
- High operational safety by long power failure under full load

7080444	24V dc, 500mA	2901131
540735	24V dc, 750mA	2868635
6657826	5V dc , 6.5A	2868541
540763	12V dc , 3A	5531354

TRIO-PS-2G/1AC/24DC/3/C2LPS PSU,

- Robust design
- Available in single and three phase
- Tool free push in connection
- High MTBF (Mean Time Between Failure) values of over 1 million hours

8837374	24V dc, 3A	2903147
8837361	24V dc, 10A	2903149
8837364	24V dc, 20A	2907308

TRIO-PS-2G/3AC/24DC/5 PSU,

- Active function monitoring with DC OK LED
- Floating signal contact to ensure the safe supply of all connected 24 V DC loads
- Temperature range from -25°C to +70°C

8837368	24V dc, 5A	2903153
8837377	24V dc, 10A	2907310
8837370	24V dc, 20A	2903155

au.rs-online.com

SPNO Non-Latching Relay DIN Rail

• Easy wiring due to push in connection technology
• Easy handling and extension of range
• Plug in display/suppressor module

7943765	12V dc Coil, 6 A	2903362
7943761	24V dc Coil, 6 A	2905411
7943768	12V dc Coil, 50 mA	2903360
7943759	24V dc Coil, 50 mA	2905409

DPDT Non-Latching Relay DIN Rail

• DPDT (Double pole, double throw)
• Coil power is 400 mW
• Base has IP20 protection
• Relay has RT III protection

7943721	24V dc Coil, 2 A	2905399
7943727	24V ac Coil, 12 A	2905398
7943724	120V ac Coil, 12 A	2903332
7943715	230V ac Coil, 12 A	2905396

4PDT Non-Latching Relay DIN Rail

• AC and DC versions
• 2 and 4 contact options
• Yellow LED indicator
• Varistor or damping diode protective circuit

7943686	24V dc Coil, 6 A	2903308
7943682	24V ac Coil, 16 A	2903306
7943689	120V ac Coil, 16 A	2903305
7943670	230V ac Coil, 5 A	2905383

3PDT Non-Latching Relay DIN Rail

• Easy wiring due to push in connection technology
• Easy handling and extension of range
• Plug in display/suppressor module

7943660	24V dc Coil, 2 A	2903294

PLC-RSC Series DIN Rail Interface Relay Modules

• Saves space on the DIN rail
• Cost-effective
• Use the same electromechanical relay module design for both AC and DC switching voltage
• DIN rail mounting

3588301	24V dc	5521348
3528832	24V ac/dc	5521351
3588339	230V ac/dc	5521377

PLC-RPT Series DIN Rail Interface Relay Modules

• Efficient connection to system cabling using V8 adapter
• Safe isolation according to DIN EN 50178 between coil and contact
• Functional plug-in bridges

7112630	24V dc	2901214
7112683	12V dc	2901229
7112642	48V dc	2900301

au.rs-online.com

Quickon Series Conductor Connector

- Convenient: quick and easy assembly without special tools
- Robust throughout: housing with IP68/IP69K and IK07 protection for a wide range of applications
- Safer connection thanks to polarization against mismatching and touch-proof protection according to DIN EN 0105

| **7158597** | 3+PE, 690 V, 20 A, | 1582214 |

C-RCI Insulated Crimp Ring Terminal

- Material: Copper
- Sleeves are conically tapered to facilitate easy and correct insertion of the conductor

| **8046953** | M4 Stud Size, 0.5mm² to 1.5mm², Red (Pack of 100) | 3240018 |

Motor Protection Circuit Breaker

- Compact design, only 12.3 mm wide
- Large-surface marking possibilities, 1 per connection point and 1 on top of the device
- Double plug-in bridge shaft
- Available in current ranges 0.5 A to 16 A

| **6843594** | 240 V ac, 28 V dc | 916605 |

Thermal Magnetic Circuit Breaker & Mounting Base

- Circuit breakers with compact design and precise nominal current levels
- For use in information and communication technology as well as process control
- Using SFB Technology (Selective Fuse
- Breaking) the circuit breakers can be
- used in a wide range of applications

| **7680880** | 1-pos., M1 (medium-blow), 1 PDT contact | 2800848 |

Subcon-Plus Wire Strippers

- Quick wire stripping tool for the SUBCON-PLUS-PROFIBUS cable
- Strips cables and single wires

| **8018967** | 6 - 8mm | 2744623 |

Cable Mount Solar Connector Plugs

- Can be unlocked with a screwdriverDegree of protection: II

| **7117552** | Male CSA2.5 - 6mm², Rated At 40A, 1100 V | 1774687 |

au.rs-online.com

Push-in Technology [P]
Designed by PHOENIX CONTACT

Device circuit breakers for even greater system availability

Maximum functionality, minimum overall width, high level of safety

Protect your circuits in the event of overload and short-circuit current with the multi-channel electronic device circuit breakers. The four and eight-channel devices can now be installed quickly and toolfree and can be easily set.

PHŒNIX CONTACT

INSPIRING INNOVATIONS

When timing and quality matters, our top brands put you in control.

Our comprehensive portfolio covers a wide range of technologies from Process Controls to Machine Guarding & Safety and much more.

