



# Advanced J-MESH™ DCSR Configuration and Installers Guide

ELECTRICAL+INDUSTRIAL | TOOLS+TECHNOLOGIES

**TMAC**™  
THEW &  
McCANN  
GROUP

ACTIVE INNOVATION



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## BEFORE YOU START

### GENERAL PRECAUTIONS



**Read and understand this guide before operating this equipment.**

The TMAC Advanced J-MESH™ DCSR is to be only used by qualified personnel and must be used in conjunction with the user’s own working and safety procedures, without compromising the integrity of the TMAC product supplied.

Follow all safety instructions contained within this guide.

### QUALIFIED PERSON

A qualified person is one who is familiar with the installation, construction, operation or maintenance of the equipment and the hazards involved. In addition, this person is competent, trained and authorized to undertake the work involved in accordance with established safety and working procedures.

### SAFETY SYMBOLS USED IN THE GUIDE



**Mandatory Action** - This symbol indicates the action must be taken to avoid a hazard. Any information that follows this symbol must be obeyed to avoid possible harm.



**Hazard Identification** - This is a general warning sign. It is used to alert the user to potential hazards. Any information that follows this symbol must be obeyed to avoid possible harm.

## GENERAL INFORMATION

### DESCRIPTION

The Advanced J-MESH™ Demand Control Signal Receiver (DCSR) is an 8 channel Demand Respond Enabling Device (DRED) that is designed to comply with the AS/NZS4755.1 standard as a Type 1 DRED. It is intended to be used in the conjunction with attached Electrical Products, such as solar inverters, batteries or air-conditioners, to regulate their generation, load, storage charge and discharge in order to better manage grid supply and demand.

In addition to the standard DRED capabilities, the DCSR also provides Power measurement facilities to provide critical response feedback to assess the impact of asserting DRED interface commands as well as AS/NZS4755.1 interface connectivity fault detection to assist in the installation and maintenance.



Connectivity to the DCSR is provided using J-MESH™ LAN technology purposely designed as a fully organic MESH network without the need for any configuration to make installation, commissioning and servicing easier. The LAN technology allows access through one or more dedicated Gateway devices managing multiple DCSRs through to a common Internet-based server thereby allowing real-time activation and monitoring of the DCSR from anywhere in the world.

### PRODUCT INFORMATION

- Class 1 DRED according to AS/NZS4755.1 with Unclassified (custom) communications.
- Supply Voltage Range: 100-264VAC 50Hz
- Power Consumption: 3W Max, Typical <0.5W
- Operating temperature range: -20 to +60°C.
- 8-Channel DRED Interface supporting all possible OI and OI group combinations
- Supports OI group event scheduling for single and repeated events.
- Selectable default OI assertion and configurable loss of communications OI assertion.
- DRED Interface feedback support with configurable connection capabilities.
- Event Log with up to 248 entries including DRM Events.
- Voltage Measurement: 0-300 VAC ± 1%.
- Current Measurement: 0-65A ± 1% incorporating split core CT on 2m flying lead.
- Measurement TARP event generation support enabled.
- 5V DC External supply, current limited to 100 mA with OVC detection and automatic shutdown.
- Radio Interface: 915-928 MHz J-MESH™ Version 2.1 compatible. Range up to 150 meters line of sight.
- Enclosure rating: IP65
- SAA Approvals Number: SAA212409

## SAFETY

### LIMITATIONS OF USE



Only suitably qualified personnel shall install the DCSR device.

