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INSTALLATION MANUAL

HCU200 HEATER CONTROL UNIT

Part N°:	**AS01-HCU200-01**
Document N°:	**ASR_1038_HCU200_900_IMA_01**
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Maintenance Manual issued:		
Date: JUL 0 7 2011	**Name in printed letters:** Grünner	**Signature:** Compliance Verification Engineer ETSO

Maintenance Manual checked:		
Date: JUL 0 7 2011	**Name in printed letters:** Lemberger	**Signature:** Head of Airworthiness Office ETSO

AVIONIK STRAUBING LG CVE ETSO Entwicklungs GmbH

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These instructions have been produced in accordance with alternative procedures to DOA EASA AP.137

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LIST OF REVISIONS/AMENDMENTS

REVISION N°:	DATE:	REASON FOR REVISION
00	21.12.2010	**PRELIMINARY**
01	07.07.2011	Revision 01

Table of Contents

1. General Description

1.1. Introduction

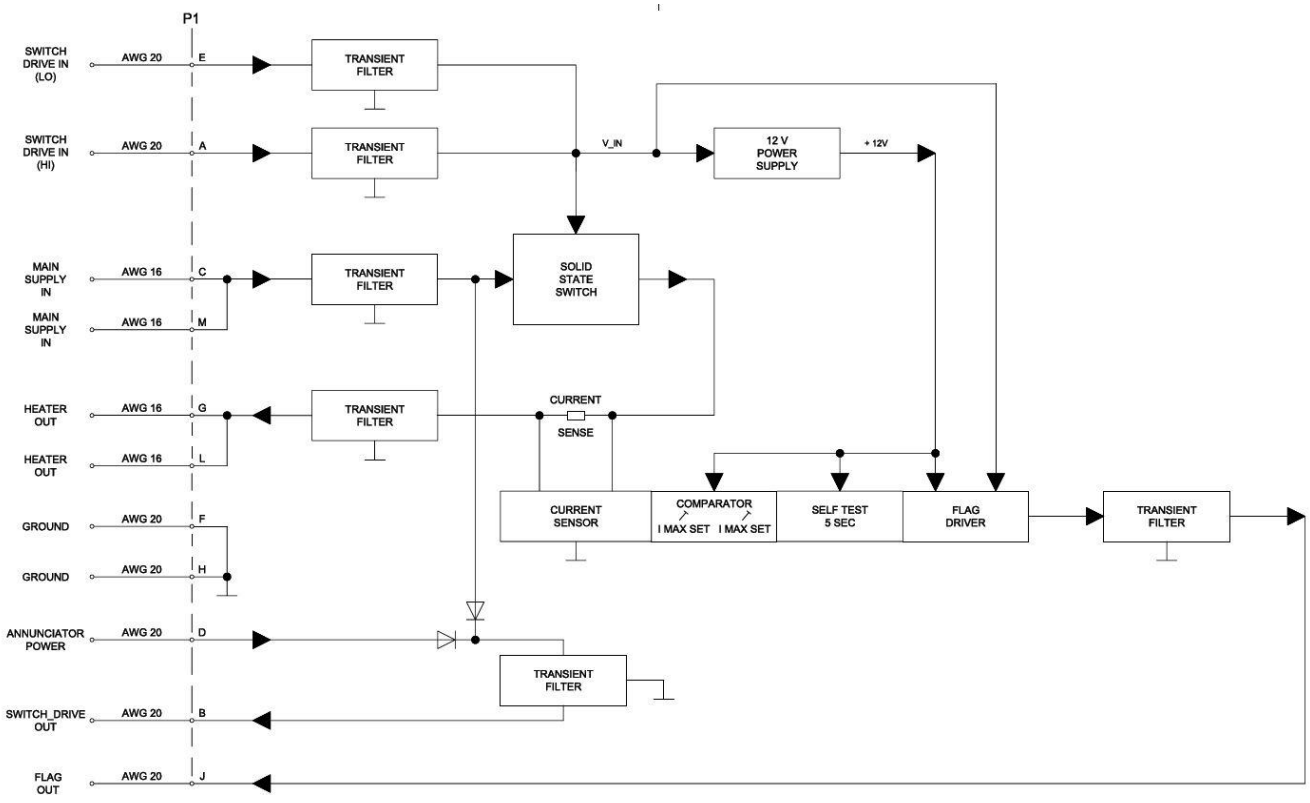
The HCU 200 unit is a control unit for a DC-load like a pitot/static tube heater to prevent aircrew from misleading information of non-working heaters or excessive current draw conditions for a variety of aircraft.

