



# EARTHING, JUMPERS & SWITCHES



TEN offers an extensive range of Earthing devices, Jumpers and Switches.

- ▶ PED's (Portable Earthing Devices)
- ▶ Earth sets and Sticks
- ▶ LV and HV temporary disconnect Switches, Bonds and clamps
- ▶ LV and HV Bonds and Jumpers
- ▶ Equipotential Mats
- ▶ Earth Rod Drivers
- ▶ Stringing (Rolling) Earths



## NOTES

Lined area for notes.



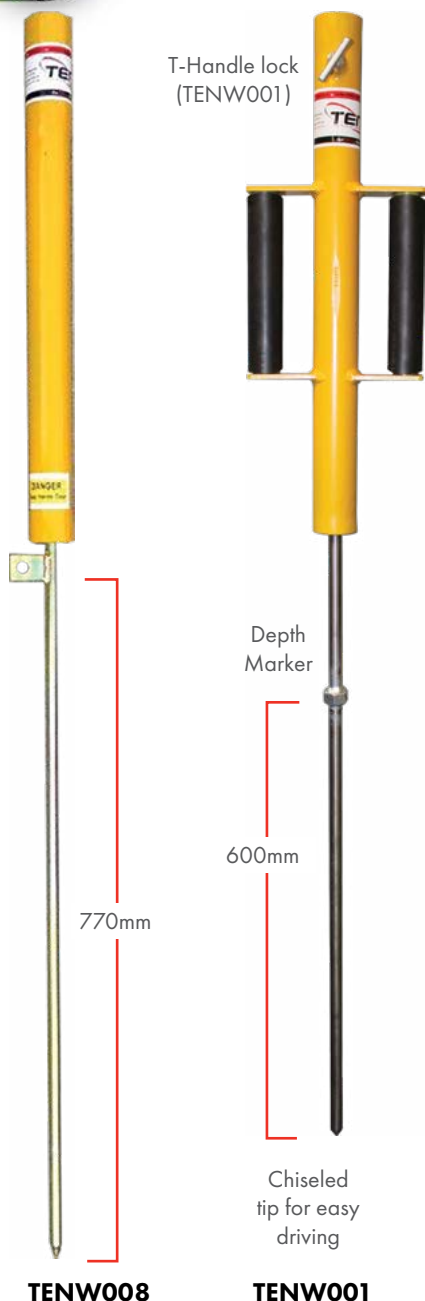
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## Temporary Earth Stake - TEN

- For temporary earthing applications
- Drive rod at a safe working height, minimise risk of back injury
- No pinch points - internal hammer design
- TENW001 - 600mm depth mark on drive rod
- TENW008 - 770mm to attachment point

### Features

- Slide hammer drive
- T-Handle lock screw secures sliding shaft for safety, transport and storage (TENW001)
- Non-slip rubber hand grips (TENW001)
- Stainless steel rod (TENW001) Plated steel rod (TENW008)
- Heavy duty top bash cap
- Chiseled tip for easy driving

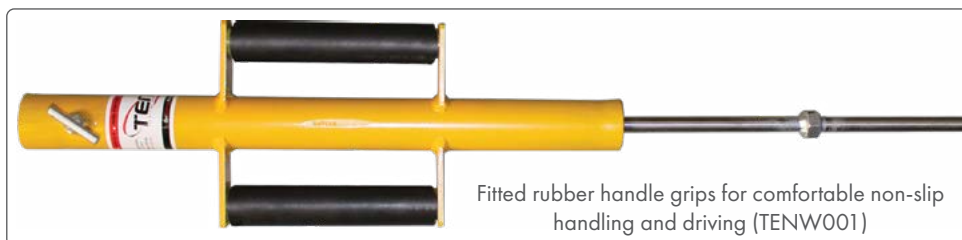


Earth clamp attachments



Part No.	Length OAL Extended/Retracted (mm)	Depth Mark (mm)	Rod OD (mm)	Wt (kg)
TENW001	1830 / 1345	600	16	5.85
TENW008	1780 / 1380	770	14	5

### Slide Hammer Drive



## Earth Rod Driver - iTOOLco

### Part No. GRD01

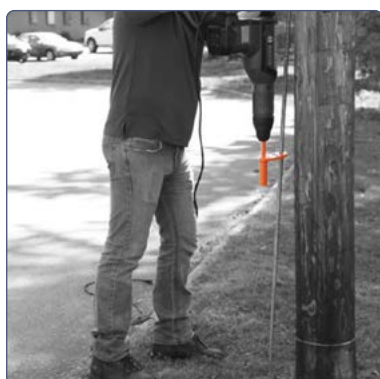
Safely drive 9.5mm, 12.7mm, 14mm, 16mm and 19mm Earth rods into the ground in under a minute with iTOOLco's Ground Rod Dawg™. Once the rod is driven down far enough the tool can be used to hammer from top to finish the driving.

