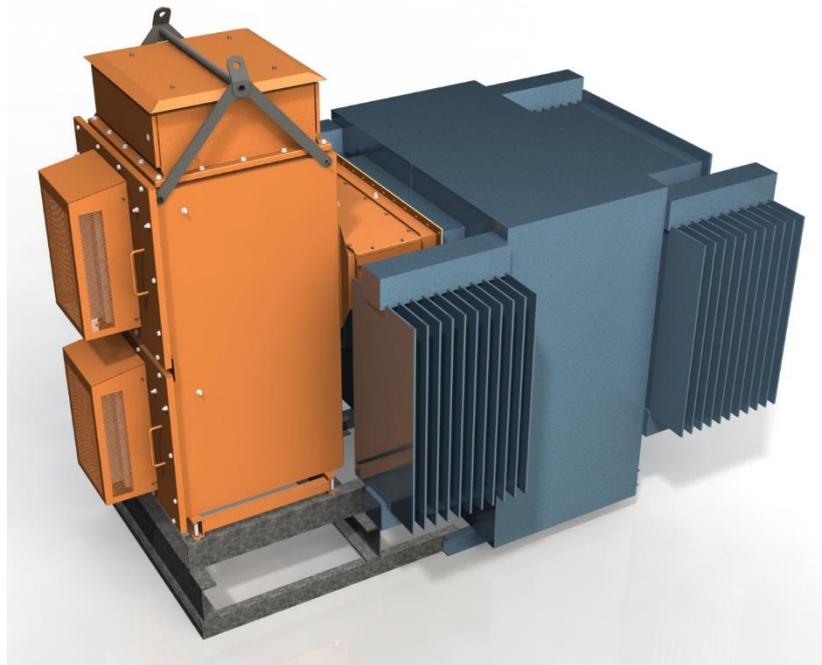




SafeARC™ Arc Flash Protection System

Shipping Instructions

Version 1.0 • 30 September 2014



Providing Quality Engineered Solutions, Safely

HAZARD WARNINGS

The following important highlighted information appears throughout this document to warn of potential hazards or to call attention to information that clarifies a procedure.



Indicates a high risk activity or situation which if not avoided will result in death or serious injury.



Indicates a high risk activity which failure to follow the instruction may result in death or serious injury.



Indicates that failure to follow this instruction may result in minor to moderate injuries



Is use to inform of practices not related to personal injury

INTELLECTUAL PROPERTY

SafeARC™ is protected IP under Australian Innovation Patent No 2011101542, Division of International Patent Application PCT/AU2010/001350 All Rights Reserved.

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WARRANTY

This document is based on information available at the time of its publication. While efforts have been made to ensure accuracy, the information contained herein does not cover all details or variations in hardware and its application, nor does it provide for every possible contingency in connection with installation, operation, and maintenance. Features may be described herein that are not present in all hardware systems. PACE Engineers Group assumes no obligation of notice to holders of this document with respect to changes subsequently made. PACE Engineers Group makes no representation or warranty, expressed, implied, or statutory, with respect to, and assumes no responsibility for the accuracy, completeness, sufficiency, or usefulness of the information contained herein. No warranties of merchantability or fitness for purpose shall apply. Nothing herein contained shall be read or applied so as to purport to exclude, restrict or modify or have the effect of excluding, restricting or modifying the application in relation to the provisions of Part V of the Trade Practices Act 1974 (as amended) ("TPA") or any relevant State Act or Territorial Ordinance which by law cannot be excluded, restricted or modified.

Table of Contents

HAZARD WARNINGS	2
INTELLECTUAL PROPERTY	2
TRADEMARKS	2
WARRANTY	2
SAFETY NOTICES	4
ISOLATE ENERGY SOURCES	4
COMPLY WITH CODES AND STANDARDS	4
INFORM YOURSELF	4
ENGINEERED SOLUTION	4
FOR FURTHER INFORMATION.....	4
RELATED PUBLICATIONS	4
RECEIVING, HANDLING AND STORAGE	5
RECEIVING	5
Equipment Packages	5
Inspecting for Damage	5
Filing a Claim	5
HANDLING	5
Lifting.....	5
Forklifts.....	6
Jacks.....	6
Storage.....	7

SAFETY NOTICES

ISOLATE ENERGY SOURCES



Before performing installation and maintenance activities ensure that all energy sources have been identified and positively isolated.

