

CX18 Instruction Manual

PLEASE READ THIS INSTRUCTION MANUAL CAREFULLY BEFORE INSTALLATION OR USE OF THIS PRODUCT, AND KEEP IT IN A SAFE PLACE FOR FUTURE REFERENCE. FOLLOW ALL WARNINGS AND INSTRUCTIONS MARKED ON THE PRODUCT.

HIGH VOLTAGE WARNING!

Dangerous voltages are present within these power supplies. These products should only be worked on by qualified personnel.

coolPacs

CX18S	Standard	1800W
CX18M	Medical	1800W

CX18 products are comprised of:

coolPac Chassis Converters intended for use in CoolX series ONLY. These must NOT be used for any other purpose.

and

coolMod Plug-In Modules intended for use in CoolX series ONLY. These must NOT be used for any other purpose.

coolMods

CmA	5V	150W
CmB	12V	280W
CmC	24V	300W
CmD	48V	300W
CmE*	24V	900W
CmF*	48V	900W
CmG**	24V/24V	200W
CmH***	5V/24V	180W
CmM	5V	150W
CmN	12V	280W
CmP	24V	300W
CmQ	48V	300W

CX18 products are designed for use within other equipment or enclosures, which restrict access to **authorised competent personnel only**. This equipment is only intended for use in a **restricted access area**. The unit covers are designed only to protect skilled personnel from hazards. They must not be used as part of the external covers of any equipment where they may be accessible to operators, since, under full load conditions, part or parts of the unit may reach temperatures in excess of those considered safe for operator access. This equipment is not suitable for use in locations where children are likely to be present.

IMPORTANT CONSIDERATIONS

The coolPac should be supplied only by a power source of the type indicated on its label. A socket outlet shall be installed near the equipment and shall be easily accessible. The unit should only be used with a suitably rated mains cord and appropriate IEC320 type connector, sourced by the end user, and in accordance with the requirements of Table 3B of IEC60950-1 (latest edition). If in doubt, contact Excelsys Engineering Department for assistance. Double pole / neutral fusing is used. If the installation is not completely disconnected from power, parts may remain live even if one of the two mains fuses has blown.

When adding or removing coolMods from the coolPac, care must be taken to handle the coolMods by the output terminals ONLY, ensuring that all other surface mount components are not unduly damaged.

When securing the product, do not use screws which infringe the maximum penetration depth of 2mm. Customer fixings are provided on the base of the unit in addition to the side mounting which allows the unit to be mounted on either side of the coolPac chassis. This series of power supplies has integral fans and may be mounted in any orientation provided that the air intake and air outlet are not impeded, with particular regard paid to provide ventilation holes in any chassis on which or near which the unit is mounted. Maintain a 50mm minimum clearance at both ends of the power supply and route all cables so airflow is not obstructed.

PARTS OF THE UNIT WILL BECOME HOT DURING OPERATION; ALLOW TIME TO COOL BEFORE HANDLING.

AFTER DISCONNECTING THE AC SOURCE, ALLOW 4 MINUTES BEFORE DISASSEMBLY TO ALLOW CAPACITORS WITHIN THE UNIT TO DISCHARGE.

INPUT SPECIFICATIONS (coolPac only)

Input Voltage Range	100 to 240Volts AC
Input Frequency	50/60 Hz
Earth Leakage Current	300µA

Input Fusing

WARNING! To protect against risk of fire, replace only with fuses of same rating and type. Fuses must be replaced by qualified service personnel only.

Line	Reference	Fuse	Type	Voltage	Size
Live	FS1	16A	F	250V	5 X 20mm
Neutral	FS2	16A	F	250V	5 X 20mm

OUTPUT SPECIFICATIONS (coolMod only)

See coolMod table below, with more detail in Designers' Manual. Each module may be adjusted over the full voltage range shown in the table **subject to not exceeding the maximum rated Voltage and Power shown in the table.**

SAFETY

The CX18 when correctly installed in a limited access environment is designed to comply with the following requirements

CX18S: UL60950-1, CAN/CSA C22.2 No. 60950-1-07, IEC60950-1, IEC62368-1, EN60950-1
 CX18M: ANSI/AAMI ES60601-1, CAN/CSA C22.2 No. 60601-1, IEC 60601-1, EN60601-1.

