

# SUPPLEMENTARY INFORMATION

EN

Translation of the original instructions

## **OKTA 800** with integrated frequency converter

**PFEIFFER**  **VACUUM**

## Validity

- **Okta 800**

This supplementary information describes important variations to the standard product and is only valid together with its prevailing operating instructions.

## Applicable documents

Okta 800	Operating instructions
Operating instructions for the standard pump	PW 0316 BN*
Operating instructions for INVEOR M frequency converter	<a href="http://www.kostal-industrie-elektrik.com">www.kostal-industrie-elektrik.com</a>
Declaration of conformity for INVEOR frequency converter	<a href="http://www.kostal-industrie-elektrik.com">www.kostal-industrie-elektrik.com</a>
Operating instructions for INVEOR MMI handheld controller	<a href="http://www.kostal-industrie-elektrik.com">www.kostal-industrie-elektrik.com</a>

\* also available at [www.pfeiffer-vacuum.de](http://www.pfeiffer-vacuum.de)



**Observe the INVEOR M frequency converter operating instructions !**

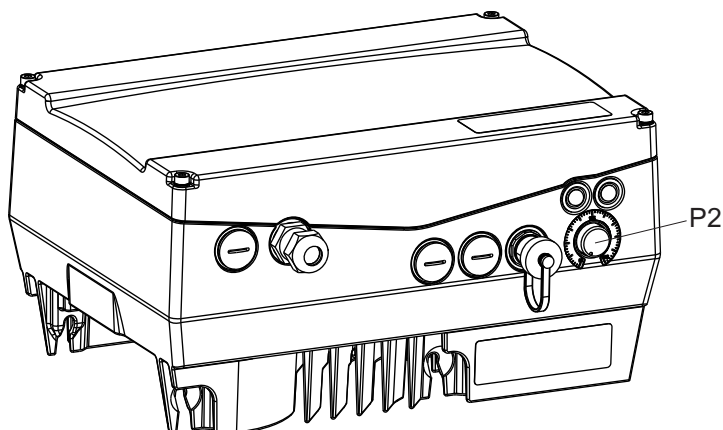
A detailed description of how to install and operate the frequency converter is available in the respective operating instructions.

→ Pay particular attention to the safety instructions for installation and operation.

## Abbreviations

**MMI:** Manual control unit

## Product description



**Fig. 1: Frequency converter with potentiometer P2**

The INVEOR frequency converter (drive controller INVEOR M) is a device for regulating the speed of three-phase motors used in Roots-type pumps from Pfeiffer Vacuum. The frequency converter is mounted to the motor using an adapter plate and wired to the terminal box.

## Variants

Two variants are available based on motor performance:

Type	Article number	Frequency converter/power	External fan
Okta 800	PP W34 400	Size MB / 3 kW	Yes
Okta 800	PP W34 401	Size MA / 1.5 kW	No

# Installation

The motor dataset, the run up and deceleration times and the setpoint speed values are preset at the factory. The motor dataset must not be changed!

## Power connection

When connecting Roots pumps of the Okta series only the 3-phase version of the frequency converter comes into consideration.

→ Perform the power connection according to the respective operating instructions of the INVEOR M frequency converter.

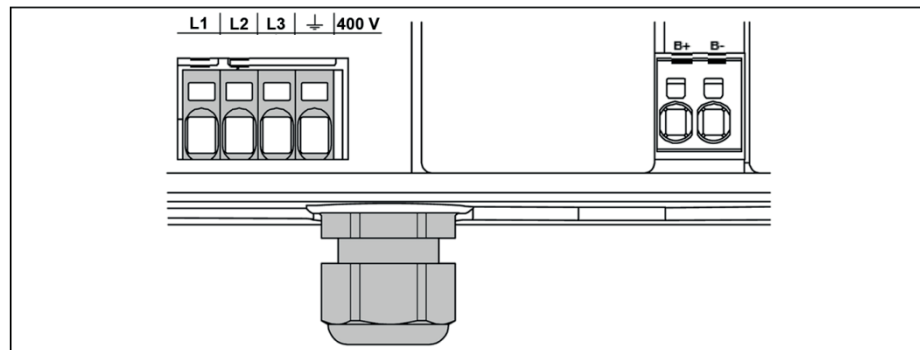


Fig. 2: 3~ 400 V terminal connection

## External fan (if existing)

The external fan has an external power supply and must be connected to the on-site terminal box in accordance with the wiring diagram. A test run must be performed following installation:

