

CANNON ENIGMA OUTDOOR SHELTER

DROP OVER SOLUTION PROVIDING PROTECTION & SECURITY TO EXISTING INFRASTRUCTURE



Cannon Technologies has been manufacturing cabinets for Indoor and Outdoor applications for over four decades. Cannon has a long history of product development both for military and civilian applications. This broad based experience has been fundamental to the development of a wide range of integrated outdoor railway/trackside enclosure systems. In addition to the cabinets shown Cannon offers thermal and diagnostic systems.

Among these are:

- **Conventional cooling:** using natural ambient air cooling
- **FanCell:** forced air cooling
- **CoolCell:** compact forced air high efficient heat exchangers
- **ChillCell:** Solid State chilling unit
- **FreezeCell:** compact air conditioning unit
- **CannonGuard:** a fully integrated life support system for the control and monitoring of all critical functions. Remote and attended diagnostic facility offering 40 or more discreet alarms.

Product Range

Cannon has an extensive range of outdoor roadside & trackside enclosure systems for the transportation and communications markets, these include:

- FTTx – Copper/Fibre Optic Cabinets
- SISS/CIS Cabinets for security & info
- MK2 Telecommunications Cabinets
- StreetWise Active Cabinets
- Termination Boxes
- Type C Cabinets (For copper cables)
- CatWalk Pedestal Cabinets
- Apparatus/Location Cases (NR approved)

Products can also be manufactured to meet clients precise requirements.

Over its history Cannon has produced over 150 different designs of outdoor enclosures; these break out into four distinct categories. Cannon has named these differing types as follows:

- **A-TYPE**
- **C-TYPE**
- **D-TYPE**
- **S-TYPE**

“ENIGMA” is a range of shelters developed as a Vandal Proof Housing to protect existing customer infrastructure from the effects of solar heat gain and the possibility of attack from an opportunist vandal.

ENIGMA is based on the S-TYPE range of cabinets manufactured by Cannon and provides IP55 rating against liquids & dusts to BS EN 60529:1992 - Degrees of Protection provided by enclosures.

The outdoor equipment housing incorporates a single insulated chamber accessed from secure stainless steel multi-lock rod single or double hinged front opening doors.

The outdoor shelter is a single skinned and insulated for medium to high heat management. It combines ducts attached to the front doors which align with the inlet/exhaust vents of the equipment installed. This solution enables the heat being dissipated to vent uninterrupted to atmosphere, thereby ensuring the control of the housings internal environment. The main body of the outdoor Equipment Housing is manufactured from Z600 galvanised steel for protection against premature rust failure.

Designed primarily for housing electronic/electrical equipment already installed within self contained cabinet(s) and can be easily modified to allow the cabinet to be fitted out with a variety of termination equipment/connectors to customers’ requirements.

The active cooling is normally integral to the customer cabinet being protected by the ENIGMA outdoor shelter.

ENIGMA is designed to meet the following limited specification within the internal section of the shelter when the following factors apply:

- An external ambient temperature range of between -15°C and +35°C plus the effect of Solar Gain at 800-watt/m² of its effected surface area i.e. face, roof and one end.
- The maximum heat dissipation within the equipment chamber is based on deployed equipment, i.e. 1KW

FEATURES:

- IP55 Protection Rating.
- Double secure multi-point lock rod system doors with IP seal, insulation and door stays.
- Separate thermal chamber(s) can be provided
- Base or side panel cable entry gland system
- Fully insulated.
- Shelter can be tailored for customer specific requirements and with various copper termination modules or fibre storage systems.

Removable lifting eyes provide arrangements for site installation.



To limit the effect of solar gain, the internal surfaces of the shelter are lined with a high efficiency insulation material. This material is attached mechanically to the panels forming the shelter providing a high amount of rigidity and protection.

Ambient air is introduced through ventilation grills formed within the rear and side panels of the shelter; these grills are fitted with bug screens. The warm air leaving the shelter below the front doors is ducted away via extended ducts fitted to the shelters front doors. It is imperative that when installing the customer cabinets that these ducts align with the exhaust grills under the customer cabinet product doors; failure to align these items will result in an uncontrolled rise in the air temperature surrounding the installed equipment.

