



DCR1 60V/50A DC Relay

Installation Guide



Print Date:
September 30, 2011

MOBILTEX® DATA LTD. Calgary, Alberta	TITLE: DCR1 60V/50A DC Relay Installation Guide		
	DOCUMENT NO.:	SHEET:	REV:
	DCR1-MAN-001	1 of 9	1.01

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CURRENT REVISION APPROVALS (Revision 1.00)

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REVISION HISTORY

Rev	Start Date	Approval Date	Description	Prepared By
1.00	Nov 5, 2010		Initial release.	Tony da Costa
1.01	Sept 30, 2011		Updated Specifications – Physical	Shawn Lawrence

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1 Description

Figure 1 shows a labelled picture of the Mobiltex® corTalk® DCR1 normally-open solid-state DC relay. This relay is used for permanent mount installations where sources up to a maximum of 60V/50A are being controlled. The device must be installed in a protective enclosure, such as a rectifier cabinet.



Figure 1 DCR1 Features Labelled

1.1 Input Terminals

The input terminals on the DCR1 relay attach to the power source being controlled. It is important that both the positive and negative leads from the source be connected to the DCR1 input terminals. **Before enabling power from the source, verify that the positive and negative connections are connected to the appropriate terminals. An incorrect polarity connection from the source will cause permanent damage to the relay.**

The input terminals will accept wires terminated with standard ¼” ring lugs. To install the ring lug, first remove the ¼” nut, lock washer, and one flat washer from the input terminal. Next, install the ring lug over the remaining flat washer, then re-install the previously removed flat washer, lock washer and nut. Torque the nut to 5 ft-lbs.

1.2 Output Terminals

The output terminals connect to the load in the system. Typically, in a cathodic system, the positive lead will connect to the groundbed and the negative lead will connect to the protected structure (e.g. pipe). Again, both leads from the load must connect directly to the DCR1 relay output terminals. No connection should be made from the load directly to the source, the DCR1 must connect between the source and the load.

1.3 Control Terminals

The control terminals connect to the device responsible for controlling the relay contacts. Typically, this will be a remote monitoring unit, or a rectifier interrupter controller. Connections to Mobiltex equipment are detailed in section 2. These terminals also provide power to the relay circuitry.

1.4 Mount Points

Four slots are provided on the bottom flange of the relay heatsink to allow for mounting to a flat surface. The slots allow four screws to be installed on a spacing of 4.5”(114.3mm) x 4.56”(115.8mm). Up to a #10 screw can be accommodated with the slot dimensions.

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2 Wiring Connections

WARNING: Ensure that any power sources that will be supplying the DCR1 are off while performing wiring.

WARNING: Ensure that all wire used for interconnections meets the voltage, current and temperature requirements for the particular installation site.

WARNING: Ensure that all applicable national and local electrical codes are adhered to when installing this device..

2.1 Source/Load

Figure 1 shows a typical connection scenario for the DCR1 relay. Here, a cathodic protection rectifier is attached as a source. Note the polarity of the source connections. A protected structure and groundbed are connected to the output terminals of the relay. Ensure all sources are turned off while installing the relay.

Installations for other sources such as thermoelectric generators or solar panels will be similar.

