

TYPE-TESTED LOW-VOLTAGE MCB PANEL BOARDS & PAN ASSEMBLIES / Sunlight VLC40



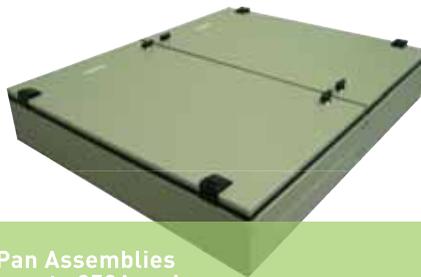
**SUNLIGHT**

[www.sunlightgroup.com](http://www.sunlightgroup.com)



## Type-Tested Low-Voltage MCB Panel Boards & Pan Assemblies With High-Breaking Capacity Performance

The Sunlight **VLC40** MCB Panel boards & Pan Assemblies feature a unique high performance design that offers a highly available standard solution for the Miniature Circuit Breakers (MCB) distribution board.



Sunlight **VLC40** MCB Panel Boards & Pan Assemblies are now readily available for incomers up to 250A and outgoing MCBs up to 80A\* [\*for certain breakers' make only].

- Safety and proven quality by type-testing of the **complete metal enclosure with Pan Assembly** to IEC 60439 Part 1, BS EN 60439 Part 1, IEC 60439 Part 3, BS EN 60439 Part 3;
  - High breaking capacity of up to 40 kA rms on main busbars and 25 kA rms on outgoing circuits, neutral and protective earth circuits;
  - Range covers up to 12 triple-pole outgoing ways (i.e. 12 nos. of 3-pole MCBs or 36 nos. of single-pole MCBs);
  - Work well with most reliable & established switchgears like ABB, Merlin Gerin, Siemens, Cutter - Hammer etc;
  - Suitable for various incoming connections: direct lugs/cable connections, MCCBs and Isolator switch connections;
  - Standard solutions yet with high flexibility for customisation like the provision for future connections to other power load or busbars etc.
- With the ISO 9000 Quality Management System firmly in place, Sunlight Electrical assures all products with high levels of manufacturing consistency and quality finishing.
- Sunlight VLC40 MCB Panel Boards & Pan Assemblies** can be widely applied in modern buildings and industries such as residential and commercial buildings, hospitals, sports facilities, water, oil and gas plants and developments, etc.

## Technical Data At a Glance

<b>System</b>	- Main TPN power distribution systems and submain systems using MCBs - MCB panel boards before the tenants energy meters
<b>Rated current</b>	- Main busbar or incoming MCCB/Isolator switch - Up to 250A - Outgoing MCBs - Up to 80A - Outgoing circuits with other rating are also available upon request
<b>Rated insulation voltage (Ui) and Pollution degree</b>	Ui = 690V for pollution degree 2 Ui = 415V for pollution degree 3
<b>Rated impulse withstand voltage (Uimp)</b>	6 kV on the main busbar, 4 kV on the outgoing circuits
<b>Number of ways</b>	From 4 to 12 triple pole (TP) outgoing ways <b>Greater number of outgoing ways can be provided as options</b>
<b>Number of poles</b>	SP (1-pole), SPN (1-pole+N), DP (2-pole), TP (3-pole), TPN (3-pole + N), 4P (4-pole) and 3/4-pole for incomer
<b>Tested standard complied</b>	IEC 60439 Part 1, BS EN 60439 Part 1, IEC 60439 Part 3, BS EN 60439 Part 3
<b>Degree of Protection (IP)</b>	- Standard: IP 40 - Special : IP 43, IP 55, IP 65
<b>Type of Incoming Connections</b>	Choice of factory fitted incoming devices: Main lugs (Direct Cable Connections); MCCBs; and Isolator Switches
<b>Enclosure &amp; surface treatment</b>	The steel enclosure is manufactured from 1.2mm gauge electro-galvanised steel sheet. 1.5mm & 2.0mm gauge galvanised sheet steel are available on request. The panel is coated with RAL 7032 polyester-epoxy powder with a minimum coating of 50 microns. The Pan Assemblies are held together by corrosion-resistant galvanised steel.
<b>Short circuit capabilities</b>	- Rated conditional short circuit current of main busbar : 40kA rms at 415V, 0.20pf - Rated conditional short circuit current of main busbar to neutral busbar : 25kA rms at 415V, 0.20pf - Rated conditional short circuit current of outgoing circuits : 25kA rms at 415V, 0.20pf - Rated conditional short circuit current on outgoing MCCB to protective earth : 25kA rms at 240V, 0.20pf - Rated prospective current (peak value) : 84 kA peak (40kA) : 52.5 kA peak (25kA) - Dielectric strength : 2500V, 5 seconds
<b>Busbars</b>	The conductors are made with one-piece high conductivity copper plate which accept bolt-on outgoing single or triple pole MCBs. The busbars are cleaned and passivated to inhibit oxidation.  Main Busbar cross section: 25 x 2.5mm  Earth & Neutral Busbar cross section: 10 x 10mm (A copper connection block is available for lugs with bolt sizes bigger than M10)
<b>Installation</b>	Indoor, surface mounting, weatherproof & floor mounting on request
<b>Ambient temp</b>	-5 °C to +50 °C
<b>Busbar Configurations</b>	Three phase main busbars are fitted. Additional Neutral Pole can be fitted. The busbars can be used for SP, DP, 3P and 4P breakers.
<b>Gland Plate and openings for external cables</b>	The gland plate of board can be freely removed during installation for hole-opening & cable connections.



