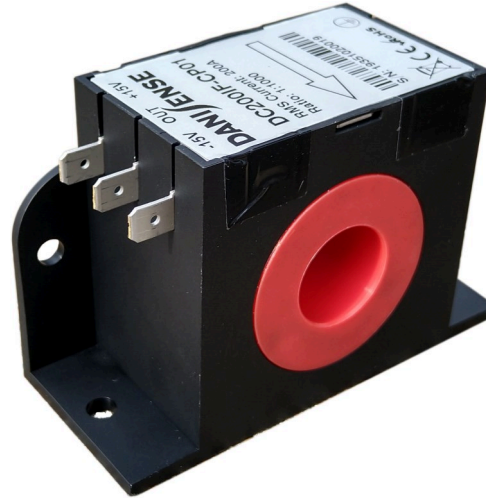


Highly stabilized and precise fluxgate technology based current transducer, re-engineered for cost sensitive, non-intrusive, isolated DC and AC current measurement applications up to 300A



**Features**

- Linearity error maximum 6 ppm
- Offset maximum 15 ppm
- Fluxgate, closed loop compensated technology with fixed excitation frequency and second harmonic zero flux detection for enhanced accuracy and stability
- Industry standard 6.3 x 0.8mm faston connection
- Cost focused high performance current transducer
- DC and AC current metering with +/-0.1% absolute accuracy up to 5kHz

**Applications:**

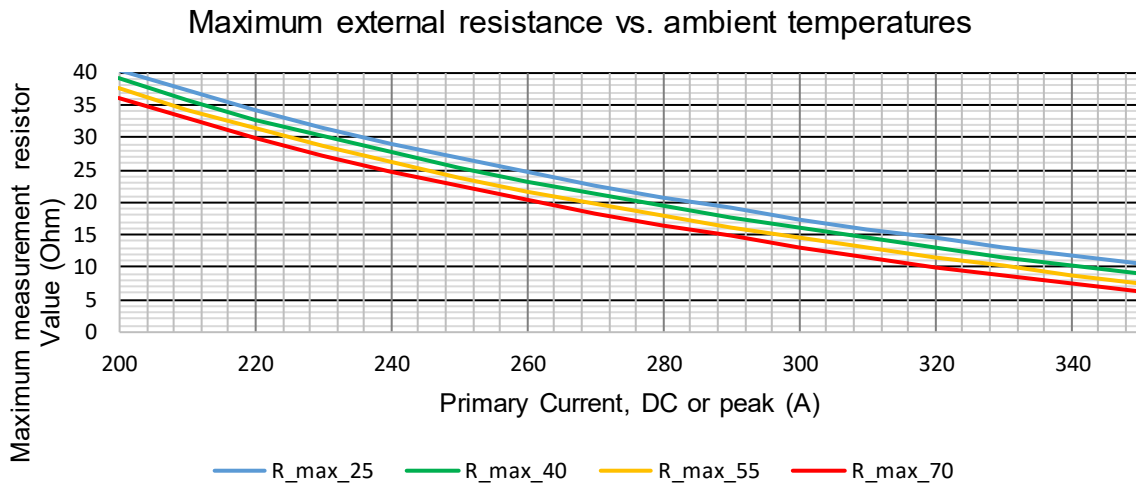
- Gradient amplifiers for MRI devices
- Precision power supplies, drives
- Batteries testing and evaluation systems
- Variable speed motor drives

| Specification highlights                                  | Symbol         | Unit | Min    | Typ. | Max    |
|---|----------------|------|--------|------|--------|
| Nominal primary AC current                                | IPN AC         | Arms |        |      | 200    |
| Nominal primary DC current                                | IPN DC         | A    | -300   |      | 300    |
| Measuring range   | $\hat{I}_{PM}$ | A    | -330   |      | 330    |
| Primary / secondary ratio                                 | n1 : n2        |      | 1:1000 |      | 1:1000 |
| Linearity error   | $\epsilon_L$   | ppm  | -6     |      | 6      |
| Offset current (including earth field)                    | $I_{OE}$       | ppm  | -15    |      | 15     |
| DC-10Hz Overall accuracy @25°C (= $\epsilon_L + I_{OE}$ ) | acc $\epsilon$ | ppm  | -21    |      | 21     |
| AC Maximum gain error from 10Hz to 5kHz                   | $\epsilon_G$   | %    |        |      | ±0.1   |
| Operating temperature range                               | Ta             | °C   | -40    |      | +85    |
| Power supply voltages                                     | Uc             | V    | ±14.25 |      | ±15.75 |