MICA Industrial Edge Computing IOT Kit

- The MICA® CISS Industrial IoT Kit offers the ease of 'plug & play' operation with open-source computing & integrated Node-RED dashboard
- Kit combines a CISS multi-sensor unit by Bosch and the HARTING MICA® Edge Computer creating the ideal platform for development of a condition monitoring or predictive maintenance solution
- The sensor can monitor 8 characteristics including acceleration, temperature, humidity, light, force and pressure with all data is provided in MQTT format

HARTING

| 1762224 | GPIO, USB 2.0 | 2095000001630 |

IO-Link PNP-NO/NC Inductive Sensor

- Stainless steel housing LED status indicator
- Shock resistant up to 150 g
- IO-Link communication

IOT 2020 & 2040 Intelligent Gateways

- The SIMATIC IOT2020/40 intelligent gateways are reliable open platforms for collecting, processing and transferring the data from one network to another
- The SIMATIC IOT series is able to support industrial engineers, makers and designers in creating a IOT gateway between the cloud or site wide network and individual fieldbus and devices within the production environment
- Based on the Arduino platform, powered by the Intel Quark x1020 with Ethernet and optional RS232/485 interfaces
- Supports Yocto Linux and other high level languages
- Expandable & extra connectivity via mPCIe cards & Arduino shields

REVOLUTION PI Open-Source IPC

- An open-source industrial PC powered by the Raspberry Pi Compute module housed in a 22.5mm wide DIN Rail module with 12-24Vdc supply
- The open-source nature of the PiRev means it can run CODESYS, Node-RED and other IEC 61131-3 compliant platforms as well as accessing the KUNBUS Cloud service

SICK

| 1347808 | M12 x 1 | IMB12-08NPPVC0S |

Acti9 ARA iC60 Remote Auxiliary

- Programme selector: Four predefined and easy-to-set programmes on front face
- Status indicator in the front face for quick status check
- Integrated padlocking device
- Manual on-site inhibition for maintenance

| 1811141 | RevPi Core, Single Core 700MHz, 512Mb RAM | PR100102 |
| 1811142 | RevPi Core 3, Quad Core, 1200MHz, 1GB RAM | PR100257 |

IO-Link Smart Sensor

- Analog/digital interface
- Small size
- Easy clip and/or screw fixing
- Quick connection (M12 plug-in connector)

SIEMENS

| 124-4038 | IOT2040 Industrial Intelligent Gateway - 2 x E/Net + 2 x RS232/485 |
| 124-4037 | IOT2020 Educational Gateway - Ethernet Only |

STEGO

| 1890174 | 18-30v DC | 01411.2-00 |

Schneider Electric

| 7907359 | 4P | A9C70134 |

Mains Plug Type I

- Grey and clear moulded 3 flat pin 240V 10A and 15A plug tops suitable for Australia or New Zealand
- Supplied with cable clamp
- 10A versions suitable for cable diameters of up to 8mm, 15A version suitable for cable diameters of up to 10mm

HPM

780403	10A	CD100LCL
780419	15A	CD100L15GY

Barrel Style Ultrasonic Sensor

- Stainless steel body
- Adjustable switched outputs
- Synchronisation feature
- Hysteresis and window modes

PEPPERL+FUCHS

3995484	M30 2 PNP O/P 2000MM	UC2000-30GM-E6R2-V15

6 Pole Panel Mount Switch Disconnector

- IP65 Rated
- Flush or Surface Mounting
- Red rotary handle
- Lockable in the OFF position

EAT•N Powering Business Worldwide

1038447	6NO, 63 A, 22 kW, IP65	T5B-3-8342/EA/SVB

DIMENSION Q DIN Rail Panel Mount Power Supply

- Single-phase or three-phase units from 80 to 960W
- Active power factor correction
- Minimal inrush current
- 50% power reserves for typ. 4s controlled by an intelligent power manager

PULS

7115985	3 PHASE, DIN RAIL PSU, 24V, 40A	QT40.241

QUINT DC to DC Converter

- Power Boost allows reliable starting of difficult loads
- Preventive function monitoring indicates critical operating errors before they occur
- Output voltage regenerated even at the end of long cables
- Support conversion to various voltage levels

PHŒNIX CONTACT

7512608	DIN RAIL 24DC/24DC/20	2320102

IP69K Steel Wall Box

- Material: Stainless steel
- IP69K rating
- Lockable
- Double lipped edge to ensure higher strength and ease of installation
- Easy to use, including removal of the door

RS PRO

7587034	200mm x 300 mm x 300 mm	

Grid Feed Voltage Monitoring Relay

- Monitoring of voltage and frequency in single and three-phase mains (2-wire, 3-wire, or 4-wire AC systems)
- 0-minutes average value monitoring
- Rate of change of frequency monitoring configurable
- Vector shift detection configurable

ABB

8762551	1, 3 Phase, 24 → 240 V ac/dc	1SVR560730R3402

S7-1200 PLC CPU Starter Kit with HMI

- Profibus, Profinet Networking Ethernet, USB Interface
- CPU 1212C AC/DC/RLY
- Input simulator
- KTP400 basic
- SIMATIC STEP 7 basic in the TIA portal

SIEMENS

8643999	24 V dc	6AV6651-7DA01-3AA4

QUINT POWER 24V series Power supplies

- Wide range input for global use
- Primary switched
- Adjustable output voltage

PHŒNIX CONTACT

5055471	120W, 24V dc/ 5A	2938581

IO-Link

IO-Link

The future for smart, easy sensor connectivity and communication which can be used on existing machinery and systems now!

Sensors have long been the eyes & ears of the control system, in direct contact with the process and therefore exposed to potential damage. Since their introduction the vast majority of presence and proximity sensors only provide a simple digital on/off output. However IO-Link is set to change all that and unlock information about the status of the sensor and it's environment which was previously unknown – all via the same wiring that the sensors have previously used.

IO-Link enables fast, foolproof maintenance

With IO-Link the last meter between the field level of automation and the sensor/actuator level becomes communication-capable. This means that in addition to the process variables, information about identification, parameters and the status of the device can also be sent. This helps avoid replacement with the wrong device model and sensor parameters can be stored in the controller and automatically transferred when the unit is replaced. IO-Link simplifies equipment replacement, reduces the level of training required, reduces maintenance costs through better diagnostics and prevents downtimes.

