

INDUSTRIE ELEKTRIK

KOSTAL

INVEOR – Heavy Duty

The robust solution for extreme conditions



Smart connections.

INVEOR – Heavy Duty

Robust, durable and reliable...



... for longer maintenance intervals.



... for the most extreme field installations.



... for applications with intense vibration.



... for on-board power circuits in hybrid systems.

2 Intermediate circuit concept / housing concept

3 Expanded temperature range

1 Vibration-resistant design



4 High protective class

5 Broad voltage range input



... for higher demands on the mechanical components.



The advantages of heavy-duty products at a glance

- 1 Vibration-resistant design**
 - Vibration-resistant up to 5g thanks to continuous die-cast aluminium casing, with no high-standing or vibration-susceptible electrolytic capacitors
- 2 Intermediate circuit concept / housing concept**
 - Maintenance-free up to 7.5 kW due to fan-free design
 - Use of foil capacitors means long product lifetime
 - Low system perturbation thanks to integrated mains choke, no additional filters required
 - Can also be integrated in an existing housing thanks to PCB solution on cold plate
- 3 Expanded temperature range**
 - 100% performance across the entire temperature range of -25°C to +50°C without derating at 8 kHz
 - Operation possible up to ambient temperature of 60°C with derating
- 4 High protective class**
 - Thanks to the continuous die-cast aluminium housing to IP65 standard, the INVEOR is dust-tight and protected against jets of water
 - Fully suitable for outdoor use
 - Suitable for use in livestock buildings or swimming pools, because the INVEOR has proved itself in aggressive environments containing chlorine or ammonia
 - Smart PCB design from the automotive industry makes a coated surface unnecessary
- 5 Broad voltage range input**
 - Flexible use in single- and 3-phase power grids as well as DC grids
 - Power grid:
1 x 100 VAC to 230 VAC (0.25 kW–1.1 kW)
3 x 200 VAC to 480 VAC (0.37 kW–22 kW)
 - Power grid:
140 VDC ... 320 VDC (0.25 kW–1.1 kW)
280 VDC ... 680 VDC (0.37 kW–22 kW)

This document does not replace the data sheet.

KOSTAL competence – smart connections



The KOSTAL brand promise – “Smart connections.”

The “Smart connections.” philosophy is the KOSTAL brand promise and is based on the KOSTAL Group’s vast experience.

KOSTAL is a global family-owned company, now in the fourth generation, with over 100 years of experience and comprehensive know-how in the development of high-quality electronic, electromechanical and mechatronic solutions for a wide range of automotive and industrial applications. Leading automotive manufacturers and numerous major industrial companies all over the world rely on the KOSTAL Group with its global workforce of close to 17,000 people.

For all KOSTAL partners, “Smart connections.” means a partnership with a down-to-earth and sound company, guaranteeing long-term trusting business relationships at all levels.

INVEOR – “Smart connections.” on all levels

The “Smart connections.” claim is not only the brand claim of KOSTAL Industrie Elektrik. It also stands for the philosophy behind the development of the INVEOR line of drive controllers.

With its modular structure, the INVEOR is designed to allow custom requirements to be easily met even with small or medium-sized quantities – without sacrificing the advantages of volume production. The principle we apply is “as much customisation as necessary, as much standardisation as possible”.

As a result, the INVEOR is universally usable and offers numerous ways of increasing efficiency in a wide range of industries.

At a more detailed level, it enables ideal adaptation to all interfaces in the application environment. In the areas of communication, operation and observation, motor adaptation, and control process, the KOSTAL drive controller can be customised to suit virtually all requirements. That’s what we call “Smart connections.”



INVEOR – “Smart connections.” on five levels

1 The INVEOR

- IP65 protection class
- Integrated soft PLC
- Pre-fitted cable glands
- Fan-free design up to 7.5 kW
- Robust and vibration-resistant housing concept
- STO functional safety

3 Operation and observation

- Potentiometer
- M12 RS485 service interface
- Integrated foil keypad
- MMI handheld controller
- MMI cover option
- Touch operating terminal
- INVEOR PC software

2 Communication

- CANopen
- PROFINET
- EtherCAT
- PROFINET
- MODBUS RTU
- SERCOS the automation bus

4 Motor adaptations

- Robust and vibration-resistant adapter concept
- Motor adapter concept compatible with all commercially available motors

5 Control process

- IE1, IE2, IE3, IE4: for asynchronous motors and synchronous motors

Overview of INVEOR M sizes



α	A	B	C	D
Recommended motor rating ¹⁾ (kW)				
0.25 – 0.75 kW	0.37 – 1.5 kW	2.2 – 4.0 kW	5.5 – 7.5 kW	11 – 22 kW

¹⁾ Recommended motor rating (4-pole asynchr. motor) for single-phase and three-phase devices is given based on the 230 VAC and 400 VAC supply voltage.

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