- 3~ Y 346-525 V, 50 Hz / 380-575 V, 60 Hz
- 3~ Δ 200-303 V, 50 Hz / 220-332 V, 60 Hz
- 1~ T 230-277 V, 50/60 Hz



### NOTICE

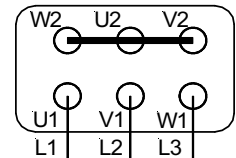
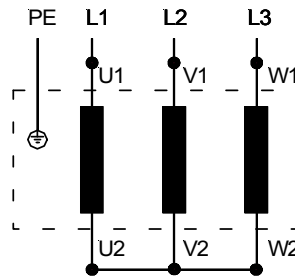
#### Restricted cooling performance of the fan.

Overheating of the motor due to incorrect direction of the fan rotation. The fan's direction of rotation is indicated by a directional arrow on the inner surface of the ventilation grille.

→ Ensure that the airflow is taken in via the ventilation grille and passes over the motor to be cooled.

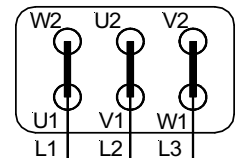
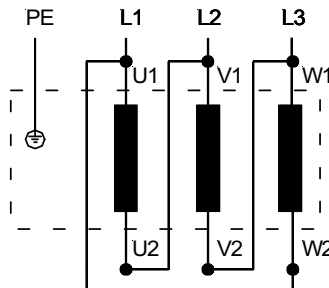
3~ $\star$

Sternschaltung  
Star connected  
Couplage étoile  
Conexión en estrella  
Collegamento a stella



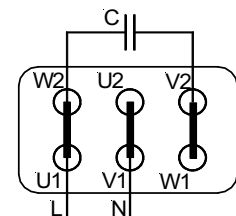
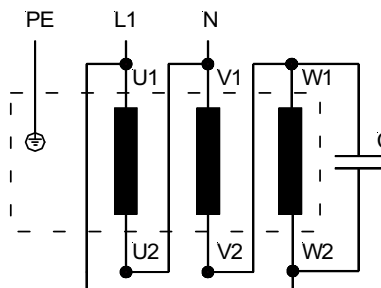
3~ $\Delta$

Dreieckschaltung  
Delta connected  
Couplage triangle  
Conexión en triángulo  
Collegamento a triangolo



1~ $\Delta$

Dreieck Steinmetz  
Delta Steinmetz  
Triangle Steinmetz  
Triángulon Steinmetz  
Triangolo Steinmetz



U1 (T1) = schwarz /black /noir /negro /nero  
U2 (T4) = grün /green /vert /verde /verde

V1 (T2) = hellblau /light-blue /bleu-clair /azul claro /azzurro  
V2 (T5) = weiß /white /blanc /blanco /bianco

W1 (T3) = braun /brown /brun /marrón /morrone  
W2 (T6) = gelb /yellow /jaune /amarillo /giallo

