

BCS Product Warranty

Bradshaw Communication Systems (BCS) products are warranted to be free from defects in material or workmanship for one (1) year from the date of sale to the original purchaser. Any part of the product covered by this warranty that, with normal installation and use, becomes defective will be repaired or replaced by BCS, at our option, provided the product is shipped insured and prepaid to: BCS Service Department, 6272 Old Dahlonega Highway Murrayville, Georgia 30564-1222, USA. The product will be returned to you freight prepaid. This warranty does not extend to any BCS products that have been subjected to abuse, misuse, improper storage, neglect, accident, improper installation or have been modified, repaired or altered in any manner whatsoever, or where the serial number or date code has been removed or defaced. No employee, agent, dealer, or other person is authorized to give any warranties on behalf of BCS.

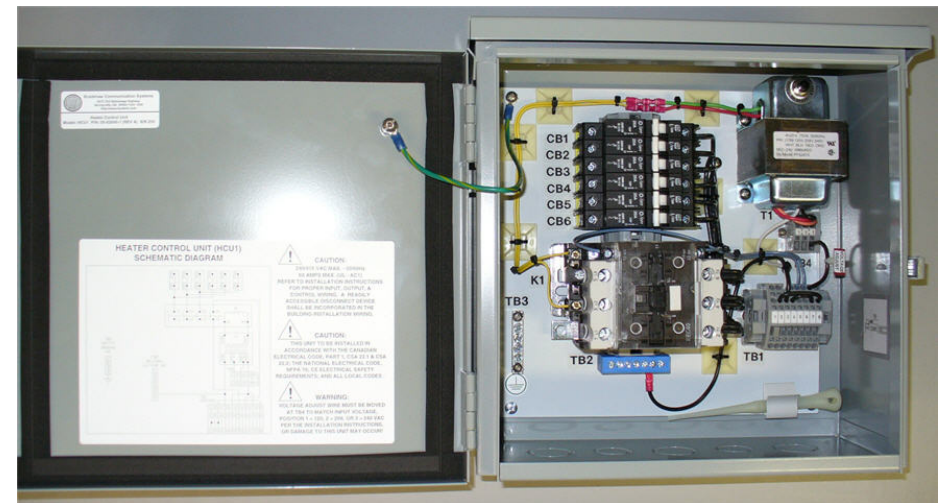
The foregoing limited warranty is the BCS sole and exclusive warranty and the purchaser's sole and exclusive remedy. BCS makes no other warranties of any kind, either express or implied, and all implied warranties of merchantability or fitness for a particular purpose are hereby disclaimed and excluded to the maximum extent of the law. BCS liability arising out of the manufacture, sale or supplying of products or their use or disposition, whether based upon warranty, contract, tort or otherwise, shall be limited to the repair or replacement of the product. In no event shall BCS be liable for special, incidental or consequential damages (including, but not limited to, loss of profits, loss of data or loss of use damages) arising out of the manufacture, sale or supplying of products, even if BCS has been advised of the possibility of such damages or losses. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

Products that are out of warranty may also be repaired by the BCS Service Department. The parts and labor involved in out of warranty and general repairs are warranted for 90 days when repaired by the BCS Service Department. All shipping charges in addition to parts and labor charges will be at the owner's expense. All returns require a Return Authorization Number that may be obtained by contacting the BCS Service Department prior to return of the product.



HCU1

HEATER CONTROL UNIT INSTALLATION MANUAL



PART NUMBER:

- P/N 05-02000-1
HCU1 Heater Control Unit



READ ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.
SAVE THIS INSTALLATION MANUAL FOR FUTURE REFERENCE.
INSTALLATION SHOULD ONLY BE PERFORMED BY QUALIFIED
SERVICE PERSONNEL.

BCS reserves the right to change specifications contained herein without notice.

(Release Date: 25SEP10)

BRADSHAW COMMUNICATION SYSTEMS

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DESCRIPTION:

The HCU1 Heater Control Unit, developed by Bradshaw Communication Systems, is a universal voltage heater control unit that provides for switching and control of high power heater loads. The HCU1 is typically used to control reflector heaters used on earth station antenna systems to remove and/or prevent accumulation of ice and/or freezing precipitation that would typically hinder the performance of antenna operation.

The HCU1 is housed in a rain/snow/sleet/drip proof enclosure, thus supporting the most rugged outdoor applications. The HCU1 is provided with five, bottom located, dual knockouts allowing easy termination to standard NPT cable glands and/or conduit fittings.

With an internally installer adjustable transformer voltage primary tap, 120, 208, and 220-240 control voltage configurations are supported, thus allowing great flexibility for use in many applications utilizing worldwide power sources. Power is switched to the heaters through a 60 amp contactor that branches to six 20 amp supplementary circuit breakers that are evenly distributed between the three contactor power paths. Final electrical input/output configuration of this unit is typically detailed by application specific installation instructions that detail the usage of the HCU1 in controlling the heater primary power path based on specific primary power sources. A single isolated Form A output is provided at the TB1 terminal block to allow for HCU1 remote monitoring. Electrical connections to and from the HCU1 are provided via screw terminals or cage clamp style terminals providing fast, easy, and accurate termination of interface wiring. A wire termination tool is provided with each assembly for termination to the cage clamp style terminals.

The HCU1 has been designed to provide long life and ease of installation while still allowing the system integrator great flexibility in use, configuration, and mounting.