**Break-through technology with a safety touch..**

Safety "finger-tags" to prevent direct and indirect contacts. No spare breakers needed for standby. Just tear tags for future breaker's add-ons.



**Break-through technology with a safety touch.**



**Pan Assembly**

A tested module able to withstand 40kA and 25kA rms short-circuit level on main and outgoing circuits respectively.



**Earth Bar System**

A tested 3-tier earth bar system that offers both practical terminations and space saving solutions

**IP 40 Door Gasket**



**Heavy Duty Hinge**

A hinge that has both the "looks" and "muscles" for 180 degree opening



**Designer Lock Appeal**

Key-type available

**Insulated Shroud**

A removable barrier that covers live bars terminating incoming lugs/breakers/switches



**Neutral Bar System**

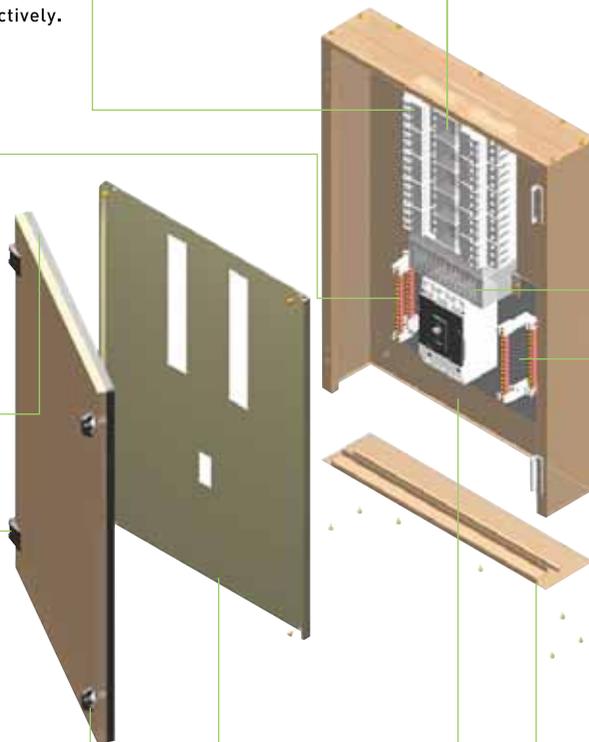
A tested 3-tier neutral bar system that offers both practical terminations and space saving solutions



