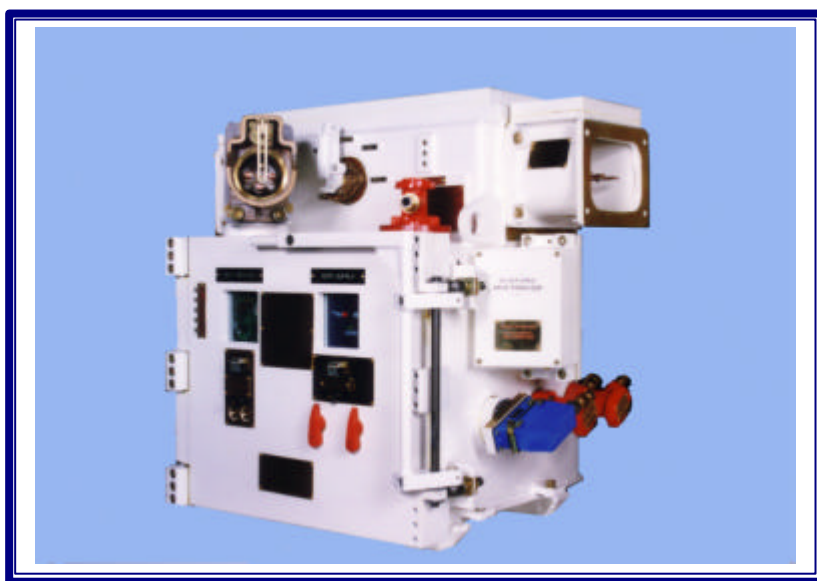




Allenwest Wallacetown

TYPE SW202/SLA AND SW202/LLA FLAMEPROOF LIGHTING TRANSFORMERS



- ◆ Up to 1140 Volts 50 or 60 Hz
- ◆ 300A or 400A Vacuum Contactor
- ◆ Electronic/Relay Control and Protection Systems
- ◆ Operational Test Facilities
- ◆ Plug in Control Modules
- ◆ Earth Fault Protection
- ◆ 1 x 5kVA (SW202/SLA) or 2 x 5kVA (SW202/LLA) Single Phase Auxiliary Supply
- ◆ MCB Switched Outlets



INTRODUCTION

The SW202/SLA and LLA combined starter and coal face lighting transformer units have been developed for use below ground in gassy coal mines, on supply systems up to 1140 Volts 3 Phase, 50/60 Hertz.

The excellence of design incorporates over 30 years of field experience in electronic protection and control in coal mine environments, producing control with safety and reliability to the highest and latest standards.

The SW202/SLA is a combined unit with a motor starter chassis and a 5kVA lighting transformer. The SW202/LLA is a twin lighting unit with 2 x 5kVA lighting transformers.

The units are manufactured and certified to European flameproof standards, EN50 014 & EN50 018 ATEX (03ATEX0502X).

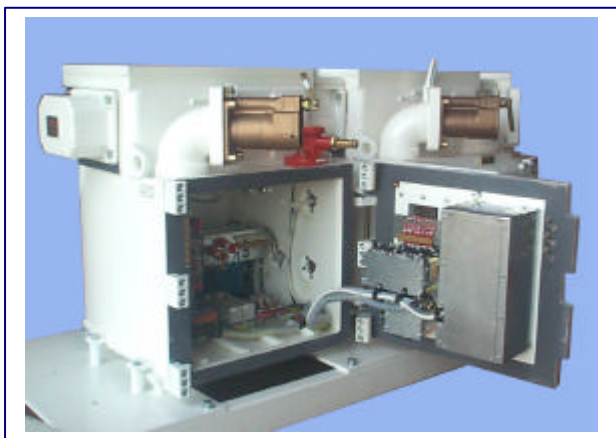
The EN certificate of conformity has a suffix "X" which indicates that special conditions for safe use may be specified. Details and a copy of the certificate are available on request.

APPLICATIONS

The SW202/SL provides protection and control for induction motors and facilities to operate coalface/roadway lighting and/or signaling units, the SW202/LL is for more extensive lighting installations.

LIGHTING SUPPLY (TYPICAL)

The 5kVA 1100/220/110 Volt single phase transformer is incorporated into the unit along with dedicated control and protection systems, for the operation of ancillary equipment.