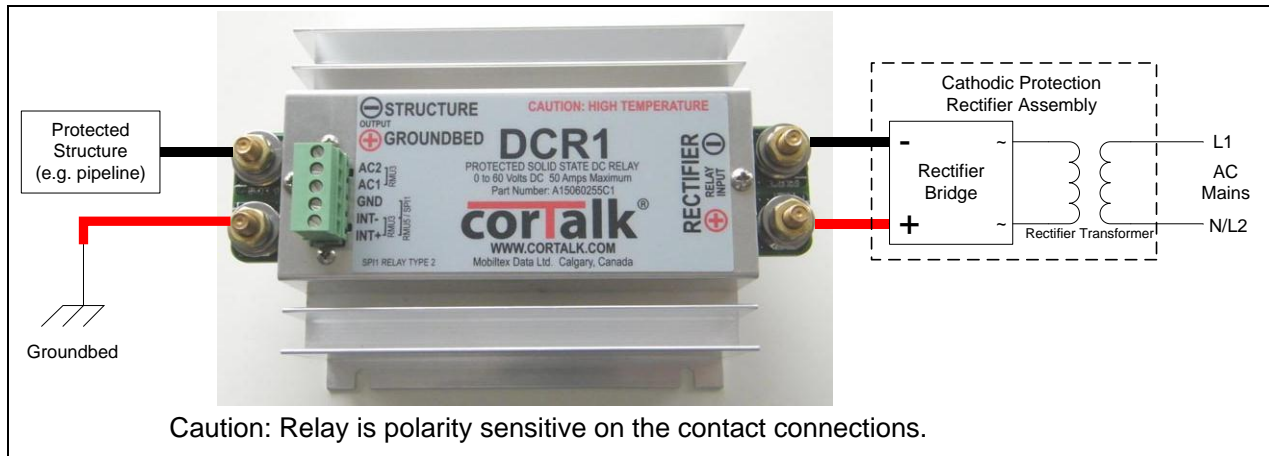


Figure 2 DCR1 Connections To Source and Load

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2.2 RMU3 Control Connection

When used with a corTalk® RMU3 remote monitoring unit, four connections must be made between the RMU3 and the DCR1 relay. Connect the RMU3 INT+ terminal to the DCR1 INT+ terminal. Next, connect the RMU3 INT- terminal to the DCR1 INT- terminal. Finally connect the RMU3 PWR IN terminals to the DCR1 AC1 and AC2 terminals. Polarity on the AC1/AC2 connections is not critical.

