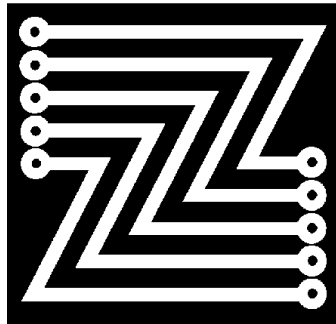


# **MSC-3**

## **Remote Console**

### **Instruction Manual**



**ZENER**

## **ZENER TECHNOLOGY AND QUALITY ASSURANCE**

Since 1978 Zener Electric has supplied many thousands of AC drives to industry. These drives have been installed into numerous applications resulting in a wealth of in house experience. The Zener MSC-3 AC variable speed controller is the culmination of this experience, modern technology and industrial application requirements. The Zener Quality Assurance program ensures that every MSC-3 manufactured has proven to operate correctly in the production test bay before dispatch.

### **MSC-3 PRODUCT WARRANTY**

Zener Electric warranty the MSC-3 against defective workmanship and materials for a period of 24 months from the date of dispatch. Such defects will be rectified free of charge for both labour and material, at Zener Electric's premises subject to:

1. Zener Electric's customer raising an order upon Zener for service and/or repairs, subject to a warranty claim. The order is to state particulars of the model and serial number, the date of original purchase and invoice/delivery docket number.
2. All damage resulting from incorrect installation or use other than in accordance with the instruction manuals issued by Zener Electric is excluded from this warranty.
3. The Warranty being rendered invalid if the product is misused or if any unauthorised alteration, modification or substitution of any part of the product be made or the serial number of the product is defaced or altered.
4. The cost of transportation (both ways) is to be met by the owner if it's necessary to return the product, or any part of it, to Zener Electric's premises.
5. A charge being accepted by the owner for travelling time and expenses incurred in connection with warranty service at the user's site as requested by the owner.
6. If the product was not purchased from Zener Electric directly, then a warranty claim must be lodged with the original supplier in the first instance. Repairs will not be effected by Zener Electric unless approved by the original supplier. Goods not of our own manufacture incorporated in our supply or sold by us, carry their maker's warranty only.
7. Goods returned for claim under warranty will be accepted on the condition that should the claim be rejected then all costs, including inspection, will be charged to the customer's account.
8. Zener Electric is not liable for any consequential loss.

In Australia, this product warranty is additional the conditions and warranty which are mandatory and as implied by the Trade Practices Act 1974 and other legislation. In other countries, the above warranty conditions apply.

## **SAFETY**

Your MSC-3 must be applied, installed and operated in a safe manner. It is the responsibility of the user to ensure compliance with all regulations and practices covering the installation and wiring of your MSC-3. The instruction manual should be completely read and understood before attempting to connect or operate the MSC-3. Only skilled personnel should install this equipment.

This equipment contains a number of components that are designated by their various manufacturers as “not for use in life support appliances, devices or systems where malfunction of the components can reasonably be expected to result in personal injury or death”. Customers using or selling Zener products for use in such applications do so at their own risk and agree to indemnify Zener for any damage resulting from improper use or sale.

**THE CONTENTS OF THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE**

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## Warning



Read all operating instructions before installing, wiring, operating, servicing or inspecting the MSC-3.

Ensure that the instruction manual is made available to the final user of the product as well as all personnel involved in any aspect of installation, adjustment or maintenance.

Your MSC-3 must be applied and installed by a suitably qualified and experienced electrical tradesperson in accordance with this manual, good engineering practice and all local rules and regulations



There are hazardous voltages inside the MSC-3 whenever it is connected to an electrical supply and for some time afterwards.

Before touching anything inside the MSC-3 enclosure or other equipment connected to the MSC-3 terminals, disconnect all sources of electrical power, wait at least 11 minutes for capacitors within the MSC-3 to discharge to less than 50VDC and then ensure, by measurement, that there is no hazardous AC or DC voltage present at any terminal.

The MSC-3 contains high energy circuits that may be hazardous. Do not operate the MSC-3 with the door open or any part of the enclosure removed.

