

ISSUE 44

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element14

AN AVNET COMPANY

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14 Industrial Automation & Control

18 The future of V2V communication

25 Tools & Production Supplies

32 Multicomp Pro

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# A MESSAGE FROM THE EDITORS

## Welcome to the 44th edition of Connect!

We're excited to empower your electronics journey with insights, innovations, and resources at element14.

In this edition, we will explore a wide range of components, equipment, and supplies to bring your projects to life with ease, knowing that our dedicated team is here to assist you, every step of the way.

We take immense pride in serving you, our valued customers. We encourage you to register with us to ensure you don't miss out on future editions by simply visiting [au.element14.com/connect-magazine#register-with-us](http://au.element14.com/connect-magazine#register-with-us) to register or subscribe to our marketing emails.

Your feedback is incredibly valuable to us. Share your thoughts, suggestions and ideas with us at [au-marketing@element14.com](mailto:au-marketing@element14.com).

Together, let's embrace the possibilities that electronics offer and continue to create with confidence.



**Brianna Neander | Tess Turner**

Marketing Team  
Australia & New Zealand



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# CONTENTS

## Product Categories

**04** ELECTROMECHANICAL

**06** INDUSTRIAL

**09** INTERCONNECT

**11** EDUCATION

**14** INDUSTRIAL AUTOMATION & CONTROL

**16** SEMICONDUCTORS

**17** PASSIVES



**18** THE FUTURE OF VEHICLE-TO-VEHICLE  
COMMUNICATION WITH SUB-GHz

**20** TEST & MEASURE

**25** TOOLS & PRODUCTION SUPPLIES

**30** SBC & DEVELOPMENT KITS

**31** ANALOG DEVICES

**32** MULTICOMP PRO

**36** MULTICOMP PRO PASSIVES



# Welcome to the latest Connect magazine, issue 44. In this edition, we offer products and insights to help you take your projects to the next level.

Join us as we dive into the world of vehicle-to-vehicle communication with Sub-GHz technology. Our featured article explores various applications of this technology that could be used to improve safety, efficiency, and connectivity on the road and how it could transform the future of transportation.

On the product pages, we showcase our broadening range in industrial automation and control, and feature our Multicomp Pro passives offering.

Make sure to also check out the local services available and reach out to our dedicated customer service and technical teams who are ready to provide you with the support you need.

With these products, services, and resources at your disposal, you'll have the confidence to stay ahead of the curve and unlock endless possibilities for your projects.

We hope you enjoy this issue of Connect.

Thank you for choosing us as your go-to source for your requirements.

**Luke Grigg**  
Regional Sales Director  
Australia & New Zealand

## GPE-4323 - BENCH POWER SUPPLY

- 4.3" LCD display
- Setting & read back resolution 100mV/10mA
- Output on/off



**GW INSTEK**

Order Code  
**293035602**

**5% OFF** **\$577.43**

## SD-081G - SCREWDRIVER SET

- 4 piece TRI-wing precision screwdriver set
- Made of AISI 8660 chrome-molybdenum vanadium steel with satin finish
- Smooth rotational cap for easy screw/unscrew quickly without lifting the bits



**Pro'sKit®**

Order Code  
**291699802**

**30% OFF** **\$9.72**

## MEFV22S - SINGLE BOARD COMPUTER

- micro:bit V2
- Two programmable tactile buttons for user functions
- New notched edge connector makes it easier to connect things like crocodile clips and conductive thread



**BBC micro:bit**

Order Code  
**384734102**

**5% OFF** **\$24.15**

## K3750 - MAINS POWER CORD

- Current rating: 10A
- Jacket colour: black
- Voltage rating: 250VAC



**ACCESS COMMUNICATIONS PTY LTD**

Order Code  
**417892002**

**3% OFF** **\$6.54**

## 33RH17.5X28.5X10.7 - FERRITE CORE

- Impedance: 160ohm
- Product length: 28.5mm
- Provides attenuation of EMI on power and data cables, without affecting data transmitted through the cable



**multicomp PRO**

Order Code  
**964054102**

**45% OFF** **\$1.60**

 **E14Community**

 **element14electronics**

 **element14**

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\*All products shown in this publication are subject to Connect's Terms & Conditions



## PV USB-2 - PLUG IN DC/DC CONVERTER

 alfatronix POWER. NO COMPROMISE.

- Output voltage nominal: 5V
- Outputs: 1 output
- Apple and Android auto-detect

10% OFF

**\$26.35**Order Code **253062802**

## TRI 1-1211SM - ISOLATED SURFACE MOUNT DC

New

 TRACO POWER

- 3-year product warranty
- PD 2 pollution degree
- Protection against overvoltage and short circuit

30% OFF

**\$23.95**Order Code **417596402**

## FAZ-C10/1 - THERMAL MAGNETIC CIRCUIT BREAKER

 EATON  
Powering Business Worldwide

- Twin-purpose terminals
- Current rating: 10A
- Breaking capacity: 15kA

20% OFF

**\$39.08**Order Code **120543902**

## 3-1423675-9 - THERMAL CIRCUIT BREAKER

 AUTHORIZED DISTRIBUTOR

- Button extends for visual trip indication
- Push button to reset breaker
- 6.35mm straight quick connect tab termination

30% OFF

**\$5.33**Order Code **965919602**

## B5WC-VB2322-1 - COLOUR SENSOR

 OMRON

- Sensing distance: 40mm
- Supply voltage: 4.75V to 5.25V
- Reflective sensing, miniature size, connector method

5% OFF

**\$172.47**Order Code **407783802**

## MYBSP0122BABFT - ISOLATED SURFACE MOUNT DC/DC CONVERTER

 muRata PS  
Murata Power Solutions

- Isolated DC-DC converter for PoE PD
- Operating temperature range: -40°C to 85°C
- Input-output isolation: 2,250VDC

45% OFF

**\$4.16**Order Code **994998402**

## 78253/55VC - SMPS TRANSFORMER

 muRata PS  
Murata Power Solutions

- 300°C for 10 seconds peak wave solder temperature
- Isolation voltage: 4kV
- Secondary voltages: 5V

10% OFF

**\$4.56**Order Code **136240702**

## S201-B10 - THERMAL MAGNETIC CIRCUIT BREAKER

 ABB

- Current rating: 10A
- Poles: 1 pole
- Voltage rating VAC: 277VAC

20% OFF

**\$35.70**Order Code **249275502**

## S506-4-R - FUSE CARTRIDGE

 EATON  
Powering Business Worldwide

- Low breaking capacity
- Rated voltage rating: 250VAC
- Time delay compatibility for inductive circuits

45% OFF

**\$0.218**Order Code **161515902**

## 80.11.0.240.0000 - TIME DELAY RELAY

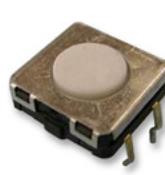
 finder  
SWITCH TO THE FUTURE

- Width: 17.5mm
- Six time scales from 0.1s to 24h
- High input/output isolation

30% OFF

**\$57.51**Order Code **134423402**

## B3W-4000 - TACTILE SWITCH

 OMRON

- Sealed structure for high reliability
- IP67 protection rating
- B32-series key tops mount to models with projected plungers

30% OFF

**\$0.938**Order Code **144815202**

EXPLORE MORE: [au.element14.com/connect-magazine](http://au.element14.com/connect-magazine)

## 9AS3D12 - POWER RELAY



Life Is On | Schneider Electric

- Coil voltage: 12VDC
- Contact current: 30A
- Coil resistance: 155ohm

20% OFF

\$13.32

## VB0.35/2/6 - PCB TRANSFORMER



Order Code 366569502

BLOCK

- Designed for high ambient temperatures
- Minimum size at high output
- Inherently short-circuit proof

40% OFF

\$13.19

## BAF147B002-00A0 - SENSOR



Order Code 113160802

Amphenol Advanced Sensors

- Maximum supply voltage DC: 5V
- Easy to install
- RoHS compliance

\$12.90

## HANI-C-2.0I-P-MA - CLAMP MOUNT TEMPERATURE SENSOR



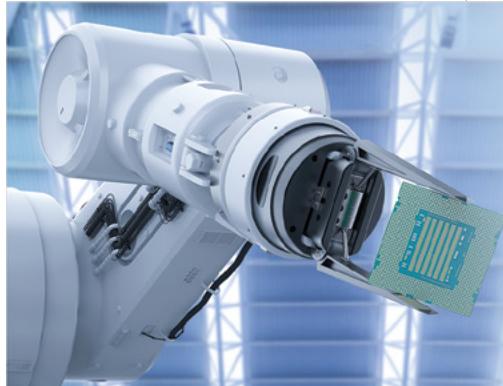
Order Code 378330702

Ω OMEGA

- Mounts easier than a surface sensor
- 2.0" industrial plastic pipe
- Non-invasive and non-contact measurement

10% OFF

\$930.24



Order Code 414500602

## ZB4BZ101 - CONTACT BLOCK



Life Is On | Schneider Electric

- SPST-NO contact configuration
- Silver alloy contact material
- Screw clamp terminals

5% OFF

\$11.68

## SM91534AL-E - PCB TRANSFORMER

New



Order Code 305297702

BOURNS

- Transformer mounting: surface mount
- Isolation voltage: 6.4kV
- Winding type: single primary, single secondary

20% OFF

\$7.88

## ZTP-148SR - THERMOPILE IR SENSOR

10% OFF

\$2.18

## PRTXI-G1/2-1/4-4-IO - PROBE

New



Order Code 417738702

Ω OMEGA

- Response time: 32ms
- Operating temperature: -20°C to 100°C
- Field of view: 85°

5% OFF

\$351.18

Order Code 416850402

WE'RE MORE THAN ELECTRONICS

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[au.element14.com/Connect44IAC](http://au.element14.com/Connect44IAC)

- Isolation test voltage 5300VRMS
- Typical RON 22ohm
- Load voltage 400V

## VOR1142B4 - MOSFET RELAY

VISHAY  
The DNA of Tech

20% OFF

\$2.13

## BN-LG10Y250MYB - NTC THERMISTOR

New



Order Code 288967202

BOURNS

- Zero power resistance at 25°C: 250ohm
- Disc size: 10mm
- Approvals: cURus, UL

10% OFF

\$0.556

## PM2LH10 - PHOTOELECTRIC SENSOR

Order Code 420527002

Panasonic INDUSTRY



- Stable detection by convergent reflective mode
- Dark object detectable
- Hardly affected by background

5% OFF

\$65.92

## ZMX-3DE2500HF-Q7 - FILL LEVEL SENSOR

Order Code 235795602

BANNER



- Container fill monitoring made easy
- Detect peak height or volume over a large sensing area
- One unit offers more reliability than multiple single-point sensors

6% OFF

\$2,722.35

Order Code 417241702

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AN AVNET COMPANY

**SFC6000D-50SLM - MASS AIR FLOW SENSOR**
**SENSIRION**

- 50 - 0.1slm flow range
- NIST traceable calibration
- Small form factor and low weight

**5% OFF****\$660.24**Order Code  
**414535402**
**PTS820J25MSMTR LFS - TACTILE SWITCH**
**C&K**  Littelfuse

- Illumination: non illuminated
- Maximum voltage: 12VDC
- Maximum current DC: 50mA

**30% OFF****\$0.503**Order Code  
**302321902**
**CHS-01TA - DIP / SIP SWITCH**
**Nidec**  
NIDEC COMPONENTS

- Switch actuator style: slide
- Contact configuration: SPST
- Reliable dip slide half-pitch

**30% OFF****\$1.20**Order Code  
**285472502**
**45-2234.11H0.000 - SWITCH ACTUATOR**
**e a o** **New**

- For use with: EAO 45 series illuminated pushbutton switches
- Product range: 45 series
- IP / NEMA rating: IP66, IP67, IP69K

**10% OFF****\$26.42**Order Code  
**417226902**
**G4A01184C - FUSE**
**THERMODISC**

- One-shot operation cuts off electrical power
- Low resistance
- Current interrupt capacity up to 25A at 250VAC

**30% OFF****\$1.12**Order Code  
**47661402**
**SFM6000D-50SLM - MASS AIR FLOW SENSOR**
**SENSIRION**

- Disruptive concept combining plastic body and highly integrated electronics
- Exchangeable 6mm push-in and down mount connectors
- 50 - 0.1slm flow range

**5% OFF****\$449.34**Order Code  
**414535802**
**TL3330AF130QG - TACTILE SWITCH**
**E-SWITCH**

- SPST, 50mA, 12VDC
- Multiple grain force options
- Small profile works with many electronic applications

**30% OFF****\$0.539**Order Code  
**252227602**
**RSF34W100RF - FLOAT SWITCH**
**Sensata** 

- High power side entry, internally fitted float switch
- Switch action may be reversed by rotating the device through 180°
- Output current: 30A

**20% OFF****\$39.74**Order Code  
**247998502**
**0679H9150-01 - FUSE**
**bel** POWER CONNECTIONS & PROTECTION

- Fuse current: 15A
- Breaking capacity current DC: 100A
- Voltage rating VDC: 72VDC

