

## Programmable f/I-f/f converter

### 5225A

- Pulse conditioning
- Frequency generator
- Concurrent f/I and f/f function
- Analog current and voltage output
- PNP / NPN output, optional relays
- Programmable by PC and Loop Link



#### Advanced features

- The 5225 transmitter can be configured with a standard PC and the Loop Link communications unit, or delivered fully configured.

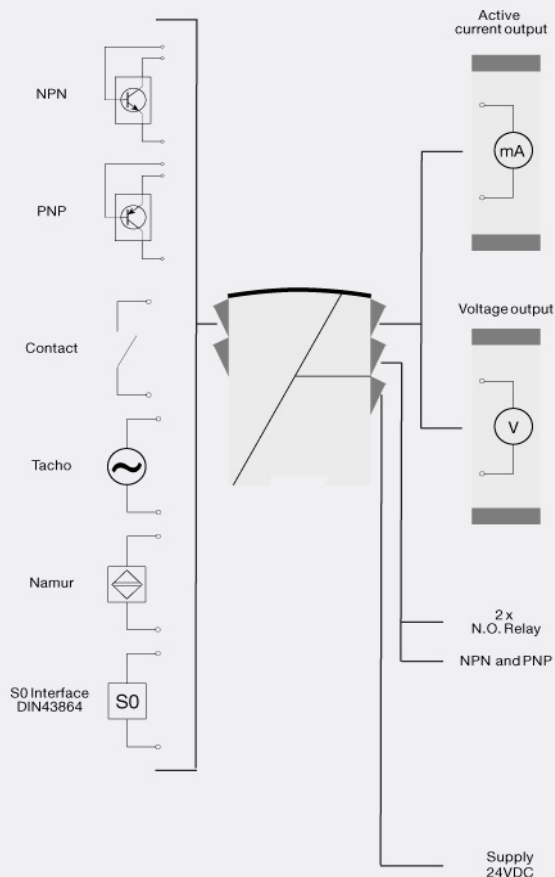
#### Application

- The f/I function performs frequency to current and voltage conversion.
- The f/f function can be used for pulse division or multiplication and as a buffer collecting fast pulse trains.
- The concurrent f/I and f/f functions enable a scaled digital output signal in conjunction with the analog output.
- The frequency generator function is used as e.g. a time base or clock generator.
- Input and supply polarity reversal protection.
- Programmable digital outputs including NPN, PNP or relay options.

#### Technical characteristics

- 4 front LEDs, indicating f in active inputs (not NPN), Dig.out.1 (NPN or relay 1) and Dig.out.2 (relay 2) outputs, and a NAMUR input error signal.
- Analog current output can be configured to any current within 0...20 mA range.
- Voltage output range is selectable between 0...10 VDC and 0...1 VDC by use of internal jumpers.
- Input range:  
Frequency: 0...20,000 Hz  
Sensor types: NAMUR, tacho, NPN, PNP, TTL, S0
- Output range:  
Current and voltage output: 0...20 mA / 0...10 V  
Relay outputs: 0...20 Hz  
NPN and PNP output as f/f: 0...1000 Hz  
NPN and PNP output as generator: 0...20,000 Hz

#### Applications



**Order:**

| Type  | Output                    |
|-------|---------------------------|
| 5225A | Analog + NPN / PNP : 1    |
|       | Analog + relay output : 2 |

**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 130 mm                   |
| Weight approx.....         | 190 g                                 |
| DIN rail type.....         | DIN 46277                             |
| Wire size.....             | 1 x 2.5 mm <sup>2</sup> stranded wire |
| Screw terminal torque..... | 0.5 Nm                                |

**Common specifications****Supply**

|                                 |                 |
|---------------------------------|-----------------|
| Supply voltage.....             | 19.2...28.8 VDC |
| Max. required power.....        | 3.5 W           |
| Internal power dissipation..... | 1.7 W           |

**Isolation voltage**

|                                               |                         |
|-----------------------------------------------|-------------------------|
| PELV/SELV.....                                | IEC 61140               |
| Warm-up time.....                             | 30 s                    |
| Power-up delay.....                           | 0...999 s               |
| Programming.....                              | Loop Link               |
| Signal / noise ratio.....                     | Min. 60 dB              |
| Response time, analog.....                    | < 60 ms + period        |
| Response time, digital output.....            | < 50 ms + period        |
| Response time, concurrent<br>f/I and f/f..... | < 80 ms + period        |
| Signal dynamics, output.....                  | 16 bit                  |
| Effect of supply voltage change.....          | < ±0.002% of span / %V  |
| Auxiliary voltage: NAMUR supply.....          | 8.3 VDC ±0.5 VDC / 8 mA |
| S0 supply.....                                | 17 VDC / 20 mA          |
| NPN / PNP supply.....                         | 17 VDC / 20 mA          |
| Special supply (programmable).....            | 5...17 VDC / 20 mA      |
| Temperature coefficient.....                  | < ±0.01% of span / °C   |
| Linearity error.....                          | < 0.1% of span          |
| EMC immunity influence.....                   | < ±0.5%                 |

**Input specifications****Common input specifications**

|                                               |                                |
|-----------------------------------------------|--------------------------------|
| Max. offset.....                              | 90% of selected max. frequency |
| Measurement range.....                        | 0...20 kHz                     |
| Min. measurement range.....                   | 0.001 Hz                       |
| Low cut-off frequency.....                    | 0.001 Hz                       |
| Max. frequency, with input<br>filter ON.....  | 50 Hz                          |
| Min. period time with input<br>filter ON..... | 20 ms                          |
| Input types.....                              | NAMUR acc. to DIN 19234        |
| Input types.....                              | Tacho                          |
| Input types.....                              | NPN / PNP                      |
| Input types.....                              | TTL                            |
| Input types.....                              | S0 acc. to DIN 43864           |

**Output specifications****Common output specifications**

|                    |                                  |
|--------------------|----------------------------------|
| Updating time..... | 40 ms for concurrent f/I and f/f |
| Updating time..... | 20 ms                            |

**Current output**

|                              |                         |
|------------------------------|-------------------------|
| Signal range.....            | 0...20 mA               |
| Min. signal range.....       | 5 mA                    |
| Load (@ current output)..... | ≤ 600 Ω                 |
| Load stability.....          | ≤ 0.01% of span / 100 Ω |
| Current limit.....           | < 23 mA                 |

**Voltage output**

|                              |            |
|------------------------------|------------|
| Signal range.....            | 0...10 VDC |
| Min. signal range.....       | 250 mV     |
| Load (@ voltage output)..... | ≥ 500 kΩ   |

**Relay output**

|                                |                                      |
|--------------------------------|--------------------------------------|
| Max. switching frequency.....  | 20 Hz                                |
| Isolation, test / working..... | 3.75 kVAC / 250 VAC                  |
| Max. voltage.....              | 250 VRMS                             |
| Max. current.....              | 2 AAC                                |
| Max. AC power.....             | 500 VA                               |
| Max. load at 24 VDC.....       | 1 A                                  |
| Other output types.....        | Active outputs (NPN / PNP)           |
| Other output types.....        | f/f converter output                 |
| Other output types.....        | Frequency generator                  |
| of span.....                   | = of the presently selected<br>range |

**Observed authority requirements**

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