For current approval status, please contact Excelsys Sales. Equipment manufacturers must protect service personnel against inadvertent contact with the module output terminals.

Environmental Parameters

The products are designed for the following parameters:

- Pollution Degree 2
- Installation Category 2
- Class I
- For use as part of another piece of equipment such that unit is accessible to service engineers only
- Altitude: -155 metres to +5000 metres from sea level
- Humidity: 10 to 95% non-condensing
- Operating temperature -40°C to 70°C
- Derate at 2.5% per °C above 50°C and up to 70°C (NOTE: IEC input terminal option limits maximum operating temperature to 60°C)
- Derating applies to both coolPacs and coolMods

Approval Limitations

Use In North America

When this product is used on 180 to 253 Volts AC mains with no neutral, connect one live wire to L (live) terminal and the other live wire to N (neutral) terminal on the input connector.

The attachment plug shall be rated to a current not less than 125% of the rated current of the equipment.

Levels Of Insulation

Subject to the limitations above.

- Primary mains circuits to earth: 4mm spacing
 - Primary mains circuits to secondary: 8mm spacing
- Dielectric strength testing is carried out as follows:
- Primary mains circuits to chassis: 1850V AC
 - Secondary to chassis: 1850V AC
 - Primary mains circuits to secondary: 4243VAC or 6000VDC.

Earth Terminal Marking IMPORTANT

If in the end use equipment the incoming mains cable earth wire connects directly to the CX18 "GND" connection without being interrupted or junctioned on its way to that connection, then this connection forms the main protective earth of the system. To comply with IEC60950-1, IEC62368-1 or IEC60601-1 requirements this must be marked with the symbol defined in IEC60417 No. 5019a. The customer should therefore affix an adhesive label which will pass the 15 Second rub test (IEC60950 section 1.7.13) showing the symbol adjacent to the earth connection. This symbol must only be used at the first interruption / connection of the incoming earth wire.

Health And Safety At Work Act (UK only)

To protect service personnel and users and to comply with section 6 of the Health And Safety Acts, a clearly visible label should be fitted warning that surfaces of these units may be hot and must not be touched when the units are in operation.

Receipt And Unpacking

On receipt a unit should be unpacked carefully and checked for transit damage. If the unit is damaged, do not apply power or install the unit. SEEK SPECIALIST ADVICE!

Warranty

Warranty conditions are contained in our standard terms and conditions. Contact your authorised outlet for repair.

Options

- Conformal Coating
 - Conformal Coating and Ruggedisation
 - IEC Terminal or Input Cable
 - Reverse Fan****
 - Lower Leakage Current
 - 12V or 5V Auxiliary Supply
- See Designers' Manual for details.

coolMods

coolMod maximum power ratings must not be exceeded

CX06 Ratings CX18 Ratings

Model	Vmin	Vnom	Vmax	I _{max}	Watts	I _{max}	Watts
CmA	2.5	5.0	6.0	21.0	105	30.0	150
CmB	6.0	12.0	15.0	15.0	180	23.3	280
CmC	15.0	24.0	28.0	8.33	200	12.5	300
CmD	28.0	48.0	58.0	4.17	200	6.25	300
CmE**	22.8	24.0	25.2	25.0	600	37.5	900
CmF**	45.6	48.0	50.4	12.5	600	18.75	900
CmG***	3.0	24.0	30.0	3.0	90	4.0	120
	3.0	24.0	30.0	3.0	90	4.0	120
CmH****	3.0	5.0	6.0	6.0	36	6.0	36
	3.0	24.0	30.0	3.0	90	3.0	90
CmM	1.0	5.0	6.0	21.0	105	30.0	150
CmN	1.0	12.0	15.0	15.0	180	23.3	280
CmP	1.0	24.0	28.0	8.33	200	12.5	300
CmQ	3.0	48.0	58.0	4.17	200	6.25	300

Permitted Power Ratings for Reliable Operation.

coolPacs and coolMods are operating within their power ratings as listed above, taking care to factor in the appropriate derating if the ambient temperature exceeds 50°C.