SPECIFICATIONS:

- **Electrical**
 - Control Voltage: 120/208/220-240VAC (Transformer Tap Selectable)
 - Control & Heater Path Frequency: 50/60Hz
 - Internal Power Consumption: 75VA MAX.
 - Heater Path Voltage: 240/415 VAC MAX.
 - Total Unit Load: 60 Amps MAX. (UL-AC1)
 - Electrical Switching Frequency: 100 Cycles Per Hour MAX.
 - Heater UL489 Approved Circuit Breakers: 6 @ 20 Amps Each
 - Isolated Remote Monitor Contacts: 240 VAC @ 720VA MAX.
- **Electrical Termination**
 - Contactor (K1): Screw Clamp Terminals (10 – 4 AWG Wire Range)
 - Circuit Breakers (CB1-6): Screw Clamp Terminals (18 – 8 AWG Wire Range)
 - TB1 Terminal Block: 8 Cage Clamp Terminals (28 – 12 AWG Wire Range)
 - TB2 Terminal Block: 6 Screw Terminals (18 – 6 AWG Wire Range)
 - TB3 Ground Block: 4 Screw Terminals (10 – 4 AWG Wire Range)
 - TB4 Voltage Adjust Block: 4 Cage Clamp Terminals (28–12 AWG Wire Range)
- **Mounting** (Refer to HCU1 Outline Mounting Drawing – provided separately)
 - Four 0.25" Diameter by 0.5" Long Mounting Slots
 - Hole to Hole Dimensions: 3.0" Wide x 13.0" High (To Mounting Slot Centers)
- **Environmental** (Operational & Storage)
 - Operational:
 - 40° F to +122° F, 100% humidity, condensing (upright mounted configuration)
 - (-40° C to +50° C, 100% humidity, condensing) (upright mounted configuration)
 - Storage:
 - 40° F to +158° F, 95% humidity, non-condensing
 - (-40° C to +70° C, 95% humidity, non-condensing)
 - Enclosure Rating: UL 50 Type 3R, CSA Type 3R, IEC 60529 - IP32

- **Physical**
 - Enclosure Dimensions
12.5" wide x 14.0" high x 6.6" deep
(317.5mm wide x 355.6mm high x 167.6mm deep)
 - Weight: 21.5 LBS (9.75 Kg)
 - Enclosure Material: 16AWG Galvanized Steel
 - Enclosure Finish: ANSI/ASA Gray Power Coated
 - Hinged Cover with Stainless Steel Hinge Pin (Left Opening)
 - Padlockable Draw Pull Catch
- **Electrical Entry**
 - 5 Dual Knockouts (bottom located)
3 @ 1.12" / 1.375" Diameter
2 @ 0.88" / 1.12" Diameter
- **Approvals**
 - The HCU1 has been designed to meet or exceed CE, UL, & CSA safety requirements

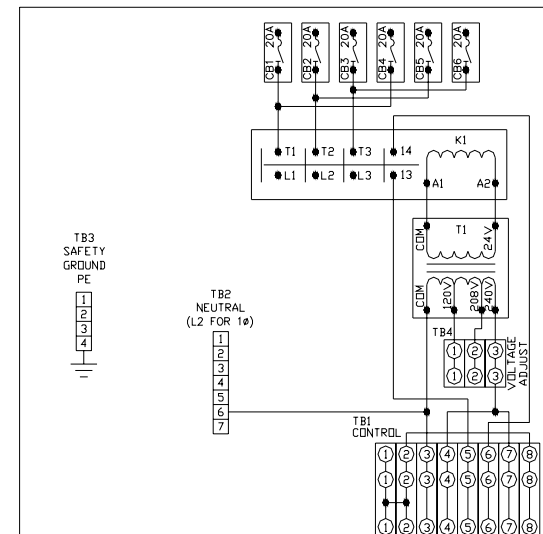
INSTALLATION & ADJUSTMENT:

Mount the HCU1 in an easily accessible location on the antenna. Refer to the HCU1 Outline Mounting Drawing (provided separately) and verify the HCU1 is securely mounted.

Follow the application specific installation instructions provided with the system in which the HCU1 was delivered. The only adjustments contained in the HCU1 design are the six 20 amp supplementary circuit breakers (ON "1" or TRIP "O") and the transformer primary tap set at installation based on voltage configuration implemented.

Use extreme caution when working with high voltage as typically passed through the HCU1. Consult a local electrician or other qualified installer to ensure proper electrical installation and adherence to UL, CSA, CE, and all required local safety codes. A readily accessible disconnect device shall be incorporated into the building installation wiring to provide a service disconnect for the HCU1.

HEATER CONTROL UNIT (HCU1) SCHEMATIC DIAGRAM



- **CAUTION:**
240/415 VAC MAX. - 50/60Hz
60 AMPS MAX. (UL - AC1)
REFER TO INSTALLATION INSTRUCTIONS FOR PROPER INPUT, OUTPUT, & CONTROL WIRING. A READILY ACCESSIBLE DISCONNECT DEVICE SHALL BE INCORPORATED INTO THE BUILDING INSTALLATION WIRING.
- **CAUTION:**
THIS UNIT TO BE INSTALLED IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE, PART 1, CSA 22.1 & CSA 22.2; THE NATIONAL ELECTRICAL CODE, NFPA 70; CE ELECTRICAL SAFETY REQUIREMENTS; AND ALL LOCAL CODES.
- **WARNING:**
VOLTAGE ADJUST WIRE MUST BE MOVED AT TB4 TO MATCH INPUT VOLTAGE, POSITION 1 = 120, 2 = 208, OR 3 = 240 VAC PER THE INSTALLATION INSTRUCTIONS, OR DAMAGE TO THIS UNIT MAY OCCUR!