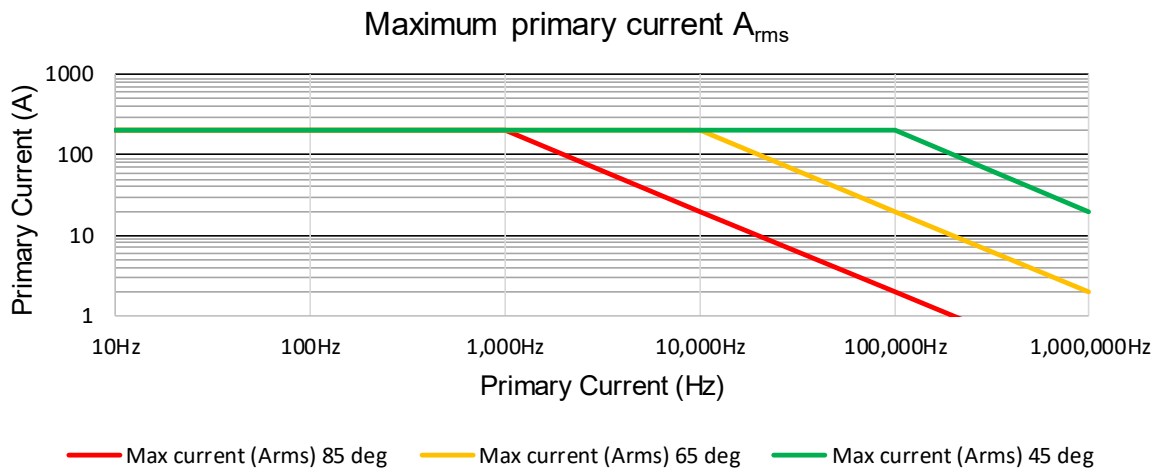
## Electrical specifications at Ta=23°C, supply voltage = ± 15V unless otherwise stated

| Parameter  | Symbol         | Unit               | Min              | Typ. | Max         | Comment  |
|--|----------------|--------------------|------------------|------|-------------|--|
| Nominal primary AC current                             | $I_{PN AC}$    | A <sub>rms</sub>   |                  |      | 200         | Refer to fig. 1 & 2 for derating                                     |
| Nominal primary DC current                             | $I_{PN DC}$    | A                  | -300             |      | 300         | Refer to fig. 1 for derating   |
| Measuring range  | $I_{PM}$       | A                  | -330             |      | 330         | Refer to fig. 1 & 2 for derating                                     |
| Overload capacity                                      | $\hat{I}_{OL}$ | A                  |                  |      | 1000        | Non-measured, 100ms  |
| Nominal secondary current                              | $I_{SN}$       | mA                 | -300             |      | 300         | At nominal primary DC current  |
| Primary / secondary ratio                              |                |                    | 1:1000           |      | 1:1000      |  |
| Measuring resistance                                   | $R_M$          | $\Omega$           | 0                |      | 12          | Refer to fig. 1 for details  |
| Linearity error  | $\epsilon_L$   | ppm<br>$\mu A$     | -6               |      | 6           | ppm refers to nominal current<br>$\mu A$ refers to secondary current |
|  |                |                    | -1,8             |      | 1,8         |  |
| Offset current<br>(including earth field)              | $I_{OE}$       | ppm<br>$\mu A$     | -15              |      | 15          | ppm refers to nominal current<br>$\mu A$ refers to secondary current |
|  |                |                    | -4,5             |      | 4,5         |  |
| DC-10Hz Overall accuracy @25°C (= $\epsilon_L$ + IOE ) | acc $\epsilon$ | ppm                | -21              |      | 21          | ppm refers to nominal DC current                                     |
| Offset temperature coefficient                         | $TC_{IOE}$     | ppm/K<br>$\mu A/K$ | -2               |      | 2           | ppm refers to nominal current<br>$\mu A$ refers to secondary current |
|  |                |                    | -0,6             |      | 0,6         |  |
| Bandwidth  | f(-3dB)        | kHz                | 200              |      |             | Small signal, graphs figure 3  |
| Amplitude error  | $\epsilon_G$   | %                  | 10Hz –5kHz       |      | 0,10%       | % refers to nominal current  |
|  |                |                    | 5kHz -100kHz     |      | 2,00%       |  |
|  |                |                    | 100kHz - 200kHz  |      | 10,0%       |  |
| Phase shift  | $\theta$       | °                  | 10Hz –5kHz       |      | 0.1°        |  |
|  |                |                    | 5kHz -100kHz     |      | 0.5°        |  |
|  |                |                    | 100kHz - 1000kHz |      | 2.0°        |  |
| Response time to a step current $I_{PN}$               | $tr @ 90\%$    | $\mu s$            |                  | 1    |             | $di/dt = 100A/\mu s$   |
| Noise  | noise          | ppm rms            | 0 - 100Hz        |      | 0,3         | Measured on secondary current  |
|  |                |                    | 0 - 1kHz         |      | 1,0         |  |
|  |                |                    | 0 - 10kHz        |      | 5,0         |  |
|  |                |                    | 0 - 100kHz       |      | 20,0        |  |
| Fluxgate excitation frequency                          | $f_{Exc}$      | kHz                |                  | 15,6 |             |  |
| Induced rms voltage on primary conductor               |                | $\mu V$ rms        |                  |      | 5           |  |
| Power supply voltages                                  | $U_c$          | V                  | $\pm 14.25$      |      | $\pm 15.75$ |  |
| Positive current consumption                           | $I_{ps}$       | mA                 |                  |      | 35          | Add $I_s$ (if $I_s$ is positive)                                     |
| Negative current consumption                           | $I_{ns}$       | mA                 |                  |      | 35          | Add $I_s$ (if $I_s$ is negative)                                     |
| Operating temperature range                            | $T_a$          | °C                 | -40              |      | 85          |  |
| <b>Stability</b>                                       |                |                    |                  |      |             |  |
| Offset stability over time                             |                | ppm / month        | -10              |      | 10          | ppm refers to nominal current<br>$\mu A$ refers to secondary current |
|  |                |                    | -3               |      | 3           |  |
| Impact of external magnetic field                      |                | ppm / mT           | -15              |      | 15          | ppm refers to nominal current<br>$\mu A$ refers to secondary current |
|  |                |                    | -4,5             |      | 4,5         |  |