The HCU200 is consisting of:

- A solid state switch
- A current monitor with flag output
- Self test circuit
- Redundant switch drive circuit

1.2. System Overview

Block Diagram



1.3. Configuration

No configuration available.

1.4. Technical Specification

Nominal operating voltage:	28VDC
Supply voltage range:	18VDC – 32,2VDC
Current consumption:	< 100mA
Max. load:	15A
Optional outputs:	+ 28VDC-flag signal
Dimensions:	70 x 70 x 48 mm
Weight:	215 g
Cooling:	No cooling required

1.5. TSO / ETSO Limitations

None.

1.6. Certification of Hardware

The system has been qualified according to RTCA DO-160F:

Conditions	Section	Description of Conducted Tests
Temperature and Altitude	4.0	Category F2
Low Temperature	4.5.1, 4.5.2	Category F2, -55°C
High Temperature	4.5.3	Category F2, +85°C
	4.5.4	Category F2, +70°C
Altitude	4.6.1	Category F2, +55,000ft
Decompression	4.6.2	Category X, not tested
Overpressure	4.6.3	Category X, not tested
Temperature Variation	5.0	Category B, 5°C/min
Humidity	6.0	Category A
Operational Shock and Crash Safety	7.0	Category B
Vibration	8.0	Category S, Curve M (10-500Hz) Aircraft Type 3/4/5, Aircraft Zone 1/2; Standard Sinusoidal Category S, Curve L (10-150Hz) Aircraft Type 3, Aircraft Zone 1; Standard Sinusoidal Category H, Curve R (10-250Hz) Aircraft Type 2/6, Aircraft Zone 2; High Level Short Duration
Explosive Atmosphere	9.0	Category X, not tested
Waterproofness	10.0	Category W. 10.3
Fluids Susceptibility	11.0	Category X, not tested
Sand and Dust	12.0	Category X, not tested
Fungus	13.0	Category F
Salt Fog Test	14.0	Category S
Magnetic Effect	15.0	Category A
Power Input	16.0	Category A
Voltage Spike	17.0	Category A
Audio Frequency Susceptibility	18.0	Category R
Induced Signal Susceptibility	19.0	Category ZC
Radio Frequency Susceptibility	20.0	Category W
Radio Frequency Emission	21.0	Category L
Lightning Induced Transient Susceptibility	22.0	Category A3C3X
Lightning Direct Effects	23.0	Category X, not tested
Icing	24.0	Category X, not tested
Electrostatic Discharge	25.0	Category A
Fire, Flammability	26.0	Category X, not tested
RTCA DO-160F Category Classification Code: (F2)BAB[(S/M)(S/L)(H/R)]XWXXFSAAAR(ZC)WL(A3C3X)XXAX		

1.7. Certification of Software

Not applicable, no software used.

1.8. Remarks for intrinsic safety installation

None

1.9. Limited Warranty

The Heater Control Unit is warranted to be free from defects in materials or workmanship for two years from date of purchase. This warranty does not cover failures due to abuse, misuse, accident or unauthorized alterations or repairs.

IN NO EVENT AVIONIK STRAUBING ENTWICKLUNGS GMBH WILL BE LIABLE FOR ANY INCIDENTAL, SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM USE, MISUSE OR INABILITY TO USE THIS PRODUCT OR DEFECTS IN THE PRODUCT.