**20% OFF****\$0.293**Order Code  
**284856002**
**MCASP-L-E 5A - FUSE**
**multicomp** PRO

- Fuse current: 5A
- Voltage rating VDC: 32V
- Auto blade fuse size: 10.9mm x 3.8mm x 8.8mm

**40% OFF****\$0.72**Order Code  
**156916302**
**5637A - TOGGLE SWITCH**


- 10mR initial contact resistance
- 1.25Nm maximum torque (applied to nut)
- Contact voltage DC nom: 30V

**45% OFF****\$6.33**Order Code  
**108230202**
**EG1218 - SLIDE SWITCH**
**E-SWITCH**

- 100MR minimum insulation resistance
- 10,000 cycles minimum life
- Universal fitting, compatible with T0820 and all reciprocating saws

**30% OFF****\$0.749**Order Code  
**278723202**
**CSM40510F, - MICROSWITCH**
**CAMDENBOSS**

- Maximum operating force: 0.25N
- Switch terminals: through hole
- Maximum contact current: 5A

**40% OFF****\$1.21**Order Code  
**379808602**
**0299030.TXN - FUSE**
**Littelfuse**

- Fuse current: 30A
- Auto blade fuse size: 29.2mm x 8.9mm x 21.6mm
- Product range: MAXI 299 series

**10% OFF****\$3.38**Order Code  
**276203902**
**MC000827 - FUSE CARRIER**
**multicomp** PRO

- 22.6mm pitch PCB fuse holder
- Fuse current: 6.3A
- PCB hole size: 1.3mm

**30% OFF****\$0.437**Order Code  
**246115802**

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## XF-321-FAR - THERMOCOUPLE

**LABFACILITY**

- Thermocouple type K to IEC 60584
- Tip temperature range from -75°C to 250°C
- Colour coded miniature plug

10% OFF

**\$12.99**Order Code  
**410074802**

## 103H5208-5210 - STEPPER MOTOR

New

**SANYO DENKI**

- Stepper motor type: dual shaft
- Motor size: 42mm
- Current rating: 1A

20% OFF

**\$57.61**Order Code  
**417244202**

## A.85.A.101111 - RF ANTENNA

New

**TAOGLAS.**

- Gain: 4.5dBi
- Antenna mounting: SMA connector
- Maximum frequency: 1.605GHz



5% OFF

**\$140.82**Order Code  
**417276402**

## SW25-4 - HEAT SINK

**BOYD**

- Solderable tabs 2.6mmØ on 25.4mm fixing centres
- Thermal resistance: 13°C/W
- Heat sink material: aluminium

10% OFF

**\$0.981**Order Code  
**121343602**

## DMB-4773 - DIN RAIL

**BIB**

- Removable terminal guards have snap-off tabs to match number of terminals used
- Snap-fit front cover is easily removable for machining or silk-screening
- UL94V-0 flammability rating applications

10% OFF

**\$12.86**Order Code  
**276245502**

## B84144A0036R000 - POWER LINE FILTER

New



## 12RDT4 - ANALOGUE TIMER

**EPCOS**

- Number of phases: 3 phases
- Filter input terminals: terminal block
- Current rating: 36A



- Maximum supply voltage: 240VAC
- Wide time range: 0.3s to 30h
- Integrated dual voltage

30% OFF

**\$36.83**Order Code  
**281151802**

## 514F - DC AXIAL FAN

**ebm papst**

- IP20 protection rating
- Long service life
- Robust mechanical design

30% OFF

**\$22.32**Order Code  
**960020502**

## SK 92/50 SA - HEAT SINK

**fischer elektronik**

- 10mm plate thickness
- 100 x 40 x 50mm extruded heat sink
- Made of aluminium with black anodized surface

40% OFF

**\$13.75**Order Code  
**462156602**

## CAB PC 403018 G3B - PLASTIC ENCLOSURE

**FIBOX**  
Enclosing innovations

- Enclosure material: polycarbonate
- IP rating: IK08, IP65
- Product range: CAB SeriesV

20% OFF

**\$277.66**Order Code  
**393108202**

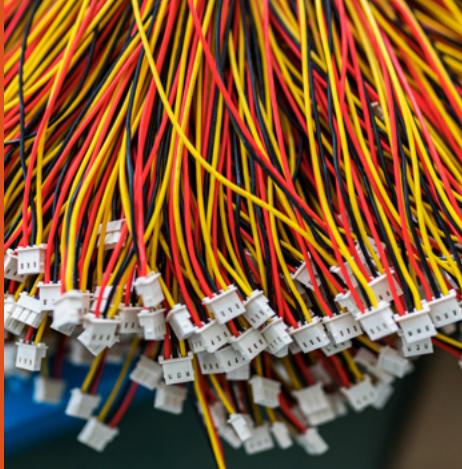
## 1001-0018-UK - CHARGER

**ANSMANN**

- The powerline 5 PRO charger is a versatile desktop charging station
- Four charging programs; charge, discharge, refresh and capacity test (in mAh)
- Accommodates 1x PP3 and up to 4x AA/AAA/C/D batteries with NiCd or NiMH chemistry

20% OFF

**\$94.85**Order Code  
**405855402**



# INTERCONNECT

Explore our ultimate collection  
of connectors, cables, wires,  
cable assemblies and more.



To view more products, scan the QR code or visit:  
[au.element14.com/Connect44Interconnect](http://au.element14.com/Connect44Interconnect)

776180-1 - AUTOMOTIVE CONNECTOR



- Right angle header
- 35 contacts
- PCB pin



5% OFF

**\$26.50**

Order Code  
**339387002**

T4151120005-005 - SENSOR CORD



- M12 plug to free end
- Number of positions: 5
- Length: 5m



10% OFF

**\$29.69**

Order Code  
**367959402**

09370241301 - HEAVY DUTY CONNECTOR



- Type: bulkhead mounted housing
- Limiting temperature: -40°C to 125°C
- Locking type: double locking lever



3% OFF

**\$152.05**

Order Code  
**280064102**

09 45 600 0142 - MULTICORE CABLE



- Wire gauge: 22AWG
- Loop resistance: ≤120R/km
- Signal run time: ≤5.3ns/m



5% OFF

**\$204.15**

Order Code  
**116164602**

Enjoy free shipping on orders over \$50 | \*All products and prices are subject to availability and may change | All prices in AUD | GST excluded

\*All savings shown are against the price on the element14 website as of August 2023 and are valid until 29<sup>th</sup> December 2023

2345388-1 - AUTOMOTIVE HOUSING



- Gender: receptacle
- Number of positions: 2
- Voltage rating: 50V



30% OFF

**\$1.53**

Order Code  
**417124802**

MXR-8P-8P(31) - CIRCULAR CONNECTOR



- Shell style: cable mount plug
- Number of contacts: 8
- Contact type: solder pin

20% OFF

**\$1.28**

Order Code  
**339807102**

HR10A-10P-12S(73) - CIRCULAR CONNECTOR



- Current rating of 2A
- Operating temperature range -25°C to 85°C
- Connector pin is located to avoid any damage which may be caused when blind mating

20% OFF

**\$24.53**

Order Code  
**182697602**

09195207824 - PCB RECEPTACLE



- Connector systems: board-to-board
- Pitch spacing: 2.54mm
- Mounting: through hole mount

30% OFF

**\$46.44**

Order Code  
**413166602**

UT06128PH - CIRCULAR CONNECTOR



- 5,000MR minimum resistance
- Enabling 500 mating-unmating without wear out
- Zinc alloy body and 12-8 insert arrangement

30% OFF

**\$4.98**

Order Code  
**414195602**

RC20M12K - CIRCULAR CONNECTOR CONTACT



- Wire size range from 22AWG to 20AWG
- Maximum wire diameter of 1.18mm
- High conductive copper alloy with gold over nickel plate finish

20% OFF

**\$35.95**

Order Code  
**100720602**

30% OFF

**\$1.36**

Order Code  
**365206302**

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## MCEGG00BC303KS - CIRCULAR CONNECTOR

multicomp<sup>PRO</sup>

- Shell style: panel mount receptacle
- Number of contacts: 3
- Coupling style: push-pull

30% OFF

\$17.51

Order Code  
**405763202**

## 2182Y-0.5MMBLK - MULTICORE CABLE

multicomp<sup>PRO</sup>

- Rated current: 3A
- Voltage rating: 300V
- Conductor area CSA: 0.5mm<sup>2</sup>

40% OFF

\$0.936

Order Code  
**138766702**

## AHPD06-24-16PR-SRA. - CIRCULAR CONNECTOR



- Size 24 plug, 16 positions, reduced diameter seal (blue)
- 3 key-way bayonet design ensures proper mating of connector
- High density signal and mixed power insert configurations

20% OFF

\$18.36

Order Code  
**366581602**

## 135103-01-24.00 - COAXIAL CABLE ASSEMBLY



- SMA plug to 90° SMA plug
- Cable type: RG316
- Length: 610mm

20% OFF

\$27.13

Order Code  
**177678602**

## PX0834/B - MODULAR CONNECTOR



bulgin

- Patch cords conform to Cat 5e standard
- Shielded RJ45 connectors to maintain screening
- Flex re-wireable and chassis body styles

30% OFF

\$36.34

Order Code  
**966773302**

MP010874 - SENSOR CABLE

multicomp<sup>PRO</sup>

- M8 receptacle to free end
- Number of positions: 3
- Length: 2m

30% OFF

30% OFF

\$15.86

Order Code  
**384132702**

## MP010340 - CABLE GLAND

multicomp<sup>PRO</sup>

- Waterproof, dustproof and breathable cable gland with strain relief
- Cable range from 3 to 7mm
- Recommended opening size is Ø16.2mm (through hole)

50% OFF

\$5.88

Order Code  
**405790502**

## GDSN 207 - RECTANGULAR POWER CONNECTOR

HIRSCHMANN  
A BELDEN BRAND

- Mounting: cable mount
- Termination type: screw
- Contact plating: tin plated contacts

30% OFF

\$8.26

Order Code  
**49468902**

## AT60-12-0144 - CIRCULAR CONTACT

INDUSTRIAL AMPHENOL  
Amphenol, Inc., USA  
Amphenol, Inc., USA  
Amphenol Industrial Group

- Wire size: 12AWG to 14AWG
- Gender: pin
- Termination type: crimp

5% OFF

\$1.69

Order Code  
**290163802**

## 10146997-12200LF - PIN HEADER

Amphenol  
COMMUNICATIONS SOLUTIONS

- Connector systems: wire-to-board
- Pitch spacing: 5.7mm
- Termination type: through hole right angle

20% OFF

\$4.80

Order Code  
**349741202**

## 1501 05 - PHONE AUDIO CONNECTOR

Lumberg  
passion for connections

- Insertion force: 5N to 20N
- Withdrawal force: 4N to 20N
- Mating cycles: ≥5,000

30% OFF

\$2.09

Order Code  
**121697802**

## PX0840/B/2M00 - USB CABLE

bulgin



- Screw coupling, secure and proven locking system
- Type A plug to type B plug
- Plug-and-play capability

30% OFF

\$26.07

Order Code  
**999739302**

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79109-1003 - BOARD-TO-BOARD CONNECTOR



**molex**

- Number of rows: 2
- Pitch: 2mm
- Current: 10A

10% OFF

**\$3.12**

53047-1010 - PIN HEADER

Order Code  
**213640102**

**molex**

- Friction lock
- Reliable terminal
- Polarised mating geometry



20% OFF

**\$0.713**

NBB75DFIB - RF / COAXIAL CONNECTOR

**NEUTRIK**



- True 75ohm design meets the stringent HD requirements
- Greater than 1,000 mating cycles
- Front mounting

20% OFF

**\$15.41**

Order Code  
**470957302**

**molex**

15-04-0292 - CONNECTOR ACCESSORY

New



**molex**

- Accessory type: polarizing key
- For use with 2.54mm pitch C-Grid and SL connectors

20% OFF

**\$7.08**

CX3F001-4P - XLR FEMALE CONNECTOR

Order Code  
**420353902**

**Stellar Labs**



- Number of contacts: 4
- Contact resistance:  $\leq 5\text{m}\Omega$
- Insulation resistance:  $> 1\text{G}\Omega$

172063-1312 - CONTACT



**molex**

- Gender: socket
- Maximum wire size AWG: 12AWG
- Termination type: crimp

3% OFF

**\$1.13**

HK-USB3.0AC01-1 - USB CABLE

Order Code  
**304991602**

**Stellar Labs**



- Type A plug to type C plug
- Length: 914.4 mm

30% OFF

**\$2.56**

NC5MAV-SW - XLR CONNECTOR

Order Code  
**280130702**

**NEUTRIK**



- New designed fork type contacts with hard gold plating and polished contact areas
- Contact resistance is less than or equal to 6mohm
- Rated voltage is less than 50V

30% OFF

**\$5.96**

NTP3RC - PHONE AUDIO CONNECTOR

Order Code  
**280144702**

**NEUTRIK**



- 3 pole right angled 3.5mm audio male plug
- Nickel housing and nickel contacts
- Slim design and space saving