Do not touch the terminals of the MSC-3 or any associated motor and wiring when it is energised, even if the MSC-3 and motor are stopped. Electric shock may result.

Do not modify this equipment electrically, mechanically or otherwise. Modification may create safety hazards as well as voiding the UL listing of the product.

The MSC-3 is designed to drive an appropriately rated and otherwise suitable 3 phase induction motor. It is not suitable for single phase motors or other types of motor or non-motor load. Use with inappropriate load types may create a safety hazard.

The MSC-3 is intended for use only in fixed wiring applications. It is not intended for use on a flexible supply cable.

The MSC-3 contains a substantial EMC line filter and as a result it is unsuitable for use on earth leakage protected circuits.

Mount the MSC-3 on a vertical, incombustible surface such as metal or masonry. Do not place combustible or flammable material near the MSC-3. Failure to observe these precautions may create a fire hazard

The MSC-3 is manufactured under strict quality control arrangements, however additional and independent safety equipment must be installed if the application is such that failure of the product may result in personal injury or property damage.

## MSC3 Remote Console Manual

Ensure that electrical noise generated by the product and any associated equipment does not adversely affect the proper operation of other equipment or systems, particularly those that have a safety function.

Install emergency stop circuitry that removes power from the MSC-3 and does not depend on any feature of the product for proper and safe operation. Do not use the braking functions of the product for safety purposes.

The MSC-3 has features that may be used to cause an automatic restart in certain circumstances. The overall application (machine etc) must be designed such that automatic restart is not hazardous.

Do not install this equipment in locations where mechanical damage to the enclosure is possible. In particular, consider vehicles, vandalism and attack by insects or animals. Severe equipment damage and safety hazards may result.

### Receiving

Inspect the MSC-3 Remote Console kit for any shipping damage. If any damage is found, report it to the carrier immediately.

**Do not attempt to operate the MSC-3 Remote Console if any obvious damage exists.**

After the initial inspection, the MSC-3 Remote Console can be repacked and stored in a clean, dry location until it is required for use.

DO NOT store this equipment in an area where the ambient temperature will fall below -20°C (-4°F) or rise above 70°C (158°F).

DO NOT store this equipment in areas of high condensation or corrosive atmosphere.

Proper storage is necessary to ensure satisfactory controller start up and performance.

### Compatibility

This manual describes features of MSC-3 Remote. It is compatible only with MSC-3 control board software version 1.34 or later. The software revision is displayed briefly at power up.

## MSC-3 Remote Console Kit Description

Remote Console Kit allows the user to:

- Control the operation of the MSC-3 drive
- Adjust any user configurable parameter
- Display any run variable on the run screen

from a location away from the MSC-3 drive.

The Kit contains:

- 1 x Remote Module with display and gasket attached
- 1 x Local Module with attached ribbon cable
- 1 x Bezel
- 4 x Nylon Washers
- 4 x M4 Flange nuts
- 1 x Cut-out guide
- 1 x M3 x 6 mm Screw
- 1 x M3 - 16 mm Male/ Female Spacer
- 1 x Spare Ribbon Connector
- 2 x Replacement Label

## Specifications

Maximum distance between the drive and the MSC-3 Remote Console is 180 meters.

The standard lengths of Ribbon cable are 2m, 5m or 10 metres. Contact your local supplier for lengths greater than 10m.

For distances above 10 meters an external regulated, 6-Volt 200mA, power supply must be used. The allowable dc voltage range is 5.7 V to 6.3 Volts.

The sealing on the Remote Console is IP66 (NEMA 4) rated. To maintain the IP66 (NEMA 4) of the MSC-3 enclosure, run the ribbon cable in 25mm conduit from drive to the external enclosure.

The Remote Module unit can be mounted on a panel of thicknesses between 1.2mm and 5mm.

Run the Ribbon cable along earthed metal surfaces as far as possible.