Model	Watts	L x H x W (mm)
CX18S - Standard	1800W	269 x 40.60 x 127
CX18M - Medical	1800W	269 x 40.60 x 127

Derate linearly from 1800W at 180Vac to 1230W at 100Vac nom.

Notes:

A French translation of this Instruction Manual is also available, document number 40121. Contact sales@excelsys.com for a copy of this.

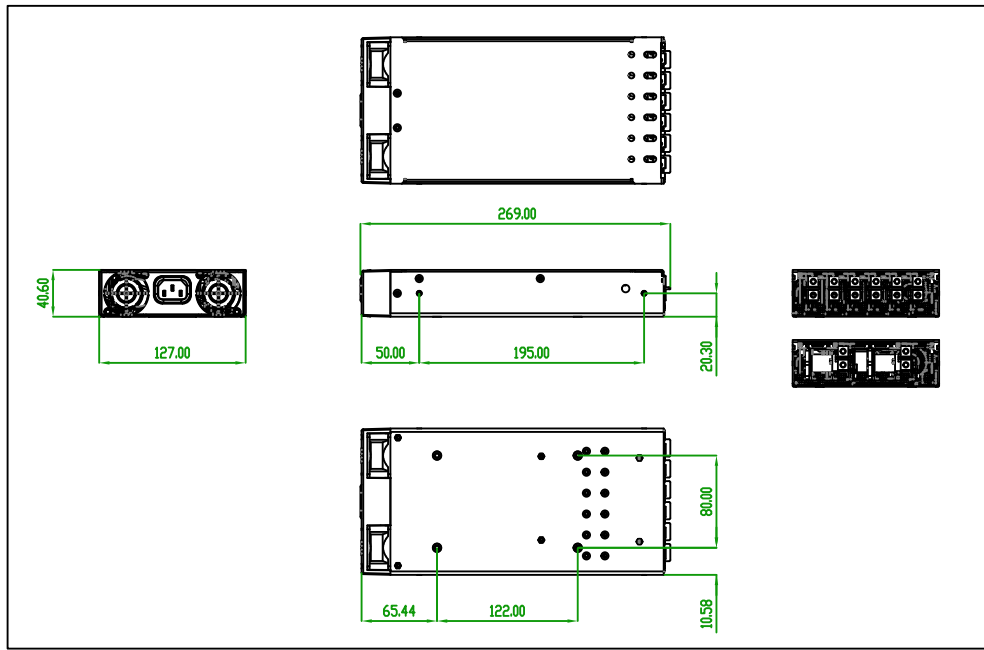
* = CoolMod variants CmE & CmF are a 3 slot wide module which plugs into slots C or F only. When only one CmE or CmF is used in a CoolX 1800 product it MUST be placed in slot F. When a CoolX1800 is populated with a CmE or CmF the power supply part number will show the CmE or CmF in slot F and/or C and have slots A,B,D and E marked as unavailable by using the # symbol.

** = For CoolMod variant CmG the maximum output power of each channel is 120W, while the output power of both channels must not exceed 200W.

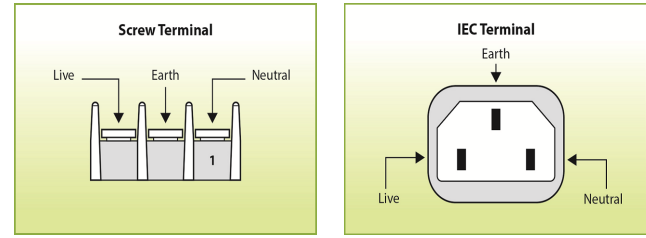
*** = For CoolMod variant CmH the maximum output power of channel 1 is 60W and channel 2 is 120W.