30% OFF

**\$13.72**

Order Code  
**131009802**

**molex**

30% OFF

**\$7.34**

Order Code  
**500840202**

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8309-8010 - D SUB CONNECTOR

New



30% OFF

\$6.34

3M

4828-3004-CP - IC &amp; COMPONENT SOCKET

- Connector type: standard
- Shell size: DE
- Mounting: panel mount



3M

304-40054-05 - DIN CONNECTOR

New



ept

- DIN 41612 female straight, type C, receptacle with 64 contacts
- Solder termination technology
- 3mm termination length

PTFIX 6/12X2,5 BK - PANEL MOUNT BARRIER TERMINAL BLOCK

PHOENIX CONTACT



- Number of connections: 13
- Nominal cross section: 2.5mm<sup>2</sup>
- Rated surge voltage: 6kV

15% OFF

\$7.51

Order Code 285027202

11 N-50-3-28/133NE - RF / COAXIAL CONNECTOR

HUBER+SUHNER



- Contact material: beryllium copper
- Contact plating: gold plated contacts
- Connector mounting: cable mount

20% OFF

\$23.79

Order Code 416323002

264-351 - DIN RAIL MOUNT TERMINAL BLOCK

WAGO



- Front entry wiring and horizontal design
- Rated voltage: 800V
- Rated current: 24A

30% OFF

\$1.72

Order Code 266713502

CTB922HD/2 - PLUGGABLE TERMINAL BLOCK

CAMDENBOSS



- Rated voltage of 200V and rated current of 10A
- Working temperature range from -33°C to 120°C
- Polyamide (PA66) moulded material in green colour housing

40% OFF

\$0.684

Order Code 249364602

4828-3004-CP - IC &amp; COMPONENT SOCKET

- Side and end stackable
- Current rating: 1A
- Insulation resistance: 5,000MR at 500VDC



40% OFF

\$0.78

Order Code 267230602

PV-C4F-S 2,5-6 (+) - PHOTOVOLTAIC / SOLAR CONNECTOR

PHOENIX CONTACT



- Connector type: female cable coupler
- Mounting: cable mount
- Current rating: 35A

40% OFF

\$3.86

Order Code 420439202

FMC 1,5 / 2-ST-3,81 - PLUGGABLE TERMINAL BLOCK

PHOENIX CONTACT



- Rated voltage: 160V
- Maximum load current: 8A
- Polyamide (PA) insulating material

40% OFF

\$7.65

Order Code 367792302

CLB-JL73 - CONNECTOR ADAPTER

Clear-Links Inc.



- BNC male to 2-pin terminal block connection
- Solder free adaptor
- Nickel-plated contacts

20% OFF

\$3.15

Order Code 249372102

MKVG20 - CONNECTOR BACKSHELL

ILME



- Connector backshell hood with a single lever
- Suitable for MK series ILME multipole connector inserts

20% OFF

\$0.92

Order Code 238187702

029436 AKZ4 - DIN RAIL MOUNT TERMINAL BLOCK

Weidmüller



- Suitable for wire size ranging from 26AWG to 12AWG
- Conductor area CSA: 4mm<sup>2</sup>
- Number of positions: 2

30% OFF

\$2.91

Order Code 232059102

1527540000 - CROSS CONNECTOR

Weidmüller



- 2 pole cross connector
- Rated current: 24A
- For use with Weidmuller feed-through terminal blocks

40% OFF

\$1.82

Order Code 113172602

425-00-00-872 - RECTANGULAR POWER CONTACT

cinch



- Female terminal made of high performance copper based alloy and tin finish
- 20GXL, 18TXL wire size
- Compatible with Cinch hand crimp tool, applicator, punch/avril kit

20% OFF

\$0.438

Order Code 267451702

516-290-500 - RECTANGULAR POWER CONTACT

EDAC



- 10mR maximum contact resistance
- Suitable for pre-wired or select position assembly
- Gold-plated phosphor bronze alloy contacts

40% OFF

\$0.354

Order Code 275165202

5% OFF  
\$32.88

Order Code 14515602

## LOM-51T-250 - QUICK DISCONNECT TERMINAL


**JST**  
The Quality Connection

- Male quick disconnect terminal
- Accepts 20AWG to 14AWG wires
- Uninsulated

20% OFF

**\$0.062**

## 3021077-10 - USB CABLE

Order Code  
**362545002**
**Qualtek**

- Type A plug to micro type B plug up-angled
- Length: 10ft

40% OFF

**\$6.56**

## LCCA30014-FT2 - RF CABLE

Order Code  
**321960002**
**L-com**  
an INFINITI brand

- SMA male to TNC male
- Maximum frequency: 18GHz
- Shielding effectivity: >95dB

10% OFF

**\$450.63**

## R2651DTSY10SC85 - RIBBON CABLE

Order Code  
**347364602**
**PRO-POWER**

- Wire gauge: 28AWG
- Conductor diameter: 0.381mm
- Tinned copper conductor

45% OFF

**\$0.869**

## TFT20022 NA001 - SLEEVING

Order Code  
**262836202**
**AlphaWire**

New

- Sleeving material: PTFE (Polytetrafluoroethylene)
- Length: 305m
- Internal diameter: 0.813mm

20% OFF

**\$887.08**Order Code  
**420905502**

## 02R-JWPF-VSLE-S - CONNECTOR HOUSING


**JST**  
The Quality Connection

- Housing material is Polybutylene terephthalate (PBT)
- Suitable for wire to wire connector system
- Operating temperature range: -25°C to 85°C

20% OFF

**\$155.47**Order Code  
**420906802**
**AlphaWire**

20% OFF

## B2B-EH-A(LF)(SN) - PIN HEADER


**JST**  
The Quality Connection

- Current rating: 3.0AAC/DC
- Voltage: 250VAC/DC
- Insulation resistance: 1,000MR

45% OFF

**\$0.091**Order Code  
**239915902**

## 2171H - MAINS POWER CORD



- IEC 320 C14 to IEC 320 C13
- Current rating: 10A
- Length: 1m

20% OFF

**\$5.15**Order Code  
**257601702**

## PEL01055 - MULTICORE CABLE

**PRO-ELEC**


- Rating: 6A
- Plain annealed copper conductors
- Voltage classification: 300V

10% OFF

**\$69.13**Order Code  
**321408502**

## 61.7605-21 - WIRE

**STÄUBLI**


- Wire gauge: 20AWG
- Test voltage: 8,000VAC
- Rated current: 12A

40% OFF

**\$23.69**Order Code  
**432685402**

## 6711 DB001 - WIRE

**AlphaWire**

New



- Wire gauge: 26AWG
- Conductor area CSA: 0.14mm<sup>2</sup>
- Conductor material: tinned copper

20% OFF

**\$145.66**Order Code  
**420914602**
**AlphaWire**



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## CT5-Q31 - SIGNAL TOWER



- Supply voltage VDC: 24V
- Maximum operating temperature: 60°C
- Tones: 8 tone

30% OFF

**\$294.14**

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**416323402**

## AP/W/SWITCHED/VC - SOUNDER



- 32 tones
- Second tone for two stage alarm
- Automatic synchronisation

10% OFF

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**146651602**

## MY7001 - STEPPER MOTOR



- High torque in compact size
- Unipolar and bipolar operation
- Light weight

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**842591402**

## 82344778 - GEARED MOTOR



- Single direction synchronous geared motor
- Direction of rotation controlled by long-life mechanical anti-return ( $>10^7$  starts)
- Permanent magnet rotor

20% OFF

**\$136.17**

Order Code  
**309425002**

## 850514004 - BEACON



- Supply voltage VDC: 12V
- Product range: RDM series
- IP / NEMA rating: IP66

20% OFF

**\$248.30**

Order Code  
**416289602**

## FL60/C/D50/A/EU - VISUAL SIGNAL INDICATOR



- FL60 series explosion proof visual signal indicator
- 5Joule flash energy
- Rated operational voltage: 24VDC

**\$2,103.58**

Order Code  
**240167102**

## SW-505 - SWITCH



- Redundant power input for backup power
- Each Ethernet port is galvanically isolated
- Broadcast storm protection

5% OFF

**\$127.83**

Order Code  
**272386302**

## PX309-200A10V - PRESSURE SENSOR



- Voltage rating: 30VDC
- Maximum operating pressure: 200psi
- Supply current: 10mA

5% OFF

**\$534.95**

Order Code  
**414569202**

## 874170313 - SOUNDER



- IP / NEMA rating: IP66
- External depth: 94mm
- Resonant frequency: 2.9kHz

20% OFF

**\$225.18**

Order Code  
**416301802**

## 553-0112F - CIRCUIT BOARD INDICATOR



- Right angle viewing
- Cathode right polarity
- High efficiency LED

10% OFF

**\$1.70**

Order Code  
**146159102**

## SW-005 - SWITCH



- Auto MDI/MDI-X crossover support on all ports
- Magnetic isolation between LAN ports
- Simply plug and connect, no software needed

5% OFF

**\$74.36**

Order Code  
**238321302**

## SMPW-T-M. - THERMOCOUPLE CONNECTOR



- Type T male connector with window
- Mini size flat 2 pin TC connectors
- Captive cover screws

10% OFF

**\$5.19**

Order Code  
**380563202**

MSB4-1/4:C3:J1:F12-WP -  
AIR PREPARATION UNIT**FESTO**

- MSB4 service unit combination
- Actuator lock: rotary knob with detent can be closed with accessories
- Manually rotating condensate drain

20% OFF

**\$475.46**Order Code  
**343926802**153306 - PNEUMATIC FITTING **FESTO**

- QSM, mini series push-in fitting
- Miniature push-in fittings for maximum component density in confined spaces
- Male thread with external hex

20% OFF

**\$4.56**Order Code  
**343212802**MTL5546. - ISOLATING  
DRIVER

New



- Signal conditioner: current
- Number of output channels: 1
- Working range: 4mA to 20mA

10% OFF

**\$940.70**Order Code  
**420861002**TCSMCNAM3M002P -  
CONNECTION CABLE

- USB to RJ45 programming cordset
- Plug-in mount
- Length: 2.5m

20% OFF

**\$120.66**Order Code  
**278731602**APM-PWR-APO. - POWER  
METER**trumeter**  
Innovation by design

- Maximum supply voltage: 277 VAC
- Panel cutout height: 68mm
- Panel cutout width: 68mm

30% OFF

**\$391.64**Order Code  
**415328302**

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\*All savings shown are against the price on the element14 website as of August 2023 and are valid until 29<sup>th</sup> December 2023PUN-H-12X2-BL -  
PNEUMATIC TUBING**FESTO**

- PUN-H series hydrolysis-resistant plastic tubing
- Temperature dependent operating pressure -0.95 to +10bar
- Compressed air to ISO 8573-1:2010 operating medium

20% OFF

**\$231.03**Order Code  
**343250002**72.01.8.240.0000 - LIQUID  
LEVEL CONTROL RELAY**finder**  
SWITCH TO THE FUTURE

- Adjustable sensitivity range from 5Kohm to 150Kohm
- 1 CO (SPDT) contact configuration
- Switch selectable delay time of 0.5s or 7s

30% OFF

**\$82.71**Order Code  
**134423102**

## 6ES7214-1AG40-0XB0 - CPU

**SIEMENS**

- 500mA current consumption
- 14 integrated digital inputs
- Number of analogue inputs: 2

20% OFF

**\$897.34**Order Code  
**248460702**HMI GTO4310 - TOUCH  
SCREEN**Life Is On** | **Schneider**  
Electric

- PPT front and enclosure
- Natural convection cooling
- Green premium product

5% OFF

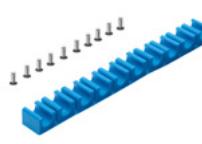
**\$4,215.83**Order Code  
**283542402**APM-MAX-M23-NU-4R -  
PANEL METER**trumeter**  
Innovation by design

- Panel cutout height: 68mm
- Maximum operating temperature: 60°C
- Maximum supply voltage: 240VAC

20% OFF

**\$420.84**Order Code  
**415329902**

## KK-6 - MULTI-TUBE HOLDER

**FESTO**

- KK series multi-tube holder
- For securing tubing
- Product weight: 17gms

5% OFF

**\$8.25**Order Code  
**343946502**67DDTO - DIN RAIL DIGITAL  
TIMER**GIC**

- Precise time programming for daily/weekly/pulse switching
- 25 ON/OFF programs
- LED indication of relay status

30% OFF

**\$69.98**Order Code  
**281152102**ATV320U55N4B - VARIABLE  
SPEED DRIVERLife Is On | **Schneider**  
Electric

- Control / drive type: variable speed drive
- Maximum output current: 14.3A
- Maximum supply voltage: 500VAC

5% OFF

**\$2,145.10**Order Code  
**283522902**

## LC2K0910B7 - CONTACTOR

Life Is On | **Schneider**  
Electric

- Mechanical interlocking
- >10MR insulation resistance for signalling circuit
- 5M cycles mechanical durability