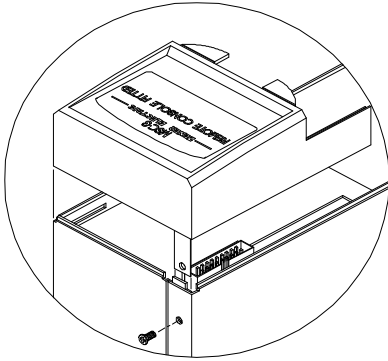
## Local Module Installation for Chassis A IP30

1. Remove the bottom blue plastic moulding (6) of the drive.
2. Remove any option board mounting screws.
3. Remove the screw holding the top moulding and the screw closest to the moulding on the top face of the drive (see inset).
4. Remove the top moulding (1) and unclip the control board (5) from inside it.
5. Remove and discard the display from the top moulding by unscrewing the 4 screws.
6. Plug in the Local Module (3) to the control board socket JD.
7. Re-house the control board, with Local Module attached, in the top plastic moulding.
8. If there is not an option board (8) fitted to the left-hand side of the control board, screw the male/ female spacer into the left-hand side nut insert provided in the chassis, just below where the Control board terminals will mount.
9. Replace the top moulding on the drive. Ensure that the metal tab (See inset) protruding from the back of the moulding goes between the Mylar (plastic) sheet and the case.
10. Secure the top moulding on the drive using the 2 screws removed in step 3.
11. Screw the earth cable (4) from the Local Module into the left-hand side option-mounting hole in the Control board. Use either the screw provided, if there is no option fitted, or the screw removed earlier, if there is an option fitted.
12. Replace any other option mounting screws.
13. Remove the gland plate (10) and cut a 20mm hole in it.
14. Pull the ribbon cable (11) and blind grommet (9) through the gland plate.
15. Ensure that ribbon cable is kept clear of High Voltage areas in the drive.
16. Replace the gland plate and the bottom moulding (6).
17. Press the grommet into the hole in the gland plate.
18. Peel off the old label from the drive and apply the Replacement Label (2).