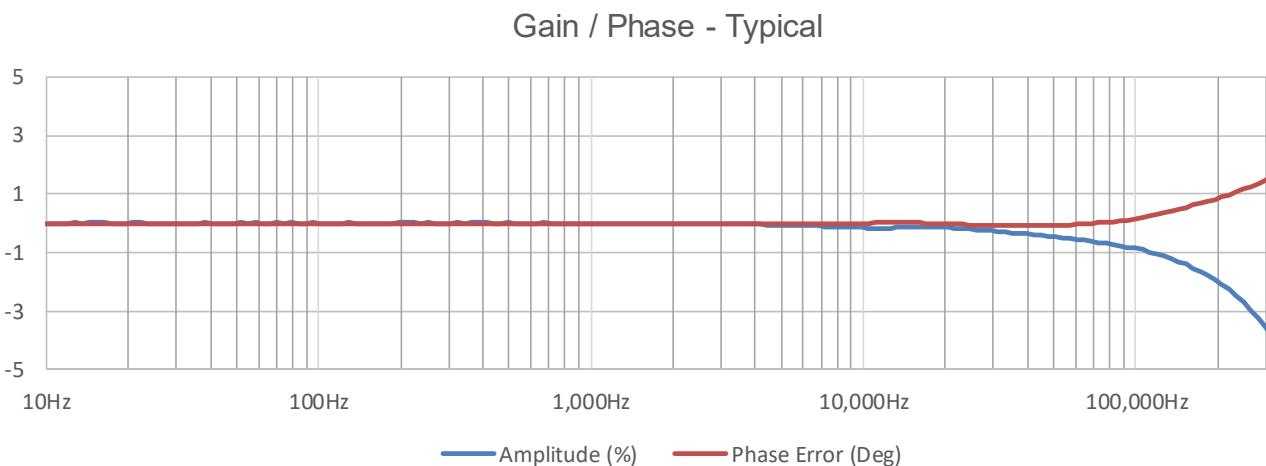
Measurement resistor  $R_M$  and ambient temperature derating (Fig. 1)



Frequency and ambient temperature derating (Fig. 2)



Frequency characteristics (Fig. 3)