5% OFF

**\$140.47**Order Code  
**283531802**

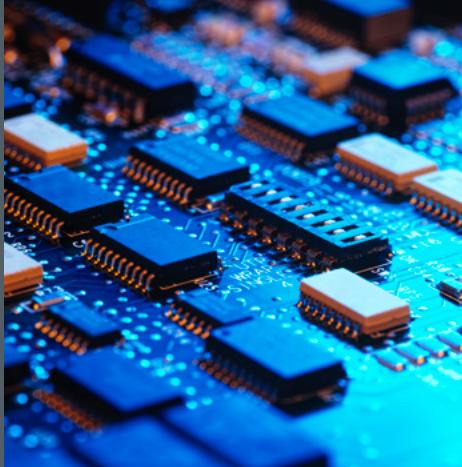
## APM-CT-APO. - CT METER

**trumeter**  
Innovation by design

- Dynamic backlight cover
- 40 segment bar graph display
- Large 4 digit display

30% OFF

**\$165.09**Order Code  
**415326902**



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## LT1122CCN8#PBF - OPERATIONAL AMPLIFIER

New



30% OFF

**\$11.16**

**ANALOG DEVICES**  
AHEAD OF WHAT'S POSSIBLE™

- Bandwidth: 14MHz
- Slew rate: 75V/µs
- Supply voltage range: ± 20V

Order Code **420809802**

## R7FA6T3BB3CFM#AA0 - ARM MCU

New



30% OFF

**\$5.92**

Order Code **417647302**

## IS43QR16512A-083TBLI - DRAM

New



- DRAM type: DDR4
- Maximum clock frequency: 1.2 GHz
- Mounting: surface mount

Order Code **417647302**

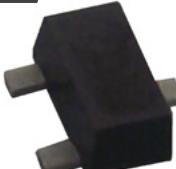
10% OFF

**\$31.62**

Order Code **417669202**

## RB706WM-40TL - SMALL SIGNAL SCHOTTKY DIODE

New



- Maximum operating temperature: 125°C
- Number of pins: 3
- Forward surge current: 200mA

Order Code **417669202**

45% OFF

**\$0.156**

Order Code **418026602**

## IL716E - DIGITAL ISOLATOR

**NVE**  
NVE CORPORATION



- Number of channels: 4
- Maximum supply voltage: 5.5V
- Propagation delay: 12ns

30% OFF

**\$10.32**

Order Code **213214702**

## MPM3808GLE-AEC1-P - DC-DC SYNCHRONOUS BUCK REGULATOR

**MPS**



- Input voltage: 2.5V to 5.5V
- Output voltage: 600mV to 5V
- Output current: 3A

30% OFF

**\$4.67**

Order Code **420509902**

## PESD6V3S1ULYL - ESD PROTECTION DEVICE

**nexperia**



- Number of pins: 2
- Maximum clamping voltage V<sub>c</sub>: 13.4V
- Diode case style: SOD-882

45% OFF

**\$0.14**

Order Code **417713202**

## SS545L - SCHOTTKY RECTIFIER

**multicomp<sub>PRO</sub>**



- Forward surge current: 120A
- Maximum operating temperature: 150°C
- Diode mounting: SMD

50% OFF

**\$0.635**

Order Code **413216302**

## IPF015N10N5ATMA1 - POWER MOSFET

**infineon**

New



- Maximum operating temperature: 175°C
- Power dissipation: 375W
- Transistor mounting: surface mount

30% OFF

**\$9.67**

Order Code **417614302**

## LIS2DW12TR - MEMS ACCELEROMETER

**ST**  
life.augmented



- Independent IO supply
- Very low noise, down to 1.3mg RMS in lowpower mode
- Supply voltage: 1.62V to 3.6V

30% OFF

**\$3.04**

Order Code **284961502**

## UF4007 - FAST / ULTRAFAST DIODE

**onsemi**



- Average forward current: 1A
- Diode configuration: single
- Repetitive peak reverse voltage: 1kV

45% OFF

**\$0.284**

Order Code **146750302**

## SMAJ26A - TVS DIODE

**Littelfuse**

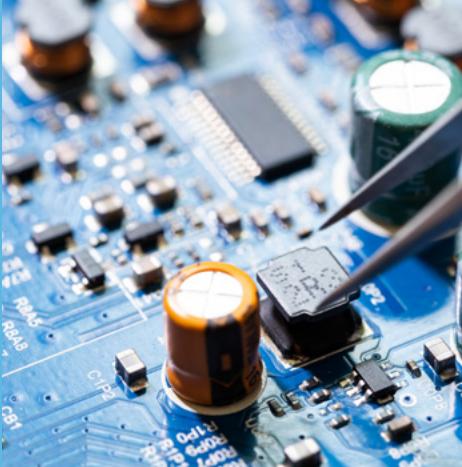


- Reverse standoff voltage: 26V
- Maximum operating temperature: 150°C
- Maximum clamping voltage: 42.1V

**\$0.224**

Order Code **276282002**

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## MC0805Y473M500A5.08MM - CERAMIC CAPACITOR

**multicomp**



- Capacitance: 47000pF
- Voltage(DC): 50V
- Capacitor terminals: PC pin

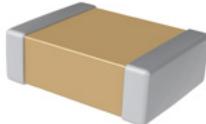
50% OFF

**\$0.149**

Order Code  
**169434602**

## C0805C103J5RACTU - SMD MULTILAYER CERAMIC CAPACITOR

**KEMET**  
a YAGEO company



- Operating temperature range: -55°C to 125°C
- DC voltage rating: 6.3V to 250V
- Capacitance range includes E24 decade values from 10pF to 47μF

40% OFF

**\$0.029**

Order Code  
**165086102**

## SRN6028C-6R8M - POWER INDUCTOR

**BOURNS**



- Inductance: 6.8μH
- Maximum DC resistance: 0.047ohm
- Inductor construction: semishielded

40% OFF

**\$0.397**

Order Code  
**417654002**

## RK73H2BTTD51R0F. - SMD CHIP RESISTOR

**KOA**



- Product width: 1.6mm
- Product range: RK73H series
- Maximum operating temperature: 155°C

45% OFF

**\$0.025**

Order Code  
**354896402**

## 870585573001 - HYBRID ALUMINIUM ELECTROLYTIC CAPACITOR

New



**WURTH**  
ELEKTRONIK  
MORE THAN  
YOU EXPECT

- Capacitance: 68μF
- Minimum operating temperature: -55°C
- Voltage(DC): 25V

30% OFF

**\$1.79**

Order Code  
**417198002**

## VJ0402D4R7CCAAJ - SMD MULTILAYER CERAMIC CAPACITOR

New



**VISHAY**  
The DNA of tec

Order Code  
**417198002**

- Capacitance: 4.7pF
- Voltage (DC): 50V
- Product width: 0.51mm

45% OFF

**\$1.16**

Order Code  
**417675102**

## 0402HP-4N3XGLU - WIREWOUND INDUCTOR

**Coilcraft**



Order Code  
**417675102**

- Product height: 0.61mm
- Inductance: 4.3nH
- Product range: 0402HP series

30% OFF

**\$1.26**

Order Code  
**228576802**

## RC0402FR-07330KL - SMD CHIP RESISTOR

**YAGEO**



- High component and equipment reliability
- Tolerance: ±1%
- Operating temperature: -55°C to 155°C

45% OFF

**\$0.012**

Order Code  
**923953702**

## ECHU1C333GX5 - GENERAL PURPOSE FILM CAPACITOR

**Panasonic** INDUSTRY



- Suitable for reflow soldering
- Rated voltage: 16V
- Operating temperature: -55°C to 125°C

40% OFF

**\$0.465**

Order Code  
**969493502**

## 25ZLH330MEFC8X11.5 - ELECTROLYTIC CAPACITOR

**Rubycon**



- High ripple current
- Tolerance: ±20%
- Voltage (DC): 25V

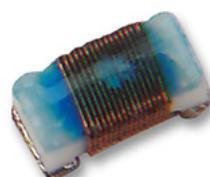
40% OFF

**\$0.321**

Order Code  
**171257902**

## LQW18AN22NG00D - WIREWOUND INDUCTOR

**muRata**  
INNOVATOR IN ELECTRONICS



- Self resonant frequency: 4.6GHz
- Product width: 0.8mm
- Product length: 1.6mm

40% OFF

**\$0.108**

Order Code  
**952798202**

## BLM18HE102SN1D - FERRITE BEAD

**muRata**  
INNOVATOR IN ELECTRONICS



- Low DC resistance and a large rated current are suitable for noise suppression of the driver circuit
- Dimensions: 1.6mm x 0.8mm x 0.8mm
- Impedance: 1kohm

3% OFF

**\$0.036**

Order Code  
**244323602**

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# THE FUTURE OF VEHICLE-TO-VEHICLE COMMUNICATION WITH SUB-GHz

## Introduction

As the world moves towards a more connected and automated future, the automotive industry focuses on vehicle-to-vehicle communication (V2V) as a key focus area. V2V allows cars to wirelessly exchange real-time information concerning the speed, heading, and location of surrounding vehicles. Safety is a priority concern. Law enforcement officials also use V2V to track the location of vehicles, divert traffic, adapt traffic light programs, and tackle speed limits. For drivers, V2V communication helps them avoid traffic congestion and maintain a proper distance from other vehicles. It also allows drivers to park safely. V2V is used in modern fleet management.

V2V communication is particularly challenging in urban environments, where several obstacles, such as buildings, trees, and other vehicles, may interfere with communication signals. The Sub-GHz wireless communication technology uses low-frequency signals, typically below 1 GHz, to transmit data between vehicles, allowing them to communicate and exchange critical information.

## What is Sub-GHz wireless communication?

Sub-GHz wireless communication is an approach to V2V communication that operates at frequencies below 1 GHz. Wireless communication refers to the transmission of data in space using electromagnetic waves such as radio waves and infrared wavelengths. For some applications, the Sub-1GHz unlicensed industrial, scientific, and medical (ISM) bands of 315, 433, and 902 to 928 MHz are ideal. With a given power level, receiver sensitivity, and antenna gain, lower frequencies inherently have longer-range transmission than higher frequencies.

It has several advantages over other wireless technologies, such as Bluetooth and Wi-Fi that operate at higher frequencies.

- It can penetrate obstacles and walls more efficiently, allowing for longer communication ranges and better coverage.
- Sub-GHz wireless communication is less susceptible to interference from other wireless devices and electromagnetic noise, which can degrade the quality of the communication signal. This makes Sub-GHz wireless communication a good choice for applications that require reliable and robust wireless connections.
- It requires less power than higher-frequency signals, which can be critical in battery-powered devices such as electric vehicles. This lower power requirement also helps reduce interference and improve communication reliability.

## Why Sub-1GHz RF technology?

### Long Range

- Radio range, up to several kilometers
- New technology from TI makes it more reliable

### Co-existence

- Rapidly growing number of RF devices requires good co-existence properties

### License Free Radio Communication

ISM (Industrial, Scientific and Medical)

- License free RF bands
- Available worldwide
- No need for subscription or fees

### Battery life

- On small Lithium cells, designed to last up to 15 years

## Why Sub-1GHz RF technology?

V2V communication is crucial in developing autonomous vehicles and intelligent transportation systems. It enables vehicles to mutually communicate with roadside infrastructure, such as traffic lights and signs, to share information about road conditions, traffic flow, and other critical data. This information can improve safety, reduce congestion, and enhance the driving experience.

The V2V mechanism is one of the main components in the Vehicular Ad Hoc Network (VANET). The United States is using a predefined band of 5.9 GHz. IEEE 802.11p is used as a standard component in United States Vehicle to Vehicle current production implementation. VANET is considered a Mobile Ad Hoc Network (MANET) with some differences, like considering the vehicle as a node in the network. Also, the VANET network can include Dedicated Short-Range Communications (DSRC) used for the V2V mechanism.

The essential technical requirements for V2V communication in terms of the frequency range, power requirements, and communication protocols are as follows:

- Frequency range:** V2V communication systems operate in the 5.9 GHz frequency band, allocated by the Federal Communications Commission (FCC) for use in Intelligent Transportation Systems (ITS) applications. This frequency range is divided into vehicle-to-vehicle (V2V) communication and vehicle-to-infrastructure (V2I) communication channels.
- Power requirements:** V2V communication systems consume minimum power and extend the battery life of vehicles. The power requirements for V2V communication are typically in the range of milliwatts. They do not interfere with other wireless devices.
- Communication protocols:** The communication protocol used for V2V communication is IEEE 802.11p, a variant of the Wi-Fi protocol explicitly designed for use in vehicular environments. The IEEE 802.11p protocol uses a different modulation scheme and channel access mechanism than standard Wi-Fi to accommodate the high mobility and low latency requirements of V2V communication.

## Working and its applications of Sub-GHz wireless communication in V2V

Sub-GHz wireless communication works in V2V communication by using radio frequency (RF) signals to transmit data between vehicles. The process involves encoding data into an RF signal using a radio transceiver, which is then wirelessly transmitted to another vehicle with a compatible receiver.