## PRE-INSTALLATION & PRE-DEPLOYMENT CONFIGURATION WORK

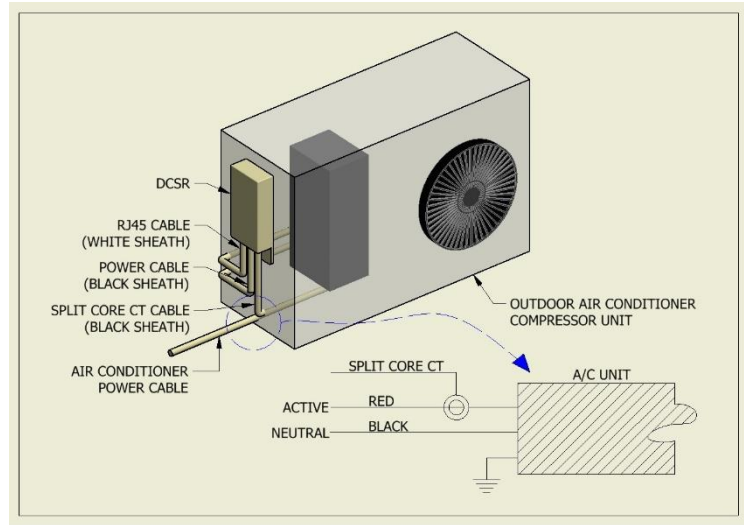
The DCSR does not require any pre-programming or configuration.

## INSTALLATION INSTRUCTIONS

- The DCSR is designed to be installed by a 'qualified person', that is an electrician - adjacent to an existing Electrical Product.
- The qualified person connects the DCSR's "POWER CABLE" in parallel with the Electrical Product's mains supply. The DCSR's "CONTROL CABLE" is then installed and connected between the DCSR and the Electrical Product's dedicated Demand Response Mode (DRM) connector. The DRM connector may be an RJ45 socket, or a set of screw terminals depending on the Electrical Product model. (see the CONTROL CABLE wiring diagram below).
- For units fitted with screw terminals, an RJ45 to screw terminal adapter should be used.
- The DCSR is intended to be installed in accordance with the wiring rules (AS/NZS 3000). The product is intended to be connected to the fixed wiring, and installed in a location external to the Attached Equipment where it is not likely to be subjected to mechanical damage.
- The DCSR **must** be **MOUNTED VERTICALLY WITH THE CABLE ENTRY FACING DOWN** (In line with the '**THIS WAY UP**').
- The DCSR should be mounted as close as possible to the control connections of the Electrical Product where it can be cable tied to existing supported wiring or screwed to a flat surface. **It should not be mounted inside a metal enclosure, including within the Electrical Product itself.** The DCSR can be positioned behind existing air conditioning duct work, or in a wall cavity provided radio transmission to the device is possible.
- A means for disconnection shall be incorporated in the fixed wiring according to the wiring rules. **For this, an all-pole main switch or circuit breaker shall be provided when installing the DCSR.**
- The internal components within the DCSR are factory set and should never be accessed.
- The wiring diagrams in this manual should be read and understood in conjunction with the Electrical Product manufacture's own documentation.
- A check of connectivity to the DCSR should be made from the intended Gateway location using a J-MESH™ Dongle connected to a PC running the iController Window's Application. This check should include the examination of any error events reported, activating OIs and checking the voltage and current measurements to ensure they are reasonable. No error reports should be generated by the DCSR in this check and connection strength (RSSI), as measured both by the DCSR and the Dongle, should each be above -90dBm for optimal performance.
- Any prescribed configuration of the DCSR should be done in this time. This includes configuring a default OI state, Loss of Communications State and any fixed schedules specific to the installation. Instructions for this will be provided as applicable.

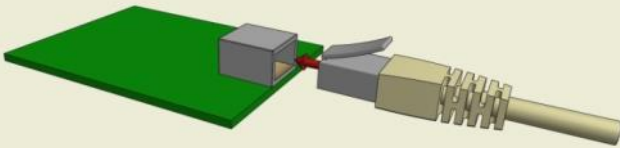
## WIRING OVERVIEW

The DCSR has three cables to connect, a POWER cable, a CONTROL CABLE and a CT cable. The power cable is used to supply mains power to the DCSR, while the control cable is connected to a special dedicated Demand Response Mode (DRM) connector on the air conditioner. The CT sensor is clipped onto the active conductor of the air conditioner. Consult the installer's manual for the air conditioner to find the location of the DRM connector.



## CONTROL CABLE WIRING DIAGRAM

### OPTION A: RJ45 CONTROL CONNECTION

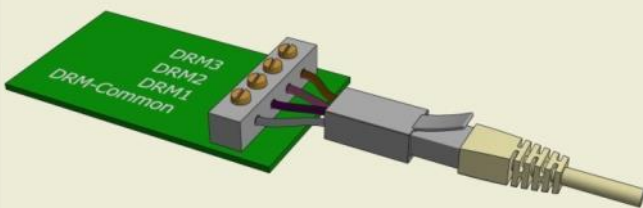


The DCSR's CONTROL CABLE is connected to the dedicated DRM connector on an Electrical Product. The connector will either be an RJ45 connector (OPTION A – 8-Channel), or a set of screw terminals (OPTION B – 3 Channel).