**Removable Gland Plate For Incoming Connections**

**Wide Cabling Space**

**Internal Cover Plate**



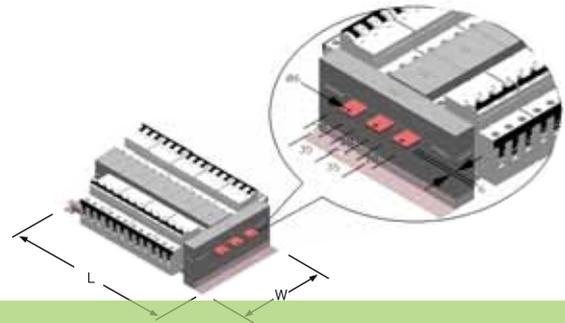
## Dimensions of MCB Panel Boards



### Mode of Incoming Connections: (A) Direct Lug / Cable Connection

Ordering Part Number	No. of 3-pole outgoing ways	Rating (A)	Enclosure (H x W x D)
VLC40-DB2504LC	4	250	375 x 450 x 155
VLC40-DB2506LC	6	250	575 x 450 x 155
VLC40-DB2508LC	8	250	575 x 450 x 155
VLC40-DB2510LC	10	250	575 x 450 x 155
VLC40-DB2512LC	12	250	575 x 450 x 155

## Dimensions of Pan Assemblies

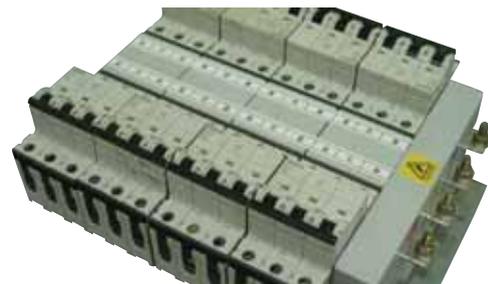


Ordering Part Number	No. of 3-pole outgoing ways	Rating (L) (mm)	Enclosure (W) (mm)
VLC40-PA5304	4	177	180
VLC40-PA5306	6	230.50	180
VLC40-PA5308	8	284	180
VLC40-PA5310	10	337.50	180
VLC40-PA5312	12	391	180



### Mode of Incoming Connections: (B) With MCCBs or Isolator Switches

Ordering Part Number	No. of 3-pole outgoing ways	Rating (A)	Enclosure (H x W x D)
VLC40-DB2504MI	4	250	575 x 450 x 155
VLC40-DB2506MI	6	250	750 x 450 x 155
VLC40-DB2508MI	8	250	750 x 450 x 155
VLC40-DB2510MI	10	250	750 x 450 x 155
VLC40-DB2512MI	12	250	850 x 450 x 155



## Outgoing MCBs Characteristics

### Thermal Ratings

Up to 60A

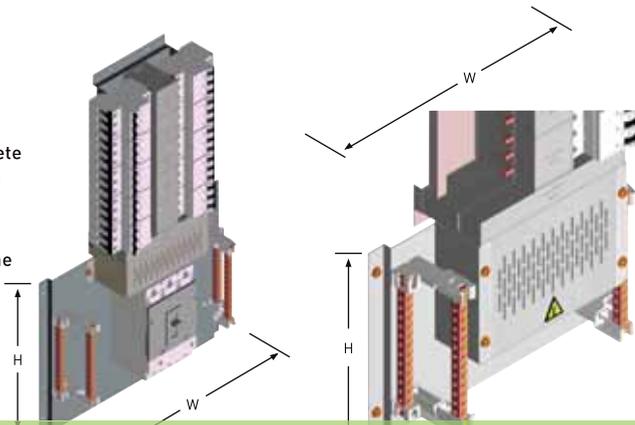
### Short Circuit Breaking Capacity Single, Double and Triple Pole

Up to 25kA Icu \*

\* Subject to cascading or discrimination/backup capabilities of respective MCBs' co-ordination characteristics

### 1. Incomer Plate

Standard plates complete with neutral and earth bars and supports. It comes complete with insulated covers for the housing of live parts.