When a vehicle with a Sub-GHz wireless communication system receives an RF signal from another vehicle, it decodes the data. The system then informs either the driver or the vehicle's control system. The transmitted data can include information on traffic conditions, road hazards, nearby vehicle positions, speeds, and directions.

The utilisation of a specific communication protocol known as Dedicated Short-Range Communication (DSRC) is a crucial aspect of Sub-GHz wireless communication in V2V communication. DSRC is a wireless communication standard for V2V and vehicle-to-infrastructure (V2I) communication. It operates in the 5.9 GHz band while employing a variety of Sub-GHz frequencies for various communication modes.

In DSRC, communication transpires via a sequence of basic safety messages (BSMs) swapped between vehicles. These messages include essential data such as the vehicle's position, speed, direction, and other significant details such as braking status and hazard warnings, as indicated in the accompanying diagram. The BSMs are transmitted at regular intervals and can be obtained and processed by other nearby vehicles.



Figure: V2V Communication

Communication Technologies	Communication Protocols	Range	Characteristics
DSRC	IEEE802.11p	1,000m	High data transfer rate, reliable for large networks
Infrared	IEEE802.11	10m	Reliable, mature and easy to master
Bluetooth	IEEE802.15.1	10m	Low power, good communication security
Wi-Fi	IEEE802.11a/b/g	76~305m	High data transfer rate
UWB	IEEE802.15.3a	10m	Strong anti-interference ability
Zigbee	IEEE802.15.4	100m	Low cost, low power
MmWave	IEEE802.11ad/ IEEE802.15.3c	10m	High transmission quality

Table: V2V communication technologies



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Aim TTi



- Versatile solution for testing DC power sources
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- 100,000 readings per second at 4 1/2 digits
- 0.05 ppm Vdc transfer accuracy
- Superior AC voltage measurements

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- Organic LED display
- 160° viewing angle
- 2000:1 contrast ratio

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## SMU4001 - SOURCE METER UNIT

Aim TTi



- Maximum voltage is  $\pm 21$ V, voltage ranges from 20mV to 20V
- Powerflex technology achieves full instrument output power across the majority of the voltage range
- 0.015% basic accuracy with 6 1/2 digit resolution

**\$4,959.00**

Order Code  
**403684902**

## GDM-8351 - BENCH DIGITAL MULTIMETER

GW INSTEK



- Dual measurement/dual display
- Basic precision of DC voltage of 0.012%
- Selectable measurement speeds, the maximum of 320 readings/s

9% OFF  
**\$748.96**

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**274850402**

## E3634A - BENCH POWER SUPPLY

KEYSIGHT TECHNOLOGIES



- Low noise and excellent regulation
- Dual range output
- Remote sensing

**\$3,944.00**

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**121449002**

## N2140A - OSCILLOSCOPE PROBE

KEYSIGHT TECHNOLOGIES



- Input capacitance for 1:1 is 100pf, 10:1 is 15pf
- Maximum input voltage 1:1 is 150Vrms CAT II, 10:1 is 300Vrms CAT II
- Current rating is 0.15mA

**\$148.00**

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**270657102**

## IPROBER 520 - CURRENT PROBE

Aim TTi



- Current measurement from isolated probing of conductor
- Dynamic range of 10mA to 20A peak to peak
- Wide bandwidth of DC to 5MHz

10% OFF

**\$1,454.99**

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## GDM-8341 - BENCH DIGITAL MULTIMETER

GW INSTEK



- 50,000 counts, VFD display
- Dual measurement/dual display
- Auto/manual ranging

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**\$645.22**

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## EDUX1052G - DIGITAL OSCILLOSCOPE

KEYSIGHT TECHNOLOGIES



- 7inch TFT LCD WVGA display
- 1GSa/s maximum sample rate
- 200,000 points (all channels) maximum memory depth

**\$1,264.00**

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## U1781A - TEST LEAD SET

KEYSIGHT TECHNOLOGIES



- For use with handheld capacitance and LCR meters
- Contains one pair of alligator clip leads

**\$77.19**

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## 410-395 - BENCH POWER SUPPLY

**DIGILENT**  
A National Instruments Company**New**

- 3 channel variable DC programmable power supply
- Driven by the free waveforms software
- 1V to 15V / 10mA to 500mA output

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## R&amp;S HMP4040 - BENCH POWER SUPPLY

**ROHDE & SCHWARZ**

- Maximum output voltage of 32V per channel, higher voltages possible in serial operation
- 384W total output power
- Linear post regulation for low residual ripple

**2% OFF****\$4,354.00**Order Code  
**285010202**

## RTB2K-COM4 BUNDLE (RTB2004+B243+B1+PK1) - MSO / MDO OSCILLOSCOPE

**ROHDE & SCHWARZ**

- Optimised parallel button operation, 16 digital channels
- Maintain fast sampling rates of 1.25Gsample/s at all times
- Math functions such as +, -, \*, /, FFT (128Kpoints), autoset functions

**\$6,610.17**Order Code  
**272315302**

## 72-14110 - FUNCTION GENERATOR

**TENMA®****CLEARANCE**

- Sine wave output of 20MHz/10MHz/5MHz, full frequency range resolution is 1uHz
- Square wave/pulse waveform of 5MHz, rising, falling and duty cycle time are adjustable
- Using DDS implementation method, with 125M/s sampling rate and 14bits vertical resolution

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## PICOSCOPE 4224A - PC USB OSCILLOSCOPE

**pico**  
Technology

- 10,000 segment waveform buffer
- 14bit resolution AWG
- Low-cost and portable

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## BK9111 - BENCH POWER SUPPLY

**BK PRECISION**

- Power supply output type: adjustable
- Maximum output current: 8A
- Power rating: 180W

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## NGU201COM - SOURCE MEASURE UNIT

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- Ideal for powering battery-operated devices
- Minimum residual ripple and low noise
- Galvanically isolated, floating channels

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## EA-PS 10360-30 2U - DC POWER SUPPLY

**E A**

- Wide range input, 208VAC - 480VAC +10 % 3ph
- Active power factor correction, typical 0.99
- Power range from 0 - 3,000W

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## 72-13430 - HANDHELD DIGITAL MULTIMETER

**TENMA®**

- Clear LCD Display
- Equipped with comfortable protective cover, test probe holder
- 2m drop test, precision protection

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## TA041 - OSCILLOSCOPE PROBE

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Technology

- Bandwidth: DC to 25 MHz (-3 dB)
- Attenuation ranges: 10:1 / 100:1
- DC accuracy: ±2%

**\$1,219.53**Order Code  
**362539802****\$606.10**Order Code  
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## BK880 - LCR METER

**BK PRECISION**

- 40,000 counts resolution on primary and 10,000 counts resolution on secondary display
- L, C, R, and Z primary measurements
- Automatic calculation of secondary parameters D, Q, Theta, ESR (Theta/ESR for 879B & 880 only), and DCR (BK880 only)

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## FPC-COM2 - SPECTRUM ANALYSER

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- Two USB 2.0 ports for storage media and connecting accessories, headphone jack, audio speaker, RF input
- Tracking generator and independent CW signal generator
- 10.1" WXGA (1366 x 768 pixel) display - largest and highest resolution in class

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## 72-2940 - BENCH POWER SUPPLY

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- Number of outputs: 1
- Power rating: 300W
- Maximum output voltage: 60V

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## 21-2235 - STACKABLE BANANA PLUG SET

**TENMA®**

- Lead length: 914mm
- 2x 4mm stackable banana plug
- Lead colour: red, black

**20% OFF****\$7.54**Order Code  
**278348502**

## TA386 - OSCILLOSCOPE PROBE

**pico**  
Technology

- Passive switchable oscilloscope probe with bandwidth of 200MHz
- 1:1/10:1 switchable voltage probe
- 1.2m nominal total length

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## MSO24 2-BW-100 - MSO / MDO OSCILLOSCOPE



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\$5,196.61

**Tektronix®**

## P2220 - OSCILLOSCOPE PROBE

Order Code  
**395827102**

- 4 analogue & 16 digital channels, 2.5GS/s sample rate (half channel interleaved), 10Mpts record length
- 8-bit ADC vertical resolution
- Remotely view and control the oscilloscope over a network connection through remote VNC

2% OFF

\$301.40

Order Code  
**798421902**

## MP730889 - BENCH DIGITAL MULTIMETER

**multicomp PRO**

- 10:1 and 1:1 selectable attenuation ratio
- 1.5m probe length
- Compensation range from 15pF to 25pF

10% OFF

\$168.83

Order Code  
**397219802**

## MP780904 - SOUND LEVEL METER

**multicomp PRO**

- Provides 1.4dB accuracy
- Max hold and data hold function
- Ranges from 30dB to 130dB at frequencies between 31.5Hz and 8kHz

20% OFF

\$91.61

Order Code  
**401626002**

## EX355 - HANDHELD DIGITAL MULTIMETER

**EXTECH INSTRUMENTS**

- Basic DCV accuracy is  $\pm 0.5\%$
- Measures DC/AC voltage range from 0.01mV to 600V
- Measures DC/AC current range from 0.1 $\mu$ A to 10A

10% OFF

\$184.10

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**268864502**

## TBS1072C - DIGITAL OSCILLOSCOPE

**Tektronix®**

2% OFF

\$1,196.71

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**346344402**

## 2450 - SOURCE MEASURE UNIT

**KEITHLEY**  
A Tektronix Company

- Digital storage oscilloscope with 70MHz bandwidth and 2 channels
- 7inch WVGA colour display with 15 horizontal divisions that show 50% more signal
- 32 automated measurements, small footprint and light weight

2% OFF

\$10,912.88

Order Code  
**277004202**

## MP780969 - GAS LEAK DETECTOR

**multicomp PRO**

- Auto power off
- Highly sensitive and reliable
- Pinpoint small leaks; detects all combustible gas leaks, even tiny leaks

20% OFF

\$137.45

Order Code  
**407359602**

## MP770264 - TEST LEAD

**multicomp PRO**

- Alligator clip to 4mm banana plug
- Length: 2ft
- Current rating: 5A

40% OFF

\$3.05

Order Code  
**329011302**

## CT20 - CABLE CONTINUITY TESTER

**EXTECH INSTRUMENTS**

- One person operation for wire and cable testing
- Bright flashing LED & loud pulsating beeper indicate local continuity
- Remote continuity with the use of the remote probe

20% OFF

\$53.78

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## AFG31101 - SIGNAL GENERATOR

**Tektronix®**

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2% OFF

\$8,359.12

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## MM450 - DIGITAL MULTIMETER



- Measures up to 600V AC/DC voltage, 10A AC/DC current, 50Mohms resistance, 400 $\mu$ F capacitance
- Temperature range: -40° to 1,000°C
- 4,000 count LCD display

10% OFF

\$219.47

Order Code  
**406952602**

## MP780966 - SOLAR POWER METER

**multicomp PRO**

- Unit and sign display for easy reading
- High accuracy and rapid response
- Data HOLD function to hold measurement values

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\$55.44

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**406247702**

## LT300 - LIGHT/LUX METER

**EXTECH INSTRUMENTS**

- Remote light sensor on 12" coiled cable – expandable to 24"
- Utilises precision photo diode and color correction filter
- Relative mode indicates change in light levels

10% OFF

\$341.30

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**283671702**

## DV25 - VOLTAGE TESTER

**EXTECH INSTRUMENTS**

- CAT IV 600V
- CAT IV 1,000V safety rating
- For use on 50/60Hz circuits

20% OFF

\$28.25

Order Code  
**268864202**

## D03124 - AUTO RANGING DIGITAL MULTIMETER

**DURATOOL**

- 3½ digit, 2,000 count LCD display with backlight
- AC/DC voltage, AC/DC current, resistance and frequency measurement
- Diode and continuity test functions

10% OFF

**\$20.64**Order Code **321263502**

## D03129 - THERMOMETER

**DURATOOL**

- Measures in °C and °F
- 3½ digit, 2,000 count LCD display
- Data hold function

10% OFF

**\$15.01**Order Code **321263602**

## EL-MOTE-TH - DATA LOGGER

**LASCAR**

- Battery life of up to 2 years
- Suitable for indoor and outdoor use
- Set up alarm options for temperature zone breaches

20% OFF

**\$196.62**Order Code **290719402**

## 43797 - VOLTAGE TESTER

**wiha**

- Single-pole non-contact volt detector
- Compatible for use in all sockets
- Integrated high-luminescence LED flashlight

20% OFF

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## FLUKE 1507 - INSULATION TESTER



- Auto-discharge of capacitive voltage for added user protection
- AC/DC voltage: 0.1V to 600V
- Continuity: 200 mA

## D03406 - BATTERY TESTER

**DURATOOL**

- Accurate results in milliseconds
- Battery life analysis
- Vehicle and scooters
- Large easy to read LCD display

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## P06232009Z - AC CLAMP METER

**Multimetrix**

New



- 4,000 count backlit digital display
- Auto range selection
- Torch function / lighting of the point of measurement

