



VPhase VX1

Technical Specification

The VPhase VX1 unit is a voltage optimisation device designed for use in homes and small businesses. The unique VX1 unit optimizes the incoming voltage to a constant 220V, a level where more devices operate more efficiently, giving householders immediate and significant energy savings for the whole home with a single VPhase fitted to the consumer unit.

Connection and Protection

VPhase VX1 is designed to be connected using 10mm² twin and earth cable. The input to the VX1 must be protected by a suitable rated MCB. A 50A Type-B MCB is recommended. Higher rated MCBs can be used provided a suitable cable is selected for the VX1 connection and the maximum load conditions for the VX1 are observed.

- ✓ **The device starts automatically when the electricity supply is connected and restarts automatically following any supply interruption.**
- ✓ **There are no user operational controls.**
- ✓ **The device is maintenance free.**
- ✓ **There are no user serviceable parts within the VX1.**

Power rating of the VPhase VX1

VX1 is thermally controlled. During periods of high continuous load VX1 will switch into bypass mode and voltage regulation will cease. Voltage regulation will restart automatically when the load current reduces.

Maximum current in bypass mode	80A
Maximum current in active mode	20A

VPhase VX1 Operating Regions

The chart below shows the total amount of power consumed in a typical house over a 24 hour period. The total power consumed was 11.735kWh, equivalent to an annual electricity bill of £513 at 12p per unit.

Continuous Active Region

When household electricity consumption is within the “continuous active region” the VX1 will always regulate voltage.

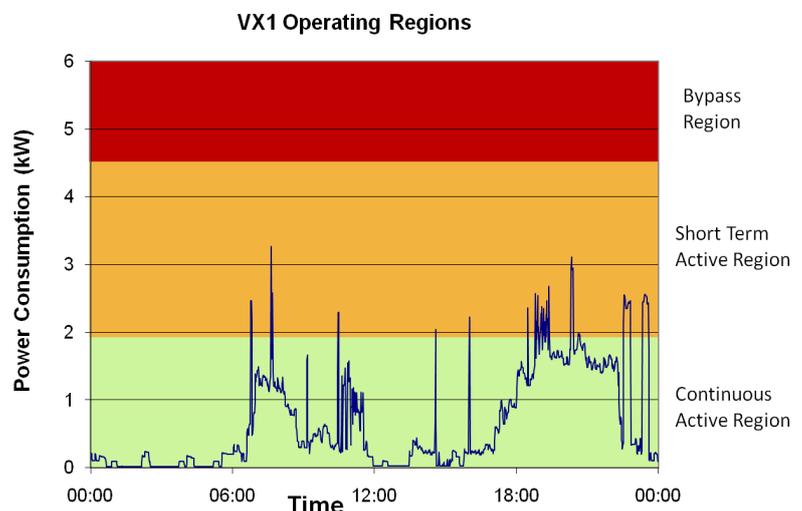
Short Term Active Region

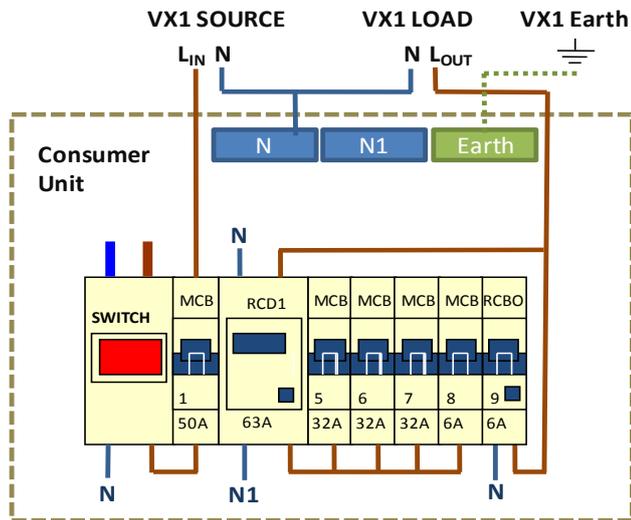
When household electricity consumption exceeds the continuous active region the VX1 will regulate voltage for short durations in the “short term active region”. The exact duration of operation depends upon many factors including ambient conditions, previous load conditions and the level of power consumption. Typically the VX1 can regulate for many hours at 2.5kW but only for a few minutes at 4kW.

Bypass Region

If the high electricity consumption is sustained in the short term active region or a very high level of electricity is consumed within the house then the VX1 will enter bypass mode. In bypass mode the VX1 will stop regulating voltage until the electricity consumption has fallen; voltage will be delivered to circuits at the same voltage as delivered by the utility company.

VX1 can be used for low power commercial applications. It is recommended to fit the unit to circuits where the average load during the operational hours of the circuit does not exceed 2kW.





Typical connection to a consumer unit

Shown is a typical connection to a consumer unit with the following circuits:

- Three socket ring circuits (32A)
- Two lighting circuits (6A)

The inclusion of separate RCBO for one lighting circuit ensures segregation between lighting circuits. Many other consumer unit configurations are possible.

Example circuits for VX1 to supply

- ✓ Ring circuit socket outlets
- ✓ Lighting
- ✓ Kitchen sockets
- ✓ Utility room sockets
- ✓ Garage/out-house sockets
- ✓ Gas boiler supplies

Circuits that should not be supplied by VX1

- ✗ Electric shower
- ✗ Immersion heater (if on independent circuit)
- ✗ Cooker (if on independent circuit)
- ✗ Dedicated heating circuits (e.g. storage heaters)

Installing VPhase

The VX1 should be installed by a competent and qualified electrician and must be fitted in full compliance with the 17th Edition Wiring Regulations.

It is essential that the electricity supply is isolated before removing the cover of either VX1 or the consumer unit.

Care should be taken to ensure that high power electric heating circuits are not connected to the VX1.

All guidelines provided within the VX1 installation instructions must be followed and can be downloaded from www.vphase.co.uk.

Electrical Specifications:

VPhase VX1 input:

Nominal input voltage 230V(+/-10%)

Maximum input voltage 264V

VPhase VX1 Output - Active Mode:

Single phase 220V (+/-1.5%) (max of 27V below supply voltage)

VPhase VX1 Output - Bypass Mode:

Input directly connected to output.

VPhase VX1 maximum current:

80A bypass mode

20A short term active mode

8A continuous active mode (typical)

User Indications:

Green Light:

System operational

Red Light:

System fault (flashes at start-up)

Physical Specifications:

Size:

345mmX180mmX115mm (LxWxD)

Weight:

4.3kg

Operating temperature range:

-5°C to 40°C

Qualifications:

Safety/EMC

EN 60730-1:2000

EN 61000-6-1:2007

EN 55022:2006+A1:2007

Product development is continuous and VPhase plc reserves the right to make alterations to specification and manufacture without notice.



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