COMPLY WITH CODES AND STANDARDS



The installation procedures contained within must be carried out in accordance with applicable standards, national codes, directives and the like by competent authorised persons.

INFORM YOURSELF

This manual contains procedures for receiving, handling, storage, equipment installation, operation, and maintenance and service of the vertical, direct connect to transformer SafeARC™ Arc Flash Protection System.



Personnel should only undertake work after having read, understood and are thoroughly familiar with the contents of this manual.

Before any installation work is performed, thoroughly read and understand the material in this instruction manual and the drawings furnished with the equipment.

Information shipped with the equipment includes, Flexible Busbar Cut, Bend and Drill Pattern, Flange General Arrangement, Cooling System Schematic Diagram, Terminal Strip Connection Diagram.

ENGINEERED SOLUTION



WARNING

SafeARC™ is an application specific engineered solution. The Arc Flash protection provided relates only to the assessed installation by a Professional Engineer.

Contact PACE Engineers Group for further information.

The Arc Flash Risk Reduction of the SafeARC™ module is dependent on the following critical components:

- Source Impedance;
- Transformer Rating;
- Transformer Impedance;
- Impedance of MCC Supply Cable;
- Number and Size of Interrupter Modules.

Modification of any of the above may result in increasing the Arc Flash Category. You must consult a Professional Engineer to determine the risk reduction factor provided by the SafeARC™ module.

FOR FURTHER INFORMATION

If you have difficulty understanding the information contain within, contact PACE Engineers Group for further information.

When requesting information from the PACE, include the complete data appearing on the equipment nameplate, serial number, rated current, arc flash category, number of interrupters, and size of interrupters. The nameplate is located on the front top section of the SafeARC™ module.

RELATED PUBLICATIONS

Each SafeARC™ Arc Flash Protection System has the following associated documentation:

- Installed Location Unique Arc Flash Assessment;
- Module General Arrangement Drawings;
- Flange General Arrangement Drawings;
- Connection Bus Bar Pattern Drawing; and
- Auxiliary Wiring Connection Diagram.

RECEIVING, HANDLING AND STORAGE

RECEIVING

Equipment Packages

Every package leaving the factory is plainly marked with the case number, requisition number, and customer's order number. If the equipment has been split for shipment, the section numbers of the equipment enclosed in each shipping package are identified.

ATTENTION

To avoid the loss of any parts when unpacking, the contents of each package should be carefully checked against the packing list before discarding the packing material.

The contents of each shipping package are listed on the Master Packing List

Inspecting for Damage

All equipment leaving the factory is carefully inspected and packed by personnel experienced in the proper handling and packing of electrical equipment. Upon receipt of any equipment, immediately perform a visual inspection to ascertain if any damage has been sustained in shipping or if there are any loose parts.

The flexible busbar and transformer connection flange may be shipped separately in individual packages.

Be sure to inspect all devices mounted or packed inside the cooling control cubicle to see if any have been dislodged or damaged.

Filing a Claim

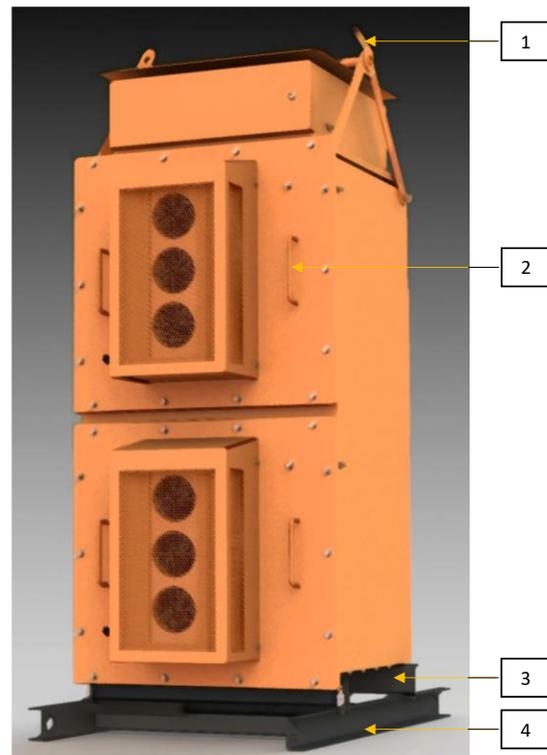
If any damage is evident, or indication of rough handling is visible, file a claim for damage at once with the transportation company and notify PACE immediately.

