# Table of contents

<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>04</td>
<td>Introduction</td>
</tr>
<tr>
<td>05</td>
<td>Declaration of conformity</td>
</tr>
<tr>
<td>06</td>
<td>Warnings</td>
</tr>
<tr>
<td>07–08</td>
<td>International symbols</td>
</tr>
<tr>
<td>09</td>
<td>ArcSwitch panel unit</td>
</tr>
<tr>
<td>10</td>
<td>Meter layout</td>
</tr>
<tr>
<td>11</td>
<td>Testing</td>
</tr>
<tr>
<td>12</td>
<td>Using ArcSwitch meter</td>
</tr>
<tr>
<td>13</td>
<td>Electrical specification</td>
</tr>
<tr>
<td>14–15</td>
<td>Maintenance</td>
</tr>
<tr>
<td>16–18</td>
<td>Quick start guide (installation notes)</td>
</tr>
<tr>
<td>19</td>
<td>Warranty</td>
</tr>
<tr>
<td>20</td>
<td>Repair and calibration</td>
</tr>
<tr>
<td>21</td>
<td>Troubleshooting</td>
</tr>
<tr>
<td>22</td>
<td>Drawings</td>
</tr>
<tr>
<td>23</td>
<td>Demo setup</td>
</tr>
<tr>
<td>24</td>
<td>General specification</td>
</tr>
</tbody>
</table>
ArcSwitch® enables to operate from a safe distance between personnel and equipment during switching operations and provides the most effective means of avoiding injury by keeping people out of harm’s way.

Easily integrated on new switchgear or installed base, it is used to switch medium and low voltage circuit breakers remotely.
Declaration of conformity

Manufacturer: Caldwell Power & Energy Ltd.
Manufacturer address: Caldwell Power & Energy Ltd Limerick Ireland, V94 EEX6.

Product model: ArcSwitch® Meter
Product model: ArcSwitch® Panel Unit

Safety Requirements:
- IEC 61010 – 031: 2015

Electromagnetic Conformance:
- IEC 61326 – 01: 2012

RoHS:
- IEC 50581 : 2012

L.V.D.
- DIRECTIVE 2014 / 35 / EU.
E.M.C.
- DIRECTIVE 2014 / 30 / EU.
R.E.D.
- DIRECTIVE 2014 / 53 / EU.
R.o.H.S.
- DIRECTIVE 2011 / 65 / EU.

Supplementary information

(The above-mentioned products conform to the following product specifications)

Safety Requirements
- IEC 61010 – 01:
  - 2010 + A1 2016
Safety Requirements
- IEC 61010 – 031:
  - 2015
Electromagnetic Conformance
- IEC 61326 – 01:
  - 2012
RoHS
- IEC 50581 : 2012

(The products herewith comply with the requirements of the following EU provisions of directives)
Warnings
Caution beware before use

• The operator should not misuse the ArcSwitch® meter. Improper use may cause shock, fire, or personal injury and will void your warranty.
• You should know the load you want to switch and do not overload the ArcSwitch® meter with unknown loads, as the consequences could damage the ArcSwitch® meter or cause serious personal injury.
• The operator should read and fully understand this manual before operating.
• The operation of the ArcSwitch® meter should only be used by a qualified competent Electrician or Electrical Engineer.
• The intended use of the ArcSwitch® meter is to switch a contact in parallel to the Open and Close button, this allows the operator to be removed when switching remotely.
• The operator should inspect the ArcSwitch® meter and test leads for damage before operating. If it operates abnormally, or if you have doubt, you should replace the meter.
• The operator should keep their fingers behind the finger guards at all times when using the test leads, or crocodile connectors.
• The ArcSwitch® meter is a portable meter and is not intended or implied to be handheld when operating or switching.
• The operator should use great care when connecting the leads if voltage is present.
• Unused output jacks may present a shock injury or personal risk. An operator should not place their fingers over unused outputs as a shock hazard could be present.
• The operator should not connect the ArcSwitch® meter in reverse and switch, as this may damage the ArcSwitch® meter. Current flow is intended to flow from the common jack to either output jack.
• DO NOT WORK ALONE.
• The operator should beware when switching racking or withdrawing a circuit breaker; they should still be wearing arc flash protection P.P.E. in accordance with employer or country, and/or state regulations.
International symbols

