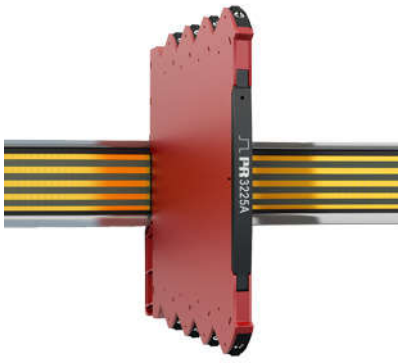
PERFORMANCE MADE SMARTER



Universal frequency converter

3225

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

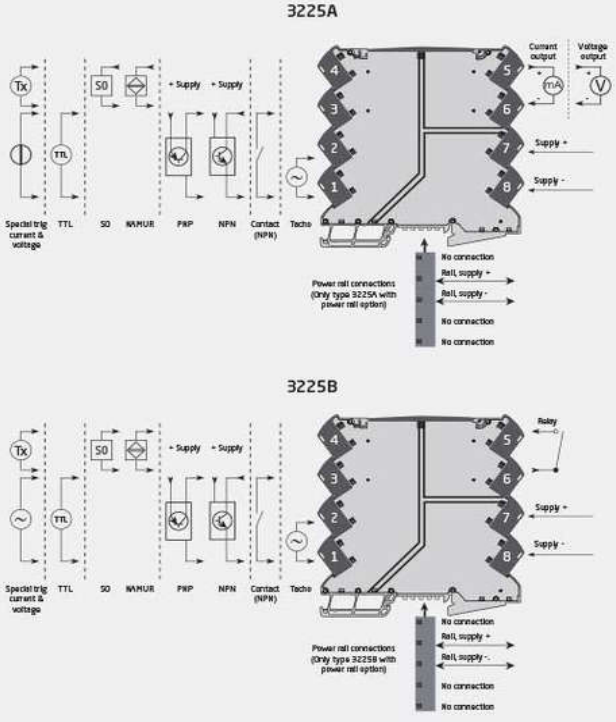
Functional highlights
- Measures frequencies up to 100 kHz.
- Active current output.
- Buffered voltage output 10 VDC.
- 2-point process calibration.
- User-programmable trigger levels -0.05…6.5 V and sensor supply 5…17 V.
- NAMUR sensor error detection.
- Output relay with windows, setpoint and latch 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



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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^2 / 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)

Response time

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

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	500 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
UL	UL 61010-1
CCC	Pending