## Control connections

### Connection diagram

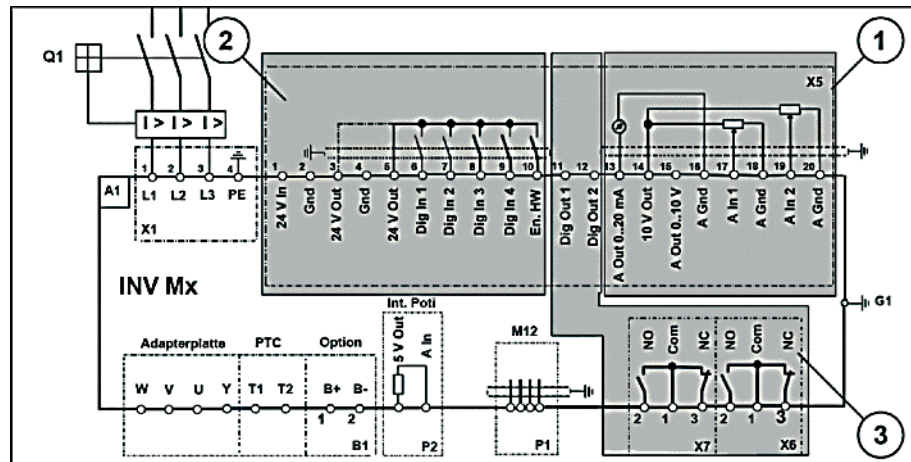


Fig. 3: Overview control connections

### Digital inputs

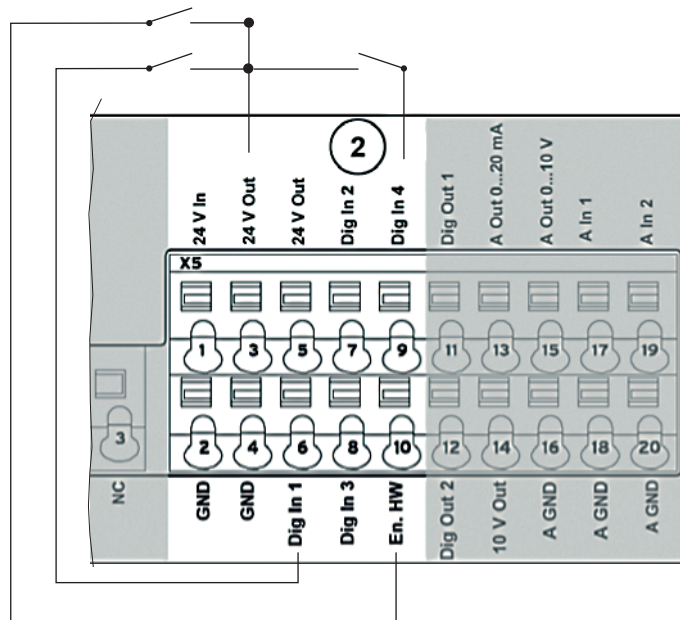


Fig. 4: Digital inputs

Pin	Function
En. HW	— 24 V Out enable drive
Dig. In 1	— 24 V Out start drive (pumpe start/stop)
Dig. In 2	free (not assigned)
Dig. In 3	free (not assigned)
Dig. In 4	— 24 V Out reset error

The corresponding relevant parameters are preset in the software.

## Digital output

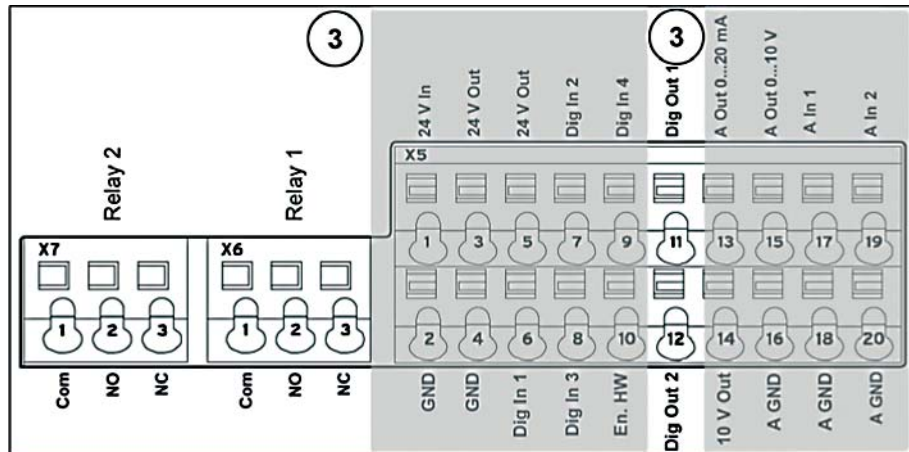


Fig. 5: Digital output

Pin	Function
Dig. Out 1	Error message
Dig. Out 2	free (not assigned)
Relay 1	Error message
Relay 2	free (not assigned)

The corresponding relevant parameters are preset in the software.

## Parameterization



### NOTICE

#### Invalid Parameter setting!

Inadmissible operating parameters endanger the operational safety of the pump and lead to damage the rotor bearing.

→ Do not change the parameter presetting for braking time, run-up time and frequency values (speed target values).

Parameter no.	Setpoint	Unit	Function
1020	25	Hz	Min. frequency
1021	75	Hz	Max. frequency
1050	10	s	Braking time 1
1051	10	s	Run-up time 1

Table 1: Preset base parameters in frequency converter

The parameters can be adjusted individually using an MMI handheld controller (optional) or via a communication cable and PC software.

The software is available to download free of charge at [www.kostal-industrie-elektrik.com](http://www.kostal-industrie-elektrik.com).