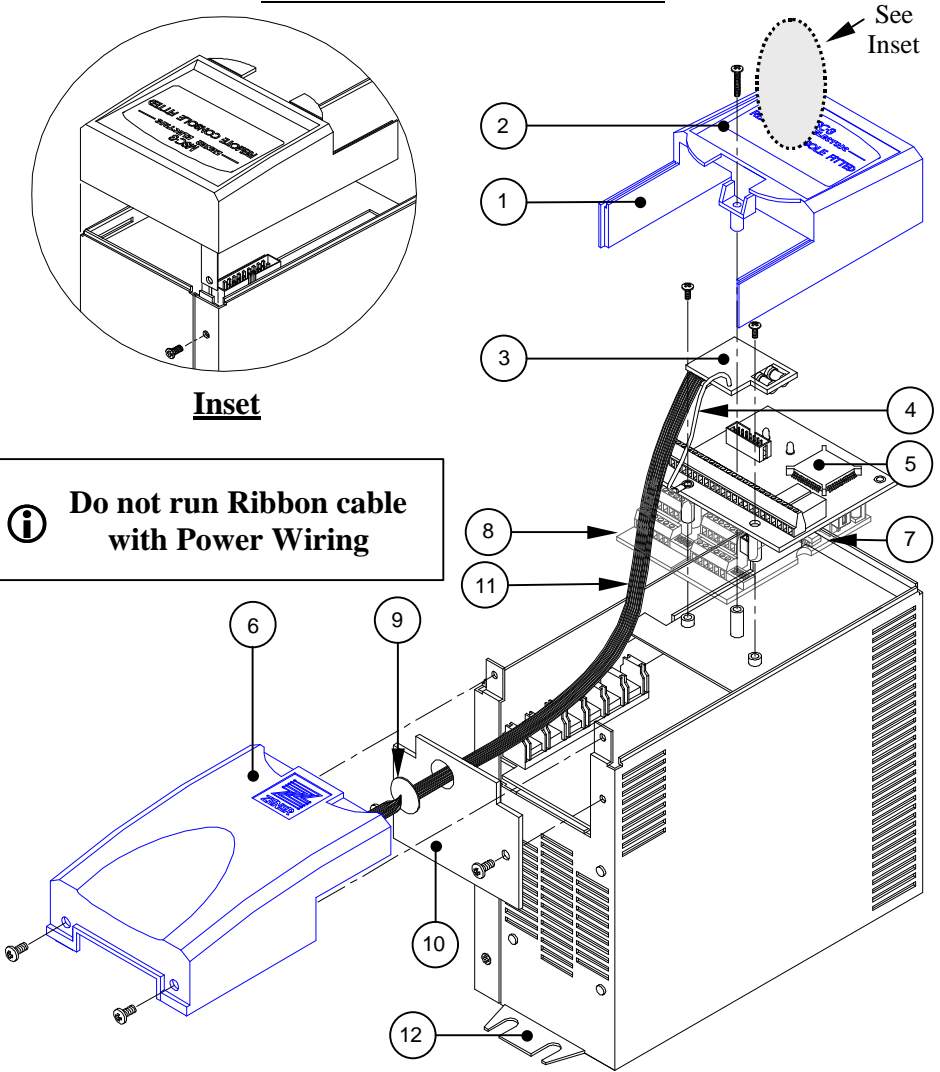
# MSC3 Remote Console Manual

## Chassis A IP 30 Installation Guide



**Inset**

**ⓘ Do not run Ribbon cable with Power Wiring**



### LEGEND:

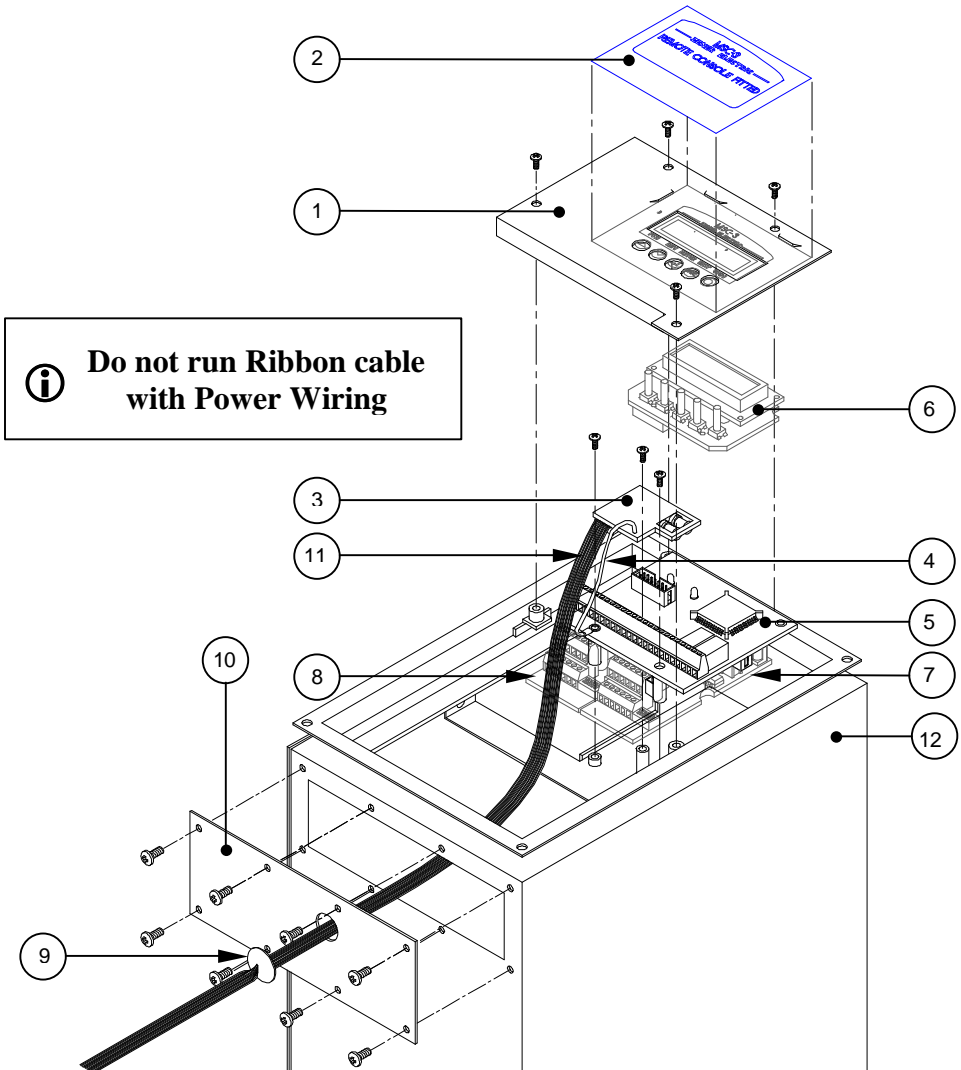
- |                      |                                   |
|----------------------|-----------------------------------|
| 1. Top Moulding      | 7. Right Option Board             |
| 2. Replacement Label | 8. Left Option Board              |
| 3. Local Module      | 9. 20mm Rubber Grommet            |
| 4. Earth Lead        | 10. Gland Plate                   |
| 5. Control Board     | 11. 16-way Ribbon Cable           |
| 6. Bottom Moulding   | 12. MSC3 Chassis A IP30 Enclosure |