The ArcSwitch® Meter and the ArcSwitch® Panel unit will have the following symbols on the overlay and on the rear product labels. You should make yourself familiar with these symbols and this manual before using the ArcSwitch® Meter, ArcSwitch® Transmitter or ArcSwitch® Panel Unit.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC (Alternating Current)</td>
<td>DC (Direct Current)</td>
</tr>
<tr>
<td>ATTENTION! (Warning about a danger, refer to manual)</td>
<td></td>
</tr>
<tr>
<td>CAUTION! (Dangerous voltage risk of electric shock, refer to manual)</td>
<td></td>
</tr>
<tr>
<td>CLOSE OR A OUTPUT JACK (Output jack for green output lead)</td>
<td></td>
</tr>
<tr>
<td>OPEN OR B OUTPUT JACK (Output jack for red output lead)</td>
<td></td>
</tr>
<tr>
<td>BATTERY SYMBOL (Battery powered)</td>
<td></td>
</tr>
<tr>
<td>WEEE DIRECTIVE (End of life needs to be recycled responsibly)</td>
<td></td>
</tr>
<tr>
<td>IEC OVERVOLTAGE CATEGORY III (Transient overvoltage protection)</td>
<td></td>
</tr>
<tr>
<td>IEC OVERVOLTAGE CATEGORY IV (Transient overvoltage protection)</td>
<td></td>
</tr>
<tr>
<td>EARTH OR GROUND JACK (Input jack for yellow green input lead)</td>
<td></td>
</tr>
<tr>
<td>HRC FUSE (High rupture fuse 5 amp max)</td>
<td></td>
</tr>
<tr>
<td>CONFORMITY MARK (Conforms to EU Directives)</td>
<td></td>
</tr>
<tr>
<td>COMMON JACK (Input jack for black input lead)</td>
<td></td>
</tr>
<tr>
<td>DOUBLE INSULATED (Double Reinforced Insulation)</td>
<td></td>
</tr>
<tr>
<td>POWER SWITCH (Controls on / off meter)</td>
<td></td>
</tr>
<tr>
<td>MANUAL SYMBOL (Refer to instruction manual)</td>
<td></td>
</tr>
<tr>
<td>OPEN CONTACT (Open power contact)</td>
<td></td>
</tr>
</tbody>
</table>
ARCSWITCH METER

CAUTION: REMOVE LEADS BEFORE OPENING

MODEL: ArcSwitch® Meter
SERIAL NO:

FUSE 5 A HRC Size 10 X 38
9V IEC 6LR61
IEC 62136-1: 2021

MADE IN IRELAND • PATENT PROTECTED
Caldwell Power & Energy Ltd
Limerick Ireland V94 EEX6

ARCSWITCH PANEL

CAUTION: THE CIRCUIT SHOULD BE DE-ENERGISED AND INSTALLATION SHOULD BE CARRIED OUT BY A QUALIFIED ELECTRICIAN

MODEL: ArcSwitch® panel
SERIAL NO:

WIRE SPEC: MINIMUM (1.0 mm² - 2.5 mm²)
IEC 62136-1: 2021

MADE IN IRELAND
Caldwell Power & Energy Ltd
Limerick Ireland V94 EEX6

ARCSWITCH TRANSMITTER

MODEL: ArcSwitch® transmitter
SERIAL NO:

DIRECTIVE: RED 2014/53/EU
FREQUENCY: 868 MHZ
3XAAA
The ArcSwitch® panel unit, can be retrofitted to medium or low voltage switchgear very easily. It can be commissioned very quickly during a maintenance schedule without adding extra time to the outage period.

The ArcSwitch® panel Unit, is designed so the operator can connect the ArcSwitch® meter with ease, and switch with no tools or switchgear drawings necessary see (fig 1.)

To connect-up to the ArcSwitch® panel Unit, the Electrician has to do is magnetically clip the ArcSwitch® meter to the panel and Connect-up the test leads following the colour codes, starting with the ground first, then the outputs and finally the com input.

The Electrician is then ready to close or open the circuit breaker, when they are ready to switch with the ArcSwitch® meter, all personnel should be removed to a safe distance, and a final sweep should be done when switching is ready to take place.