## Isolation specifications

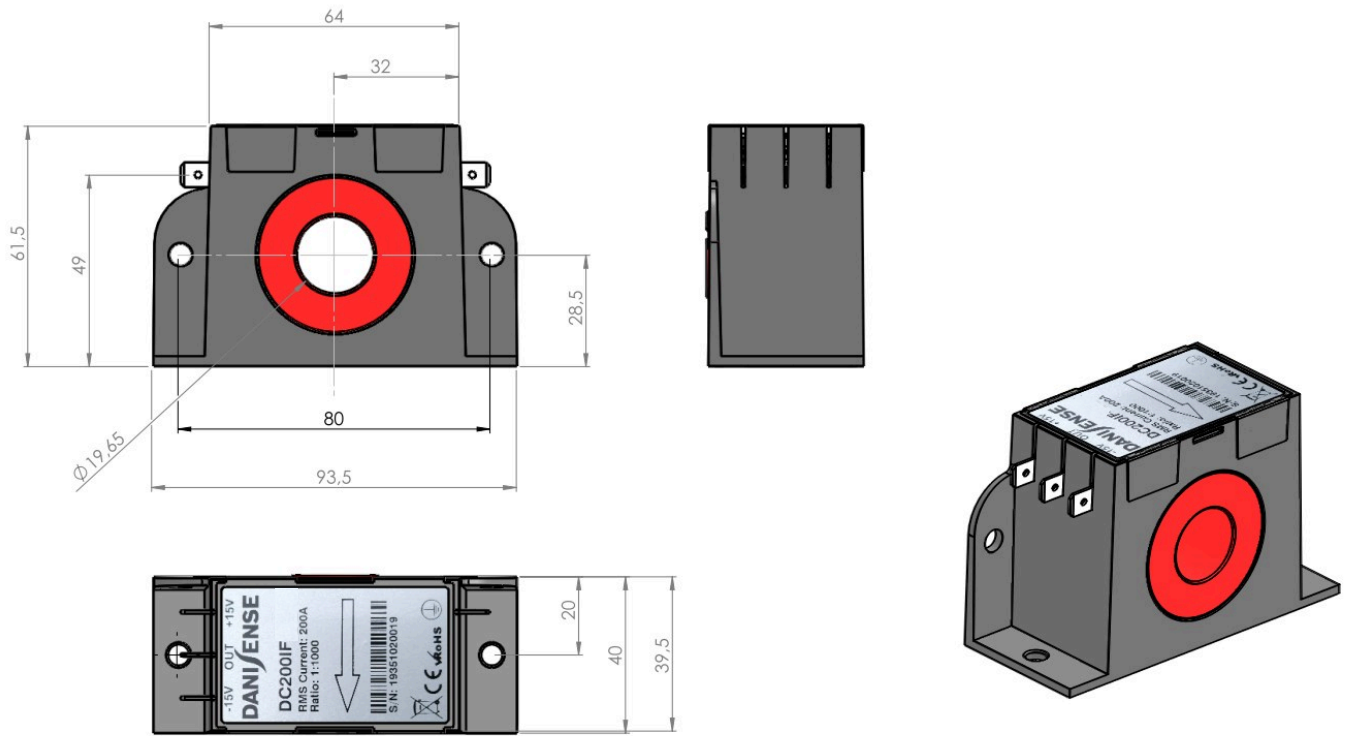
| Parameter   | Unit | Value      |
|---|------|------------|
| Clearance   | mm   | 9          |
| Creepage distance   | mm   | 10         |
| Comparative tracking index (CTI)  | V    | > 600      |
| Rms voltage for AC isolation test, 50/60 Hz, 1 min<br>- Between primary and (secondary and shield (GND))                                  | kV   | 5.7        |
| Impulse withstand voltage (1.2/50 $\mu$ s)  | kV   | 10.4       |
| Rated rms isolation voltage<br>reinforced isolation, overvoltage category III, Pollution degree 2<br>according to IEC 61010-1 and EN50780 | V    | 300<br>600 |

## Absolute maximum ratings

| Parameter    | Unit | Max        | Comment       |
|--------------|------|------------|---------------|
| Primary      | kA   | 1.5        | Maximum 100ms |
| Power supply | V    | $\pm$ 16.5 |               |

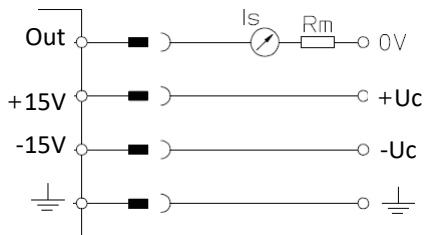
## Environmental and mechanical characteristics

| Parameter                   | Unit                            | Min | Typ   | Max | Comment        |
|-----------------------------|---------------------------------|-----|-------|-----|----------------|
| Operating temperature range | °C                              | -40 |       | 85  |                |
| Storage temperature range   | °C                              | -40 |       | 85  |                |
| Relative humidity           | %                               | 20  |       | 80  | Non-condensing |
| Mass                        | kg                              |     | 0.250 |     |                |
| Connections                 | 4 Industrial faston 6.3 x 0.8mm |     |       |     |                |
| Standards                   | EN 61326-1 EMC                  |     |       |     |                |



(general tolerance 0.3mm unless otherwise stated)

**DC200IF connection**



**Positive current direction**

Is identified by an arrow on the transducer label

**CAUTIONS:**

- PLEASE IMPERATIVELY RESPECT CONNECTION POLARITIES TO PREVENT DESTRUCTION OF THE TRANSDUCER
- PLEASE ENSURE ADEQUATE CURRENT AND VOLTAGE RATING OF POWER SUPPLIES TO AVOID SATURATION

**Mounting instructions**

- Base plate mounting 2 holes  $\phi 5.5$
- Side mounting 2 holes  $\phi 5.5$