### Installation for all other Drives (Except Chassis A IP30)

1. Remove the front panel.
2. Unscrew and remove the display plate (1).
3. Remove and discard the local display (6) by unscrewing the 4 screws that secure it.
4. Remove the left-hand side option mounting screw.
5. Plug in the Local Module (3) to the control board (5) socket JD in place of the local display.
6. Place the EARTH cable (4) on the left-hand-side mounting hole on the control board and secure using the screw removed earlier.
7. Replace the display plate.
8. Peel off the old label from the display plate and apply the supplied Replacement Label (2).
9. Remove the gland plate (10) and drill a 20mm hole in it.
10. Pull the ribbon cable (11) and blind grommet (9) through the gland plate.
11. Ensure that ribbon cable is kept clear of High Voltage areas in the drive.
12. Replace the gland plate and the front cover.
13. Press the grommet into the hole in the gland plate.

# MSC3 Remote Console Manual

## Installation Guide for all other drives (except Chassis A IP30)



**i** Do not run Ribbon cable with Power Wiring

### LEGEND:

- |                      |                         |
|----------------------|-------------------------|
| 1. Display Plate     | 7. Right Option Board   |
| 2. Replacement Label | 8. Left Option Board    |
| 3. Local Module      | 9. 20mm Rubber Grommet  |
| 4. Earth Lead        | 10. Gland Plate         |
| 5. Control Board     | 11. 16-way Ribbon Cable |
| 6. Local Display     | 12. MSC3 IP66 Enclosure |