Maximum distance should be observed when switching with the ArcSwitch® meter, the greater the distance you have between you and the circuit breaker you are switching the safer you are. A defined minimum distance should be agreed by management in accordance with your site-specific arc flash study and switching procedure, this will be different for every site.

The Electrician can then arm the ArcSwitch® meter, by pressing the master on/off button and once at a safe distance can then switch safely with the ArcSwitch® Transmitter.
The ArcSwitch® meter kit, will come with the following items listed in (fig 2.) On receipt of your kit, you should confirm that all parts are present.

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carry case</td>
<td>x1</td>
</tr>
<tr>
<td>ArcSwitch® meter</td>
<td>x1</td>
</tr>
<tr>
<td>Protective jacket</td>
<td>x1</td>
</tr>
<tr>
<td>32 Amp short Croc</td>
<td>x4</td>
</tr>
<tr>
<td>Custom foam inlay</td>
<td>x1</td>
</tr>
<tr>
<td>User manual</td>
<td>x1</td>
</tr>
<tr>
<td>9V Block Battery</td>
<td>x1</td>
</tr>
<tr>
<td>20 Amp Long Croc</td>
<td>x4</td>
</tr>
<tr>
<td>ArcSwitch® Transmitter</td>
<td>x1</td>
</tr>
<tr>
<td>Magnetic Hanger</td>
<td>x1</td>
</tr>
<tr>
<td>19 Amp Test leads</td>
<td>x4</td>
</tr>
</tbody>
</table>

The test leads and connectors provided with in this kit, conform to **IEC 61010 – 031: 2015** and offer the operator a level of protection in accordance to CE standards. Only test leads and connections provided in this kit should be used, and you should use them only as instructed by the manufacturer, DO NOT USE test leads or connectors that are not provided with this kit.
Testing
To test the Close and Open contact of the ArcSwitch® meter

You can see how to connect to do this test by referring to (fig 3.) below.

- To test the contact of an ArcSwitch® meter.
- First turn on and set the Multimeter to the continuity function.
- Then connect the Multimeter to the ArcSwitch® meter across the common jack and the output jack.
- You are now ready to test.
- Now you can activate the Transmitter for the Close contact, this should bell out upon activation and stop once you deactivate the Transmitter.
- You have now proven the contact has changed state and you can repeat this on the other contact.

If the contacts bell out without activation of the Transmitter, then the contact may be damaged or welded closed. In such instances you should not use the ArcSwitch® meter and the ArcSwitch® meter you should be replaced.

When you are going to use your ArcSwitch® meter, it is good practice for you to check the contacts before use, so you know that the ArcSwitch® meter is functioning correctly and is not damaged.

Connect your Multimeter up to the ArcSwitch™ and Beep test the contacts to check for contact operation and welded contacts before use.

NOTE: You should be aware that this test will not help you find a single welded or damaged contact as there are two contacts in series to create a power contact.
Using ArcSwitch meter

The ArcSwitch® meter and transmitter comes paired together in the manufacturing process with test leads and connections that are manufactured in accordance with IEC 61010 – 031: 2015.

Which offer protection to the operator that should not be reduced. DO NOT USE any other leads or connectors other than what was specified and supplied with the ArcSwitch® meter.

Before use you should inspect the ArcSwitch® meter, transmitter, test leads and connectors for damage. You should also check the outer coating for tears, rips, or exposed copper strands.

To turn the ArcSwitch® meter on, press the on button and the green LED will come on. To turn off the ArcSwitch® meter, hold the off button till the green LED goes off.

Before connecting up the ArcSwitch meter® do not connect the ArcSwitch® meter up and bypass safety critical interlocks.

How to connect up the ArcSwitch® meter

- The operator should always use best practice and test the ArcSwitch® meter is working correctly before use.
- Place the ArcSwitch® meter in the upright vertical position and magnetically hang it on the switchgear, while having the ArcSwitch® Transmitter in your possession.
- Connect the ArcSwitch® meter to the ArcSwitch® panel unit to prevent operator error.
- Make sure the ArcSwitch® meter is switched off.
- Take the green and yellow lead and connect from the ArcSwitch® meter ground jack and connect it to the ground jack of the ArcSwitch® panel unit.
- Take the green lead and connect from the ArcSwitch® meter green output jack and connect it to the green jack of the ArcSwitch® panel unit.
- Take the red lead and connect from the ArcSwitch® meter red output jack and connect it to the red jack of the ArcSwitch® panel unit.
- Take the black lead and connect from the ArcSwitch® meter black com jack and connect it to the black jack of the ArcSwitch® panel unit.
- When all the colours of the test leads and jacks are correct you are now ready to switch,
- Arm the ArcSwitch® meter by turning it on and clear the area of personnel,
- you can now switch with the ArcSwitch® Transmitter from a safe distance.