### 2. Provision for Additional Compartment



#### (A) Incomer Plate with Incoming MCCB or Isolator Switch

Ordering Part Number	No. of 3-pole outgoing ways	Height (mm) (H)	Width (mm) (W)
VLC40-IP04MI	4	310	290
VLC40-IP06MI	6	310	290
VLC40-IP08MI	8	310	290
VLC40-IP10MI	10	310	290
VLC40-IP12MI	12	310	290

#### (B) Incomer Plate with Direct Lug / Cable Connection

Ordering Part Number	No. of 3-pole outgoing ways	Height (mm) (H)	Width (mm) (W)
VLC40-IP04LC	4	200	290
VLC40-IP06LC	6	200	290
VLC40-IP08LC	8	200	290
VLC40-IP10LC	10	200	290
VLC40-IP12LC	12	200	290

Standard module to house measuring instruments, indicating lights, fuses, etc can easily be fixed as add-on compartments on the board.

Ordering Part Number	Height (mm) (H)	Width (mm) (W)
VLC40-DB130AC	130	155

### 3. Provision for full size Neutral Pole



A full size neutral in addition to the 3-phase can easily be installed. The possible combinations include: SPN (1-pole+N), DP (2-pole), TPN (3-pole + N) and 4P.

The neutral pole can easily be re-positioned to the left or right side of the breaker / switch to suit different neutral positions (esp. in the case of the constructions of RCBOs, ELCBs etc.)

### 4. Extension of additional MCB Panel Boards



Where more than one MCB panel is needed for different applications, the additional MCB panels can be assembled and bolted internally for extension.

1. This application is suitable for 2 distinct circuitries. For example, the left panel can be used for direct lug connection whilst the right panel is equipped with a protective incomer or switch;
2. It is also used for a continuous circuit where the various interconnected circuits can be via busbar or cables.

## Terminals Capacities

The incoming copper cable sizes are recommended and not restricted to the figures stated. All cable sizes refer to multi-stranded cable.

### For MCB Panel Boards & Pan Assemblies

	Recommended Incoming Copper Cables (mm <sup>2</sup> )	Outgoing Cables/Bolt Sizes (mm <sup>2</sup> )	Incoming Bolt Sizes
Neutral	120 (max)	16, 25 35 (max)** (M5)	M10, M12**
Earth	Up to 70	16, 25 (M5)	M10
160A MCCB incomer	95 (max)*	-	M10*
250 MCCB incomer	120 (max)*	-	M10*
250A Lugs	120	-	M6 M8*, M10**

\* Subjective to breakers' make

\*\* A connection block shall be provided

### Outgoing MCBs

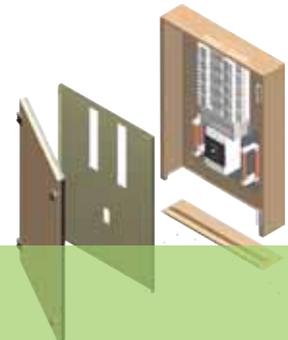
	Recommended Incoming Copper Cables (mm <sup>2</sup> )	Outgoing Cables/Bolt Sizes (mm <sup>2</sup> )
10-80A	-	35

\* Subjective to breakers' make

## Internal Assembly Details



Assembly module for direct lug connection



Assembly module for incomer connection

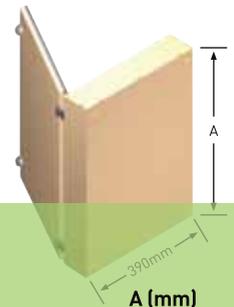
## Front View



Open the door; drive out four screws as shown in front view diagram. (According to the need of installation, gland plates can be removed.)

Type	A (mm)
VLC40-DB2504LC	295
VLC40-DB2506LC	495
VLC40-DB2508LC	495
VLC40-DB2510LC	495
VLC40-DB2512LC	495, 670

## Back View



Fix the back of the enclosure on the wall by using four M6 screws.

Type	A (mm)
VLC40-DB2504MI	495
VLC40-DB2506MI	670
VLC40-DB2508MI	670
VLC40-DB2510MI	670
VLC40-DB2512MI	770

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