

Dedicated 6-channel system interface unit for ultra-stable, high precision fluxgate technology DS series current transducers.

Powers up to 6 x DS50 to DS2000 at the same time.

Supports calibration windings directly from the backpanel



Features

- Compact 19" rack mount 1U height
- Current transducers' output signals available via 4mm banana plugs
- Individual or serial access to calibration windings of all 6 transducers via 4mm banana plugs
- 15-pin DSUB connector provides access to isolated status signals of each transducer and power
- Front LEDs indication of normal operation for each transducer and power LED for DSSIU-6-1U
- Forced cooling ensuring stable temperatures for VOM
- Universal autorange (100-240V AC 50/60Hz) AC input voltage or 120–370V DC input voltage.

Specifications

Parameter	Symbol	Unit	Min	Typ.	Max	Comment
Mains input						
AC input voltage	V _{AC}	V _{rms}	85		264	Autoranging
AC nominal current	I _{AC}	I _{rms}			2.1A @ 115V 1.1A @ 230V	Full scale operation with 6 DS2000 and 3000A primary
Frequency	f	Hz	47		63	Autoranging
Transducer output port						
Supply voltage	U _{cc}		±14.7 5		±15.75	x6 channels
Ripple		mV _{rms}			15	
Environment and Mechanical						
Ambient operating temperature range	T _a	°C	5		40	
Storage temperature range		°C	-20		85	
Relative humidity		%	20		80	
Mass		Kg		5.1		
Size (W x H x D)		mm				483 x 44 x 271
Status Port (Isolated output)						
Collector-Emitter current		mA			100	
Collector-Emitter Voltage off		V			100	
reverse collector emitter voltage, off		V			0.3	
Collector-Emitter voltage, on		V			1.2	@100mA
Isolation to chassis		v			300	

Channel configuration

Each channel does have 5 connectors.

- Transducer (DSUB9) for connection to the transducer
- YELLOW Calibration + (4mm Banana) the positive connection for the calibration current
- YELLOW Calibration - (4mm Banana) the negative connection for the calibration current
- RED + (4mm Banana) is positive output from the measured current
- BLACK - (4mm Banana) is negative output from the measured current

Current output configuration

DSSIU-6-1U will send the measured current to the RED and BLACK 4mm banana jacks.

RED being connected to pin 6 on the transducer.

BLACK being connected to pin 1 on the transducer.

Maximum power with temperature

DSSIU-6-1U can provide power to 6xDS2000 with a primary current of 3000A DC @ 40°C ambient.

DSSIU-6-1U can provide power to 4xDS2000 with a primary current of 3000A DC @ 50°C ambient.

DSSIU-6-1U can provide power to 2xDS2000 with a primary current of 3000A DC @ 60°C ambient.

The number of smaller transducers are not impacting the maximum power.

Calibration winding access

Each channel gives access to the calibration winding of transducers with this feature. Currently the following transducers do support this functionality.

- DS200IDSA-C1000 - 1000 turns calibration winding (Max 200mA) - Equals a primary current of 200A
- DS200IDSA-C100 - 100 turns calibration winding (Max 100mA) - Equals a primary current of 10A
- DS600IDSA-C100 - 100 turns calibration winding (Max 100mA) - Equals a primary current of 10A
- DS2000IDLA-C100 - 100 turns calibration winding (Max 100mA) - Equals a primary current of 10A

Each transducers calibration winding can be driven either in series with the other transducers or independently with its own power supply.

When using the DS200IDSA-C1000, it is possible to do a full scale calibration from -200A to 200A.

Principle for calibration:

It is important to use a stable current source. If the current source is calibrated then there is no need for an Amperemeter on the calibration current.

Example for DS200IDSA-C1000 on channel X configured with a 1V voltage module

1. Connect transducer to channel X on DSSIU-6-1U
2. Ensure light is on for channel X on the frontside of the DSSIU-6-1U - meaning the transducer is in normal operation
3. Ensure no primary current through the transducer
4. Read the voltage output from channel X - This is the offset of the transducer $V(\text{offset})$
5. Connect a stable current source to the calibration winding of channel X - +100mA
6. Let the current stabilize according to current source specification
7. Measure the voltage - $V(100A)$
8. Change polarity of the calibration current (Either by swapping the calibration cable from + to -, or by changing the polarity directly on the current source if possible)
9. Let the current stabilize according to current source specification
10. Measure the voltage - $V(-100A)$

$V_{out}(100A)$ theoretical is 0.5V or 5V depending on voltage module installed.

$V_{out}(-100A)$ theoretical is -0.5V or -5V depending on voltage module installed.

When evaluating the transducer performance it is important to take the different uncertainties of the measurement instruments into account.

Status port

The status port provides access to the status of the system via optical isolated pins in a DSUB15.

Overview: (Current direction is from + to -)

Status Port	+	-
Channel 1	1	9
Channel 2	2	10
Channel 3	3	11
Channel 4	4	12
Channel 5	5	13
Channel 6	6	14
Power	7	15

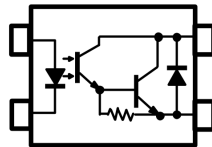
Use a pull up resistor value which does not exceed 100mA when the pin is @ 1V.