### Features

- Drive earthing rods faster and safer
- Hardened tool steel construction for long life
- Multiple size rods can be driven
- SDS Max driver bit for positive connection and secure driving of rods



Ground Sinker  
For driving the top of the ground rod below grade



**Never drive earth rods from a ladder again**

**Reduce the risk of injury when installing earth rods**

**iTOOLco**



## HV Switch Assemblies

**STEP 1**

Select Your Switch Type (tick to select) ☒

- All switches labelled with rating, part number and serial number

\*Jumpers, Bonders and Clamp Assemblies are for "TEMPORARY USE ONLY" and should not be left exposed for extended periods in outdoor conditions

<p><b>ALTD06200R</b> (with Leads, Turnbuckle &amp; Ratchet Podger) <input type="checkbox"/></p> <p>600A, 38kV, 200 BIL, 66kN, CHANCE</p>	<p><b>ALTD06200RL</b> <input type="checkbox"/></p> <p>600A, 38kV, 200 BIL, 66kN, with load break arc chute, CHANCE</p>
--	--

Replacement Arc Chute Assembly  
Part No. E816-0228P



**The NGK 2T Locking Grip (AL-2TON-GRIP-L) is ideal for holding conductor tension whilst installing Temporary switches**  
See Pulling & Hauling Section for full details

**STEP 2**

Select Your Cable (tick to select) ☒

<p><b>1kV (LV) Dbl Ins Orange/White</b></p> <p>35mm<sup>2</sup> - 172A <input type="checkbox"/></p> <p>50mm<sup>2</sup> - 217A <input type="checkbox"/></p> <p>70mm<sup>2</sup> - 273A <input type="checkbox"/></p> <p>95mm<sup>2</sup> - 329A <input type="checkbox"/></p> <p>150mm<sup>2</sup> - 450A <input type="checkbox"/></p>	<p><b>1kV (LV) Clear</b></p> <p>1/0 - 250A <input type="checkbox"/></p> <p>2/0 - 300A <input type="checkbox"/></p> <p>4/0 - 400A <input type="checkbox"/></p>	<p><b>15kV (HV) Orange</b></p> <p>1/0 - 250A <input type="checkbox"/></p> <p>4/0 - 400A <input type="checkbox"/></p>	<p><b>25kV (HV) Orange</b></p> <p>1/0 - 250A <input type="checkbox"/></p> <p>2/0 - 300A <input type="checkbox"/></p>	<p><b>35kV (HV) Orange</b></p> <p>1/0 - 250A <input type="checkbox"/></p>
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Contact TEN if you require an AMP Rating not listed

Choose a standard length of cable or custom length

1 metre <input type="checkbox"/>	2 metre <input type="checkbox"/>	3 metre <input type="checkbox"/>	Specify Custom Length <input type="text"/>	metres
----------------------------------	----------------------------------	----------------------------------	--	--------

Please Note: Some cable sizes may incur a minimum order length - Please contact TEN for further information

**STEP 3**

Available Clamps (tick to select) ☒

Due to metric and AWG cable types, not all combinations of cable and clamps are available, TEN will advise at time of request

<p><b>BPL12</b> <input type="checkbox"/></p> <p>5-19mm, screwdriver handle, M12 hole</p>	<p><b>USC12-H19</b> <input type="checkbox"/></p> <p>5-19mm, 19mm hex nut drive, M12 hole</p>	<p><b>C600-0197</b> <input type="checkbox"/></p> <p>Duckbill, snap-on, 4-38mm, 400A, threaded ferrule, CHANCE</p>	<p><b>10476</b> <input type="checkbox"/></p> <p>Duckbill, snap-on, 4-30mm, 400A, threaded ferrule, HASTINGS</p>	<p><b>11190</b> <input type="checkbox"/></p> <p>Screw type, serrated jaw, 3-32mm, 400A, bolted ferrule, HASTINGS</p>	<p><b>13768-2</b> <input type="checkbox"/></p> <p>Gloving, pair, clear, 4-25mm, 400A continuous, threaded ferrule, HASTINGS</p>	<p><b>2270</b> <input type="checkbox"/></p> <p>Gloving, pair, Orange, 4-32mm, 400A continuous, threaded ferrule, Salcor SALISBURY</p>
Includes Lugs		Includes Ferrules				

<p><b>TENA511</b> <input type="checkbox"/></p> <p>Jaw to Eye style (J-E), Welded to ratchet podger, Folding handle</p>	<p><b>TENA512</b> <input type="checkbox"/></p> <p>Jaw to Jaw style (J-J), Welded to ratchet podger, Folding handle</p>
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CLICK or SCAN the QR Code to download a copy of this form