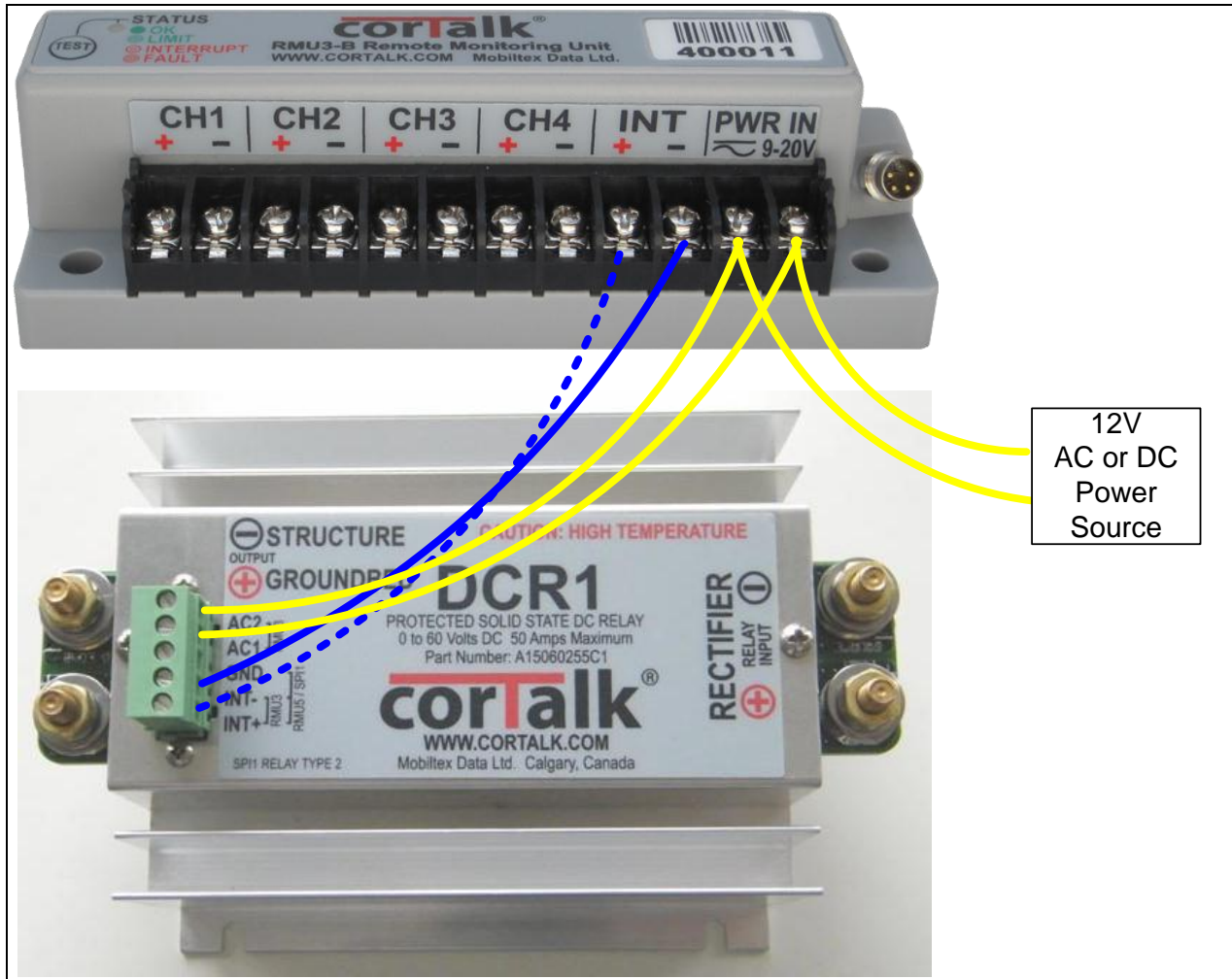


Figure 3 RMU3/DCR1 Control Interconnections

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2.3 RMU5 Control Connection

When used with a corTalk® RMU5 remote monitoring unit, three connections must be made between the RMU5 and the DCR1 relay. Connect the RMU5 INT+ terminal to the DCR1 INT+ terminal. Next, connect the RMU5 INT- terminal to the DCR1 INT- terminal. Finally connect the RMU5 GND terminal to the DCR1 GND terminal.