**** = A 300W derating needs to be applied for this option.

CoolX Mechanical Drawing



CoolX Input Connectors

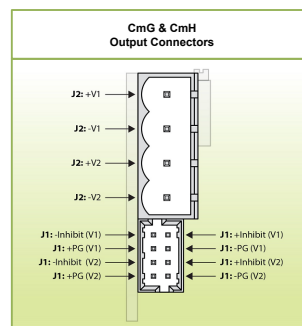
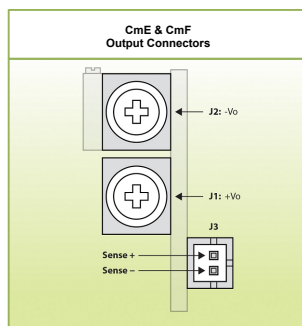
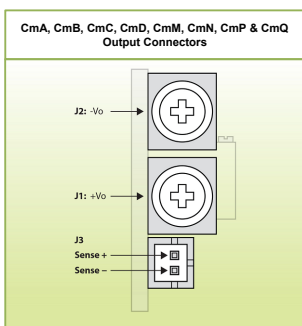
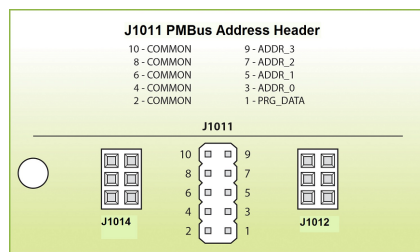
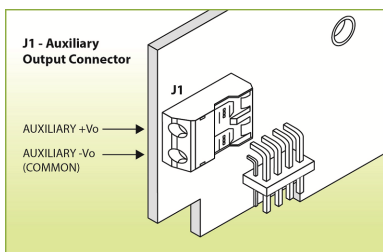
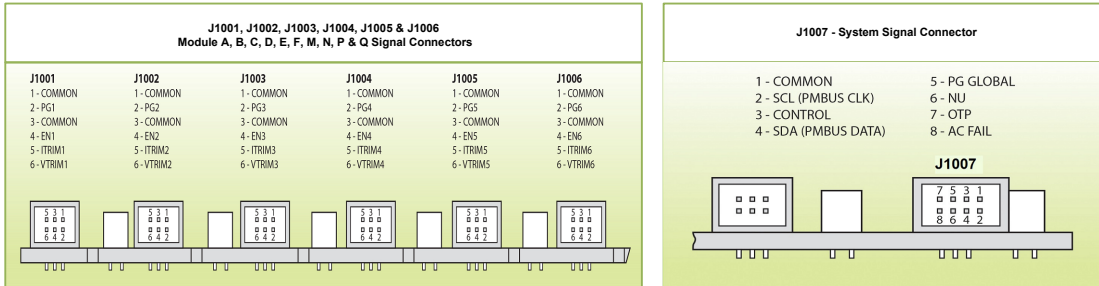


AC mains is applied via 3 Screw Terminal Block or IEC320 Inlet Terminal.
Note: For use in ambient temperatures >60C, a hot condition mating connector and cable must be used.

AC/DC Input Terminal Block TE 2-1437667-S, DINKLE DT-35-B14W-03
AC/DC IEC Input (Option 1) IEC320 Inlet Qualtek 703W-00/54

Input Cable and Connector (optional)
Line: Connector Faston Receptacle 6.3 x 0.8mm
Neutral: Connector Faston Receptacle 6.3 x 0.8mm
Earth: Connector Crimp Terminal Ring M3

CoolX Output Connectors



J1001-J1006 Mating Connector J1001-J1006 6-way Molex 87833-0631 Locking Molex 51110-0660; Non Locking Molex 51110-0650 Crimp Terminal Molex p/n 50394 or Molex 51110-0656 which includes Locking Tab and Polarization Key

J1007 System Signal Connector Mating Connector J1011 8-way Molex 87833-0831 Locking Molex 51110-0860; Non Locking Molex 51110-0850; Crimp Terminal Molex p/n 50394 or Molex 51110-0856 which includes Locking Tab and Polarization Keying

J1 Auxiliary Output Connector Molex 104188-0210 (solid wire should be used)

J1011 PMBus Address Header Mating Connector J1011 10-way Molex 87758-1016 Harwin M22-1900005

Each CmA, B, C, D, E, F, M, N, P & Q CoolMod DC output has Power Terminals (J1 and J2) and Sense Connector (J3)
J1 & J2 DC Output Terminals M4 Screws
J3 Sense Connector JST-S2BPH-K-S (LF) (SN)
J3 Mating Connector JST PHR-2, Crimp: JST BPH-002T-P0.5S or SPH-002T-P0.5S

Each CmG & CmH CoolMod DC output has Power Terminal (J2) and Signal Connector (J1)
J2 DC Output Terminal Camden - CTB9350/4A Camden - CTB9200/4A or Würth Elektronik - 691 352 710 004
J2 Mating Connector Molex - 87833-0831
J1 Signal Connector Housing: Molex - 51110; Crimp Terminals: Molex - 50394

Note: Cables must be rated 105°C minimum.