**STEP 4**

Email this form to [sales@tengroup.com.au](mailto:sales@tengroup.com.au)





# EARTHING, JUMPERS & SWITCHES

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## MV & LV Jumpers and Bonders

### Customise Your Jumper Assemblies

TEN custom assembles a range of common Jumpers, Bonders & Switches

**STEP 1**

Select Your Jumper/Bonder Type (tick to select) ☒



**STEP 2**

Select Your Cable (tick to select) ☒

<b>1kV (LV) Dbl Ins Orange/White</b>
35mm <sup>2</sup> - 172A <input type="checkbox"/>
50mm <sup>2</sup> - 217A <input type="checkbox"/>
70mm <sup>2</sup> - 273A <input type="checkbox"/>
95mm <sup>2</sup> - 329A <input type="checkbox"/>
150mm <sup>2</sup> - 450A <input type="checkbox"/>

<b>1kV (LV) Clear</b>
1/0 - 250A <input type="checkbox"/>
2/0 - 300A <input type="checkbox"/>
4/0 - 400A <input type="checkbox"/>

<b>15kV (HV) Orange</b>
1/0 - 250A <input type="checkbox"/>
4/0 - 400A <input type="checkbox"/>

<b>25kV (HV) Orange</b>
1/0 - 250A <input type="checkbox"/>
2/0 - 300A <input type="checkbox"/>

<b>35kV (HV) Orange</b>
1/0 - 250A <input type="checkbox"/>

Contact TEN if you require an AMP Rating not listed

### Choose a standard length of cable or custom length

1 metre ☐ 2 metre ☐ 3 metre ☐ Specify Custom Length  metres

Please Note: Some cable sizes may incur a minimum order length - Please contact TEN for further information

**STEP 3**

Available Clamps (tick to select) ☒

<b>BPL12</b>	<b>USC12-H19</b>	<b>C600-0197</b>	<b>10476</b>	<b>11190</b>	<b>13768-2</b>	<b>2270</b>
5-19mm, screwdriver handle, M12 hole	5-19mm, 19mm hex nut drive, M12 hole	Duckbill, snap-on, 4-38mm, 400A, threaded ferrule, CHANCE	Duckbill, snap-on, 4-30mm, 400A, threaded ferrule, HASTINGS	Screw type, serrated jaw, 3-32mm, 400A, bolted ferrule, HASTINGS	Gloving, pair, clear, 4-25mm, 400A continuous, threaded ferrule, HASTINGS	Gloving, pair, Orange, 4-32mm, 400A continuous, threaded ferrule, Salcor SALISBURY
Includes Lugs			Includes Ferrules			

\*Jumpers, Bonders and Clamp Assemblies are for "TEMPORARY USE ONLY" and should not be left exposed for extended periods in outdoor conditions

### Notes

**STEP 4**

Email this form to [sales@tengroup.com.au](mailto:sales@tengroup.com.au)





## LV Jumpers and Bonders

### Common LV Jumper Assemblies



- Double Insulated LV (0.6/1kV) Cable
- Highly flexible Class 6
- Lugged ends
- 5-19mm Screwdriver Handle Clamps
- 2m length Standard
- Custom lengths on request

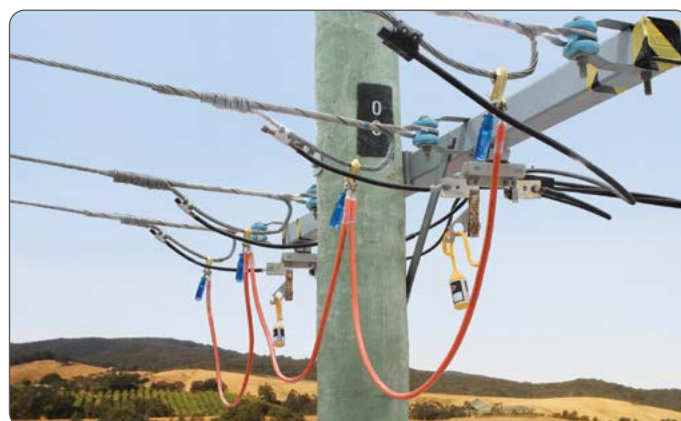


Part No.	Cable Type	Description
TENA915	35mm <sup>2</sup> Orange Double Insulated	Jumper, LV, 1kV, 172A, 2.0m leads, 2 x 5-19mm Screwdriver handle clamp
TENA302	50mm <sup>2</sup> Orange Double Insulated	Jumper, LV, 1kV, 217A, 2.0m leads, 2 x 5-19mm Screwdriver handle clamp
TENA305	70mm <sup>2</sup> Orange Double Insulated	Jumper, LV, 1kV, 273A, 2.0m leads, 2 x 5-19mm Screwdriver handle clamp

