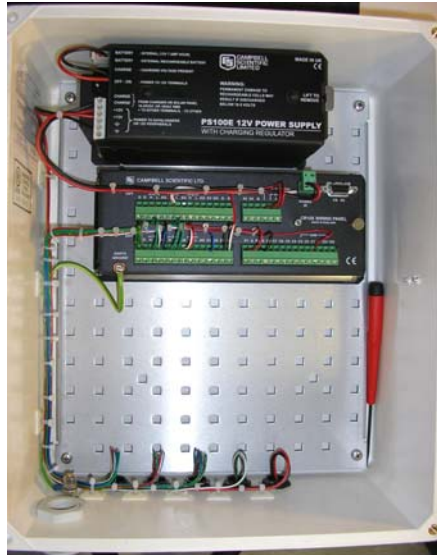


Enclosures and Power Supplies



ENC 12/14 fitted with PS100E power supply, and CR10X Measurement and Control Module

Description of Enclosures

The 'ENC' series enclosures are made of white fibreglass-reinforced polyester and do not need a conventional radiation/rain shield. They can be wall mounted as supplied, or mounted onto a Campbell Scientific tripod or pole mount using optional mounting brackets; appropriate fittings are included with ATW3, UT920 and UT930 towers. The enclosure door has a catch which can accept a padlock if required.

An anodised aluminium chassis plate punched with an array of holes accepts plastic inserts which in turn accept screws for the attachment of power supplies, dataloggers and peripherals. These inserts are easily pushed in, allowing the rapid mounting of components inside the enclosure.

A small cable gland with a venting plug is fitted to the base of the enclosure. The plug allows pressure equalisation between the inside and outside of the enclosure (which is required when using barometric or gauge pressure transducers) and also prevents pressure build-up in the enclosure in the event of

*Another variant of these enclosures the ENC14/16 is available for special applications to special order.

This data sheet covers:

**ENC 10/12, ENC 12/14,
ENC 16/18 and AM-ENC Enclosures***

**PS100E-LA, BP17E-LA, BP24E-LA,
BPE-ALK and PS100 E-A100 Power
Supplies**



ENC 12/14 being fitted to a Campbell Scientific Tripod

a system failure when charging lead-acid batteries. A blanking plug is supplied which can replace the venting plug if necessary.

Cable Entry

We recommend that sealed environmental connectors are used for the entry of sensor leads into the enclosure. However, a medium cable gland is also fitted which can be used for the direct entry of one or more cables into the enclosure. An earthing boss is also provided for the connection of an external earth lead.

Desiccant is supplied to maintain a dry atmosphere inside the enclosure.

Enclosure Mounting

The enclosure as supplied can be wall mounted or mounted to your own supporting structure using the four corner mounting holes. Campbell Scientific offers optional brackets for mast mounting (MM to a single pole), tower mounting (TM to a double pole) or leg mounting (LM) suitable for mounting smaller enclosures lower down on one of the stainless steel CM110, 115 or 120 tripods.

Component Installation

When the enclosure is bought as a configured system, the components will be pre-fitted.

In addition to a datalogger and power supply, only one small peripheral can be fitted into the ENC 10/12 enclosure, e.g. a Storage Module. The ENC 12/14 will take the majority of peripherals including an AM16/32, for which there are two extra mounting holes in the lower half of the grid of holes.

The ENC 16/18 is for special applications, e.g. where there is a large number of peripherals or a BP24E battery pack is required.

NOTE: The BP24E will *not* fit into the smaller ENC 10/12 and ENC 12/14 enclosures.

Enclosure Specifications

Material

Hot compressed moulded fibre-glass, reinforced white polyester, UV stabilised with new protection 'Solarguard'

Sealing Rating

IP68/NEMA 6P with hinge and hasps.

NB. Connectors and glands may lower this rating.

Temperature Range

-50°C to +150°C

Internal Dimensions

Usable space with chassis plate H x W x D (mm)

ENC 10/12: 299 x 249 x 149 (not suitable for CR1000, CR3000 & CR5000 dataloggers)

ENC 12/14: 344 x 293 x 174

ENC 16/18: 449 x 399 x 250

Weights: ENC 10/12 3.5 kg;

ENC 12/14 4 kg; ENC 16/18 9 kg

Chassis Plate Hole Spacing

Grid of holes 25.4 mm (1") apart

Campbell Scientific Power Supplies

Power Supplies are available with either alkaline or lead-acid batteries (type 'ALK' and 'LA' respectively). The PS100-A100 is also a lead-acid supply, with the addition of two 9-pin null modem ports for communication modems.

Alkaline Power Supplies

The BPE-ALK uses eight alkaline D-cells. To provide a backup supply, the BPE-ALK can also be used with a lead-acid battery connected in parallel to the datalogger. The BPE alkaline pack incorporates a low voltage drop diode which prevents any paralleled battery discharging into the alkaline batteries.

