

## Universal frequency converter

### 3225

- Input: NAMUR, NPN, PNP, Tacho, TTL, S0 & switches
- Output: Universal mA / V or relay
- 2.5 KVAC isolation
- DIP-switch or display programmable
- Power supply 16.8 VDC...31.2 VDC



#### Functional highlights

- Measures frequencies up to 100 kHz.
- Active current output.
- Buffered voltage output 10 VDC.
- 2-point process calibration.
- User-programmable trigger levels -0.05...6.5 V and sensor supply 5...17 V.
- NAMUR sensor error detection.
- Output relay with windows, setpoint and latch functionality.
- Simulation of process value during commissioning / maintenance.
- Fast response time, with simultaneous sensor error detection (PATENTED).
- All terminals are over-voltage protected, polarity protected and short-circuit protected.

#### Technical highlights

- Accuracy < 0.06% / span.
- Response time < 30 ms.
- 2.5 kVAC, 3-port galvanic isolation.
- Wide ambient temperature range -25...70°C.
- NAMUR NE21, NE43.

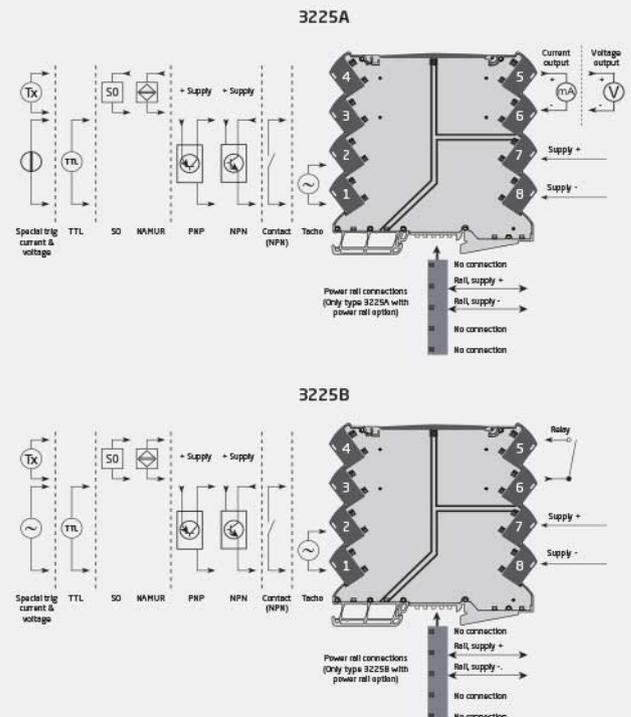
#### Programming

- Easy configuration via DIP-switches.
- Factory calibrated in all selectable measurement ranges.
- Configuration, monitoring, and diagnostics using PR 4500 detachable communication interfaces via the PR 4590 ConfigMate.
- All programming can be password protected.
- Scrolling help text in 7 languages.

#### Mounting

- Units can be mounted side by side, horizontally and vertically, without air gap on a standard DIN rail, even at 70°C ambient temperature.
- Units can be supplied separately or installed on PR 9400 power rail.
- The narrow 6.1 mm housing allows up to 163 units per meter.

#### Applications



## Order

Type	Version		
3225	Universal frequency converter , analog output	: A	With power rail connector / terminals : -
	Universal frequency converter, alarm relay output	: B	Supplied via terminals : -N

Example: 3225B-N (Universal frequency converter, alarm relay output, supplied via terminals)

## Environmental Conditions

Operating temperature.....	-25°C to +70°C
Storage temperature.....	-40°C to +85°C
Calibration temperature.....	20...28°C
Relative humidity.....	< 95% RH (non-cond.)
Protection degree.....	IP20
Installation in.....	Pollution degree 2 & meas. / overvoltage cat. II

## Mechanical specifications

Dimensions (HxWxD).....	113 x 6.1 x 115 mm
Weight approx.....	70 g
DIN rail type.....	DIN EN 60715/35 mm
Wire size.....	0.13...2.5 mm <sup>2</sup> / AWG 26...12 stranded wire
Screw terminal torque.....	0.5 Nm

## Common specifications

### Supply

Supply voltage.....	16.8...31.2 VDC
Fuse.....	400 mA SB / 250 VAC
Max. required power.....	≤ 1.2 W
Max. power dissipation.....	0.65 W

### Isolation voltage

Isolation voltage, test / working.....	2.5 kVAC / 300 VAC (reinforced)
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### Response time

Response time (0...90%, 100...10%).....	≤ 30 ms
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### Auxiliary supplies

Sensor supply limitation.....	23 mA, 5...17 V
Signal dynamics, output.....	18 bit
Long term stability, current, 1yr / 5yr @ 25°C.....	≤ 0.058% / ≤ 0.101%
Long term stability, voltage, 1yr / 5yr @ 25°C.....	≤ 0.032% / ≤ 0.058%
Accuracy.....	See manual for details
EMC immunity influence.....	< ±0.5% of span
Extended EMC immunity: NAMUR NE21, A criterion, burst.....	< ±1% of span

## Input specifications

### Frequency input

Frequency range.....	0.001 Hz to 100 kHz
Time range, time function.....	10 μs to 999.9 s
Max. frequency / min. pulse width, with input filter ON.....	75 Hz / 8 ms

### Sensor specifications

Tacho, trig-level LOW / HIGH.....	≤ -50 mV / ≥ +50 mV
NPN / PNP, trig-level LOW / HIGH.....	≤ 4.0 V / ≥ 7.0 V
TTL, trig-level LOW / HIGH.....	≤ 0.8 V / ≥ 2.0 V
S0, trig-level LOW / HIGH.....	≤ 2.2 mA / ≥ 9.0 mA
NAMUR, trig-level LOW / HIGH.....	≤ 1.2 / ≥ 2.1 mA

### Special voltage / current input

User-programmable trig-levels.....	-0.05...6.50 V
User-programmable trig-levels.....	0.0...10.0 mA

## Output specifications

### Current output

Signal range, active.....	0...23 mA
Programmable signal ranges.....	0 / 4...20 mA
Load (@ current output).....	≤ 600 Ω
Load stability.....	≤ 0.001% of span / 100 Ω
Response time, programmable.....	0.0...60.0 s
Sensor error indication.....	0 / 3.5 / 23 mA / none
Current limit.....	≤ 28 mA

### Voltage output

Signal range.....	≤ 11.5 VDC
Programmable signal ranges.....	0...1; 0...5; 0...10; 0.2...1; 2...10 VDC
Load (@ voltage output).....	≥ 10 kΩ
Response time, programmable.....	0.0...60.0 s

### Relay output

Relay functions.....	Setpoint, Window and Latch
Hysteresis.....	0...100%
ON and OFF delay.....	0...3600 s
Power On delay.....	0...9999 s
Sensor error reaction.....	Break / Make / Hold
Max. voltage.....	250 VAC / 200 VDC
Max. current.....	2 A
Max. AC power.....	100 VA
Max. DC current, resistive load ≤ 30 VDC.....	2 ADC
Max. DC current, resistive load > 30 VDC.....	See manual for details

## Observed authority requirements

EMC.....	2014/30/EU & UK SI 2016/1091
LVD.....	2014/35/EU & UK SI 2016/1101
RoHS.....	2011/65/EU & UK SI 2012/3032
ATEX.....	2014/34/EU & UK SI 2016/1107

## Approvals

ATEX.....	KEMA 10ATEX0147 X
IECEx.....	KEM 10.0068X
UKEX.....	DEKRA 21UKEX0055X
c UL us, UL 61010-1.....	E314307
CCC.....	2020322310003554