IO-Link reduces maintenance costs while increasing equipment uptime

IO-Link devices can provide information about their basic status. For example, the increasing contamination level of an optical sensor can be reported and maintenance requested. These self-diagnosis functions and the ability to convey information back to the control system enables greater levels of predictive maintenance, less preventative maintenance and uptimes are increased.

Upgrade existing equipment and designs with minimal cost

One of the biggest benefits of IO-Link technology is its use of existing wiring. It transmits the additional information via the 3-wire connection used by the sensor or actuator without affecting its basic operation. This means IO-Link is invisible to the system unless a gateway is used to interface with this data, which allows IO-Link enabled sensors to be implemented into existing machines or designs with minimal re-work.

Typical IO-Link gateway to PLC setup
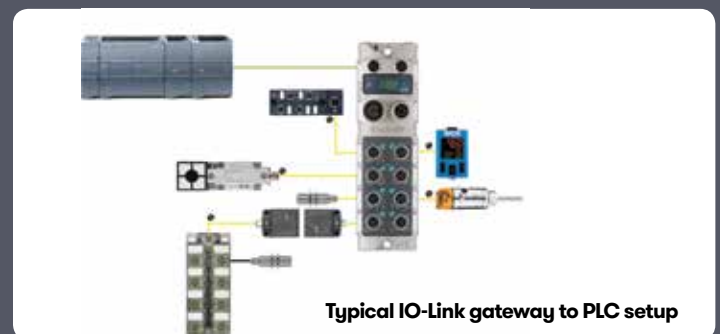
Previously	With IO-Link
■ Replacement of sensors and actuators having parameters only possible using special programming device or in situ on the unit itself ■ Simple diagnostics possible on additional cable lines ■ Mix-up of model types not detected, since the devices cannot be identified by the host system ■ No early warning for compromised operation possible ■ Failure of digital sensors or actuators not generally detected ■ Often a need for different models due to differing measuring ranges and function variants	■ Device parameters can be stored in the host automation system and automatically downloaded reducing documentation or expert knowledge requirements ■ Conveniently run diagnostics information is sent over the same line as the process data ■ Devices can be identified and replaced with no risk of inserting the wrong type ■ Status- and need-based maintenance is possible ■ Operating status information supports need-based maintenance – reducing reactive maintenance ■ Monitoring of communication and diagnostics indicate availability ■ Spare parts inventory costs are reduced thanks to parameter setting capability

So what does this mean to the industrial end user?

IO-Link technology has been rapidly gaining acceptance since its launch in 2009, with over 160 manufacturers now supporting the technology. IO-Link is an open-standard, and has been adopt¬ed as an international I/O standard (IEC 61131-9) allowing different brands of actuators and sensors on a machine to communicate with the control system via the same gateway.

This high level of manufacturer support, openness and ability to retro-fit IO-Link to existing processes and designs means you should be demanding IO-Link support from machine builders and integration partners now to ensure you gain the operational benefits.

We've been expanding our IO-Link range and now have nearly 400 enabled products in stock, giving you the opportunity to design or upgrade machines with this game changing I/O technology.

To view the range **visit au.rs-online.com** and **search for 'IO Link'**

OMRON

Sysmac Automation Platform

Sysmac is the latest machine automation platform from Omron with integration throughout, offering one control solution for the entire machine or production cell.
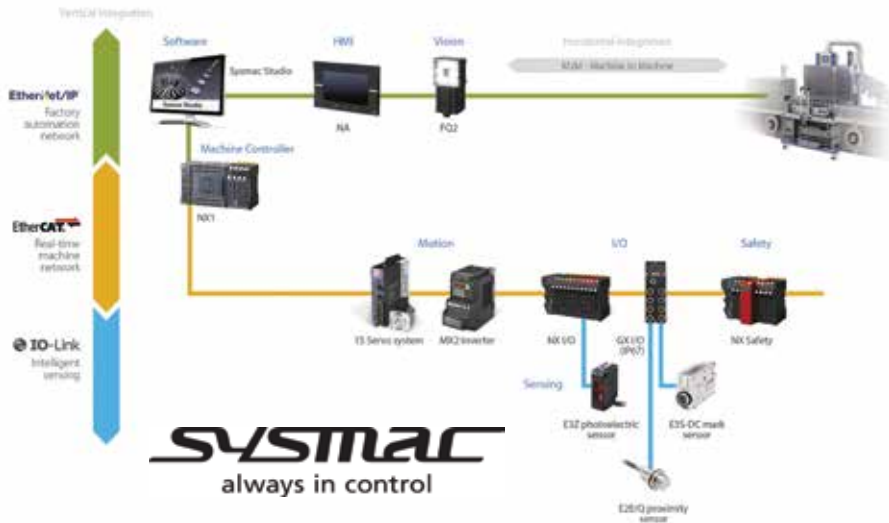
NX1 Machine Controller

- The NX1 completes the NX/NJ machine controllers family offering same functionality in a compact design
- It provides synchronized machine control across motion, I/O, safety and vision within one Integrated Development Environment
- Logic sequence and Motion control in single CPU with up to 8 axes (4 synchronized axes)
- Built-in I/O: 40 or 24 I/O points - extendable
- EtherCAT and EtherNet/IP ports as standard
- NX-ILM400 NX IO-Link 4-channel master allows easy integration of IO-Link enable sensors at process level