ENCLOSURE

The enclosure is a welded steel construction featuring a convex profile and smooth surface which is divided into two compartments, the upper contains the busbars and isolating switch. The lower compartment houses one vacuum contactor and one or two 5kVA transformers.

UPPER COMPARTMENT

The upper compartment houses a set of three throughgoing busbars and, for the SW202/SL, a triple pole On-load Forward/Off/Test/Reverse isolating switch rated at 300A. (Alternatively a 400A isolator can be fitted if specified at the time of order). The SW202/LL has an On/Off 150A Off-load isolating switch (capable of interrupting both fully loaded transformers).

The isolator can be locked in the "Off" position.

A mechanical interlock is provided to ensure that the front cover cannot be opened unless the isolator is in the "Off" position and when the cover is open the isolator cannot be inadvertently closed.

The isolator is electrically interlocked with the lower compartment. Auxiliary switches are arranged to provide a supply to the potential transformer in each operational and test position of the isolator.

Live line indication is provided.

LOWER COMPARTMENT

The lower compartment of the SW202/SL has two fixed support frames, one carries the vacuum contactor and ancillary equipment.

The Type CMV30, 300A "Vacutac" vacuum contactor is fitted as standard. If required we can fit a Type CMV40, 400A vacuum contactor. In this instance the overcurrent protection range would be increased.

The control unit for the main contactor houses "Electronic/Relay" proving and control circuits, earth leakage and overcurrent protection circuits, along with LED diagnostic display and selector switches.

The other support frame carries the 5kVA lighting transformer complete with its own contactors and control systems.

Up to four lighting outputs can be provided controlled by a single contactor and two circuit isolation switches.

The lower compartment of the SW202/LL has two 5kVA transformers.

Live line indication is provided.

Stop, Start, Test and Reset buttons operate switches located inside the front cover.

MAIN STARTER

Control

The module for the control and protection systems utilises integrated circuits and the latest semiconductor technology to provide that which is most reliable in modern electronic circuitry.



Indication

The control system provides functional, operational and fault diagnostics on a 14 LED display indicating the following:-

+15	=	+15DC supply available
-15	=	-15DC supply available
PR	=	Proving relay energised
HR	=	Healthy relay energised
SI	=	Start indication (supply at the power relays)
CS	=	Contactor state
SEQ	=	Sequence energised
AI	=	Anti-inch timing
OL	=	Overload trip latch
SC	=	Short circuit latch
EL	=	Earth leakage latch
SD	=	Supply detector fault
CP	=	Control phasing wrong
PP	=	Proving phasing wrong

Load current is indicated on a "bar" LED display which is graduated in percentage terms.

Overcurrent Protection

Overcurrent protection for each power circuit is provided with a full load current range from 2.5A to 304A, or if 400A isolator and contactor(s) are fitted an overcurrent range of 5 to 414A would be provided. The trip time is inversely proportional to the level of overload current.

Short Circuit Protection

Short circuit protection trip levels may be 6, 8 or 10 times of the setting selected on the overcurrent protection system.

Earth Fault/Lockout Protection

Earth fault and lockout protection is available in forms to suit earthed or insulated neutral systems. Test and reset facilities are provided.

Monitoring

Provisions have been made for the option of fitting power, voltage and current (PVI) monitoring facilities and/or contactor state and fault trip indications.

Outgoing Cable Ways

The main and ancillary outgoing cable ways can be arranged to accept various sockets up to 350A.

Control & Sequence Cable Ways

An auxiliary terminal box is provided with facilities to accept up to six compression glands.

LIGHTING TRANSFORMER

Control

A suitably rated earth leakage circuit breaker (ELCB) switched externally controls the outgoing light circuits.

Indication

Indication lamps are provided for ELCB Closed, and earth leakage.

Overcurrent & Short Circuit Protection

Primary and secondary H.R.C. fuse protection is provided. Each outgoing light circuit also has short circuit protection integral with the ELCB.

Earth Fault

Earth fault restriction is provided in the earthed mid point and earth fault protection is integral in the ELCB for each outgoing light circuit. Test and reset facilities are provided.

Lighting Cable Ways

Auxiliary plugs or direct entry glands can be provided to suit customers requirements.

INCOMING AND THROUGHGOING CABLE WAYS

Adaptors are available for various methods of cable termination to the busbar flange provided on each side of the enclosure.

The flange complies with the preferred dimensions detailed in BS5126:Part 1:1974.