Information on damaged parts, part number, case number, requisition number, etc., and photographs should accompany the claim

HANDLING

ATTENTION

It is preferable to leave the SafeARC™ shipping skids in place until it reaches its final location.



- 1 – Crane Lifting Frame.
- 2 – Door Removal Handles.
- 3 – Shipping Skids (Cross Member)
- 4 – Shipping Skids (Lower Member).

Figure 1 - Equipment Handling Points

Lifting

DANGER

Do not stand under SafeARC™ Module while it is being moved. Serious injury or death may occur if the cables, lifting sling or lifting device fail.

The SafeARC™ Module is best handled by lifting with a crane using the load certified lifting frame shown in Figure 1, Item 1.

The lifting frame has an in-built spreader to prevent damage and preserve the external appearance of the SafeARC™ Module.

Utilise two equal length cables or slings and an overhead crane, each with a minimum load rating of twice the weight of the SafeARC™ Module. Estimated weights for SafeARC™ Module appear on the name plate.

Example: SafeARC™ Module Weight = 1500kg. The crane and two lift cables or slings must have a minimum load capacity of 3000kg.

Connect cables or slings via shackles to the two lifting points.

ATTENTION

Gently lower the SafeARC™ Module onto a level site location. If the SafeARC™ Module is roughly handled, it is possible to damage internal components or the transport skid.

Forklifts

If crane facilities are not available the SafeARC™ Module may be lifted and/or moved into position via the Shipping Skids, Figure 1, Item 3 & 4, by using a “long tines” fork lift.



WARNING

Do not attempt to lift or move the SafeARC™ Module unless the forklift tines are spread to the maximum internal width of the Shipping Skid and forklift tines are under both cross members. Equipment may tip over causing equipment damage and Serious injury.

When using a forklift proceed as follows:

1. Expand the forklift tines to the maximum internal width of the Shipping Skid, Figure 1, Item 3;
2. Carefully insert tines of the forklift until they are sufficiently passed the front and rear cross members. It is recommended that the forklift tines be 100mm past the rear cross member, Figure 1, Item 4;
3. Gently raise the SafeARC™ Module 50mm of the ground, tilt slight towards the Forklift and check stability;

4. Once stability is confirmed raise the SafeARC™ Module to the desired height while maintaining stability by tilting slight towards the forklift;
5. Travel with the SafeARC™ Module on the Forklift tines should be limited to less than 5km/hr;
6. When the SafeARC™ Module is in its final position on the mounting plinth, (supplied by PACE or others), slightly raise the SafeARC™ Module and remove the lower portion of the shipping skid by undoing the four (4) bolts;
7. Carefully lower the SafeARC™ Module on the plinth and secure in place via bolts placed in the plinth and the four (4) holes created by removing the lower half of the shipping skid.

Jacks

Jacks may be used in place of forklifts to raise and lower the SafeARC™ Module in its final position on the mounting plinth.



CAUTION

Do not place Jacks in any location other than on the cross members of the Shipping Skid. Doing so may result in serious damage to the SafeARC™ Module enclosure.

For Jacks:

1. Place a jack under the front and rear corners of the Shipping Skid cross member, four (4) in total
2. Raise the SafeARC™ Module evenly and just enough to remove the lower portion of the shipping skid by undoing the four (4) bolts;
3. Carefully lower the SafeARC™ Module on the plinth and secure in place via bolts placed in the plinth and the four (4) holes created by removing the lower half of the shipping skid

Storage

If it necessary to store the SafeARC™ Module for any length of time:

1. Leave the protective packing in place to help prevent inadvertent damage;
2. Move the SafeARC™ Module to a flat location for storage.