1362770	CPU, 4 Axes, I14 / O10	NX1P29024DT1
1362767	CPU, 10 Axes, I24 / O16	NX1P21040DT1
1362768	CPU, 12 Axes, I24 / O16	NX1P21140DT1
1362772	RS422/485 option board	NX1WCIF11
1362774	Analog I/O option board	NX1WADB21
1362790	EtherCAT Coupler - 2ports - 63 I/O	NXECC203
1362791	4 Digital Inputs, PNP 24VDC	NXID3417
1362792	8 Digital Inputs, PNP 24VDC	NXID4442
1362793	8 Digital Outputs, Relay 2A/250V	NXOC4633
1362794	4 Digital Outputs, PNP 24VDC	NXOD3256
1362796	2 Analog Input, 4 to 20mA	NXAD2203
1362798	2 Analog Input, -10 to 10V	NXAD2603
1362801	2 Analog Outputs,4 - 20mA	NXDA2203
1362802	2 Analog Outputs,-10 to 10V	NXDA2603
1362806	I/O power feed unit, 5-24Vdc DC	NXPF0630
1362808	NX IO-Link master, 4 channels	NXILM400
1362762	NX1 Controller Starter Kit - 4 x Axes	NX1POSITIONSTARTKIT

FQ Vision Sensing Solutions

- The FQ2 combines an advanced image processor, with high-power LED illumination and adjustable lens to create the perfect visual inspection solution
- With 1/3" CMOS sensor, 350,000 pixels, real colour and Ethernet communication the FQ2 is compact and high performance
- The FQ2-D30 Touchfinder simplifies setup and allows configuration in process without the need for software
- Ideal for edge, area, colour, position, label, and shape detection applications

1466117	Inspection, Colour, NPN o/p	FQ2-S20050F
1466119	Inspection, Colour, PNP o/p	FQ2-S25050F
1466122	Inspection/ID, Colour, PNP o/p	FQ2-S45050F
1466112	Vision Sensor - DC power supply	FQ2-D30
1466115	IO cable 3m	FQ-WD003-E
1466113	Ethernet cable 3m	FQ-WN003-E

1S Servo Drives with EtherCAT

- 1S Sysmac general purpose servo drive & matched motor solution with safety built-in
- 23-bit resolution encoder for precise control
- Screw-less for pluggable connections for simple & quick wiring
- Embedded relay for direct motor brake control
- Network Safe Torque Off to PLd EN13849-1, SIL2 (IEC61508) - Hardwired Ple/SIL3

1362811	200W servo drive	R88D1SN02HECT
1362812	400W servo drive	R88D1SN04HECT
1362813	800W servo drive	R88D1SN08HECT
1362814	Servo motor,200W,3000rpm	R88M1M20030TS2
1362816	Servo motor,400W,3000rpm	R88M1M40030TS2
1362818	Servo encoder cable, 5m	R88ACR1A005CFE
1362819	Servo motor power cable, 5 m	R88ACA1A005SFE
1362820	RFI filter; single-phase	R88AFI1S103SE
1362822	RFI filter; single-phase	R88AFI1S108SE

E3Z Photoelectric sensors with IO-Link

- Omron's popular E3Z series of photoelectric sensors with IO-Link connectivity built-in
- IO-Link connectivity makes sensor level information visible and notifies of faults and problems in the sensor in real time
- Retro-reflective versions have polarised light source for shiny object detection

1244436	Retro-reflective, Sr 4m, M8	E3ZR86IL3OMS
1244437	Diffuse, Sr 1m, M8	E3ZD87IL3OMS
1244438	Diffuse, Sr 90mm narrow, M8.	E3ZL86IL3OMS
1244435	Thru-beam, Sr 15m, M8,	E3ZT86IL3OMS

E2E Inductive sensors with IO-Link

- Based on the existing E2E series nickel-plated brass IP67 threaded inductive sensors but with IO-Link capability
- The sensors still operate inthe traditional way with a PNP NO/NC switched output, with the added benefit of IO-Link status data being accessible via a gateway over the same wiring

1244439	M12, Sr 3mm, NO/NC, M12	E2EX3B4M1TJIL303OMS
1244440	M18, Sr 7mm, NO/NC, M12,	E2EX7B4M1TJIL303MOMS
1244441	M30, Sr 10mm, NO/NC, M12,	E2EX10B4M1TJIL303OMS

Colour Mark Detection Sensor with IO-Link

- The E3S-DC colour mark photoelectric sensor offers reliable detection of colour markings on any type of packaging - even glossy
- High luminance, three-element (RGB) LED light source for greater light intensity
- Highly efficient optics technology enables stable detection even of subtle colour differences
- Narrow beam and large lens, NC/NO configurable push-pull output, full IO-Link V1.1 capability built-in

1244428	E3S-DC Colour Mark Sesnor	E3SDCP21IL3OMS

INTERCONNECT & TEST SOLUTIONS

RS

We remain committed to solving the industry's most demanding interconnect and testing challenges with high-quality and innovative products for the broadest applications.

RS5500 Insulation & Continuity Testers

- Triple insulation voltage Test Ranges: 250V; 500V; 1000V (RS5505 adds 125V range)
- 200mA short current continuity range
- Test Hold function for easy operation
- Over range indication
- 1 mA test current for MΩ range at rated voltage
- Meets IEC 10101, CAT III 1000 V

1231931 RS5500

RS51 Series Thermometer

- A range of thermometers offering a choice of number of inputs, thermocouple type and with or without datalogging
- K or J-Type - thermocouple input depending on model
- Real-time stamp (RS53 / RS55)
- Data logging up to 16000 records (RS53 / RS55)
- °C, °F or °K display

**1233215** RS51 Type-K One Input

Fluke 117 Multimeter

- VoltAlert™ Technology for intergrated non-contact voltage detection
- AutoVolt feature for automatic AC/DC voltage selection
- LoZ: Low input impedance to eliminate stray voltage
- Large white LED backlight
- True RMS