Interconnecting busbar trunk boxes are available to allow starters to be assembled in switchboard formation.

TECHNICAL SPECIFICATIONS

**ISOLATING SWITCH
FUNCTION RATINGS**

**TYPE A76/300A (or 400A)
FORWARD/OFF/TEST/REVERSE**

Operational Voltage, Ue 1.1kV 50/60 Hz
 Thermal Current, Ith 300A (or 400A)
 Operational Current, Ie 300A (or 400A)
 Making Capacity 2.4kA (or 3.2kA) 0.35pf, Lagging
 Breaking Capacity 1.8kA (or 2.4kA) 0.35pf, Lagging
 Mechanical Life In excess of 3,000 operations
 SW202/LL (150A (off load))

CONTACTOR RATINGS

TYPE VACUTAC CMV30

Operational Voltage, Ue 1.1kV 50/60 Hz
 Thermal Current, Ith 300A
 Operational Current, Ie 300A
 Making Capacity 3.0kA 0.35pf, Lagging
 Breaking Capacity 2.4kA 0.35pf, Lagging
 Maximum Breaking Capacity 6.25kA, 0.15pf, Lagging
 Mechanical Life 5 Million Operations

**LIGHTING TRANSFORMER
(Typical)**

Continuous rating 5kVA 1PH 50/60Hz
 Primary voltages Up to 1140 Volts
 Secondary voltages Up to 250 Volts
 (Either or both can be single or dual voltage to suit customer requirements)

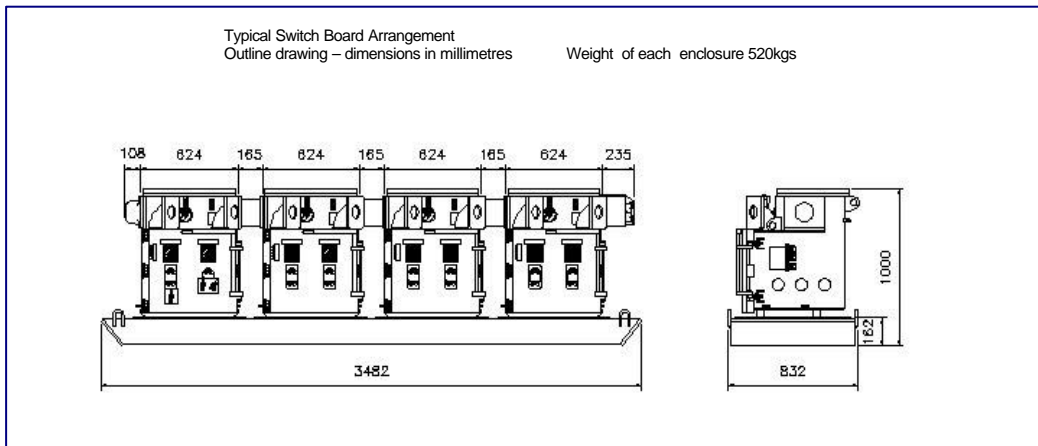
**OVERCURRENT PROTECTION
Main Starter**

Full Load Current Range 2.5A – 304A
 Minimum Trip Time 5 s at 10 x FLC Setting
 Minimum Trip Level 1.1 x FLC Setting
 Short Circuit Trip Levels 6.8 or 10 x FLC Setting
 Short Circuit Time Delay 500 ms

**Lighting Supply
H.R.C. fuses
EARTH FAULT & LOCKOUT
PROTECTIONS**

Main Starter
 Earth Fault Sensitive Core Balance
 Trip Level 90 mA (± 10 mA)
 Lockout Reactor Connected
 Trip Level 20/10k Ohms (Selected by link resistor)
 Latching Earth Leakage & Lockout
 Tripping Time Less than 0.2 s
 Indication Earth Fault & Lockout Trip
 (Other Earth Leakage Systems can be provided)

Lighting Supply
 Type Restricted Centre Tap Protection
 Maximum Fault Current 250 milliamperes
 Tripping Level 30 milliamperes
 Indication Earth Fault



Allenwest Wallacetown Limited

66 Third Avenue, Heatherhouse Industrial Estate
 Irvine KA12 8HN United Kingdom

Tel 01294 273111 Fax 01294 274063

Email sales@wallacetown.com Website www.wallacetown.com

Trades Description Act