### Common LV Bonder Assemblies



- Double Insulated LV (0.6/1kV) Cable
- Highly flexible Class 6
- Lugged ends
- 4 or 5 x 5-19mm Screwdriver Handle Clamps
- Custom lengths on request



Part No.	Cable Type	Description
TENA701	35mm <sup>2</sup> Orange Double Insulated	Bonder, LV, 1kV, 172A, 1.5m leads, 5 x 5mm-19mm Screwdriver handle clamps
TENA702	70mm <sup>2</sup> Orange Double Insulated	Bonder, LV, 1kV, 270A, 1.5m leads, 4 x 5mm-19mm Screwdriver handle clamps
TENA703	70mm <sup>2</sup> Orange Double Insulated	Bonder, LV, 1kV, 270A, 1.5m leads, 5 x 5mm-19mm Screwdriver handle clamps

\*Jumpers, Bonders and Clamp Assemblies are for **"TEMPORARY USE ONLY"** and should not be left exposed for extended periods in outdoor conditions

## Also Available

### HV Switch Assemblies





## Jumpers Insulated/Protected - 15-69kV



- 15kV rated cable is encapsulated in a 44mm OD fibreglass tube. The fibreglass tube gives additional insulation and mechanical protection for jumpering switch gear, reclosers and cutting in double dead-ends.
- Cable can be removed for inspection and replacement
- Fibreglass hanger brackets allow clamps to be secured for installation and removal of jumper
- Can be installed on wire sizes from 3mm diameter up to and including 32mm diameter
- Ratings - 69kV rating applies to area on fibreglass tube between red bands which are from ends of the tube. 15kV ratings apply outside the red bands. Ratings apply for accidental brush contact only

Part No.	Description	Size AWG (Amps)	Wt (kg)
<b>6752-7</b>	406mm Cable - 203mm Tube	2/0 (300)	14.5

\* See Reference tables for further information on AWG



## Jumper Holders - Insulated

- Provides a safety point when line-workers install and remove energised jumpers
- Can be use as a jumper extension
- Allows line-worker greater control with all jumpering requirements
- Can be installed with all standard shotgun sticks or rubber gloves



Part No.	Fibreglass Dia & Length (mm)	Hanger Bar Dia (mm)	Description	Weight (kg)
<b>S1600-7</b>	32 x 380	12.7	Chance Insulated jumper holder Fibreglass shaft & metal hanger bar	1.0
<b>3477</b>	32 x 305	12.7	Hastings Insulated jumper holder Fibreglass shaft & hanger bar	0.87
<b>3478</b>	32 x 610	12.7	Hastings Insulated jumper holder Fibreglass shaft & hanger bar	1.2

## Earth Lifting Tool - Hastings

### Part No. 13763

- Easily lift and lower heavy substation earths with this handy tool
- Reduces manual handling risks
- The earth lifting tool is supplied with a large opening coated "C" hook that has a universal sunrise end fitting
- Comes complete with hand-line block, adjustable block clamp and 15m of 9.5mm polypropylene rope
- The hook and block clamp are mounted on an 2.4m fibreglass pole with a male splice on the bottom end to allow additional lengths of extensions to be added as required.

**Reduced  
Manual  
Handling  
Issues**







## In-line Disconnect Switch Temporary LV

### Part No. TENA103

- Used for Temporary LV switching
- Enclosed switch
- Double Insulation LV 95mm<sup>2</sup> Cable 1kV
- Max Current 300Amps
- 300mm Isolating link
- Turnbuckle with folding handle ratchet podger
- Sold in sets

Max Voltage (V)	1000
Cable	95mm <sup>2</sup> Copper with clear insulation & clear heat-shrink over lugs
Cable Current (amps)	300 Continuous
Lead Length (mm)	750 each
Switch	Fully enclosed LV
Clamp Range (mm)	3 - 31.75