6161460 10A ac 600V ac 10A dc 600V dc   FLUKE 117 EUR

Fluke 719 Pro Pressure Calibrator

- Unique integrated electric pump for one handed pressure calibration
- Precision pressure adjust vernier for easy and accurate pressure calibration
- 30 PSI, 150 PSI and 300 PSI (2, 10 and 20 bar) measurement range
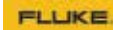
FLUKE

7999140 30 PSIG (2 bar)   Fluke-719Pro-30G

RS PRO Infrared Thermometer

- Built-in laser sighting
- Backlit LCD display
- Auto HOLD
- MAX / MIN reading
- Adjustable emissivity

1232216 +500 °C

Magnetic Field Detector

- Responds to all kinds of magnetic fields from alternating current to direct current and permanent strong magnets
- A small test magnet is housed in the cap of the Magnet Stick to check that it is working correctly

3755422 0.3mT, 1000V ac

Fused Test Leads 600v Cat Iii

- A 500mA, 50kA breaking capacity fuse is fitted to provide protection against electrical arcing being sustained through the test leads
- Probe tips are shrouded leaving only 2mm of exposed metal to prevent inadvertent bridging of live conductors
- Double insulated silicon rubber cable indicates wear and damage to the leads via white inner layer of insulation
- Safety crocodile clips with finger guards are available with certain kits

204583 Right angled

au.rs-online.com

Infiniivision EDUX1002A Oscilloscope

- Sampling rate is 1GSa/s
- Maximum memory depth of 100kpts
- Display of 7in TFT LCD WWGA
- Intuitive GUI and built-in help available in 15 different languages
- Six-in-one instrument integration

KEYSIGHT TECHNOLOGIES

| **1346146** | 50MHz | EDUX1002A |

Megger MFT1815 Electrical Tester

- Simple colour-coded test selection and large clear backlit display for ease of use
- Two and three wire non-trip loop testing for RCD protected circuits
- Internal memory and Bluetooth® communications

Megger.

| **9011321** | 2 Wire, 3 Wire | MFT1815-AU |

Megger PAT420 Portable Appliance Tester

- Large 5.7in. VGA backlit colour screen for clear & easily understandable results
- 5 user defined soft-keys for direct access to frequently used functions
- Full QWERTY keypad for easy and precise data entry

Megger.

| **7212465** | Class I, Class II Test Type | PAT420-AU |

S-Force 2200 FTD Series Compact DC Axial Fan

- 3-Phase fan for efficient running
- Compact design for space saving
- Low operating noise at high back pressure
- Protected against reverse polarity and locking
- Fitted with speed signal and control as standard

ebmpapst

| **7406382** | 1220m³/h, 103W, 48 V dc | 2218F/2TDH4P |

Four Pole Double Throw (4pdt) Toggle Switch

- Toggle switch with silver plated contacts sealed to prevent the ingress of dust or liquids
- Connection via 250in. (¼in.) receptacles or soldering
- For biased operation '(on)' refers to momentary on position
- Brass actuator and Glass Filled Polyester case

≣TE

| **2662212** | ON-ON, 20A | A4TN15W04 |

8 Pole M12 Socket To 8 Pole Socket Adapter

- Right Angle 8 Pole M12 Socket to 8 Pole Socket Adapter, 21.5mm

HARTING

| **8055364** | M12/RJ45 Right Angle | 21033814800 |

Permasleeve™ Wire Marker Sleeve Cartridge Labels

- Heat-shrinkable
- Self-extinguishing
- Meets MIL-M-81531, MIL-STD-202F, Method 215 & UL 224

BRADY.

| **6949128** | 4.75mm X 2.13m | M21-187-C-342 |

M20 Cable Gland

- Anti-vibration tightening rated as IP68
- The blocking part of the cable glands is made up of flexible flaps which exert a strong pressure on the cable and conferring on the product an optimal resistance to traction

legrand®

| **7048668** | Black, IP68 (Box of 5) | 0 979 63 |

Testo 868 Thermal Imaging Camera

- Superior image quality
- Integrated digital camera
- 19200 temperature measurement points ensure accurate thermography

Be sure. testo

| 1252266 | -30 → +100 °C, 0 → +650 °C | 0560 8681 |

FLIR TG297 Industrial High Temp Thermal Imaging Camera

- The FLIR TG297 is a one-of-a-kind industrial diagnostic tool that combines accurate temperature measurement with the ability to image up to 1030°C (1886°F)
- Patented FLIR MSX® (Multi-Spectral Dynamic Imaging) enhancement improves image clarity by embossing visual scene details on full thermal images

FLIR

| 1764816 | +1886°C | TG297 |

Fluke Ti480 PRO Thermal Imaging Camera

- The Ti480 is a rugged and superbly engineered 640 x 480 thermal imaging camera
- Users can now perform thermal imaging inspections with more confidence and faster results than ever before - all with the ruggedness and ease of use expected from Fluke
- Meet the rigorous demands of thermal inspections

FLUKE

| 1716857 | -20 → +800 °C | FLK-Ti480 PRO 9HZ |

Fluke Pti120 Pocket Thermal Camera

- Automatically organize and file thermal images with Fluke Connect Asset Tagging
- Fully radiometric thermal imager gives you measurement data to the pixel with 120 x 90 infrared resolution (10,800 pixels)
- 3.5" LCD touchscreen display for easy troubleshooting
- -20 °C to +150 °C temperature measurement range
- Six color palettes
- Can withstand drop up to 1 meter

FLUKE

| 1864695 | -20 → +150 °C | PTi120 |

FLIR C2 Thermal Imaging Camera

- Easily affordable
- Light, slim profile
- Contains a built-in LED spotlight that can be used as a flashlight and for photo illumination
- Auto orientation
- Touch screen

FLIR

| 8668124 | -10 → +150 °C | 72001-0101 |

FLIR ONE Pro iOS Thermal Imaging Camera

- Pixel size 12um (con), 8-14um spectal range
- Higher Resolution Thermal Sensor
- Advanced Diagnostics
- One-Touch Reporting
- Enhanced FLIR ONE App

FLIR

| 1368284 | -20 → +400 °C | 435-0006-03 |

au.rs-online.com

Work smart
solving electrical problems with thermal imaging

Today's thermal imagers are rugged, easy to use, and much more affordable than even just a few years ago. They have become a realistic solution for everyday electrical maintenance.