if you not using the ArcSwitch® panel unit and connecting straight to terminals and if voltage is present and the supply cannot be isolated, the operator should use protective insulating gloves when connecting or disconnecting.
## Electrical specification

<table>
<thead>
<tr>
<th><strong>ArcSwitch® meter</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Power contact</td>
<td>2 x 1 Form A</td>
</tr>
<tr>
<td>Power contact material</td>
<td>Silver Alloy</td>
</tr>
<tr>
<td>Mechanical life</td>
<td>2 M Operations</td>
</tr>
<tr>
<td>Electrical life</td>
<td>10k Operations</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>230 V AC &amp; 220 V DC</td>
</tr>
<tr>
<td>Frequency</td>
<td>50Hz / 60Hz</td>
</tr>
<tr>
<td>Overvoltage protection (III)</td>
<td>1000 Volts</td>
</tr>
<tr>
<td>Overvoltage protection (IV)</td>
<td>600 Volts</td>
</tr>
<tr>
<td>Current</td>
<td>5 Amperes</td>
</tr>
<tr>
<td>Fuse type</td>
<td>1000V H.R.C.  20Ka Fast acting fuse 5 Amp</td>
</tr>
<tr>
<td>Surge protection</td>
<td>8 KV Peak I.E.C. 61010-1-3 600V Cat IV</td>
</tr>
<tr>
<td>Contacts</td>
<td>Normally Open</td>
</tr>
<tr>
<td>Contact protection</td>
<td>R.C. Snubber Protection</td>
</tr>
<tr>
<td>Contact protection</td>
<td>Magnetic Arc Quenching</td>
</tr>
<tr>
<td>Contact sequence</td>
<td>Momentary contact / 03 Sec ON normal</td>
</tr>
<tr>
<td>Max. contact on time</td>
<td>1 Minute on Max / 5 Minute off rest</td>
</tr>
<tr>
<td>Contact load type</td>
<td>Resistive Loads / Inductive Loads*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>ArcSwitch® panel unit</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Working voltage</td>
<td>230 V AC &amp; 220 V DC</td>
</tr>
<tr>
<td>Current</td>
<td>5 Amperes</td>
</tr>
<tr>
<td>Frequency</td>
<td>50Hz / 60Hz</td>
</tr>
<tr>
<td>EMC</td>
<td>IEC 61326 – 01: 2012</td>
</tr>
<tr>
<td>RoHS</td>
<td>IEC 50581:2012</td>
</tr>
</tbody>
</table>

*NOTE: The opening and closing coils should be in a healthy and operational state.
The ArcSwitch® meter should be cleaned with a damp cloth only.

The ArcSwitch® meter is to be used indoors! If it gets wet, dry it off immediately. **DO NOT USE IT** until it is fully dry! If the meter is fully immersed in water, it should not be used and should be replaced.

The ArcSwitch® meter should be stored in normal temperatures. Temperature extremes can damage and shorten the life of the electronics.

Use only new batteries on the ArcSwitch® meter. Low battery power will make the contacts not work and the meter will not work correctly or may not operate at all.

Customers are not permitted to modify, disassemble or repair the ArcSwitch® meter. Doing so may cause fire, electric shock, or injury, and will void the warranty.

If the Fuse is blown, disconnect the leads before opening the cover. **DO NOT OPEN** the meter if the leads are connected.

The fuse should be replaced with a 5 Amp 10.3mm x 38mm HRC 20kA DC fuse and should not be replaced with a higher current rated fuse. If you need a replacement fuse, please contact us directly to purchase a replacement fuse.