A fresh set of eight alkaline D cells provides 12.4V to the datalogger with a nominal rating of 10Ah capacity at 20°C. The amp-hour rating decreases with temperature.

Lead-Acid Power Supplies

The PS100E-LA power supply includes a 12V, 7Ah battery, the BP17E-LA a 12V, 17Ah battery and the BPE24-LA a 12V, 24Ah battery. All have a temperature-compensated charging circuit, which is attached to the side of the battery carrier.



This supply is designed to power the datalogger continuously. Therefore, an AC transformer (optional) or solar panel* should be connected to the power supply at all times. The charging source powers the datalogger while float charging the lead-acid batteries. The internal lead-acid battery powers the datalogger if the charging source is interrupted.

The power supply unit and battery specifications are given below.

NOTE: The BP24E-LA will not fit into the smaller Campbell Scientific enclosures, models ENC 10/12 and ENC 12/14. The BP17E-LA will fit in the ENC 12/14, but not the ENC 10/12.

* Solar panels available from Campbell Scientific are described in a separate leaflet.

PS100E-A100

The PS100E-A100 12V Lead-Acid Power Supply with Charging Regulator and Null Modem Ports is used when 5V is needed to power external modems, in addition to the normal capabilities of the PS100E-LA. The PS100E-A100 supplies 5V to pin 1 of two 9-pin null modem ports, which protrude from the side of the case. Otherwise the capabilities and functions are identical to the PS100E-LA. A common use for the PS100E-A100 is in radio telemetry networks. The maximum current drain on the 5V supply of the PS100E-A100 is 150mA.

Not sure which enclosure or power supply you need?

Please call for assistance.

Power Supply and Battery Specifications

Dimensions

PS100E: 70 x 190 x 80 mm (H x W x D)
BP17E: 170 x 225 x 80 mm (H x W x D)
BP24E: 130 x 230 x 178 mm (H x W x D)

Mounting Hole Spacing:

PS100E: 4 holes at corners of rectangle 177.8 x 50.8 mm (7" x 2")
BP17E: 4 holes at corners of rectangle 203.2 x 101.6 mm (8" x 4")
BP24E: 4 holes at corners of rectangle 203.2 x 76.2 mm (8" x 3")

Weights

PS100E: 3.1 kg
BP17E: 6.5 kg
BP24E: 10.2 kg

Lead-Acid Battery

Battery Type: Yuasa NP7-12 / NP17-12 / NP24-12

Float Life @ 25°C: 5 years typical

Capacity: 7.0Ah / 17Ah / 24Ah

Shelf Life, Full Charge: Check twice yearly

PS-CHG-E Charger Circuit

Charge Technique: Fixed voltage 14V nominal (varies with temperature)

Charge Time (AC Source): 40 hr. full charge, 20 hr. 95% charge for PS100E – proportionally longer for BP17E and BP24E.

Maximum Charger Input Voltage: 25V DC or 22V AC (RMS)

Maximum Sustainable Charge Current with Unlimited Current Input (@ 25°C, 18V input, 14V output): 1.5A

Maximum Output Current to Terminal from Battery & Charger: 12V, 1.85A

Minimum Voltage Drop from Charge Input to Battery: 2.8V

Recommended Minimum Charge Voltage: 17V at 25°C (lower voltage will charge but less efficiently)

AC-ADAPT Desktop Adaptor

Input: 230V AC, 50Hz

Isolated Output: 18V AC @ 1.2A max.

AC-ADAPT2 Wall-Mountable AC-AC Adaptor

Input: 230V AC, 50Hz

Isolated Output: 18V AC @ 2A max.

AC-ADAPT2 has screw terminals for the output and requires a suitable length of standard 2-core low-voltage cable for connection to the device being powered.

Typical Battery Capacity for Lead-acid Batteries as a Function of Temperature:

Temp. (°C)	% of 20°C capacity	Capacity NP7-12	(Ah) NP24-12
40	110	7.7	26.4
20	100	7	24
0	84	5.9	20.2
-20	72	5.0	17.3

NOTE: These figures only apply to low discharge rates. The BP17E-LA battery is 17Ah nominal at 20°C and varies in a similar fashion.

It is recommended that the batteries should not be deeply discharged below -20°C as there is a risk of ice formation within the battery which can cause permanent damage.

Campbell Scientific products are available from:

- Datalogger models such as the CR3000 and CR5000 include an integrated power supply but still require an environmental enclosure for outdoor use.
- CR200 series dataloggers can be used in these enclosures with the PS200E power supply, a lower-cost variant of the standard PS100E-LA which uses the CR200's built-in charger. Where space is limited, the ENC-200E enclosure is available for these dataloggers; please refer to the CR200 leaflet for further details.
- Larger systems such as the CR7 and CR9000 Measurement and Control System include a power supply and are available with a dedicated environmental enclosure.