**Folding  
Handle  
Ratchet  
Podger**

## ALSO AVAILABLE

Complete range of substation clamps. Contact TEN for further information

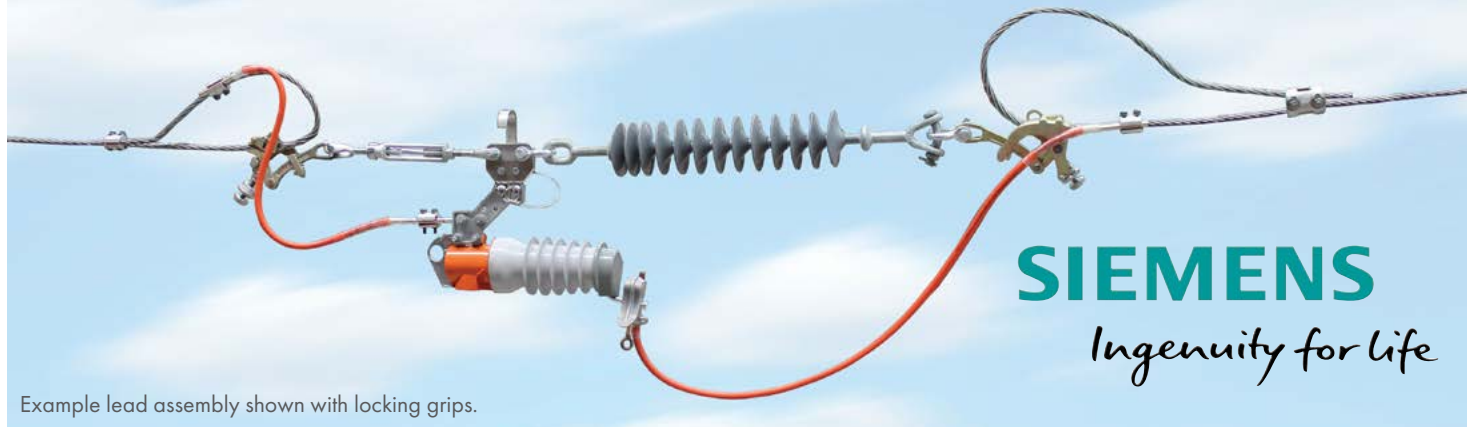




## Portable Switch Unit (PSU) - Siemens

- All switches labelled with rating, part number and serial number
- Lugs or Threaded Ferrules clamp/cable dependent

**CUSTOM lead and clamp assemblies built to your specifications available**



Example lead assembly shown with locking grips.

**SIEMENS**  
*Ingenuity for life*

### Siemens Portable Switch for Temporary Isolation

#### Part No. 3AX1350-5A

Whilst traditional in-line tension disconnects provide line crews with a way to temporarily isolate a line at non-designated switching locations, however, the lack of a ganged switching capability creates operational inefficiencies due to:

- Restrictions in load breaking capability.
- Restrictions in load pickup.
- The risk of ferro-resonance due to single phase switching operations.
- The additional time to isolate upstream devices prior to operating the in-line disconnect.

Therefore, it is common that a switching sheet may require an additional 20 or more items to remove load or to provide precautionary isolation prior to breaking bridges or opening the in-line disconnect.

Siemens has addressed all these problems by adapting the switching unit of the proven Fusesaver circuit breaker into a pre-configured 3-phase synchronous portable switch kit. The switch units are suitable for in-line tension mounting for simple installation and visible isolation.

#### Key User Benefits

- Self powered from on board battery.
- No configuration required.
- Reduced day to day operating cost as switching crews can operate from an EWP or ground.
- Reduced potential for operator error during switching procedures with simple one button operation.
- Complete self contained carry case.
- Access live data from the line using the Siemens Connect PC application.

#### Ratings

Rated Voltage (kV)	27
Rated Impulse Withstand Voltage of Portable Switch Unit (kV)	125
Rated power frequency withstand voltage dry (kV)	60
Rated Continuous Current (A)	400
Rated Short Circuit Breaking Current (kA/s)	6.3 @ 0.5
Rated short time current (kA/s)	6.3 @ 0.5
Rated Mechanical Operations	2,000
Working Load Limit (WLL) (kg)	1,600

#### Kit Details

Item	Quantity
Portable Switch Unit	3
Communications Module	6
Line Tension Hanging Assembly	3
Line Clamp Assembly	3
PC Antenna Kit	1
Rugged Case	1
Communications Module Attachment Tool	1

Lead and hardware assembly shown above sold separately.

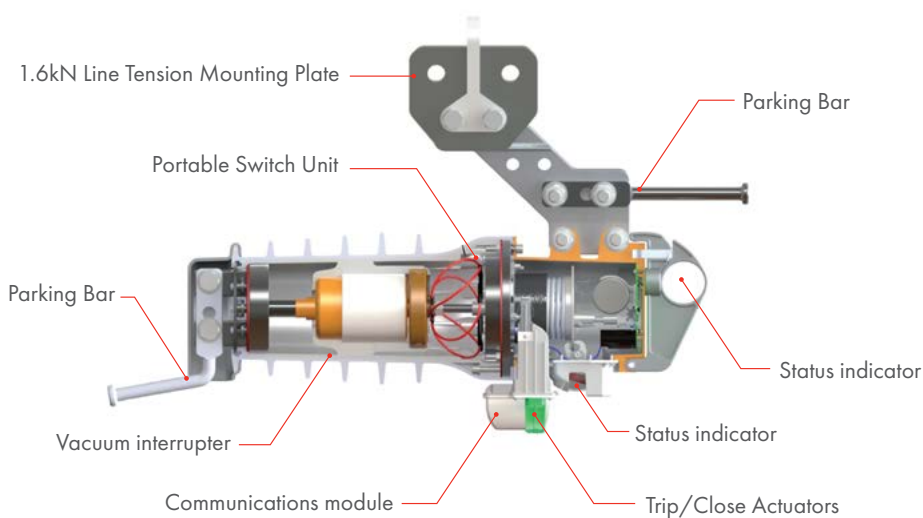
Contact TEN for further Information.