# Operation

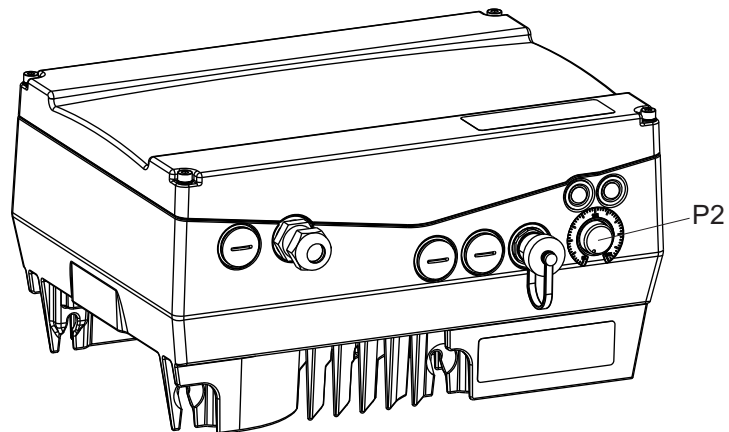


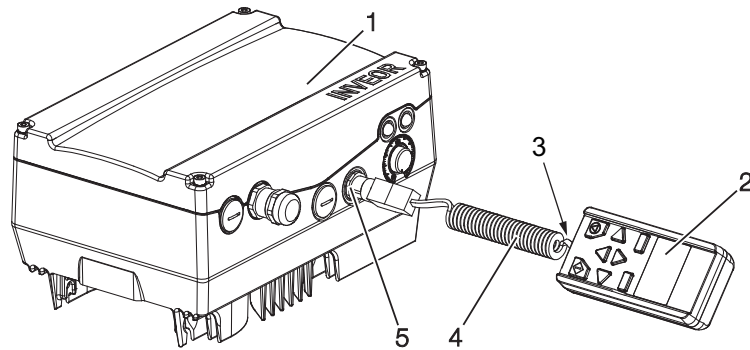
Fig. 6: Frequenzumrichter

- The speed setpoint can be infinitely adjusted using a rotary potentiometer **P2** on the exterior of the frequency converter to between 1500 and 4500 rpm (25 to 75 Hz).
- 0 % corresponds to 1500 min<sup>-1</sup>
  - 100 % corresponds to 4500 min<sup>-1</sup>

## Operation with accessories

### Remote control

Commissioning procedure for MMI:



**Fig. 7: MMI handheld controller**

- |   |                         |   |                      |
|---|-------------------------|---|----------------------|
| 1 | Frequency converter     | 4 | Communication cable  |
| 2 | MMI handheld controller | 5 | M12 connector socket |
| 3 | RJ11 connector socket   |   |                      |

### Frequency converter

→ Supply 24 V/DC at connection En. HW " (hardware release) of control terminal.

Pin	Function
En. HW — 24 V Out	enable drive

### MMI handheld controller

- Set setpoint source to **“3: MM/PC”** and save.
  - 02.Parameter groups > Basic parameter > Reference channel
- Set the software enable to **“9: Autostart”** and save.
  - 02.Parameter groups > Basic parameter > Enable software
- In the **“40. Control”** menu, set a setpoint in %.
  - Use the arrows on the MMI to set the desired percentage.

A detailed description of how to install and operate the INVEOR MMI handheld controller is available in the respective operating instructions.



## Accessories

Description	Nr.
MMI handheld controller	P 0104 597
PC communication cable	P 0104 598

The INVEOR pc software is available free of charge from the homepage at [www.kostal-industrie-elektrik.com](http://www.kostal-industrie-elektrik.com)

## Technical data and dimensions

Parameter	Okta 800
Flange (in)	DN 100 ISO-F
Flange (out)	DN 100 ISO-F
Nominal pumping speed	290-870 m <sup>3</sup> /h
Nominal pumping speed at 50 Hz	580 m <sup>3</sup> /h
Nominal pumping speed at 60 Hz	700 m <sup>3</sup> /h
Differential pressure max.	60-35 hPa
Nominal rotation speed at 50 Hz	3000 min <sup>-1</sup>
Nominal rotation speed at 60 Hz	3600 min <sup>-1</sup>
Rotation speed	1500-4500 min <sup>-1</sup>
Rotation speed min.	1500 min <sup>-1</sup>
Rotation speed max.	4500 min <sup>-1</sup>
Leak rate	1 · 10 <sup>-3</sup> Pa m <sup>3</sup> /s
Emission sound pressure level (EN ISO 2151) at intake pressure 1 hPa	70 dB (A)
Emission sound pressure level (EN ISO 2151) at intake pressure 10 hPa	75 dB (A)
Ambient temperature	5-40 °C
Protection category	IP55
Rated power 50 Hz	3/1,5 kW
Rated power 60 Hz	3/1,5 kW
Mains requirement: voltage 50 Hz	400-480 V
Mains requirement: voltage 60 Hz	400-480 V
Version	Standard with motor
Shipping and storage temperature	-10-+40 °C
Operating fluid	P3
Operating fluid filling	1.5 l
Weight: with motor	138 kg
Cooling method, standard	Air