Labeling and Model Numbers

coolMod

coolMod labels contain:
..Minimum, Nominal & Maximum voltage adjustment range
..Maximum current (Imax)
..Maximum power (Watts)
..Model number

coolPac

coolPac labels contain:
..Input Freq
..Input Voltage
..Fuse rating
..Serial Number
..Maximum combined power rating of inserted coolMods
..Maximum Line current under rated conditions
..Model Number in the format CX18M-000000-N-A as an example of standard medical product part number with no options
..The following warning and information symbols:

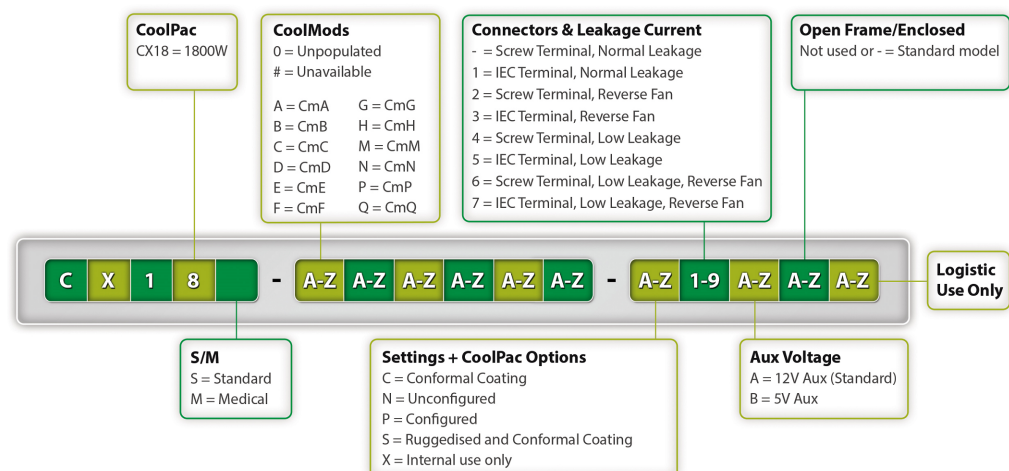


Configuration Considerations

- When parallel connecting outputs, refer to Designers' Manual for set-up, including Vtrim adjust and I-Share header.
 - When connecting outputs in series to achieve voltages in excess of 60VDC (SELV), ensure that appropriate safety precautions are taken in the system.
 - Before removing and replacing output modules, remove input power for 4 minutes.
 - For proper connection to Inhibit, Enable, Fan Fail, Over Temp alarm, and Output Signals Power Good refer to Designers' Manual.
 - For power derating, refer to Designers' Manual.
 - For motor loads, high inductance, and high capacitance: blocking diode may be needed. Contact Excelsys for support.
- Refer to the Designers' Manual and Product Series Catalogue for information on all the above and additional information regarding the set, installation and operation of the CoolX Series.

Excelsys Technologies Ltd. reserves the right to alter or improve the specification, internal design or manufacturing process without notice. Please check with your Excelsys representative or visit www.excelsys.com to ensure that you have the current and complete specification for your product before use. For information and instructions on use, please consult the Designers Manuals for these products at www.excelsys.com.

CX18 Part Numbering System



When the coolPac has no coolMods inserted, its Model number is simply CX18M-000000-N-A.

When the coolPac has one or more coolMods inserted, its model number may be easily read to be CX18M-AAAAAB-N-A as an example, where coolMods CmA, CmB, CmC, CmD, CmE, CmF are inserted in Slots A, B, C, D, E and F respectively.

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