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## EL-GFX-2 - DATA LOGGER

**LASCAR**

- Stores over 250,000 readings
- Micro USB interface for PC based set-up and data download
- Logging rates between 10 seconds and 1 hour

5% OFF

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## EL-SIE-2 - DATA LOGGER

**LASCAR**

- Status and alarm indicators
- Data can be uploaded to the EasyLog Cloud
- 0 to 100%RH humidity measurement range

30% OFF

**\$150.76**Order Code **329002602**

## TESTO 830-T1 - IR / INFRARED THERMOMETER

**Be sure. testo**

- Measuring range from -30°C to 400°C
- ABS housing
- Infrared resolution is 0.1°C, measuring rate is 0.5s

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**\$108.00**Order Code **267808202****FLUKE****\$1,238.00**Order Code **101836102**

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## FIT0507 - THERMOMETER



- Temperature measurement range from -50°C to 110°C
- Temperature measurement error is  $\pm 1^\circ\text{C}$
- Resolution is 0.1°C

20% OFF

\$2.46

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## 530-312 - VERNIER CALIPER



- Maximum measuring range: 150mm
- Graduations: 0.02mm
- Clamping screw atop the slider

20% OFF

\$134.84

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## 105-0853-001 - TEST JACK



- Insulated vertical test jack with silver beryllium copper machined contacts
- For use with 2mm standard tip plug
- Mount through 0.052" hole

30% OFF

\$1.93

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## 932146101 - CROCODILE CLIP



- Unsprung socket 4mm
- Crocodile clips
- Screw terminal



40% OFF

\$23.05

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## BU-00287 - TEST LEAD SET



- Handsfree testing
- Lead length: 546.1mm
- Current rating: 7A



40% OFF

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- Stand alone JTAG/SWD programmer
- Ethernet interface
- Supports internal and external flash devices



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- Hi-speed USB 2.0 driven debug probe
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\$1,556.88

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## 101-45 - DIGITAL CALIPER



- Caliper with ON, OFF and ZERO button
- Maximum measuring range of 150mm
- 0.01mm resolution

## QTC 55 0.9-55NM 035220 - TORQUE TESTER



- Robust accurate analyser ideal for rapid hand tool testing
- Calibrated range from 0.9Nm to 55Nm with 0.01Nm resolution (ISO)
- Calibrated range from 0.7lbf.ft to 40lbf.ft with 0.01lbf.ft resolution (imperial)

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## 66.9407-100-25 - BANANA TEST LEAD



- 4mm stackable banana plugs
- 600V, CAT II/32A rated voltage, current values
- Lead length: 100cm

## 66.9755-21 - CROCODILE CLIP



- For testing up to 1,000V and 32A
- Opening width: 20mm
- Plug system: 4mm

30% OFF

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**235331902**

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## 934058100 - TEST LEAD



- 4mm system
- Measuring leads
- 30 VAC / 60 VDC rated voltage

## 931467100 - CONTACT



- 2mm system
- Clamp-type test probe
- Solder connection

40% OFF

\$4.10

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**52353702**

\$7.11

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**52369002**

## AL-B-12-2 - TEST LEAD



- Red insulator
- Maximum handheld testing voltage: 30VAC/60VDC
- Maximum operating temperature: 50°C

## EMB 500-1 - WEIGHING SCALE



- Optional rechargeable battery
- Maximum weighing capacity is 500g
- Large backlit LCD display

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- Aluminium desoldering pump with PTFE nozzle
- Length: 194mm
- Tip diameter: 3.2mm

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- External size: 70mm x 98mm x 160mm
- Weight: 0.106Kg

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## MF 300S 5L FR - SOLDER FLUX



**Multicore**

- Boiling point: 100°C
- Vapour pressure: 2.3kPa
- Volume: 5L

30% OFF

**\$140.64**

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**111547102**

## T0051321199 - SOLDERING & DESOLDERING TWEEZER

New



**Weller**

- Adjustability functions with an allen key: 1.5mm possible if needed (±80° rotation angle adjustment + vertical length adjustment of ± 1.2mm)
- Extremely short heat-up time of 5 seconds
- Unique 2-in-1 desoldering tweezers

10% OFF

**\$297.85**

Order Code  
**417655502**

## D03444 - SCREWDRIVER SET

**DURATOOL**



- Two colour handle with high torque and an ergonomic comfortable grip
- High impact and oil resistant plastic handle
- Contains: 2.5mm x 100mm, 3mm x 100mm, 4mm x 100mm, 5mm x 100mm, 6mm x 100mm, 8mm x 100mm hex screwdrivers

5% OFF

**\$16.44**

Order Code  
**361770502**

## 21-10158 - SOLDERING IRON TIP

**TENMA**



- 0.3µm alloy iron coating thickness
- 0.2µm chrome and nickel coating thickness
- Suitable for use with 21-10115, 21-10120, 21-10130 and 21-21310 soldering stations

3% OFF

**\$29.84**

Order Code  
**238186302**

## C 502 99C 5C 0.5MM G 250G - SOLDER WIRE

**Multicore**



- Halide-free version
- Heat stable, low spitting
- Good spread on copper, brass and nickel

30% OFF

**\$52.80**

Order Code  
**509102002**

## T0051388299 - SOLDER WIRE

**Weller**



- Diameter: 0.5mm
- Alloy: Sn96.5Ag3.0Cu0.5
- Temperature range: 217°C to 221°C

3% OFF

**\$42.33**

Order Code  
**234464702**

## MC23783 - ESD HEEL GROUNDER

**DURATOOL**



- Resistance: 1Mohm
- Strap material: rubber
- Fastening type: hook and loop

40% OFF

**\$12.04**

Order Code  
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## CBB019822 - HEATING ELEMENT

**TENMA**



- 50W replacement heating element
- 4-wire connection
- Suitable for use with AT8502D soldering stations

30% OFF

**\$9.37**

Order Code  
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## 63/37AP - SOLDER PELLETS

**Multicore**



- Solder alloy: 63, 37, Sn, Pb
- Melting temperature: 183°C
- Size: 250g

20% OFF

**\$32.78**

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63NC257-2-J250 - SOLDER PASTE



- Lead-free no clean solder paste
- Tack time: 12-14 hour
- Melting temperature: 183°C

10% OFF

\$85.96

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229630 - HAND LOTION

**DESCO**

- 235ml ESD hand lotion
- Improves reliability of path to ground when using wrist straps, ESD gloves or ESD footwear
- Absorbs quickly

20% OFF

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240/12/300 - ADHESIVE

**POWER ADHESIVES**

- Synthetic polymer based hotmelt
- Excellent adhesion to wood, ceramics, light gauge metals and many plastics, such as rigid PVC, polystyrene, ABS and acrylic
- Length: 300mm

5% OFF

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T4874X - SCREWDRIVER SET

**CK**

- Ergonomically designed handle with hollow rotating cap for ease of use & precise control
- Contains: 1 x hexagon, sizes: 0.7 x 50, 0.9 x 50, 1.3 x 50, 1.5 x 50, 2.0 x 50, 2.5 x 60 & 3.0 x 60mm

10% OFF

\$79.76

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T3659A 175 - PLIERS

**CK**

- 175mm heavy duty water pump plier
- Special alloy steel, drop forged, hardened & tempered for exceptional strength & durability
- Slim head & jaws for access to confined spaces

20% OFF

\$46.84

Order Code  
**420026102**

4902P-15G - SOLDER PASTE



- Low temperature solder paste
- Good wettability
- Excellent fine pitch printing capability

10% OFF  
**\$20.41**Order Code  
**301841702**

10446 - SURFACE CLEANER

**DESCO**

- ESD surface and mat cleaner
- 950ml

30% OFF  
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**299157602**

UR5041RP250G - POLYURETHANE RESIN

**ELECTROLUBE**  
THE SOLUTIONS PEOPLE

- Two-part black encapsulation and potting compound
- Properties retained at temperatures down to -60°C
- Good adhesion to most substrates

20% OFF  
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**10878602**

T3224 - QUICK CHANGE ARBOR SET

**CK**

- Chuck style arbor with adapters to securely fit holesaw sizes 14-210mm
- Allows for quicker interchange of holesaws
- Includes 1 x large adapter and 1 x small adapter

20% OFF  
**\$50.30**Order Code  
**416764602**

AV00010 - COLLAPSIBLE STOOL

**CK**

- Seat height adjustment: 6cm to 46cm - 12 positions
- Weight capacity: 440lb
- Seat type: polypropylene

20% OFF  
**\$32.78**Order Code  
**416767502**

835-100ML - SOLDER FLUX



- For leaded and lead-free solder
- Fast wetting
- Non-corrosive

30% OFF  
**\$14.83**Order Code  
**290390902**

PCL100 - CLEANER

**AF**

- 100ml pump bottle
- Platenclene cleaner effectively dissolves ink stains and removes oil and grease
- Suitable for fax machines and printers

20% OFF  
**\$8.09**Order Code  
**22431502**

ASA250ML - CLEANER

**ELECTROLUBE**  
THE SOLUTIONS PEOPLE

- Designed to eliminate dust and prevent the build up of static
- Prevents damage to voltage sensitive components and circuits
- Supplied in pump action bottle for use in hazardous working environments

10% OFF  
**\$11.47**Order Code  
**31753602**

T1290 - CABLE STRIPPER

**CK**

- Recessed blade with protection mechanism reduces injuries
- For use with flat and round cables
- Stripping capacity: 4mm to 70mm

10% OFF  
**\$90.65**Order Code  
**416766602**

MA2610 - ORGANISER

**CK**

- Convenient interior segmentation with an A5 portrait pad, business card compartments and dual pen holder
- Dimensions: 200mm x 50mm x 255mm

20% OFF  
**\$29.26**Order Code  
**416764502**



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## D210-6C - PLIER


**KLEIN  
TOOLS**  
For Professionals... Since 1857

- Trims plastic or printed circuit boards
- Spring-loaded for self-opening action
- Short jaws and beveled cutting edges permit close cutting of wire

**\$85.66**Order Code  
**288597302**

## MP010969 - FIBRE OPTIC STRIPPER

**multicomp<sup>PRO</sup>**

- For use with 2-3mm & 2.8-3mm outer jacket, 2-3mm loose tube fibre, 900um buffer insulation/250um acrylate cables
- Handle lock for better safety and easier storage
- Ergonomic and angle tool frame

**20% OFF****\$22.71**Order Code  
**412557302**

## 8141CO - CUTTER

**LINDSTROM**

- Overall length: 110mm
- High performance alloy steel
- Exacting induction hardened cutting edges 63-65 HRC

**10% OFF****\$82.07**Order Code  
**290855702**

## 74"Z-0-0-321 - TORQUE WRENCH

**HUBER+SUHNER**

- Torque: 1Nm
- Width across flats: 19 mm
- For N connectors

**10% OFF****\$411.36**Order Code  
**358051502**
**KLEIN  
TOOLS**  
For Professionals... Since 1857

## H80816 - HAMMER CLAW


**KLEIN  
TOOLS**  
For Professionals... Since 1857

- Straight-claw hammer with a tether hole for hanging
- 330mm overall length
- 16-ounce forged steel head weight

**10% OFF****\$58.43**Order Code  
**407016502**

## MP010944 - SOCKET BIT SET

**multicomp<sup>PRO</sup>**

- 37 pieces 1/4"DR drive socket and bit set
- Socket material is chrome vanadium steel
- Contains: 4x philips & pozi, 3x slotted, 5x hex, 7x star bits, ratchet, bit holder, extension bar, bit adaptor

**20% OFF****\$41.42**Order Code  
**407782302**

## E.516ST-30PB - WRENCH

**FACOM**

- Fixed ratcheting head
- Data collection and recording
- Torque range: 6N·m to 30N·m

**5% OFF****\$1,152.41**Order Code  
**399607202**

## 259048RO - CNC MACHINE TAP DRILL SET

**RUKO**

- Contains: 14 pieces set of M3/M4/M5/M6/M8/M10/M12 machine taps & 2.5/3.3/4.2/5/6.8/8.5/10.2MM twist drills

**10% OFF****\$131.13**Order Code  
**417706102**

## CORE25 - SMART METER CLIPS &amp; COLLAR

**New**

- Strips the cable safely to a pre-defined length
- For cable diameter of 25mm<sup>2</sup>
- Ergonomic design

## 450-900 - HOOK &amp; LOOP DISPENSER


**KLEIN  
TOOLS**  
For Professionals... Since 1857

- Built in cutter
- Attach to belt with heavy-duty clip for portability
- Integrated keyholes for versatile screw mounting to non-magnetic surfaces

**10% OFF****\$96.00**Order Code  
**407016702**

## PVC TAPE 1920Y - ELECTRICAL INSULATION TAPE

**multicomp<sup>PRO</sup>**

- General purpose non-migratory plasticised PVC insulation tape
- Thickness: 0.15mm
- Roll length: 20m