To use, a qualified technician or electrician points the thermal imager at the equipment in question and scans the immediate area, looking for unexpected hot spots. The imager produces a live image of the heat emitted from the equipment and with the quick squeeze of the trigger, a thermal image is captured.

Point one: loading

The electrical equipment being inspected must be under at least 40 % of nominal load in order to detect problems with a thermal imager. Maximum load conditions are ideal, if possible.

Point two: emissivity

Emissivity describes how well an object emits infrared energy, or heat. This affects how well a thermal imager can accurately measure the object's surface temperature. Different materials emit infrared energy in different ways.

Troubleshooting electrical systems Three-phase imbalance

Capture thermal images of all electrical panels and other high-load connection points such as drives, disconnects, controls, and so on. Wherever you discover higher temperatures, follow that circuit and examine associated branches and loads. Compare all three phases side-by-side and check for temperature differences. A cooler-than-normal circuit or leg might signal a failed component. More heavily loaded phases will appear warmer. Hot conductors may be under-sized or overloaded. However, an unbalanced load, an overload, a bad connection, and harmonics can all create a similar pattern, so follow up with electrical or power quality measurements to diagnose the problem.

Connections and wiring

Look for connections that have higher temperatures than other similar connections under similar loads. That could indicate a loose, over tightened, or corroded connection with increased resistance. Connection-related hot spots usually but not always, appear warmest at the spot of resistance, cooling with distance from that spot. In some cases a cold component is abnormal due to the current being shunted away from the high-resistance connection. You may also find broken or undersized wires or defective insulation.

Fuses

If a fuse shows up hot on a thermal scan, it may be at or near its current capacity. However, not all problems are hot. A blown fuse, for example, would produce a cooler than normal temperature.

Motor control centers (MCC)

To evaluate an MCC under load, compare the relative temperatures of key components: bus bars, controllers, starters, contactors, relays, fuses, breakers, disconnects, feeders, and transformers. Incorporate the guidelines above for inspecting connections and fuses and identifying phase imbalance

Transformers

For oil-filled transformers, use a thermal imager to look at high- and low-voltage external bushing connections, cooling tubes, and cooling fans and pumps, as well as the surfaces of critical transformers. Keep in mind that like an electric motor, a transformer has a maximum operating temperature that represents the maximum allowable rise in temperature above ambient.

RS

Rely on us for all your tools & consumable needs. Update your tool box with these popular products!

Cr Lithium Button Batteries

- These CR batteries feature lithium chemistry, which has a high energy density
- Perfect for use with intermittent high load applications
- The self-discharge on this range of coin cells is low, giving them an excellent shelf life. Under the correct conditions, 90% of the battery storage will remain even after 10 years in storage

Panasonic

5132871 CR2032 3V, 20mm Diameter CR-2032/HFN

3M™ Cubitron™ Ii Cut-Off Wheel

- Engineered to cut faster and last longer than competitive ceramic products
- 3M Precision Shaped Grain is self-sharpening runs cool and optimises mineral breakdown for extra-long life
- Rigid reinforced resin-bonded wheel slices through almost all materials

3M

9107876 125 mm X 1.6mm, G36+ (Box of 25) 3M COW T41 125x1,6x22, 36+, PN65455

Black Mushroom Hook Tape

- Can be opened & closed hundreds of times
- Up to 12x the performance of standard systems
- Removes the need for mechanical fasteners
- VHB™ high strength acrylic foam tape backing for strong permanent bonds

3M

4587321 25mm X 5m 3M SJ 355D 25,4 mm x 5 m

DYMO XTL 300 Label Printer Kit

- 3-Year Limited Warranty- Maximized print area helps reduce label waste
- PC-connectivity* and free DYMO ID software for easy transfer of labels to and from the XTL 300 for jobsite editing and printing
- Durable built-in cutter for fast label production

DYMO XTL

1228358 24mm Max Label Width 1889482

25 Piece Socket Set ¼ In Hexagon Drive

- Pocket sockets and bit set ¼" with the most popular sizes and one wobble extension bar to be flexible for different applications
- Extra short two component handle ratchet for ease of use in limited space
- The bits fit in small plastic holders 2x3 and 1x4 bits for easy storage

BAHCO

254197 ¼" SL25

138 Pieces Socket Set Hexagon Drive

- The ratchet wrench comes with a compact sturdy soft grip handle
- Thumb slide direction lever
- ½", ¼", 3/8" Hexagon drive
- Made from alloy Steel with a matt finish

BAHCO

8766180 ¼"-3/8"-½" S138

46 Piece Socket Set ¼ In Square Drive

- Sockets have Dynamic Drive for higher efficiency and maximum grip
- A reversible ratchet with quick release button
- The set includes ¼" compact spinner disc, 150 mm long flexible extension bar and 1.5 mm, 2 mm and 2.5mm hexagon wrenches

BAHCO

3581265 ¼" S-460

Fa-430 Smoke Absorber

- Air-purifying fume extractor realizing powerful suction with quiet operation
- Freestanding flexible ducts facilitate production changeovers
- Three airflow levels are selectable according to working environments