**NOTE: THE DRM CONNECTOR IS ALWAYS SEPARATE FROM THE POWER CONNECTION**

### TERMINALS

### OPTION B: SCREW TERMINAL CONTROL CONNECTION



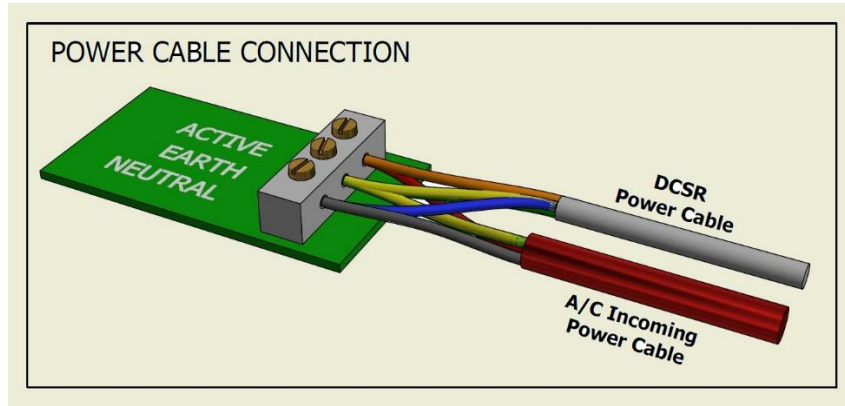
The RJ45 Adapter Cable may be used to connect the DCSR to air conditioners fitted with SCREW terminals as the DRM connection. The table below shows which coloured cable must be connected to each DRM terminal.

**NOTE: DO NOT CONNECT THE CONTROL CABLE TO THE POWER CABLE CONNECTIONS**

DRM Terminal	Cable Colour
DRM1	Purple
DRM2	Pink
DRM3	Orange
DRM - Common	Grey

## POWER CABLE WIRING DIAGRAM

The DCSR POWER CABLE supplies mains power to the DCSR. The POWER CABLE should be connected to the incoming mains supply for the air conditioner. Generally, it is piggy-backed into the mains supply terminals as shown below.



**NOTE:** If the supply cord is damaged, it shall be replaced by the manufacturer or its service agent or similarly qualified person in order to avoid a hazard.

## STORAGE

The DCSR should be stored within an environment specified as follows:

Humidity	10 to 90% (Non-condensing)
Temperature	-10 to +40°C

## ROUTINE MAINTENANCE & INSPECTIONS

The DCSR should not require any special maintenance or inspections.

## REPAIR

The end user must not repair or modify any component associated with this device without written permission from TMAC. If repair is required contact TMAC.

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## DEFECTS / WARRANTY

### DEFECTS

Goods are warranted to be free from defects. Provided they have been used strictly as recommended and subjected only to fair wear and tear, Goods (including parts within) which are found to be defective within 90 days after delivery to the Buyer will be repaired or replaced at the option of the Seller and at its expense. Repair or replacement by the Seller is the exclusive remedies of the Buyer.

### WARRANTY

To the maximum extent permitted by law, the Seller makes no warranties, either express or implied, as to merchantability, fitness for purpose or otherwise with respect to the Goods other than in paragraph above and as required by statute. The Seller is not liable for any prospective profits or special, indirect or consequential damages or any general loss or damage, or for any expense resulting from use by the Buyer or others of defective Goods. The Seller's liability is limited to no more than the sale price of the Goods plus replacement delivery charges. Prior authority for the return of goods is required by the seller.

Please contact the seller by email [sales@tmacgroup.com.au](mailto:sales@tmacgroup.com.au), phone 07 3826 6000 or fax 07 3826 6066 for claims related to defective / warranty of goods provided.

FOR THE FULL TERMS AND CONDITIONS PLEASE REFER TO TMAC "STANDARD TERMS OF TRADE"