Part No: F1

Replacing the fuse on the ArcSwitch® meter

- Make sure the ArcSwitch® meter is switched off and it is not connected to a circuit.
- If the test leads are connected remove them from the ArcSwitch® meter.
- Remove the silicon outer protective boot.
- Turn the ArcSwitch® meter over and remove the battery first. Next, unscrew the four screws holding on the back cover.
- Remove the back cover. And you should see the fuse mounted on the printed circuit board. Remove the defective fuse with an appropriate fuse puller.
- If the fuse is blown, please eliminate the cause of this before replacing.
- Replace the fuse with the exact type and current rating recommended by the manufacturer.
- **DO NOT REPLACE WITH A HIGHER RATED, UNAPPROVED OR MAKESHIFT FUSE.**
- Replace the covers and turn the ArcSwitch® meter on. Test that the contacts are changing state and working correctly.

Replacing the battery on the ArcSwitch® meter see (fig 4.)

- Make sure the ArcSwitch® meter is switched off and it is not connected to a circuit.
- If the leads are connected, remove them from the ArcSwitch® meter.
- Remove the silicon outer protective boot.
- Turn the ArcSwitch® meter over and remove the battery door.
- Remove the battery from the mini snap connection and replace with a new battery.
- Replace the battery door.
- Replace the silicon outer protective boot.
- Turn the ArcSwitch® meter on and test the contacts are opening and closing.

Replacing the 9V battery in the ArcSwitch® Meter
Replacing the battery on the ArcSwitch® transmitter

- Upon activation of transmitter button and the battery LED flashes you should replace the batteries.
- Make sure the ArcSwitch® meter is switched off and it is not connected to a circuit.
- Turn the ArcSwitch® Transmitter over and unscrew the 6 screws and remove the Back cover see (fig 5.)
- Then remove 2 black screws and lift off battery door.
- Replace the 3 x AAA batteries with new batteries of the same make and pay attention to the polarity and that the cables do not get damaged.
- Replace the battery door and tighten the 2 black screws.
- Replace the 6 screws and make sure the cables do not get pinched by the back cover.
- Turn the ArcSwitch® meter on and test the contacts are opening and closing when commanded by the ArcSwitch® Transmitter.
- If you are storing the ArcSwitch® meter for an extended period, you should remove the batteries to prevent damage due to possible leaking of the electrolyte on to the electronic components inside.
Quick start guide (installation notes)

Rules for the correct installation of the ArcSwitch panel unit™
In order to guarantee the correct and reliable operation of the ArcSwitch Panel unit™, the installation should be carried out by a qualified electrician and they should follow the instructions supplied in this document.

Safety requirements

ATTENTION:
Read the manual carefully before starting to use. and keep the instructions for future reference.
Do not open the device, touching any internal components can cause electric shock. Contact with a voltage over 35 Volts can be fatal. To reduce the risk of electric shock, do not dismantle the back of the device for any reason there is no service usable parts inside. Moreover, opening will void the warranty.

Before connecting the device to the power supply, make sure that all the connections are correct. Always disconnect the unit from the supply before any cabling modification.

Any work on the equipment must be entrusted to a qualified Electrician.

Failure to comply with these instructions can cause damages, fires or electric shock, and possible serious injuries or death!

Power supply:
The ArcSwitch Panel Unit™ can be supplied by 0 up to 230 V AC / 220 V DC, before using it, make sure the power cable is not damaged, knotted, or pinched. Do not tamper with the power cable. Never disconnect the unit by pulling the cable, avoid touching the pins. Do not carry out any connecting / disconnecting with wet hands. To disconnect the device, do not use objects such as levers. Immediately disconnect the device if you smell burning or see any smoke: contact technical service.

USE SHOULD BE RESERVED TO QUALIFIED PERSONNEL ONLY:
The purchased goods are a sophisticated electronic device that is totally unsuitable to be installed by non-qualified personnel. Any work must be carried out by a specialist Engineer or Qualified Electrician.
Location
Install of The ArcSwitch Panel Unit in indoors, in a place protected from water splashes and sun rays. Do not place near heat sources exceeding the parameters stated in this manual. Position on a stable surface, far from any possible vibrations. Position the ArcSwitch Panel Unit so it can be reached by an operator without the use of a ladder.

Repairs
Do not open the ArcSwitch Panel Unit. For any fault, there is no service usable parts inside. The opening of the ArcSwitch Panel Unit™ and or the removal of the warranty label entails the automatic forfeiture of the warranty. The Warranty seal is applied to all devices.