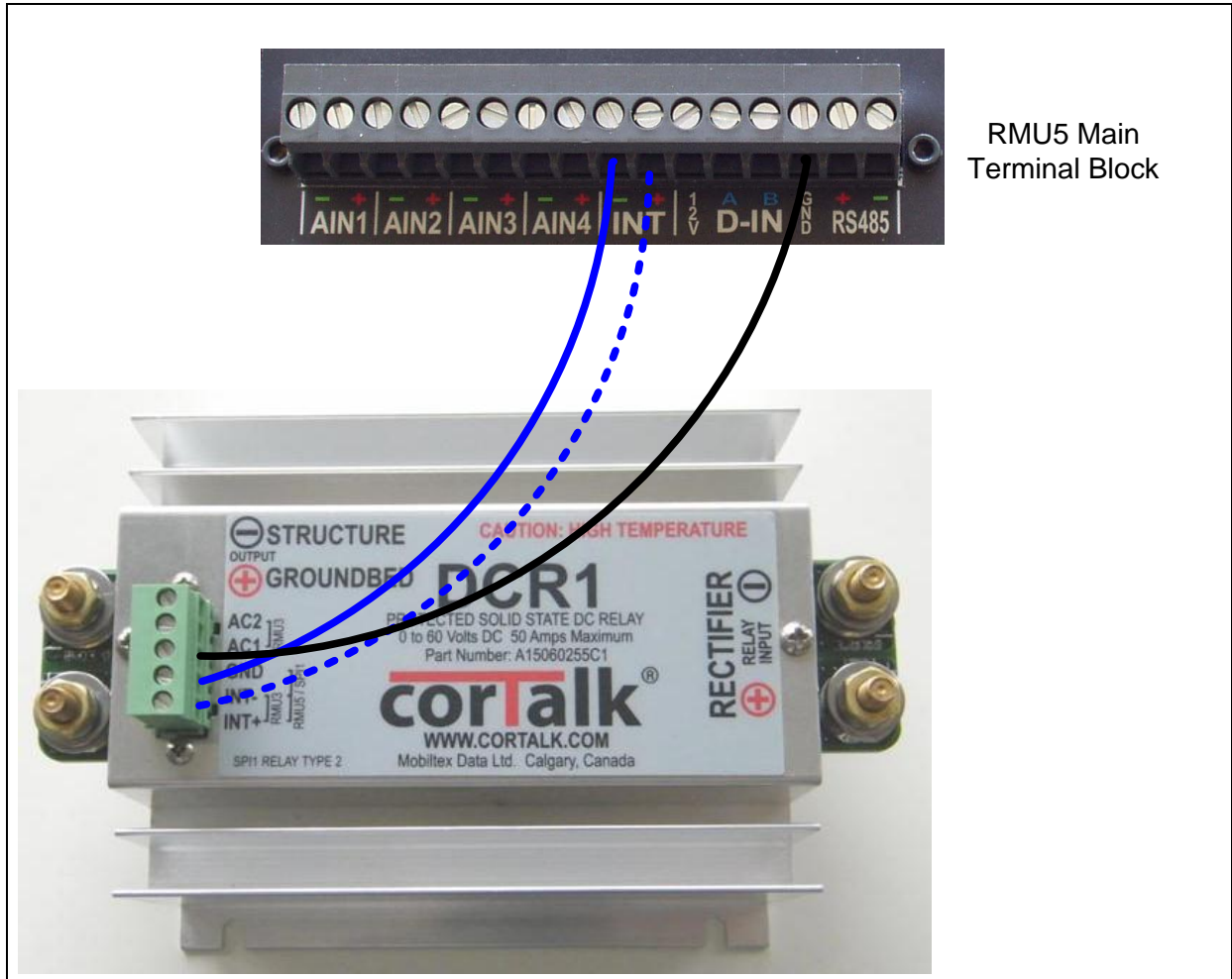


Figure 4 RMU5/DCR1 Control Interconnections

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2.4 SPI1 Control Connection

When used with a corTalk® SPI1 stationary GPS interrupter, three connections must be made between the SPI1 and the DCR1 relay. Mobiltex cable P/N W16400CPI10 must be used with the SPI1 for this type of installation. This cable is terminated on one side with a circular connector that mates to the SPI1 Port A connector. The other end of the cable consists of 5 flying lead wires, three of which connect to the DCR1 relay, and two that connect to the SPI1 power transformer.

Connect the red wire to the DCR1 INT+ terminal. Next, connect the green wire to the DCR1 INT- terminal. Finally connect the black wire to the DCR1 GND terminal. The remaining orange and white wires connect the SPI1 power transformer, as detailed in the SPI1 installation manual.

Set the SPI1 relay type configuration to a value of 2.

