

Remote Disconnect Information

For solar electric systems with an inverter nameplate rating over 100kW-AC, SRP requires the customer to install a remote control disconnect in addition to a manual disconnect. This disconnect will interface with SRP's Supervisory Control and Data Acquisition/Automatic Generation Control (SCADA/AGC) system. This will allow SRP to remotely disconnect the solar generating facility when clearances are needed to repair the feeder to which it is attached.

This remote disconnect is a highly specialized piece of equipment and will likely require close coordinate with SRP's Communications group to install properly. Since most solar contractors are unfamiliar with this type of equipment, SRP has arranged with a local communication contractor (listed below) to supply this device for solar projects if desired by the customer. This communications contractor currently works with SRP to install communication equipment on SRP's distribution system and has installed several of these remote disconnect devices on solar installations. It is not required to use this contractor to build or install the remote disconnect, but SRP does require use of this contractor for installation of the antenna.

The specifications for this system are detailed in "Remote Disconnect for Distributed Generator Guidelines".

Requirements

1. Purchase and install remote disconnect device.
2. SRP will supply the radio and remote terminal unit (RTU) to ensure proper operation of the remote disconnect.
 - Option 1: Solar contractor purchases and assembles components after review with SRP communications group.
 - Option 2: Purchase remote disconnect complete from High Desert Communications
3. Contract High Desert Communications to install antenna for remote disconnect.

Contact Information

High Desert Communications
Allen Doyle, adoyle@highdesertcommunications.com
372 West Cullumber Avenue
Gilbert, AZ 85233
Phone (480) 632-0020
Fax (480) 632-0030

SRP Communications Group
Peter Hammer, peter.hammer@srpnet.com

SRP EarthWise Solar Energy Program
EarthWisesolarbiz@srpnet.com
Office: (602) 236-4663
Mail Stop PAB 355
P.O. Box 52025 Phoenix, AZ 85072

REMOTE DISCONNECT FOR DISTRIBUTED GENERATOR GUIDELINES

1. General

This document is intended to provide information and technical guidelines to support the safe and effective disconnection of a Distributed Generator (DG) from the Salt River Project Agricultural Improvement and Power District (SRP) electrical system.

The contents of this document is furnished for informational use only, is subject to change without notice, and should not be construed as a commitment by SRP.

2. Telemetry Requirements for DG Remote Disconnect

An existing Supervisory Control and Data Acquisition System/Automatic Generation Control (SCADA/AGC) is one method that SRP uses to manage, operate and maintain its electrical system. The SRP Electric Systems Operations Department (ESO) requires all DG systems rated greater than 100 kW be equipped with provisions that will enable ESO to disconnect the DG from the SRP electrical system by way of remote means. These provisions shall be provided by the Customer and shall contain the following features:

- Must include a remote terminal unit (RTU)
- Must include a radio for wireless transmission
- Must be compatible and comparable with existing RTUs and radios in SRP SCADA/AGC network
- Must integrate seamlessly within SRP SCADA/AGC network
- Must include a load break power contactor rated for DG

3. Design Considerations for DG Remote Disconnect

Design for the DG remote disconnect described is based on traditional engineering practice using industry standard methods and components.

To ensure proper implementation of the DG remote disconnect within the SRP SCADA/AGC network, it is highly likely special configurations will require the assistance from SRP Controls Engineering, and Controls C&M Shop. The Customer shall be charged on a Time and Material basis as SRP assistance is required. For contact information call SRP Commercial Customer Services at 602-236-8833 and ask for the Controls Engineering Department.

4. DG Remote Disconnect Components

A. RTU –

The Remote Terminal Unit is a device installed at a remote location that collects data, codes the data in DNP format and transmits the data back to a master or operation center. Control is permitted of selected elements such as remote control of a DG from a manned operation center.

B. Supply Power -

120Vac @ 1 amp circuit supplies available power to auxiliary Remote Control devices.

C. Power Supply –

Converts 120Vac to 24Vdc that powers RTU, Radio, and other devices.

D. Radio -

Transceiver using frequency-hopping spread-spectrum wireless operation over the license-free 900Mhz (ISM) band.

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E. Antenna -

Use of a Yagi directional type antenna that confines transmission and reception to a narrow pattern minimizing interference.

F. Coaxial Cable -

Cable used to connect the Radio to the Antenna is low-loss cable required to keep the amount of signal loss to a tolerable level.

G. Antenna/Radio Arrestor -

The Impulse Suppressor is used to protect equipment against a direct lightning strike. Connection to a good ground system is required for proper operation.

H. Contactor -

A contactor is an electrical device used for controlling power flow. A contactor is similar to, but different from an electrical relay. Although commonly both use a magnetic coil to draw a contact closed, a contactor differs in that it is designed to "break" a high current load - although relays are designed for switching loads on or off as well they tend to be of much lower capacity and are usually designed for both Normally Closed and Normally Open applications. Apart from optional auxiliary low current contacts, a contactor normally only has Normally Open contacts fitted. Contactor for this application must be designed to International Electrotechnical Commission (IEC) or National Electrical Manufacturers Association (NEMA) standards.

I. Equipment enclosure -

An enclosure designed to house and protects electrical and electronic equipment in industrial applications. The enclosure must be suitable for the classified area and shall include a back panel, door gasket, external grounding lug, stainless steel hinges and a lockable hasp. Enclosure types shall be NEMA 12 (paint steel, indoor installation), NEMA 4/3R (painted steel, outdoor installation), or NEMA 4X/3RX (stainless steel for corrosion resistance and protection from moisture).

5. Acceptable Products

RADIO: 900MHz MDS iNET Radio
512Kbps, 902-928MHz Frequency Hopping Spread Spectrum,
1w Tx Power, 10BaseT Ethernet ready transceiver w/TNC
Antenna connector, 10-30VDC, One DB9F DCE port and one
DB9M DTE serial port.

ANTENNA: Yagi, Type 806-970MHz, 8.15DBI Gain

COAXIAL
CABLE: Type LDF4-50A/Jacketed, 50-ohm, 1/2" Foam Cable.

CABLE
CONNECTOR: Andrew, Type L4PNM-RC, Ring Flare Male Connector
For Helix cable LDF4-50A

ANTENNA/RADIO
ARRESTOR: Impulse Suppressor Installation
PolyPhaser Corp. Model # IS-50-50NH-C2

RTU: RTU with DNP protocol
GE iBox, Part #505-0100, & 588-00130
Firmware SBE0033/22, SCS1606/00

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POWER

SUPPLY: 120VAC to 24VDC, 30W Output
idec: Power Supply, Model PS5R-SC24

SELECTOR

SWITCH: Square D: Model #9001KS52B, Fingersafe contact block
#9001 KA3, Selector Switch Knob #9001 B25.

CONTACTOR: 3-Pole non-reversing contactor, 120 VAC coil, 60Hz
Open type, Square D TESYS D-LINE or equal

ELECTRICAL

ENCLOSURE: 30"H X 30"W X 8"D NEMA Type 12 enclosure
Hoffman Cat. #C-SD30308 or equal