**45% OFF****\$2.04**Order Code  
**15234802**

## R.161B - RATCHET

**FACOM**

- Drive size: 0.25"
- Length: 121.2mm

**5% OFF****\$75.66**Order Code  
**399605202**

## 231-040 - HAND TAP

**RUKO**

- Suitable for through threads in unalloyed or low-alloyed steels up to 800N/mm<sup>2</sup> strength, malleable cast iron and non-ferrous metals
- Right-hand cutting
- Type-B, 4 to 5 threads with progressive tap chamfer

**20% OFF****\$8.27**Order Code  
**37507002****HellermannTyton****5% OFF****\$121.12**Order Code  
**420812402**

## A15 - ARBOR EXTENSION BAR

**Starrett®****New**

- 300mm hole saw arbor extension bar
- Extension for A1, A1E, A10, A10E, A10, A10E, A17-38, A17-38E
- Suitable for use with any arbor with a 9.5mm shank size

**20% OFF****\$53.20**

## A2 - PILOT DRILL

**Starrett®****New**

- Hole saw arbor supplied with 6.35mm pilot drill
- Shank size is 11mm, screw thread 5/8"-18
- Fits hole saws from 32mm to 210mm diameter

**20% OFF****\$36.67**

## 15024 - ANTISTATIC BAG

**Order Code 418018702****SCS**

- 50.8mm x 101.6mm
- Open top metal-out transparent static shielding bag
- Provides excellent static safe environment for sensitive electronic components and PCB assemblies

**\$12.49****Order Code 290762002**

## GMG-345 - ELECTRICAL TAPE

**MCM**

- Resistant to abrasion, UV rays, weather, solvents, alkalies and many acids
- Includes black, red, yellow, green and blue rolls
- Size: 18mm x 30ft

**40% OFF****\$5.12****Order Code 280116002**

## 1000364 - WIRELESS MESH ROUTER

**W**

- Small, rugged wireless mesh router
- 360mAH LiPo rechargeable battery
- Micro-B USB interface

**\$765.97****Order Code 372716402**

## FCH0418 - HOLE SAW

**Starrett®****New****20% OFF****\$47.87**

## M4 20 SO12CS Z100 - SOCKET SCREW

**Fastenings**

- 105mm saw diameter
- Ideal for stainless and mild steel sheet and tubes with a wall thickness of up to 3mm
- New 5.5 TPI/25mm tooth form provides a smoother, faster cut in all materials

**Order Code 418021002****Order Code 418019002**

## CSC25 - HOLE SAW

**Starrett®****New****20% OFF****\$37.62**

## 91-PC2-US-01H - AIR BLOWER IONIZER

**SIMCO ION™****An ITW Company**

- Discharge time of <2 seconds at 1 foot
- Lightweight, compact and quiet for unobtrusive use
- ±10V self-balancing ("micropulse") technology

**20% OFF****\$1,698.76****Order Code 339733402**

## 410 (3"X1000FT) - DETECTABLE BURIED BARRICADE

**3M**

- 5-mil tapes, constructed of a solid aluminium foil backing with a clear film laminate
- The aluminum backing helps make underground assets easier to locate when using a non-ferrous locator
- Tape length: 1.000ft

**20% OFF****\$192.07****Order Code 252597002**

## RLC-50-30/90-10 - LABEL

**OMEGA™**

- Label legend: temperature indicator
- Type: self adhesive
- Pack quantity: 10

**5% OFF****\$24.94****Order Code 379465202**

## PRIMUS 75 - MACHINE VICE

**PROXXON**

- Flat-milled working surface
- Spindles with rolled trapezoid thread for ease of operation even during high axial load
- Jaw width of 75mm, opening to 65mm

**20% OFF****\$108.90****Order Code 107550602**



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## ABX00042 - ARDUINO PORTENTA H7



3% OFF

**\$159.03**

## TEM2022C-EN-1 - EDUCATION DEVELOPMENT KIT

New



- Features two processors in one to run parallel tasks in different languages
- Choose between two vendors for the crypto-chip that better suits your case
- Power the board, connect it to a display or get it to work in OTG mode

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**\$134.79**

## FIT0647 - DEVELOPMENT BOARD ENCLOSURE



- Silicone sleeve for HUSKYLENS board
- Small in size, cute in shape
- Has a smooth feel which brings a better experience

Order Code **417294802**

3% OFF

**\$5.23**

## FRDM-STBA-A8964 - DEVELOPMENT BOARD



- Compatible with Arduino and most NXP freedom development boards
- Supports I2C and SPI communication interface with host MCU
- Enables embedded sensor project development using IoT sensing SDK

Order Code **351786502**

3% OFF

**\$140.51**

Order Code **406246402**

## EK-S7-SP701-G - EVALUATION KIT



- Video interfaces including MIPI CSI, DSI, and HDMI
- Expandable I/O via Pmod and FPGA Mezzanine Card (FMC) interfaces
- Dual Ethernet for industrial networking

**\$1,539.40**

Order Code **322520902**

## FIT0730 - RASPBERRY PI MODULE



- 2 megapixels USB night camera with microphone
- Operating current: 160mA(VGA)
- Operating temperature range: -20°C to 70°C

3% OFF

**\$74.54**

## AES-ULTRA96-V2-G - SINGLE BOARD COMPUTER

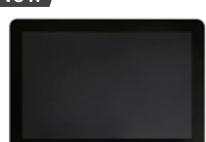


- Xilinx Zynq UltraScale+ MPSoC ZU3EG A484
- Micron 2GB (512M x32) LPDDR4 memory
- Delkin 16GB microSD card and adapter

3% OFF

**\$557.07**

## DY1212W-4856 - LVDS PANEL



- Touch points: 10
- Display colours: 16.7M (6bit +Hi-FRC)
- Contrast ratio: 1,200typ/1,000min

**\$605.37**

Order Code **417694902**

## SK-KR260-G - ROBOTICS STARTER KIT



- Multi-camera supports up to 8 interfaces
- HDMI, Displayport outputs
- 1Gb Ethernet, USB 3.0 / 2.0 connectivity

**\$663.71**

Order Code **397645902**

## SEN0098-V2 - SENSOR BREAKOUT BOARD

New



- For use with Arduino IO expansion shield
- Compatible with T-shaped plug of aeromodelling
- Capable of measuring AC and DC currents

3% OFF

**\$22.26**

## RTK7FPA2E1S00001BE - EVALUATION BOARD

Order Code **417294502**



- Equipped with an RA2E1 32-bit microcontroller 64-pin, ROM: 128KB, RAM: 16KB
- Arduino Uno and Pmod interfaces come standard
- Through-holes with access to all of the pins of the microcontroller

5% OFF

**\$33.01**

## RPI-CAM-MIPI - MIPI CAMERA CARD

Order Code **386899102**



- 22-pin / 0.5mm FPC/ FFC connector interface to motherboard
- Pin definition compatible with Raspberry Pi camera interface
- ONSEMI IAS 34-pin board to board connector for image sensor

**\$202.96**

Order Code **417694802**

## MEFV22C - SINGLE BOARD COMPUTER



- micro:bit V2 club
- Contents: 10x micro:bit V2 board, 10x USB cable, 10x battery holder, 20x batteries
- Nordic nRF52833 processor with 512KB flash and 128KB RAM

5% OFF

\$256.06

Order Code  
**384734402**

## REFICC80QSG84W2BPAT-OBO1 - REFERENCE DESIGN BOARD



New



- Secondary-side regulation with adjustable CC output set-point from 0.2A to 2A
- Supports wide output load range from 6V to 42V
- Full-power efficiency more than 91% at 230VRMS-AC input

3% OFF

\$126.78

Order Code  
**418036002**

## MIKROE-1197 - CLICK BOARD



- MikroBUS form factor enables easy integration
- Cold junction compensation
- 14bit, 0.25°C resolution

3% OFF

\$43.59

Order Code  
**243144302**

## MAX34427SHLD# - EVALUATION KIT



New



- 2.7V to 3.6V single-supply operation
- Proven PCB layout
- Fully assembled and tested

\$216.85

Order Code  
**419972602**

## MEFV22G - SINGLE BOARD COMPUTER

Order Code  
**384734202**

## S2GORADARBGT60LTR11T-OBO1 - EVALUATION BOARD



New



- Kit application type: sensor
- Application sub type: radar sensor
- Silicon core number: BGT60LTR11AIP

\$55.27

Order Code  
**421635702**

## MIKROE-3246 - ADD-ON BOARD



New



- Pressure 7 click features an integrated digital barometric pressure and temperature sensor
- Supply voltage: 3.3V or 5V
- Click board size: 42.9 x 25.4mm

3% OFF

\$74.64

Order Code  
**417260202**

## MAX17554CEVKIT# - EVALUATION KIT



New



- Internal loop compensation
- 0.8ms (typ) internal soft-start time
- Hiccup-mode overcurrent and overtemperature protection

3% OFF

\$52.03

Order Code  
**420364302**

## MARS BOARD. - DEVELOPMENT BOARD



- ARM Cortex A9 MPCore
- 2x CPU processor at 1GHz
- NEON SIMD media accelerator
- HD class 1080p encode/decode video engine

\$112.69

Order Code  
**236278502**

## XVN-090D-1B-SK - VISION NAVIGATOR STARTER KIT



New



- Dual RTK GNSS/INS and vision enabled navigation unit, for tracking accurate 3D position, velocity and orientation
- Dual-antenna and built-in IMU
- Application sub type: accelerometer / gyroscope / GNSS receiver / barometer

9% OFF

\$7,292.33

Order Code  
**417644902**

## X-NUCLEO-IDB05A2 - BLUETOOTH EXPANSION BOARD



- Small form factor of 11.5mm x 13.5mm
- On-board chip antenna
- Equipped with Arduino UNO R3 connector

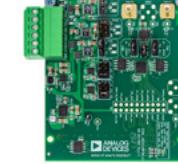
\$21.50

Order Code  
**348947402**

## EVAL-AD3552RFMC1Z - EVALUATION BOARD



New



- Board for higher speed
- Selectable transimpedance gain
- Board allows testing all o/p ranges of DAC, waveform generation, power supply and reference options

2% OFF

\$248.16

Order Code  
**417295002**

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## MP001993 - AC/DC POWER SUPPLY

multicomp PRO



- Universal input
- IEC-320-C14 input connector
- Input voltage range from 90V AC to 264V AC

20% OFF

**\$21.38**

Order Code  
**329307102**

## R13-502A-05-B - PUSHBUTTON SWITCH

multicomp PRO



- Current rating of 3A at 125V and 1.5A at 250VAC
- Insulation resistance of 100Mohm min at DC 500V
- Dielectric strength of 1,000VAC

40% OFF

**\$1.45**

Order Code  
**163462202**

## PBL3 - PLASTIC ENCLOSURE

multicomp PRO



- Enclosure type: multipurpose
- Dimensions: 84mm x 64mm x 46mm
- Black ABS

30% OFF

**\$3.28**

Order Code  
**30123102**

## MP002648 - CIRCULAR CONNECTOR

multicomp PRO



- Fits 13mm cut-out
- Solder termination
- Bayonet mating

30% OFF

**\$6.15**

Order Code  
**336987902**

## MPE1212S-1W - ISOLATED THROUGH HOLE DC/DC CONVERTER

multicomp PRO



- Number of outputs: 2
- Input voltage: 12VDC
- Output voltage: 12VDC

30% OFF

**\$3.33**

Order Code  
**365260302**

## MP001903 - FUSE

multicomp PRO



- 20A ceramic cartridge power fuse
- Specialised for use in photovoltaic systems and installations
- Each element has a reduced cross section that quickly melts in response to overcurrent events

20% OFF

**\$8.90**

Order Code  
**328999402**

## MP010352 - ENCLOSURE ACCESSORY

multicomp PRO



- For use with Multicomp metal ventilation plugs
- Accessory type: nut

45% OFF

**\$4.82**

Order Code  
**405791902**

## 5501-15PA-02-F1 - D SUB CONNECTOR

multicomp PRO



- Current rating: 3A AC/DC
- Voltage rating: 250VAC/DC
- Operating temperature range: -55°C to 105°C

40% OFF

**\$0.341**

Order Code  
**108467302**

## MCDM(R)-04-T - DIP / SIP SWITCH

multicomp PRO



- Low profile DIP switch
- Gold contact for high reliability
- Top tape sealed and recessed actuator

40% OFF

**\$1.15**

Order Code  
**947203702**

## ABT-414-RC - TRANSDUCER

multicomp PRO



- Electromechanical audio transducer with PCB pins
- Noryl housing
- Minimum supply voltage: 3V

45% OFF

**\$1.89**

Order Code  
**209883602**

## MCEGG0BC307KS - CIRCULAR CONNECTOR

multicomp PRO



- Contact type: solder socket
- Coupling style: push-pull
- Number of contacts: 7

30% OFF

**\$17.61**

Order Code  
**405764102**

## MP010324 - CABLE GLAND KIT

multicomp PRO



- Waterproof, dustproof and breathable cable gland
- PA sealing nut, EPDM seal, PA body
- EPDM gasket, PA lock nut