Fitting the panel unit
The ArcSwitch Panel Unit™ must be fitted on a LV control panel and is designed for indoor use only and it should be fitted by a Qualified Electrician complying with the following instructions:

Rear electrical connections
The Connections on the rear of the ArcSwitch Panel Unit™
- Common terminal is connected to the DC Positive Feed.
- Ground terminal is connected to Ground / Earth.
- Close terminal is connected to the switched side of the closing button.
- Open terminal is connected to the switched side of the opening button.

Polarity needs to be observed because you are switching the dc positive through the Portable ArcSwitch Meter™ to the opening and closing coils.

Front electrical connections
The Connections on the front of the ArcSwitch Panel Unit™
- COM is connected to the COM on the Portable ArcSwitch Meter™
- Ground is connected to Ground on the Portable ArcSwitch Meter™
- Close output is connected to Close output on the Portable ArcSwitch Meter™
- Open output is connected to the Open output on the Portable ArcSwitch Meter™

All connections on the front of the ArcSwitch panel Unit™ to the Portable ArcSwitch Meter™ should be made by the leads provided in the Portable ArcSwitch Meter kit™

First cut out a 92 mm x 92 mm hole in the control panel and be aware not to damage existing wiring when retrofitting.

If you are cutting metal beware of metal swarf and clean as you go.

Fit the ArcSwitch Panel Unit™ into the cutout and secure with the blocks supplied.

You can connect ArcSwitch Panel Unit™ by paralleled across the open and close buttons

Wire up the rear terminals as follows
- Ground, To the ground / Earth on door
- + DC feed wire to the Com terminal
- Switched wire to the Close terminal
- Switched wire to the Open terminal

When wiring up the ArcSwitch Panel Unit™ DO NOT wire it in a fashion where electrical control interlocks are bypassed as this could cause injury or death.
The ArcSwitch Panel Unit™ enclosure should be secure and tight in the panel.

The Electrical connections are tight and secured at the back of the ArcSwitch Meter™.

The Plug is tight and secured to the rear socket.

The DC Control Voltage is present at the front Com socket and Positive Polarity is correct.

You can now connect the ArcSwitch Meter™ to the front input jacks and test open close operations of the main circuit breaker.

You have now Commissioned the remote opening and closing of your circuit breaker.

Operating
Should only be carried out by a Qualified Electrician.

The operation of ArcSwitch Panel Unit™ and the ArcSwitch Meter™ operates by switching the dc positive through a power relay to the already existing closing coil and opening coil fitted internally of the circuit breaker via a control ArcSwitch Transmitter.

When installing the ArcSwitch Panel Unit™ the control voltages in the low voltage compartment should be de-energized and a lock out tag out system should be in place before work should commence to prevent accidental shock or electrocution when installing.

Retrofitting
Should only be carried out by a Qualified Electrician.

The advantage with the ArcSwitch Panel Unit™ is you can install it during a maintenance outage period, without increasing the time period needed for your maintenance outage providing the installation has been planned accordingly.

Commissioning
Should only be carried out by a Qualified Electrician.

To Commission the ArcSwitch Panel Unit™ you should check for the following bullet Points as a minimum.

Note: the input jacks colours and test leads colours should be observed.

Installation rules:
Every ArcSwitch Panel Unit™ must be connected with wire cabling having a minimum section of 1.00mm² and a maximum cross-sectional area of 2.5 mm².

Installation
Should only be carried out by a Qualified Electrician.

Installation rules:
Every ArcSwitch Panel Unit™ must be connected with wire cabling having a minimum section of 1.00mm² and a maximum cross-sectional area of 2.5 mm².

You have now Commissioned the remote opening and closing of your circuit breaker.

Operating
Should only be carried out by a Qualified Electrician.

The operation of ArcSwitch Panel Unit™ and the ArcSwitch Meter™ operates by switching the dc positive through a power relay to the already existing closing coil and opening coil fitted internally of the circuit breaker via a control ArcSwitch Transmitter.

When installing the ArcSwitch Panel Unit™ the control voltages in the low voltage compartment should be de-energized and a lock out tag out system should be in place before work should commence to prevent accidental shock or electrocution when installing.

Retrofitting
Should only be carried out by a Qualified Electrician.