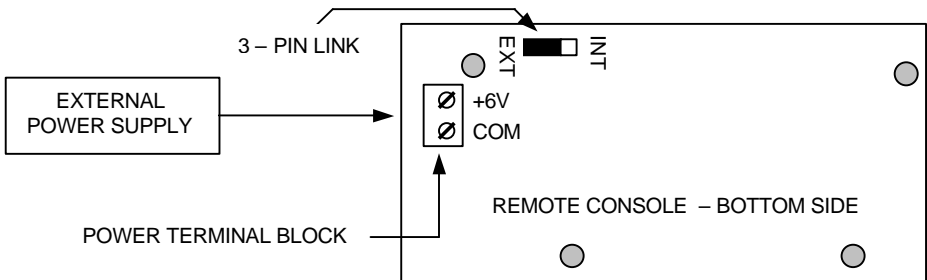
## Remote Module Installation

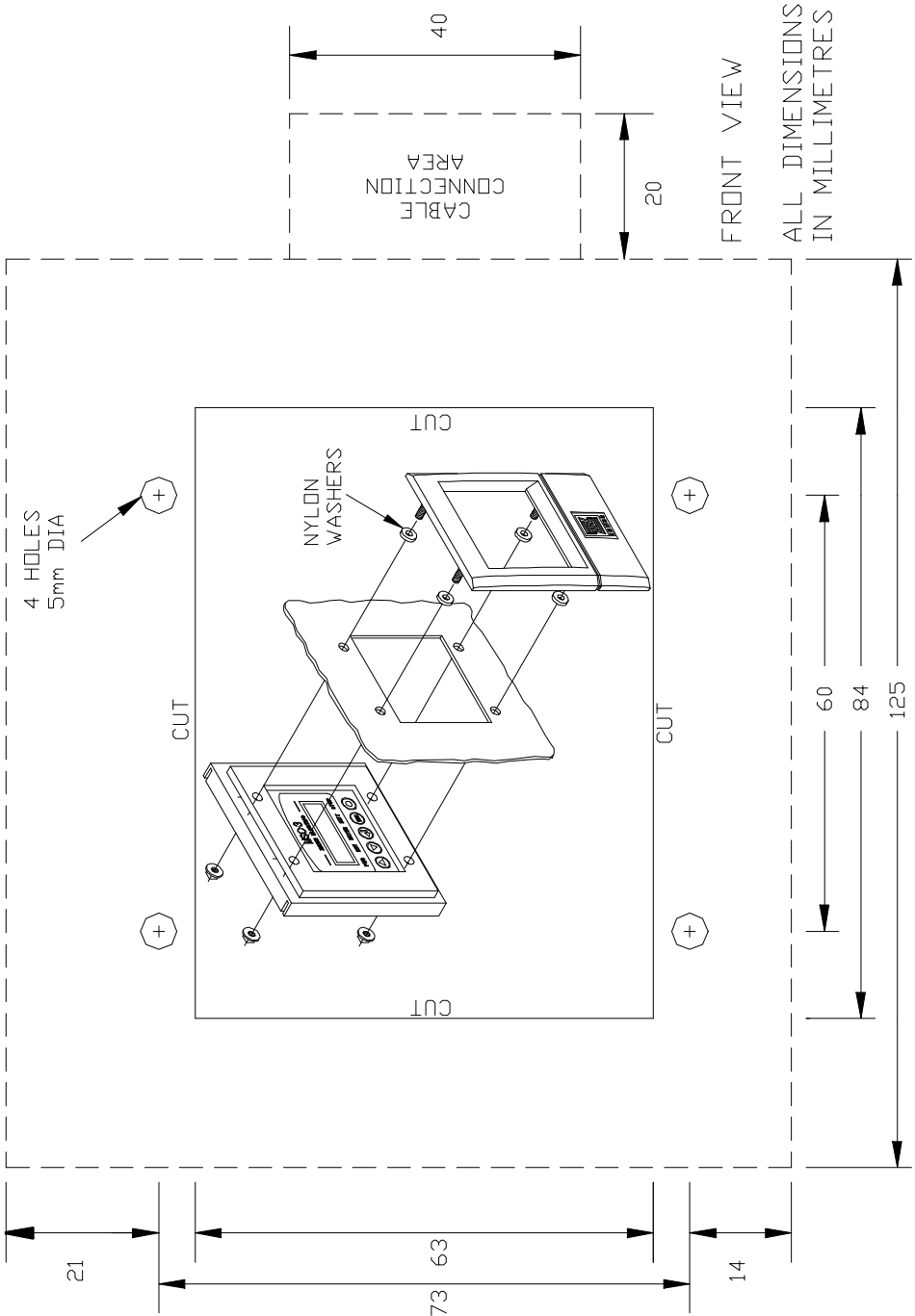
1. Mark up your panel using the template or dimensions provided. Ensure that you leave enough space to connect the ribbon cable.
2. Cut out the panel.
3. Following the installation drawing (opposite page), first
  - Place the 4 M4 Nylon washers on the 4 studs on the Plastic Bezel.
  - Insert the Plastic Bezel in the front side of your panel.
  - Place the Remote Module on the studs so that the MSC-3 label is facing towards the panel.
  - Secure using the M4 flange nuts to a torque of 2.5 N-m.
4. Connect the ribbon cable to the Remote Module.

## Using External Power Supply

When an external power supply is being used, ensure,

- The link on the 3-pin strip is on EXT (external)
- Connect the positive supply to +6V indicated on the terminal block
- Connect the negative (ground) to COM indicated on the terminal block





FRONT VIEW

ALL DIMENSIONS  
IN MILLIMETRES

**NOTES**



**Australian  
Manufacturers**

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