#### Standards

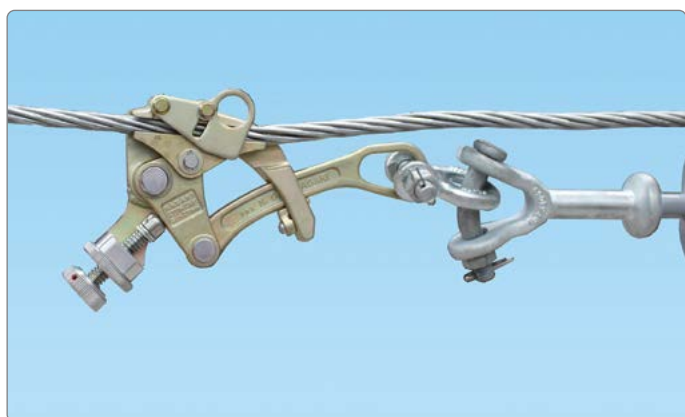
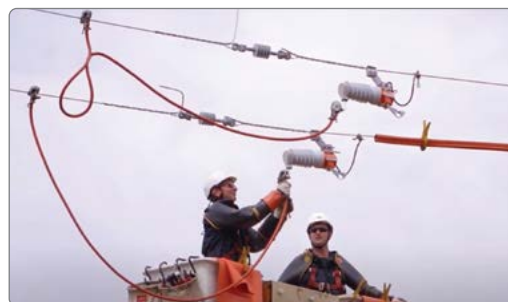
The Siemens Portable Switch is based on the Fusesaver Circuit Breaker that has been type tested to the applicable requirements of IEC 62271-100.



## Siemens Portable Switch for Temporary Isolation



**CUSTOM lead and hardware assemblies built to your specifications by TEN**



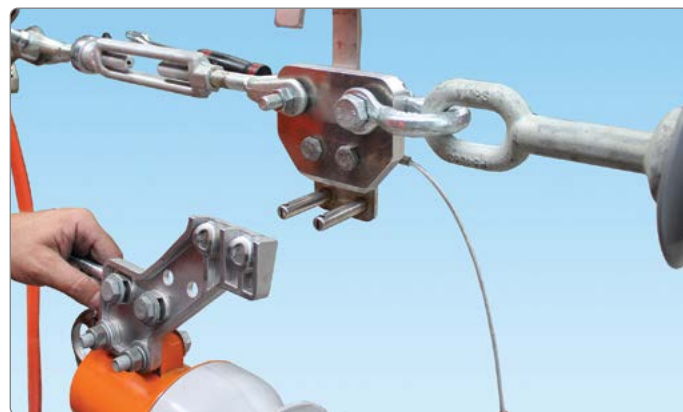
Utilise the Nagaki (NGK) 2 ton double locking grip to secure the conductor whilst installing the switches.



CLICK or SCAN to see the Siemens Portable Switch video made in conjunction with UK Power Networks.



Leads available with stalk, ferrule or lug



Quick pin bracket for fast and easy installation.

**Contact TEN for more information**





See Storage Section for further information



## Overview - Portable Earthing Devices (PED)

Commonly known as "Earth-sets, Earth-sticks, Earthing Devices, Portable Earthing Devices or PED's". These devices attach temporarily to de-energised conductors or contact points and a known earth.

PED's are safety devices that are type tested and manufactured to withstand the maximum fault current for the specific portion of the network being worked on in the event that the conductor or contact point becomes energised.

**Order by completing the adjacent PED sheet**

**Complete range of Earthing Equipment available**

PED's are designed so that they provide enough time, usually several milliseconds to carry fault current long enough for a circuit breaker or fuse to interrupt the flow of current. Consult your local network or asset owner for applicable legislative requirements.

## Storage, Care & Maintenance of PED's

### Storage

To prolong the life of your PED's they should be:

- Neatly coiled in a protective carry bag
- Stored in a dedicated area away from sharp or heavy objects
- Stored in a cool dry area

### Care & Maintenance

PED's should be visually inspected and cleaned with a suitable cleaning product before each use. Ensure that bolted connections are still tight, clamps are operating correctly and that there is no damage to cable or joints.