AVIONIK STRAUBING Entwicklungs GmbH retains exclusive right to repair or replace the unit or offer a full refund of the purchase price at its sole discretion. This shall be a sole and exclusive remedy for any breach of warranty.

To obtain warranty service contact AVIONIK STRAUBING Entwicklungs GmbH or the aircraft Manufacturer (OEM).

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Germany

2. Installation

2.1. Introduction

To achieve the desired reliability and performance of the HCU200 careful planning of the installation with all advices has to be considered.

2.2. Installation Restrictions

The HCU 200 unit should be installed inside the aircraft and is suitable for an altitude up to 55.000 feet.

2.3. Installation Considerations

The HCU 200 unit should be installed at a convenient place between applicable load (heater) and its circuit breaker within the aircraft fuselage.

2.4. Locations of Installation

Inside the aircraft not exposed to direct airflow.

2.5. Wirings and Cables

The wiring and wire sizes are shown in the installation schematic diagram.

2.6. Installation Procedure

General

The HCU 200 unit must be installed at a convenient place between applicable load (heater) and its circuit breaker within the aircraft fuselage.

The wiring and wire sizes are shown in the installation schematic diagram.
Heater annunciator can be placed at any convenient panel position. You can either use switch drive active hi (Pin A and B) or switch drive active lo (Pin E and F), but not both.

15/06/2011
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3. Post Installation Checkout

Check correct wiring according installation schematic diagram.
Switch on heater.
Flag ON must show for 5 seconds.
Thereafter the flag has to disappear. The optional PITOT HEAT ON segment must be on.
Verify that the applicable heater (PITOT HEAT) works.

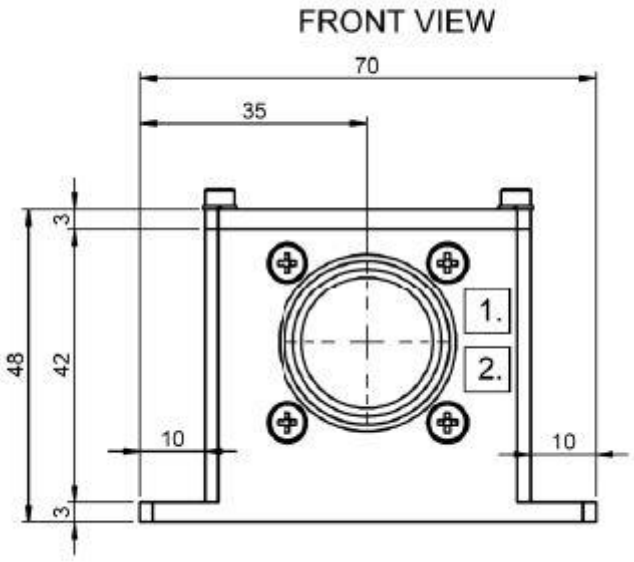
Date of Amendment:
Amendment Level:

4. Troubleshooting

For troubleshooting see Maintenance Manual or call AVIONIK STRAUBING Entwicklungs GmbH.