Example:

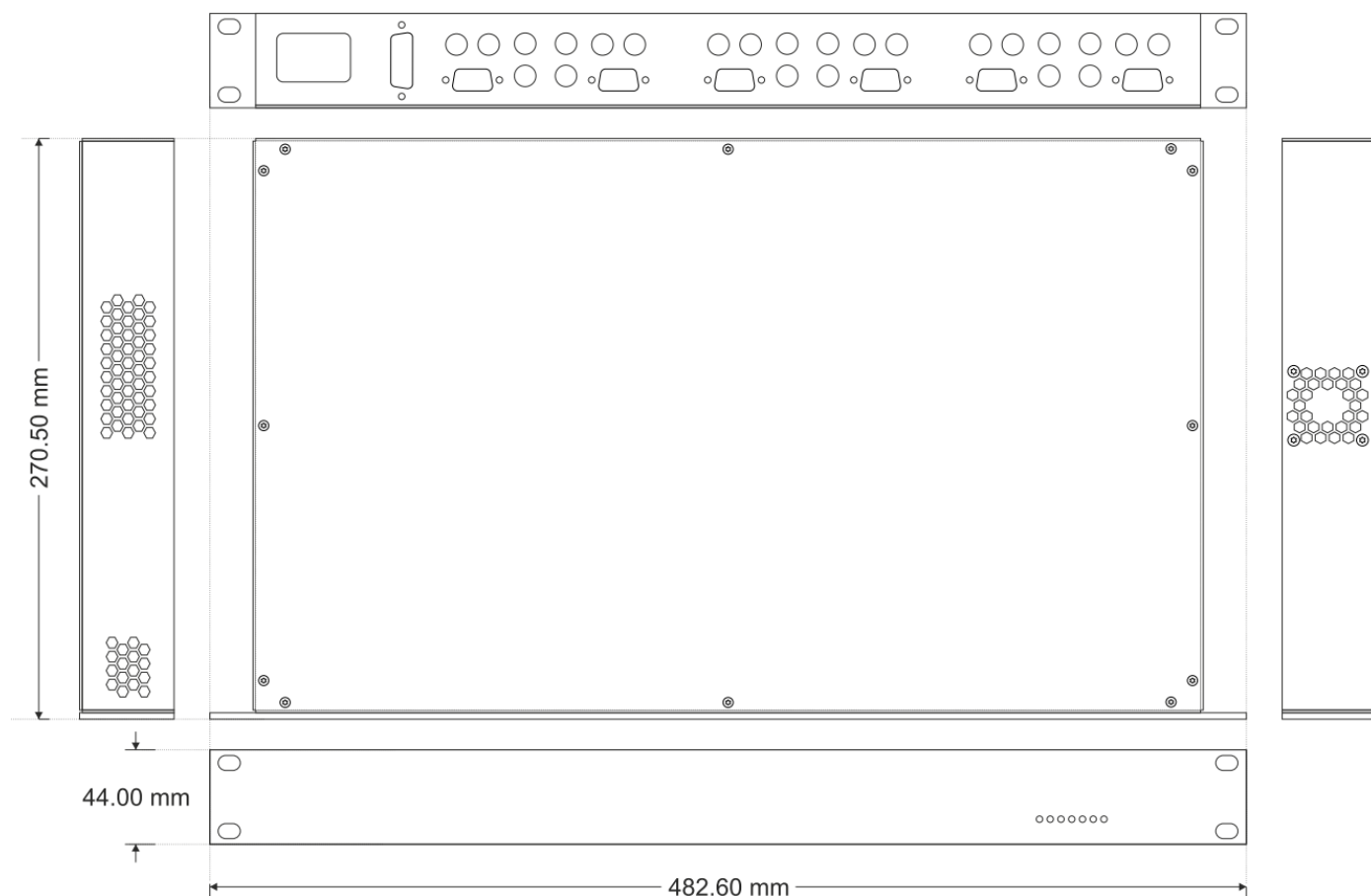
5V supply, resistor of 1kOhm is connected between 5V and + of channel 1 (pin 1) and pin 9 is connected to 0V.

If the transducer is working correctly pin 1 and 9 are shorted with below optocoupler circuit.

The voltage on pin 1 will be around 1V and current $I_R = (5V - 1V) / 1k\Omega = 4mA$



Mechanical Dimensions



Package content

- 2m mains power cable—region specific
- DSSIU-6-1U
- 4 x rubber feet
- 4 x Rack screws with nuts
- Manual / Datasheet

User Guide**Intended use:**

The DSSIU-6-1U is intended to be used for powering up to six Danisense current sensors. The sensors which can be powered are all 200A, 600A, 900A and 2000A transducers.

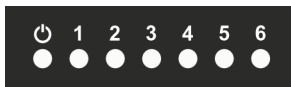
Instruction for use:

1. Do not power up the device before all cables are connected
2. If the DSSIU-6-1U is intended for desk use, mount the rubber feet which are part of the package. If the DSSIU-6-1U is intended for Rack mounting, use the screw kit for mounting and do not mount the rubber feet.
 1. Connect a DSUB cable between DSSIU-6-1U and each sensor
 2. Connect a low impedance amperemeter, measuring resistor or power analyzer on the secondary output (4mm red and black connectors)
 3. Ensure that no calibration connectors are attached when measuring primary current. Always avoid to create a calibration short circuit, between + and — calibration connection.

When all connection are secured - connect mains power

Indications:

When mains is applied a green light diode on the front under the power symbol will light green.



For each sensor channel connected a green light diode will light on the front if the connection is correct and the sensor is operating within normal range.

Safety Instructions:

DO NOT TRY TO DISASSEMBLE THE UNIT.

Make sure that the unit is properly connected to earth ground.

Do not block the ventilation openings on the side panels.

If the fan does not operate properly contact Danisense for repair.

If the "POWER" green diode is not operating when mains is applied, disconnect power and contact Danisense for further instruction.

CE Statement:

This product has been tested and found to comply with the following standards.

Electrical safety: EN 61010-1 2010

Electromagnetic Compatibility: EN 61326-1 2013