Remove from service and tag accordingly any PED with visual defects such as:

- Cuts
- Badly mashed or flattened cable
- Cracked or broken ferrules and clamps
- Exposed or broken strands
- Extensively damaged sheath material



SCAN or CLICK for PED order form

- Swollen jacket or soft spots indicating internal corrosion
- PED's should never be modified under any circumstance without the consent of the manufacturer.
- Components and assembly methods used are fault current type tested, so exact manufacturer specifications must be used at all times.

**NOTE:** PED's are intended to carry fault current once. After being subjected to fault current they should be removed from service and destroyed.

References: IEC 61230, ASTM F855

## Cleaner - Rubber Goods

**A specially formulated cleaner for removing GREASE – DIRT – CARBON**

- No mixing required
- Excellent cleaning power
- Harmless to all elastomers (rubbers)
- Multiple package options
- Environmentally friendly
- Non-toxic and non-corrosive

**Polywater®**  
Solutions at work.

RBG-640



RBG-D72



RBG-35LR



**Rubber Goods cleaner contains no hazardous ingredients and is pH neutral**

Part No.	Description
RBG-1	Individual Sachet
RBG-D72	Dispenser of 72 saturated wipes
RBG-35LR	950ml Bottle with sprayer
RBG-128	3.8L Bottle
RBG-640	18.9L Drum



## ORDER FORM - Portable Earthing Device

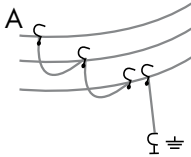
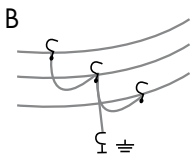
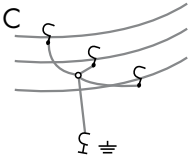
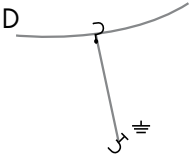
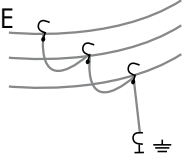
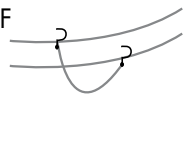
### Customise Your PED's

**All details are required for quotation, please enter data where requested or circle sections**

#### Network Properties - Enter Value

Maximum Fault Current (kA)  for  Second Maximum Voltage

#### PED Assembly Type

Drawing	A	B	C	D	E	F
						
Description	3 Phase with separate down-lead	3 Phase with centre attached down-lead	3 Phase trifurcating plate with attached down-lead	Down-lead only, Single	3 Phase linked down-lead	2 Phase, Jumper earth

#### Cable Length Required - Enter Value

Length of Cable (m) 1. Phase to Phase length  2. Phase to Phase length  3. Phase to Ground length

Please remember to nominate slightly longer cable length than what is required, but do not to add too much slack as this can cause cable to flick out and injure workers under unexpected fault condition.

#### Phase/Conductor Clamps

Maximum Conductor Size (mm OD)  Busbar Vertical (mm) Thickness  Width  Busbar Horizontal (mm) Thickness  Width  Fixed Ball Joint OD of Ball (mm) 20mm ☐ 25mm ☐ Other:

#### Phase/Conductor Clamp Fitting

☐ Snap On ☐ Shotgun Screw Up ☐ Bayonet Screw Up ☐ Fixed Stick Length  ☐ T Handle

#### Download/Earth Tail Clamp

Maximum Conductor Size (mm OD)  Busbar Vertical (mm) Thickness  Width  Busbar Horizontal (mm) Thickness  Width  Fixed Ball Joint OD of Ball (mm) 20mm ☐ 25mm ☐ Other:

#### Download/Earth Tail Fitting

☐ Tee Handle ☐ Bayonet Screw Up ☐ Shotgun Screw Up ☐ Fixed Handle Length

#### Accessories:

☐ Carry Bag Specifications:

Tick Applicable Box	Tick or Enter Details							
Stick/s	<input type="checkbox"/>	Min Height	<input type="text"/>	Max Height	<input type="text"/>	Kit	<input type="checkbox"/>	<input type="checkbox"/>
Stick Type	<input type="checkbox"/>	Universal	<input type="checkbox"/>	Shotgun	<input type="checkbox"/>	Bayonet	<input type="checkbox"/>	Hex
Adaptors	<input type="checkbox"/>	Shotgun	<input type="checkbox"/>	Bayonet	<input type="checkbox"/>	Snap On	<input type="checkbox"/>	Line Clamp

☐ Fixed Earthing ☐ Earthing Stubs ☐ Temporary Earth Rod Driver

Email this form with your contact details to [sales@tengroup.com.au](mailto:sales@tengroup.com.au)





**KRI-TECH**  
PRODUCTS LTD

## Equipotential Earth Mats

### Part No. Various

The Kri-Tech Bond Mat System is designed and high voltage tested to protect workers who come in contact or have the potential for electrical contact.