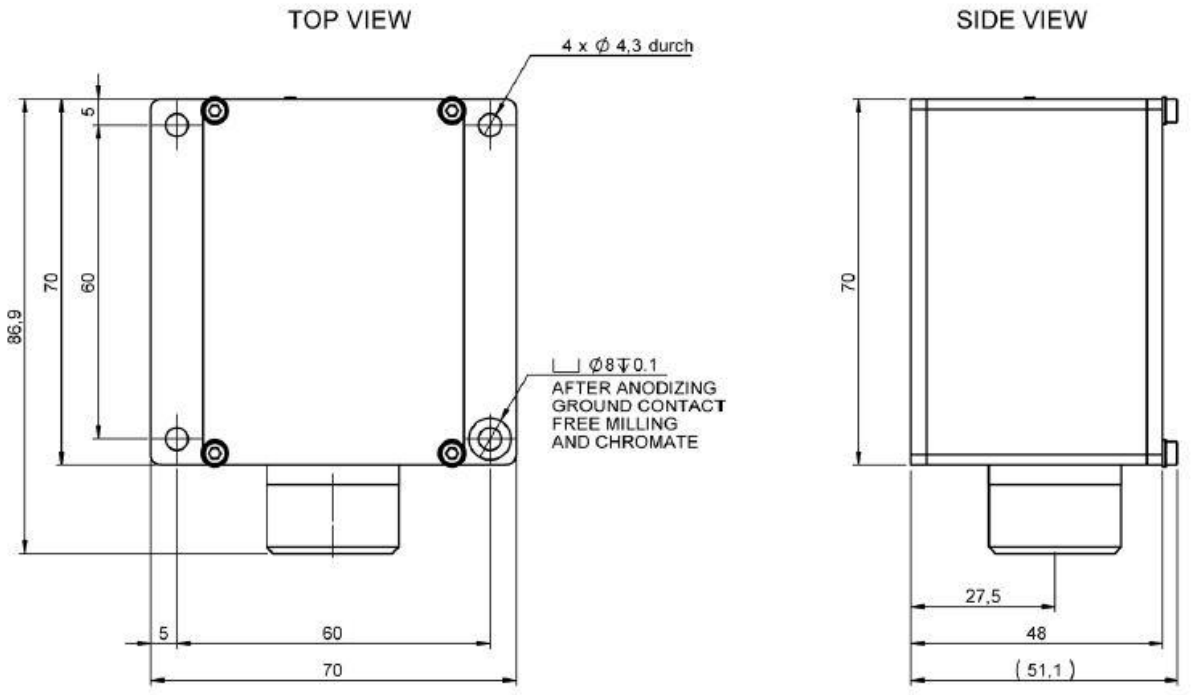
5. Drawings and Wirings

5.1. Dimensions

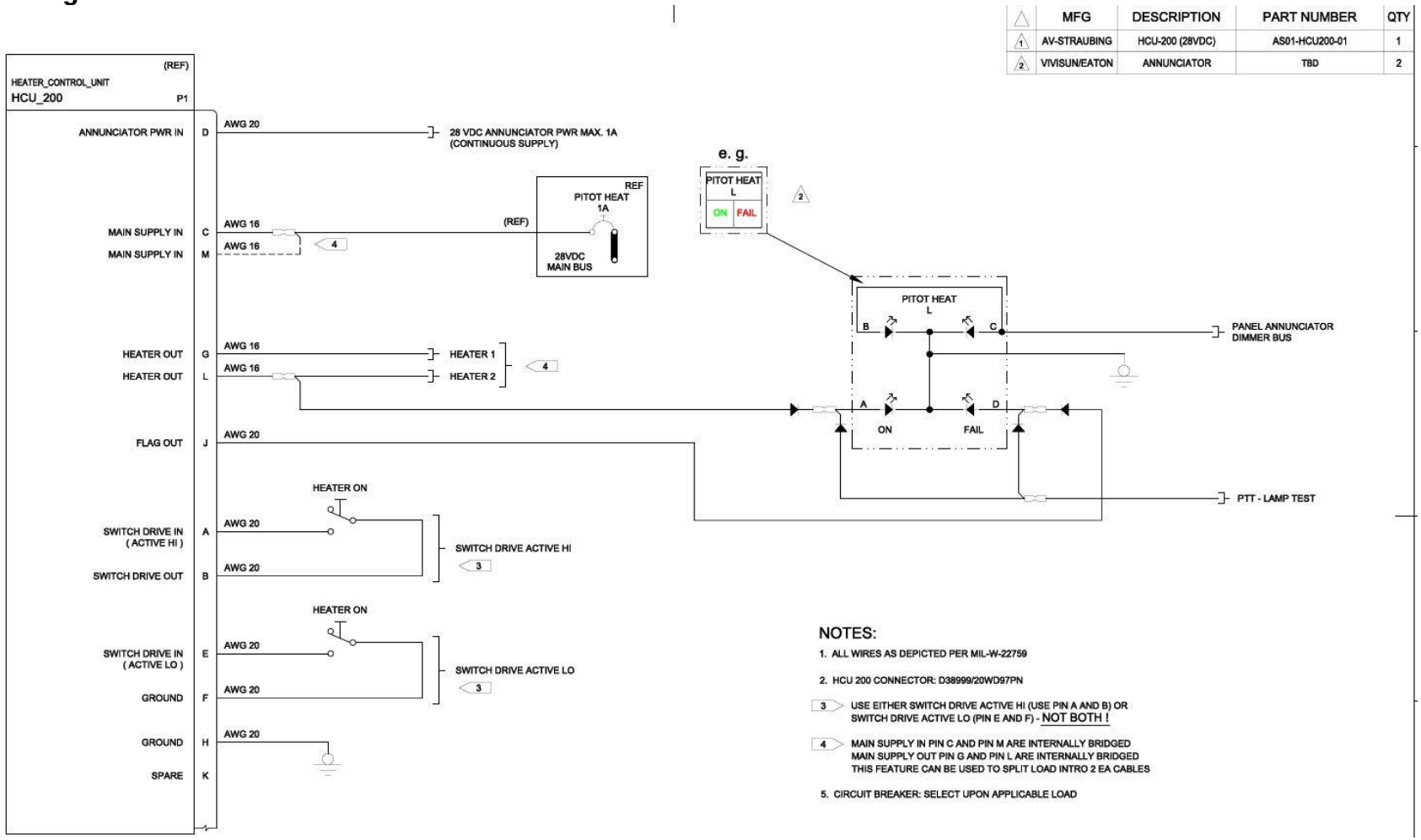


1. HCU200 INTERFACE CONNECTOR: D38999-20WD97PN

2. MATING CONNECTOR D38999-26WD97SN



5.2. Wiring


(REF)
HEATER_CONTROL_UNIT
HCU_200
P1
ANNUNCIATOR PWR IN
D
AWG 20
28 VDC ANNUNCIATOR PWR MAX. 1A
(CONTINUOUS SUPPLY)
MAIN SUPPLY IN
C
AWG 16
MAIN SUPPLY IN
M
AWG 16
4
REF
PITOT HEAT
1A
(REF)
28VDC
MAIN BUS
e. g.
PITOT HEAT
L
ON
FAIL
2
PITOT HEAT
L
B
C
A
D
ON
FAIL
PANEL ANNUNCIATOR
DIMMER BUS
HEATER OUT
G
AWG 16
HEATER 1
HEATER OUT
L
AWG 16
HEATER 2
4
FLAG OUT
J
AWG 20
PTT - LAMP TEST
HEATER ON
SWITCH DRIVE IN
(ACTIVE HI)
A
AWG 20
SWITCH DRIVE ACTIVE HI
SWITCH DRIVE OUT
B
AWG 20
3
HEATER ON
SWITCH DRIVE IN
(ACTIVE LO)
E
AWG 20
SWITCH DRIVE ACTIVE LO
GROUND
F
AWG 20
3
GROUND
H
AWG 20
SPARE
K
△ MFG DESCRIPTION PART NUMBER QTY
1 AV-STRAUBING HCU-200 (28VDC) AS01-HCU200-01 1
2 VIVISUN/EATON ANNUNCIATOR TBD 2
NOTES:
1. ALL WIRES AS DEPICTED PER MIL-W-22759
2. HCU 200 CONNECTOR: D38999/20WD97PN
3 USE EITHER SWITCH DRIVE ACTIVE HI (USE PIN A AND B) OR SWITCH DRIVE ACTIVE LO (PIN E AND F) - NOT BOTH !
4 MAIN SUPPLY IN PIN C AND PIN M ARE INTERNALLY BRIDGED
MAIN SUPPLY OUT PIN G AND PIN L ARE INTERNALLY BRIDGED
THIS FEATURE CAN BE USED TO SPLIT LOAD INTRO 2 EA CABLES
5. CIRCUIT BREAKER: SELECT UPON APPLICABLE LOAD