HAKKO

7192109 53db, 120W FA-430 Aus/NZ

2125 Particulate Filter

- The 3M™ 2125 is a soft, lightweight filter pack, which is designed for use with the 6000/7500 series half face respirators and 6000/7500 series full face respirators
- They provide the user with a high protection from contaminated environments in a wide range of industrial contaminants
- With a filter type of P2, it can protect you against solid and liquid particles with effective filtration efficiency

3M

766233 Dust, Mist Filter (Pack of 20) 2125

Digital Depth Micrometer

- Base 100mm long x 16mm wide
- 4.5mm diameter depth rods
- 0 to150mm / 0 to 6in. range
- Friction thimble

3157834 150mm

T-handle Hex Key Set

- Ball end hex keys for almost any hex driving eventuality
- Chrome vanadium steel - A strong, durable material that contributes to the long tool life
- Nylon plastic, fibre injected handles for a comfortable grip
- The hex keys are heat treated to HRC 48 52

537811 10 Piece Set

170 Piece Hss-Tin Coated Drill Set

- Ground flute
- Sizes increase in 0.5mm increments
- Ideal for general workshop applications

5071732 170 Piece (Each)

18 Piece Mechanical Screwdriver Set

- 18 piece set containing popular sizes for mechanical and general purpose environments
- Made with durable chrome-molybdenum and chrome-vanadium steel
- Supplied in a blow moulded case

4593972 18 Piece (Each)

78 Piece Mechanics Tool Kit

- ½in and ¼in socket components
- Chrome Vanadium steel construction
- Sandblasted finish
- Sockets stamp with sizes for quick identification
- Tool storage – supplied in a handy blow moulded tool box

8296568 78 Piece

Heavy Duty Ratchet Action Cable Cutter

- Pump action, heavy-duty cable cutter with a powerful double pawl ratchet jaw closure
- Relatively small physical size allows for easy access & handling compared with longer lever types with a similar cutting capacity
- Polyethylene handle grips for comfort over long periods of use
- Shears cables smoothly and efficiently

5416898 240mm Cutting Capacity

Digital Level/ Inclinometer

- Quick and accurate measurement of gradient
- Selectable acoustic signal to indicate 0° or 90°
- Hold function
- Choice of measurement units: degrees °, percentage %, or in/ft

6673916 Lcd Inclinometer

¼in Air Blow Gun

- Venturi action nozzle multiplies air volume output, and makes gun completely safe, because - unlike conventional units - output air flows around the unit and not through it
- Manufactured from aluminium for longevity
- ¼in BSP Inlet

4885568 12bar

5-Digit Laser Tachometer

- Direct reading RPM
- Memory recall of last reading, max, min
- Reflective target tapes included
- 10-99999rpm 1mW

1238771 10-99999rpm 1mw

au.rs-online.com

27

RS

Datamate L-Tek 2mm cable socket kit,

- Polarised mouldings
- High reliability connector system
- The L-Tek Datamate connectors are available with or without Latches.
- Mates with known industry equivalents

HARWIN

9094433   2mm, 6P (Pack of 2)   M80-8880605

Vishay VS-26MB Series Bridge Rectifiers

- Universal, 3 way terminals: push-on, wrap around, or solder
- High thermal conductivity package, electrically insulated case
- Center hole fixing
- Excellent power/volume ratio

VISHAY

2278659   25A 600V   VS-26MB60A

BDS100 Thick Film Power Resistor

- Available in 6 configurations with 2 or 4 easy to connect terminals
- Easy mounting Isotop case
- Optimum stability
- Space saving solution

TE

2251272   100W ,680R   BDS2A100680RK

Openable Ferrite Sleeve

- Housing has no projecting parts Key sold separately UL94-V0 plastic case

WÜRTH ELEKTRONIK

3097962   33.6 x 29.5 x 37.7mm   74271221

8-Way Male RJ45 Straight Connector

HARTING

7148544   Cat6, IP20   09451511560

High Voltage Coaxial Connector Jack

- Nickel plated brass bodied 50Ω connectors with PTFE insulators and beryllium copper contacts
- Designed for RF and high voltage application

Radiall

2127400   Panel Mount, 50Ω   R316553000

Self-Contained Fibre Cleaner

- A thumb activated, spring loaded window mechanism exposes a fresh section of tape with each actuation
- Two elongated slots in the window allow a thorough double wipe of a connector end face
- A side window indicates how much tape is left in the cleaner

2119421   400 Applications   FCC-02R

Rectangular Snap Fixing Cable Ferrites

- Designed to attach to cables in order to reduce electromagnetic interference from being induced or radiated
- The ferrite is housed in a hinged nylon 66 carrier, which is simply snapped around cable and is supplied with a cable tie which can be used to prevent the ferrite sliding along cable when attached to the integral retaining lug

Richco

| 2224343 | 5-6mm dia. | MSFC5-T |

Type III+ Female Crimp Terminal Contact

- A range of Series 1 Contacts for TE Connectivity connectors

TE

| 7100289 | 18-14AWG (Pack of 5) | 66601-2 |
| 7100283 | 18-16AWG (Pack of 5) | 66101-3 |

Non-Fused Terminal Block

- 48 way type F 3 row adapter with rows z, b and d loaded

PHŒNIX CONTACT

| 2927682 | 64/F 48 | 2264093 |

EMI Suppression Axial Ferrite Bead

- Axial ferrite rings fit over the cable, absorbing energy emitted by cables without affecting the transmitted data
- These ferrite rings can be fixed on the cable by using heat shrink sleeving
- Attenuation is better than ferrite rings owing to the increased ferrite level, and is increased by threading the cable through several times