- Establishes temporary equipotential zone during energised and de-energised work practices
- Prevents workers from being exposed to hazardous differences in electrical potential
- Portable, versatile and lightweight
- Non-slip black matting also available - ideal for use in wet environments
- Manufactured from high amperage tinned copper braid sewn into grid pattern onto vinyl/polyester fabric

Suitable for a wide range of applications including:

- Making cable terminations on transformers and in cubicles
- Opening or closing overhead air breaks
- Working on control boxes of regulators, reclosers, capacitors, pad mounted switches
- Stringing Operations



Operate Switches Safely

Part No.	Size (m)	Colour	Description
KTMNS5-5-1.5NT-A	1.5 x 1.5	Black (Non-slip)	Earth, mat, equipotential, 1.5m lead term to Screwdriver Clamp, Kri-Tech
KTM5-5-1.5NT-A	1.5 x 1.5	Orange	Earth, mat, equipotential, 1.5m lead term to Screwdriver clamp, Kri-Tech
KTM1010-2X1NT-A	3.0 x 3.0	Orange	Earth, mat, equipotential, 2 x 1 m leads term to Screwdriver clamp, Kri-Tech

Non-terminated options available on request  
Custom Sizes & Options available



Black Non-Slip Mat



See Storage Section for further information



**Contact TEN for information on the range of custom Stringing Machine Earthing solutions**





Allows joint to pass through



MTR052  
Lead Included



A78000  
\* Lead not Included



Shown with  
Limiting Resistor

## Earths - Stringing (Rolling)

### Part No. Various

- Consider Conductor OD & Fault Current Rating
- Earth Leads available on request
- Ideal for stringing and re-conductoring

Part No.	Description	Conductor OD (mm)	Download	Fault Rating (kA/sec)	Manufacturer
MTR052	Stringing Earth	Max 70	6m x 50mm <sup>2</sup> CU	10/0.4	Tesmec
9738	Stringing Earth	4.1 to 28.5	* Sold separately	19.1/.05	Hastings
A78000	Stringing Earth	3 to 41	* Sold separately	25/0.5	Salisbury

9738

\* Lead not Included



\* Contact TEN for your earth lead requirements

## Discharge Kits

### Discharge Stick - Hastings

#### Part No. A1004-CLCM

- Safely drains capacitive charge after a circuit has been de-energised
- Insulating stick with hand-guard and rubber end cap
- Stainless steel hook
- Earth lead included
- Supplied with or without clamp
- Stick tested to ASTM F-711
- Discharge limiting resistor sold separately
- Earth cable is copper with yellow neoprene jacket
- LCM12H/12 Clamp used

Part No.	Stick Length/OD (mm)	Hook Opening/OD (mm)	Lead Length (mm)	Wt (kg)
A1004-CLCM	600/32	34.9/6.35	1.8*	1.2

\*3m and 6m lead lengths also available

## Volt Meter & Discharge Kit AC System DC Link Capacitor

### Part No. Various

- Used to safely detect and drain capacitive charge after a circuit has been de-energised
- Detector used to properly measure the AC system DC link voltage before performing any work on any high voltage components, and to provide a discharge procedure for the AC system DC link capacitors in the case of failure of the built-in discharge circuits.

#### Example Kit Includes:

- DVM-80UVM - Universal Digital Voltmeter with Second Probe
- 3.65m Coiled Interconnecting Cable
- 2 x Brass Cup Probe Tips
- 1 set Discharge Probes
- 2 x 600mm Extension Sticks
- 2 x 600mm Universal Sticks
- 2 x Hand Guards
- Class 1 Insulating Gloves
- Leather Outer Gloves
- Cotton Inner Gloves
- Carry Case

Customisable kits  
to suit your electric  
vehicle



## 1000V Insulated Battery Tools

Klauke's Orange Line series of battery powered hydraulic cutting and crimping tools are the world's first of their kind, offering protection from electric shocks up to 1000 V. The TRI-INSULATION BARRIER, developed in-house, prevents voltage discharging between tool head and tool body. Every single tool is tested for compliance with the electrical requirements of IEC 60900 in their production process. This guarantees voltage protection up to 1000V.

**Your Safety is our priority**



### TRI-INSULATION BARRIER

- 1. CREEPAGE DISTANCE**  
CLEVER DESIGN ENSURES  
MINIMUM 12.5MM DISTANCE  
BETWEEN NON INSULATED PARTS
- 2. PA6 INSULATION**  
PLASTIC HOUSING MATERIAL  
WITH EXCELLENT INSULATING  
PROPERTIES
- 3. DIELECTRIC OIL**  
HYDRAULIC OIL WITH HIGH  
DIELECTRIC INSULATING PROPERTY



**Refer Hydraulic section for further information**