The advantage with the ArcSwitch Panel Unit™ is you can install it during a maintenance outage period, without increasing the time period needed for your maintenance outage providing the installation has been planned accordingly.

Commissioning
Should only be carried out by a Qualified Electrician.

To Commission the ArcSwitch Panel Unit™ you should check for the following bullet Points as a minimum.

Note: the input jacks colours and test leads colours should be observed.

Installation rules:
Every ArcSwitch Panel Unit™ must be connected with wire cabling having a minimum section of 1.00mm² and a maximum cross-sectional area of 2.5 mm².
Warranty
Limited warranty and limitation of liability

The ArcSwitch® Meter is warranted to the original purchaser against defects in material and workmanship for 1 year from the date of purchase. This warranty does not cover fuses, disposable batteries or damage from accident, neglect misuse, alteration, contamination or switching unrated loads, abnormal conditions of operation or failures caused by negligent, or normal wear and tear of mechanical components. This warranty covers the original purchaser only and is not transferable. Resellers are not authorized to extend any other warranty on behalf of Arcswitch®

This warranty is your only remedy. No other warranties, such as fitness for a particular purpose, are implied or expressed. ABB is not liable for any indirect, incidental or consequential damages or losses, arising from any theory or cause.

The manufacturer shall not be liable for loss of use of the instrument or other incidental or consequential damages, expenses, or economic loss, or for any claim or claims for such damage, expense, or economic loss. Some states or countries laws vary, so the above limitations or exclusions may not apply to you.
Repair and calibration

For warranty repair during the warranty period, contact the place of purchase and obtain authorization information, arrange to return the product with proof of purchase to the place of purchase or an authorized service centre or distributor. For non-warranty repair or calibration the following should be accompanied your name, company name, address, telephone number and service required.

Additionally, please include a brief description of the problem or service requested and include the full test kit, with leads, connectors, and Transmitter, also with the meter. Non-warranty repair or replacement charges will apply. Before sending for repair please check your batteries.

The ArcSwitch® meter should not be opened or repaired as there is no internal serviceable parts (EXCEPT FOR REPLACING THE FUSE AND BATTERY) see maintenance section above on how to replace the fuse and the battery.
Troubleshooting

The ArcSwitch® meter is not working when the Transmitter button is pressed.

- Check that the master switch on / off switch is in the on position and the LED is lit green.
- Check the ArcSwitch® meter 9-volt battery is connected and is new.
- Check the ArcSwitch® Transmitter 3 x AAA battery is connected and is new.
- Check the ArcSwitch® Transmitter is in range of the ArcSwitch® meter.
- Check the ArcSwitch® Transmitter led is lighting up when pushing the button.
- Check the ArcSwitch® Transmitter is paired to the ArcSwitch® meter.
- Check that the ArcSwitch® Transmitter and ArcSwitch® meter serial numbers match.

The ArcSwitch® meter power contact sounds weak when the on and off ArcSwitch® Transmitter button is pressed.

- Remove the 9-volt battery from the mini snap connector, replace with a new battery.

The ArcSwitch® meter power contact is closing when the ArcSwitch® Transmitter button is pressed but the circuit breaker is not closing or opening.

- Check the leads are not broken on the ArcSwitch® meter.
- Check the fuse by Bell testing across the contact of the ArcSwitch® meter.
- Check that there is voltage on the terminals that your ArcSwitch® meter is connected to and that it matches the voltage of the opening or closing coils.
- Check that the coil is not damaged or open circuited or burnt out.
- Check to see that the circuit breaker is fitted with opening and closing coils.

The control M.C.B. is tripping when ArcSwitch® meter is connected to the control circuit.

- Check the leads are not broken on the ArcSwitch® meter.
- Check the fuse by Bell testing across the contact of the ArcSwitch® meter.
- Check that there is voltage on the terminals that your ArcSwitch® meter is connected to and that it matches the voltage of the opening or closing coils.
- Check that the coil is not damaged or open circuited or burnt out.
- Check to see that the circuit breaker is fitted with opening and closing coils.

• Check the leads are not broken on the ArcSwitch® meter.
• Check the fuse by Bell testing across the contact of the ArcSwitch® meter.
• Check that there is voltage on the terminals that your ArcSwitch® meter is connected to and that it matches the voltage of the opening or closing coils.
• Check that the coil is not damaged or open circuited or burnt out.
• Check to see that the circuit breaker is fitted with opening and closing coils.