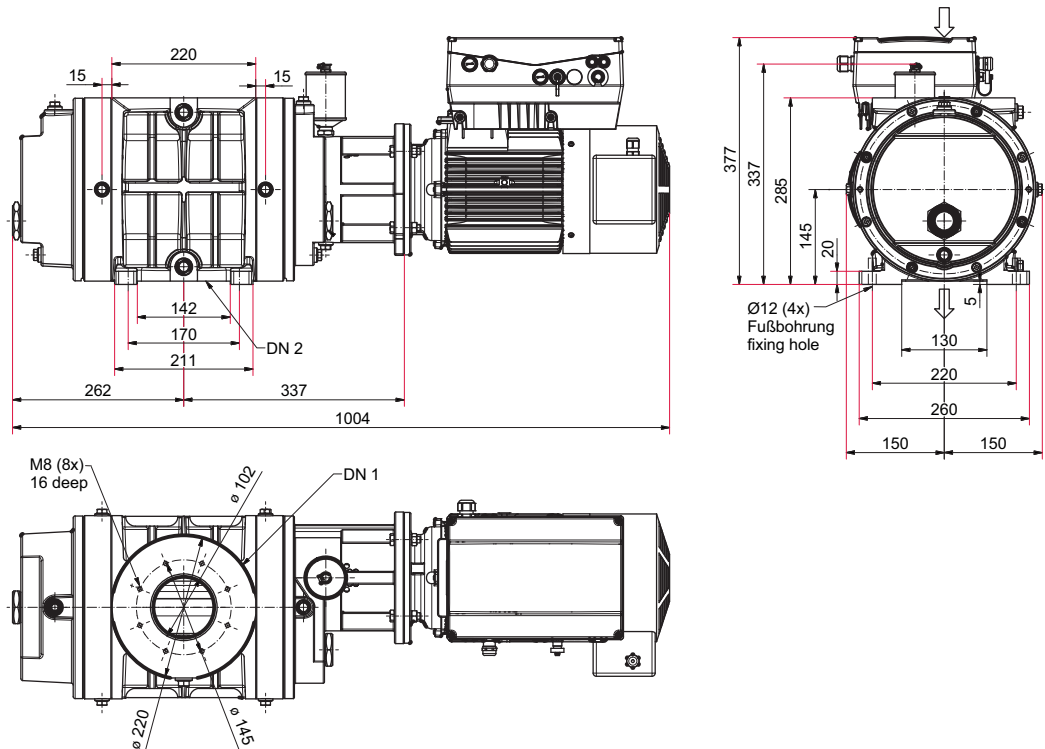


Fig. 8: Okta 800



# Declaration of conformity

We hereby declare that the product cited below satisfies all relevant provisions according to the following **EC directives**:

- **Machinery 2006/42/EC (Annex II, no. 1 A)**
- **Electromagnetic Compatibility 2014/30/EU**
- **Restriction of the use of certain Hazardous Substances 2011/65/EU**

The agent responsible for compiling the technical documentation is Mr. Sebastian Oberbeck, Pfeiffer Vacuum GmbH, Berliner Straße 43, 35614 Asslar.

## Okta 800

Harmonised standards and national standards and specifications which have been applied:

DIN EN ISO 12100 : 2010	ISO 21360-1, 2 : 2012	DIN EN 61000-6-3 : 2007
DIN EN 1012-2 : 2011-12	DIN EN 61000-6-1 : 2007	DIN EN 61000-6-4 : 2007
DIN EN ISO 13857 : 2008	DIN EN 61000-6-2 : 2006	DIN EN ISO 2151 : 2009
DIN EN 61800-3 : 2004	DIN EN 61800-5-1 : 2003	

Signature:

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Managing Director

Asslar, 2017-11-02

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