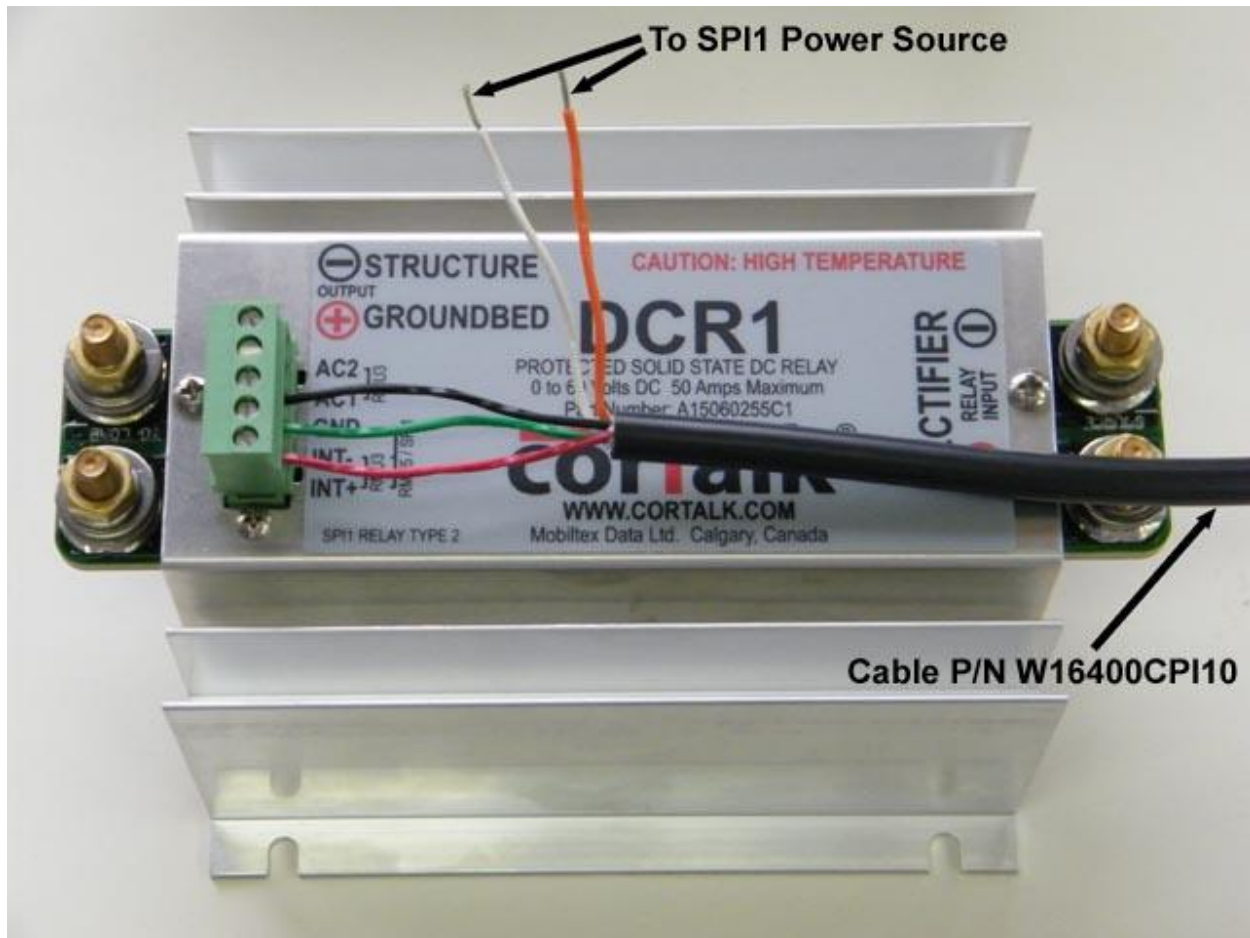


Figure 5 SPI1/DCR1 Control Interconnections

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A. Specifications

Environmental:

Operating temperature range: -40 to +60C (-40 to +140F)
Storage temperature range: -40 to +80C (-40 to +176F)
Humidity: 0 to 100% RH non-condensing

Physical:

Enclosure: Aluminium heat-sink with mounting flange
Size: 180mm(7.09") x 120mm (4.73") x 92mm (3.62")
Weight: 0.91kgs (2 lbs)

Power:

Operating voltage range: 9 to 16 volts AC/DC
Power: 0.25VA maximum

Relay Contacts:

Voltage rating: 0-60VDC
Current rating: 0-50ADC
Type: Normally Open (Form A)
Minimum cycle period: 100ms

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