The control M.C.B. is tripping when ArcSwitch® meter is connected to the control circuit.

- Bell test across the com input jack to the ground jack on ArcSwitch® meter and if it is very low resistance or bells, then the overvoltage protection module has been subjected to a high voltage transient and has been short-circuited.
You should connect the ArcSwitch® meter up to the ArcSwitch® panel unit. This will help prevent the operator from connecting up wrongly to the low voltage control circuits and reduce the chances of human error ArcSwitch® can be installed, retrofitted or commissioned during a scheduled maintenance.

Also, this prevents from having an open lv door on the switchgear when switching.

Below in (fig 10.) is an example of a how you would Design the ArcSwitch® panel unit into the switchgear at the manufacturing process, and you can see how the ArcSwitch® Panel unit is to be connected to the panel control circuitry allowing remote switching of the circuit breaker.

NOTE: Installation of the ArcSwitch® panel unit should only be installed by a competent Electrical Engineer.

NOTE: The ArcSwitch® panel Unit connections are paralleled across the open and close Buttons. DO NOT CONNECT THE ARCSWITCH® METER UP AND BYPASS SAFETY CRITICAL INTERLOCKS.
Demo setup

You can see how the ArcSwitch® meter and ArcSwitch® panel unit integrates easily into the low voltage control panel of medium voltage switchgear or low voltage switchgear in (fig 11.)

Easily allowing for remote switching to be integrated into existing or new projects the ArcSwitch® meter will remotely switch any vendor of circuit breakers so you can have one solution across your entire facility.

A cheaper quicker easier solution to provide remote switching for the safety of your Electricians across your facility.
# General specification

## ArcSwitch® meter

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>9 vdc snap Battery type Neda 1604A, IEC 6LR61, PP3</td>
</tr>
<tr>
<td>Mass</td>
<td>Approx. 900 grams</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Approx. (W) 90mm (D) 60mm (H) 180mm</td>
</tr>
<tr>
<td>Dust resistance</td>
<td>IP 40</td>
</tr>
<tr>
<td>Drop resistance</td>
<td>1 meter (with silicon boot attached)</td>
</tr>
<tr>
<td>Operating temp</td>
<td>5°C to 40°C</td>
</tr>
<tr>
<td>Altitude</td>
<td>2000m</td>
</tr>
<tr>
<td>EMC</td>
<td>IEC 61326 – 01: 2012.</td>
</tr>
<tr>
<td>RoHS</td>
<td>IEC 50581:2012</td>
</tr>
</tbody>
</table>

## ArcSwitch® transmitter

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>3 x AAA Battery</td>
</tr>
<tr>
<td>Mass</td>
<td>Approx. 75 grams</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Approx. (W) 54mm (D) 27mm (H) 90mm</td>
</tr>
<tr>
<td>Dust resistance</td>
<td>IP 65</td>
</tr>
<tr>
<td>Drop resistance</td>
<td>1 meter</td>
</tr>
<tr>
<td>Operating temp</td>
<td>5°C to 40°C</td>
</tr>
<tr>
<td>Altitude</td>
<td>2000m</td>
</tr>
<tr>
<td>Safety (article 3.1a)</td>
<td>EN 60950-1:2006+a2:2013</td>
</tr>
<tr>
<td>Safety (article 3.1b)</td>
<td>ETSI EN 301 489-1 V2.1.1 (2017-02) In accordance with specific requirements of ETSI EN 301 489-3 V2.1.1 (2017-03)</td>
</tr>
<tr>
<td>Spectrum (article 3.2)</td>
<td>ETSI EN 300 220-2 V3.1.1 (2017-02)</td>
</tr>
<tr>
<td>RoHS2</td>
<td>EN 50581:2012</td>
</tr>
<tr>
<td>Channels</td>
<td>Two channels. (Momentary operation)</td>
</tr>
<tr>
<td>Range</td>
<td>up to 100 metre (line of sight) range is affected in doors</td>
</tr>
<tr>
<td>Frequency</td>
<td>866Mhz</td>
</tr>
<tr>
<td>Frequency power</td>
<td>15.5 dBm (Typical) 17 dBm (Max)</td>
</tr>
</tbody>
</table>
Additional information

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB AG does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB AG.