

## Universal I/f converter

### 4222



- Input for RTD, TC, Ohm, potentiometer, mA and V
- Frequency output NPN, PNP and TTL
- Generates frequencies from 0.001...25000 Hz
- 2-wire supply > 16 V
- Universal AC or DC supply



#### Advanced features

- Programmable via detachable display front (4501), process calibration, signal simulation, password protection, error diagnostics and selection of help text in several languages.

#### Application

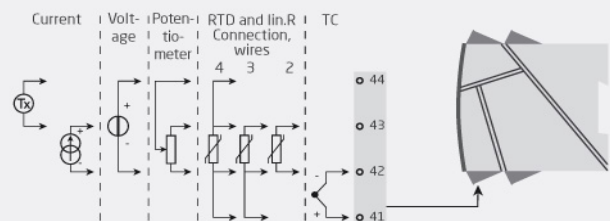
- Linearized, electronic temperature measurement with RTD or TC sensor.
- Conversion of linear resistance variation to a frequency signal, e.g. from solenoids and butterfly valves or linear movements with attached potentiometer.
- Power supply and signal isolator for 2-wire transmitters.
- Process control by way of a frequency signal transmitted to e.g. a PLC or a process computer.
- Galvanic separation and conversion of analog signals to frequency signals.

#### Technical characteristics

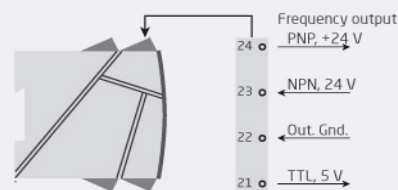
- When 4222 is used in combination with the 4501 display / programming front, all operational parameters can be modified to suit any application. As the 4222 is designed with electronic hardware switches, it is not necessary to open the device for setting of DIP switches.
- A green front LED indicates normal operation.
- Continuous check of vital stored data for safety reasons.
- 3-port 2.3 kVAC galvanic isolation.

#### Applications

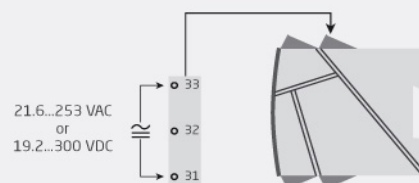
##### Input signals:



##### Output signals:



##### Supply:



**Order:**

|             |
|-------------|
| <b>Type</b> |
| 4222        |

**Environmental Conditions**

|                              |                      |
|------------------------------|----------------------|
| Operating temperature.....   | -20°C to +60°C       |
| Calibration temperature..... | 20...28°C            |
| Relative humidity.....       | < 95% RH (non-cond.) |
| Protection degree.....       | IP20                 |

**Mechanical specifications**

|                                         |                                       |
|-----------------------------------------|---------------------------------------|
| Dimensions (HxWxD).....                 | 109 x 23.5 x 104 mm                   |
| Dimensions (HxWxD) w/ 4501/4511.....    | 109 x 23.5 x 116 / 131 mm             |
| Weight approx.....                      | 155 g                                 |
| Weight incl. 4501 / 4511 (approx.)..... | 170 g / 185 g                         |
| Wire size.....                          | 1 x 2.5 mm <sup>2</sup> stranded wire |
| Screw terminal torque.....              | 0.5 Nm                                |

**Common specifications****Supply**

|                                |                                                 |
|--------------------------------|-------------------------------------------------|
| Supply voltage, universal..... | 21.6...253 VAC, 50...60 Hz or<br>19.2...300 VDC |
| Fuse.....                      | 400 mA SB / 250 VAC                             |
| Max. required power.....       | ≤ 2.5 W                                         |

**Isolation voltage**

|                                           |                    |
|-------------------------------------------|--------------------|
| Isolation voltage, test /<br>working..... | 2.3 kVAC / 250 VAC |
|-------------------------------------------|--------------------|

**Response time**

|                                                              |            |
|--------------------------------------------------------------|------------|
| Temperature input, programmable<br>(0...90%, 100...10%)..... | 1...60 s   |
| mA / V input (programmable).....                             | 0.4...60 s |

**Auxiliary supplies**

|                                                               |                                |
|---------------------------------------------------------------|--------------------------------|
| 2-w. supply (term. 44...43).....                              | 25...16 VDC / 0...20 mA        |
| Programming.....                                              | PR 45xx                        |
| Signal / noise ratio.....                                     | Min. 60 dB (0...100 kHz)       |
| Accuracy.....                                                 | Better than 0.1% of sel. range |
| EMC immunity influence.....                                   | < ±0.5% of span                |
| Extended EMC immunity: NAMUR<br>NE21, A criterion, burst..... | < ±1% of span                  |

**Input specifications****RTD input**

|                                |                      |
|--------------------------------|----------------------|
| RTD type.....                  | Pt100, Ni100, lin. R |
| Cable resistance per wire..... | 50 Ω (max.)          |
| Sensor current.....            | Nom. 0.2 mA          |
| Sensor error detection.....    | Yes                  |
| Short circuit detection.....   | < 15 Ω               |

**TC input**

|                                                     |                                             |
|-----------------------------------------------------|---------------------------------------------|
| Thermocouple type.....                              | B, E, J, K, L, N, R, S, T, U,<br>W3, W5, LR |
| CJC via int. mounted sensor.....                    | < ±1.0°C                                    |
| Sensor error detection.....                         | Yes                                         |
| Sensor error current: When<br>detecting / else..... | Nom. 2 µA / 0 µA                            |

**Current input**

|                                      |                      |
|--------------------------------------|----------------------|
| Measurement range.....               | 0...20 mA            |
| Programmable measurement ranges..... | 0...20 and 4...20 mA |
| Input resistance.....                | Nom. 20 Ω + PTC 50 Ω |

**Voltage input**

|                                      |                                                  |
|--------------------------------------|--------------------------------------------------|
| Measurement range.....               | 0...12 VDC                                       |
| Programmable measurement ranges..... | 0/0.2...1, 0/0.5...2.5, 0/1...5,<br>0/2...10 VDC |
| Input resistance.....                | Nom. 10 MΩ                                       |

**Output specifications**

|                                            |                                                  |
|--------------------------------------------|--------------------------------------------------|
| Frequency output range.....                | 0...25000 Hz                                     |
| Min. frequency (span).....                 | 0.001 Hz                                         |
| Other output types.....                    | PNP, NPN and TTL                                 |
| Sensor error indication, programmable..... | 0...26250 Hz                                     |
| of span.....                               | = of the currently selected<br>measurement range |

**Observed authority requirements**

|           |                |
|-----------|----------------|
| EMC.....  | 2014/30/EU     |
| LVD.....  | 2014/35/EU     |
| RoHS..... | 2011/65/EU     |
| EAC.....  | TR-CU 020/2011 |

**Approvals**

|         |                       |
|---------|-----------------------|
| FM..... | 3025177               |
| UL..... | UL 508 / C22.2 no. 14 |