Project Pedigree:

Cannon has over forty years been involved in many prestigious projects, below is a small example of these.

- Telefonica O2 2G & 3G Rollouts
- Rural and business broadband projects for WarwickNET and Truespeed.
- Tram projects: Nottingham Light Railway, London Tramlink, Edinburgh Tram
- West Coast Mainline Re-signalling - Cannon has been involved with many of the alliances working on this project.
- SISS Station and platform enclosures with ACU climate control for: New Bromsgrove Train Station, Birmingham New Street Station Upgrade, Goring & Stratley etc.

Our New Milton test facility can provide thermal testing to our enclosures along with written reports. Thermal loads can be either simulated or for effective heat analysis active customer equipment can be configured within the enclosure. The ambient air temperature can be maintained to within $\pm 1^{\circ}\text{C}$ of that specified.

Solar gain can also be applied to the surface of the enclosure to simulate the effect upon the internal equipment when subjected to long periods of sun light in different locations and upon various surface treatments.

Hinged roof allows easy access to installed equipment

Our secure & proven stainless steel lever lock system operates a multi-point lock rod arrangement.



Door mounted inlet/exhaust ducts provide efficient and effective ambient air cooling.



THERMAL PROTECTION:

- Insulation is the key to regulating the climate inside the cabinet without power.
- By combining a single skin cabinet and IP sealed doors lined with an insulation material provides improved 'U' values and higher resistance to solar heat gain meaning lower cooling costs.
- This method also reduces the threat of condensation, dust and moisture caused by sudden temperatures and poorly sealed cabinets.
- Single or double hinged doors with secure multi-point lock system

The enclosure can also be designed and configured with a number of chambers which can be used to separate different technologies. Battery chambers are normally separated from the main active equipment to ensure that any hydrogen given off during recharge periods is vented to atmosphere without any risk of it coming into contact with equipment. It is also easier to maintain the temperature recommended by the battery manufacturer in a separate chamber.

The chamber can be manufactured to suit various manufacturers' batteries, size and numbers; shelves can be fixed or telescopic and designed to withstand loads of 500-kilos. The cabinets can be designed to accept both shock and vibration, high EMC emission protection and to IP65. Cannon offers a variety of lock options from simple cam through to full remote activation.

Cannon has been manufacturing enclosures for over four decades and has supplied many enclosures for both track-side and road side applications. Our enclosures have been used in all extremes of temperature from areas such as Alaska to Nevada, Rural and business broadband to MOD naval applications for surveillance systems. We have been a major supplier to the various alliances working for the rail and telecoms industry etc. We are confident that what ever your requirements Cannon will be able to provide a solution to your enclosure needs.



OPTIONS for CANNON OUTDOOR:

- Electronic Remote Access Locks
- Electronic Key Pads / RFID / Bio-Metrics
- Sensors (Thermal, humidity, alarms etc.) and Display/Alarm via SNMP and web based application
- Thermal solution matched to equipment requirements
- Multiple chambers providing compartments to suit specific equipment mounting and thermal requirements.

BENEFITS of CANNON OUTDOOR:

- Proven Designs both in test lab and in field, track and street-side operation.
- Thermal Solutions sized to provide energy efficient and operations cost savings.
- IP65 testing completed at an independent test house.
- Modular designs that can be modified to suit customer specific requirements



Chamber capable of maintaining air temperatures above the local ambient up-to a maximum 60°C with a solar gain of 1.1kW/m²

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Additional Products available from Cannon Technologies Group :

- Modular Data Centres
- Cannon Data Campus
- Cannon GLOBE TROTTER
- Cannon GMDC
- Cannon Mini/Micro DC
- Ruggedized DC Cases
- IT Infrastructure
- 19" Server Cabinets
- Patch Frames
- Free Form Containment
- Cold/Hot Aisle Containment
- Air Management
- Cooling Solutions
- UPS & Power
- Techni-Cabins
- Mobile-Cell & Mast Stations
- Outdoor Cabinets & Enclosures

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