50% OFF

**\$5.25**

Order Code  
**405788802**

## MP010873 - SENSOR CABLE

multicomp<sup>PRO</sup>

- M12 plug to free end
- Number of positions: 8
- Length: 2m

30% OFF

\$12.10

Order Code  
407643902

## MP710771 - DC ELECTRONIC LOAD

multicomp<sup>PRO</sup>

- Dynamic mode: up to 10kHz
- Resolution of voltage and current: 0.1mV/0.1mA
- Waveform display function of voltage and current

20% OFF

\$659.62

Order Code  
372715102

## MP780051 - CLAMP METER

multicomp<sup>PRO</sup>

- Shielded transformer jaw opens up to 30mm
- Provides a wide current measuring range
- Data hold, max./min. and low battery indication

20% OFF

\$103.46

Order Code  
312662802

## MP002197 - BANANA TEST LEAD

multicomp<sup>PRO</sup>

- 4mm banana plug, shrouded
- Length: 1.5m
- Current rating: 10A

10% OFF

\$11.25

Order Code  
336472202

## HT-230C/HT-236C - CRIMP TOOL

multicomp<sup>PRO</sup>

- Wire size range from 20AWG to 10AWG (0.5mm<sup>2</sup> to 6mm<sup>2</sup>)
- Length: 220mm

30% OFF

\$30.97

Order Code  
312634102

## TCW20 500G - TINNED COPPER WIRE

multicomp<sup>PRO</sup>

- Soft tinned copper wire
- Resistance: 27.04Ω/km
- Yield: 5.78kg/1,000m

30% OFF

\$22.68

Order Code  
123099502

## MP780002 - CALIBRATOR

multicomp<sup>PRO</sup>

- Up to 0.05% output accuracy
- 6-digit display
- Output functions: DC voltage, resistance, thermocouple and thermal resistance

10% OFF

\$325.05

Order Code  
301433402

## MP780522 - TACHOMETER

multicomp<sup>PRO</sup>

- Two test modes – rotate speed mode (RPM) and count mode (REV)
- Wide measurement range and high resolution
- High visible digital 5-digit LCD and backlight display

30% OFF

\$64.65

Order Code  
350172802

## MP740097 - SOLDERING IRON

multicomp<sup>PRO</sup>

- 80W soldering iron with mica heater
- Tip is fixed by a screw, easy to replace
- Temperature range: 500°C to 550°C

10% OFF

\$8.82

Order Code  
322802802

## HT-236H - CRIMP TOOL

multicomp<sup>PRO</sup>

- Middle carbon steel frame and black oxide finish
- Crimping range: 22AWG to 18AWG
- Length: 220mm

30% OFF

\$30.32

Order Code  
312635302

## MC000762 - LUG TERMINAL

multicomp<sup>PRO</sup>

- 5/16-inch stud non-insulated
- Made of copper with a tin plated finish
- Accepts 8AWG wires

45% OFF

\$0.572

Order Code  
242126202

## MP780905 - SOUND LEVEL METER

multicomp<sup>PRO</sup>

- Max / Min measurements
- Overrange display
- Memory for 32,700 readings

10% OFF

\$231.98

Order Code  
401626102

## MP770217 - OSCILLOSCOPE PROBE

multicomp<sup>PRO</sup>

- Supplied with ground lead and spring hook contact
- Maximum input voltage: 5kV
- Bandwidth: 300MHz

10% OFF

\$98.76

Order Code  
326503302

## MP740207 - SOLDER WIRE

multicomp<sup>PRO</sup>

- Flux type: no clean
- Solder alloy: 60, 40 Sn, Pb
- Melting temperature: 183°C

30% OFF

\$3.52

Order Code  
327618302

## MP003933 - HEX KEY

multicomp<sup>PRO</sup>

- Size: 3mm
- Dimensions: 93mm x 75mm
- Material: Vanadium CR-V + chamfer

40% OFF

\$1.39

Order Code  
340475702

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MP010810 - 3D PRINTER FILAMENT



20% OFF

\$20.70

multicomp<sup>PRO</sup>

010-0011 - ANTISTATIC BAG

multicomp<sup>PRO</sup>

- Printing speed: 40mm/s to 100mm/s
- Extruder temperature: 210°C to 230°C, recommended temperature is 215°C
- Filament material: PLA (Polylactide)

Order Code 406651402

- Open top static shielding bag suitable for packing PCB's, electronic components
- Semi-transparent for easy content identification
- Four layer protection guards against charges inside and out

Order Code 150312602

101CTN - STORAGE BOX

multicomp<sup>PRO</sup>

- 165mm x 112mm x 31mm
- 15 compartments

Order Code 406651402

83-17044 - GPIO BREAKOUT BOARD

multicomp<sup>PRO</sup>

- 40-way GPIO breakout board for Raspberry Pi
- Features 3.3V and 5V power pins
- Keyed IDC header shroud

Order Code 150312602

45% OFF

\$3.50

Order Code 266361602

W04MG - BRIDGE RECTIFIER

multicomp<sup>PRO</sup>

- Glass passivated
- Peak surge overload rating: 50A
- Maximum RMS voltage: 280V

50% OFF

\$0.545

Order Code 186143702

MCKSK050M222J36S - ELECTROLYTIC CAPACITOR



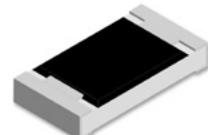
- Radial leaded aluminium electrolytic capacitor
- Lead spacing: 7.5mm
- Ripple current: 1.61A

45% OFF

\$1.52

Order Code 261080402

MCWR06X6043FTL - SMD CHIP RESISTOR

multicomp<sup>PRO</sup>

- Thick film general purpose chip resistor
- Maximum operation voltage: 75V
- Maximum dissipation: 1/10W

50% OFF

\$0.001

Order Code 269491202

50% OFF

\$0.309

Order Code 414085702

MCSCH895-221KU - INDUCTOR

multicomp<sup>PRO</sup>

- RMS current (Irms): 640mA
- Inductor construction: unshielded
- Inductance: 220µH

Order Code 349860302

1N4148 - SMALL SIGNAL DIODE

multicomp<sup>PRO</sup>

- Power dissipation: 500mW
- Reverse voltage: 75V
- Capacitance: 4pF

50% OFF

\$0.182

Order Code 183455202

MF25 100K - THROUGH HOLE RESISTOR

multicomp<sup>PRO</sup>

- Maximum working voltage: 250V
- Power rating: 250mW
- Tolerance: ±1%

50% OFF

\$0.056

Order Code 934112902

50% OFF

\$0.056

Order Code 934112902

34

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22-24130 - TACTICAL WATERPROOF EQUIPMENT CASE

multicomp<sup>PRO</sup>

50% OFF

\$0.164

Order Code 933766002

- 22" rolling black weatherproof case with telescopic handle
- Built-in o-ring with secure latches prevent water and moisture damage to contents
- Padlock compatible for additional security

20% OFF  
\$78.86

Order Code 325332402

TOUCHSCREEN 10.1 - TOUCHSCREEN DISPLAY

multicomp<sup>PRO</sup>

- Capacitive multi-finger support with pinch, zoom and rotate functions
- High definition 1280x800 resolution, 450cd/m<sup>2</sup> brightness
- IPS panel for wide viewing angles

\$244.25

Order Code 326344402

1N4148 - SMALL SIGNAL DIODE

multicomp<sup>PRO</sup>

DIODE

- Power dissipation: 500mW
- Reverse voltage: 75V
- Capacitance: 4pF

50% OFF  
\$0.065

Order Code 230636102

MCFM0W4FF2201A50 - METAL FILM RESISTOR

multicomp<sup>PRO</sup>

- Resistor type: precision
- Operating temperature: -55°C to 155°C
- Rated power: 0.25W at 70°C

50% OFF  
\$0.062

Order Code 112695402

MCF 1W 100R - THROUGH HOLE RESISTOR

multicomp<sup>PRO</sup>

- Maximum working voltage: 500VDC
- Power rating: 1W
- Resistor type: general purpose

50% OFF  
\$0.164

Order Code 933766002



## Customer Service

**1300 361 005**

Monday to Friday 8:00 AM - 6:00 PM (AEDT)

[au-sales@element14.com](mailto:au-sales@element14.com)

24/5 Online Live Chat

## Technical Support

For Account Customers Only

**1300 361 740**

Monday to Friday 8:00 AM - 6:30 PM (AEDT)

[au-technical@element14.com](mailto:au-technical@element14.com)

Online Live Chat

## Account Enquiries

**1300 639 275**

[au-finance@element14.com](mailto:au-finance@element14.com)

## Quote Requests

**1300 519 788**

Monday to Friday 8:00 AM - 6:00 PM (AEDT)

[au-sales@element14.com](mailto:au-sales@element14.com)



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more ways to contact us

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Local collection is available for customers between the hours of 12:30 PM and 4:00 PM (AEDT), Monday to Friday. All orders must be placed at least two hours before collection and confirmed with a Customer Service Representative. The Collections Counter is located at 72 Ferndell Street, Chester Hill NSW 2162.

## Returns Policy

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Account holders will be assigned an individual account manager to help with your queries, product resourcing and orders



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Dedicated team to assist in quoting you the best possible price



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Special pricing is available for eligible customers



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Place an order now and opt to schedule its delivery for a later date

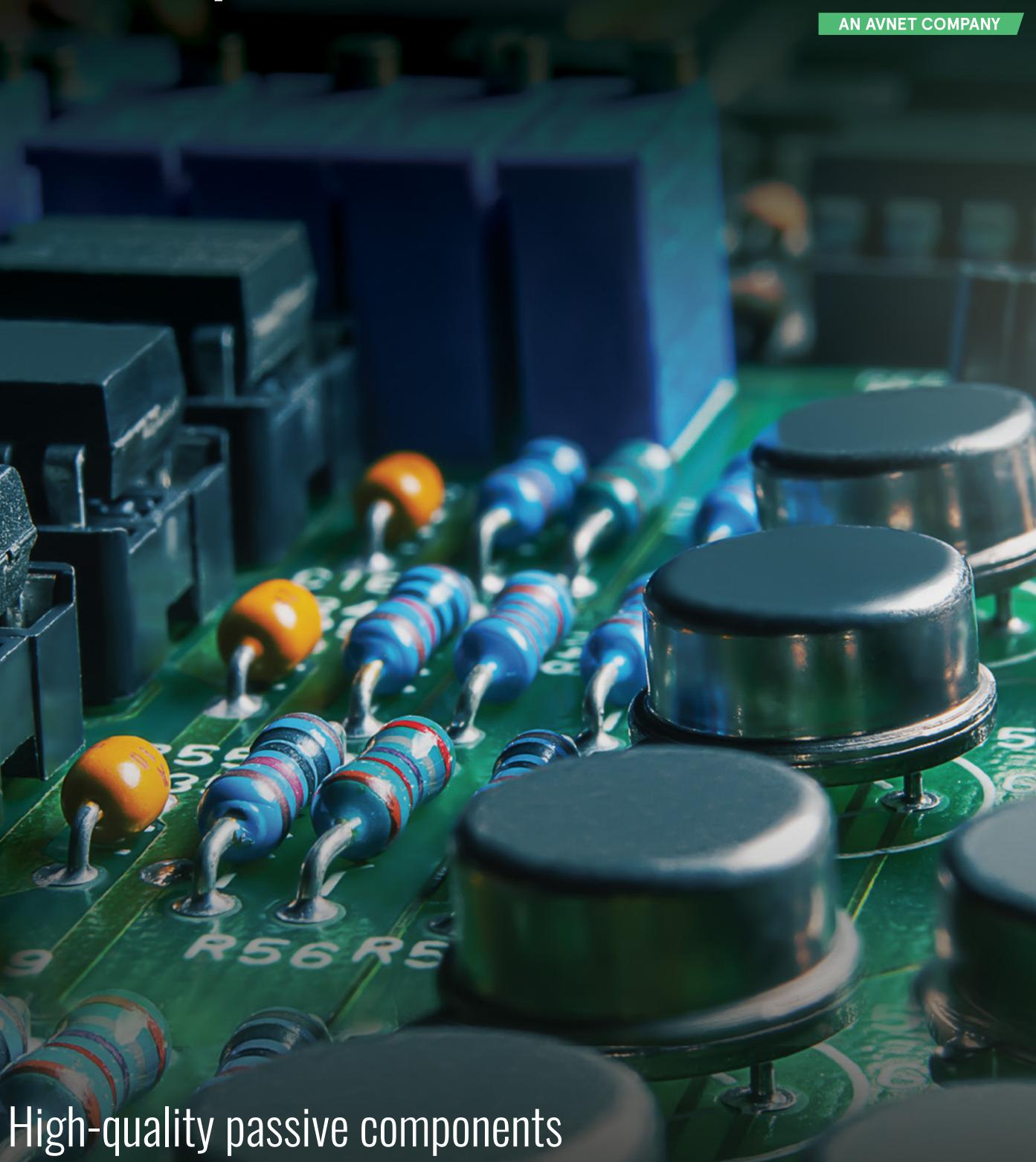


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