WE WÜRTH ELEKTRONIK

| 1449783 | 9.5 x 4.75 x 9.5mm (Pack of 500) | 74270033 |

ABS Angled D-sub Connector Backshell

- Nickel plated ABS hoods to UL94-V0 with conductive plastic strain relief grommet
- Meets FCC20780 and European screening requirements
- Accepts 4-12mm foil, lap or braided cable

MH CONNECTORS

| 3229800 | 9 Way, Strain Relief | D45PK9-K |

USB Field USB A receptacle

- Sealed against fluids and dust
- Shock, vibration and traction resistant
- No cabling operation in field (no tools required)
- Mechanical coding/ polarization (2 positions)
- Improved EMI protection

Amphenol SOCAPEX

| 5369332 | Male, Cable Mount | USBF TV 6 N |

80mA Ceramic Cartridge Fuse

- Hazardous area barrier network fuses offers a range of products designed to enable greater safety when operating electronic equipment within potentially explosive environments
- Applications include electrical connections, electrical components and test equipment

Littelfuse

| 7383122 | 80 mA, 250 V ac/dc | 0242.080UAT1 |
| 7932112 | 50 Ω | CA120/195-VC |

RS PRO RS380 Clamp Meter

- 400 A AC Current Measurement
- 2000 Counts LCD display
- Auto power off
- Low battery indicator

Add Promo Code "MROPRO" to receive 15% discount

Lead Acid Rechargeable Battery

- 5 years standby design Float Standby use
- Low gas emissions 99% plus recombination
- Excellent recovery from deep discharge

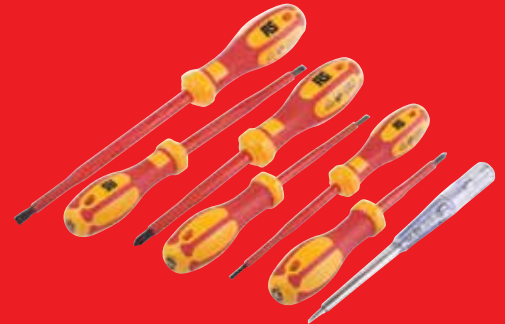**Add Promo Code "MROPRO" to receive 15% discount**

RS PRO 7 Piece VDE Screwdriver Set

- Slotted and Crosshead screwdrivers
- VDE approved tools for working in rigorous health and safety standards
- VDE voltage tester included
- Ergonomic soft grip handles

Add Promo Code "MROPRO" to receive 15% discount

1231935	400A ac CAT III 600 V	~~$50.90~~	**$43.27**
6867253	12V, 5Ah	~~$44.22~~	**$37.59**
8755812	Phillips, Slotted	~~$53.00~~	**$45.05**

55 Pieces Socket Set ¼ in Square Drive

- Chrome Vanadium for excellent strength and corrosion resistance
- Soft comfortable ratchet handle for reduced fatigue and a tighter grip
- Fitted case reduces lost parts and quick identification of missing parts

Add Promo Code "MROPRO" to receive 15% discount

Ratchet Crimping Tool

- Supports RG58 and RG59 wire size
- BNC, TNC connector type
- Suitable for terminating both 50 Ω and 75 Ω connector

Add Promo Code "MROPRO" to receive 15% discount

RS Pro French Colour Code Multi Compartment Kit

- Portable, compact and uncluttered storage in minimum space
- Contains 8 Ferrule compartments
- Plastic see-through cover
- Marked compartments, sorted by size and ease of selection

Add Promo Code "MROPRO" to receive 15% discount

8179236	Socket & Bit Ratchet Set	~~$95.18~~	**$80.90**
4730648	For BNC, TNC	~~$106.80~~	**$90.78**
2280321	0.5mm² 10mm² Wire End Ferrules	~~$62.20~~	**$52.87**

EVERY PART MATTERS.

RS PRO

Socket Screws - Hex head BZP Steel

- High-quality threaded design ensures a comfortable screw into the socket
- BZP Steel as standard
- Head height is equal to shank diameter
- Cost effective, more so than stainless steel

Add Promo Code "MROPRO" to receive 15% discount

RS PRO Aluminium Tape

- Breaking load is 12N/cm
- Elongation is 5%
- Operating temperature ranges between -20°C and 110°C
- Flame retardant and self-extinguishing

Add Promo Code "MROPRO" to receive 15% discount

Cabinet Key Diecast Zinc

- Four position arm tool, offering five differing drive possibilities
- This universal cross key is made of alloy with excellent workmanship and durability
- Compact size, easy to carry and store, an essential tool for maintenance applications

Add Promo Code "MROPRO" to receive 15% discount

RS PRO
4838130 M2.5 x 12mm (Box of 100)   ~~$110.24~~   **$93.70**

RS PRO
1468961 0.07mm, W.50mm, L.45m   ~~$10.04~~   **$8.53**

RS PRO
4393019 Bright Chrome Plated   ~~$11.97~~   **$10.17**

15% OFF SELECTED RS PRO PRODUCTS!

To receive 15% discount on these selected products, please quote Promotion Code **MROPRO** in your order.

au.rs-online.com

Connect to a full range of services

Free & Flexible Delivery

With a range of flexible delivery and collection options we make it easy for you to receive your order when and where you need it.

Local Technical Support

We offer easy access to product support resources - online, by phone or through our RS Local Sydney branch.

Local Stock Holding

With over 60,000 products stocked for next day delivery, you can focus on what matters most when time is of the essence.

eProcurement Solutions

Our experienced teams are here to help you consolidate vendors, remove complexity and reduce cost within your process.

DesignSpark Community

Join our community of over half a million engineers, designers and students to access free CAD software, design tools and resources.

Online Invoicing

Stay in control of your spend & reduce your purchase to pay costs with our invoicing and payment services.

Contact us to learn more about any of our products or services.

Visit au.rs-online.com

1300 656 636

ozorder@rs-components.com