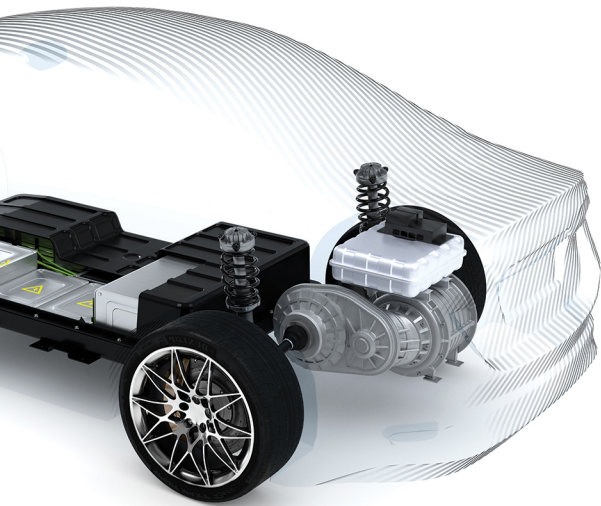


UNIVERSAL INVERTER



Water-cooled configuration.
Many configurations available.

Traction Inverter & E-Motor Testing

This unique Universal Inverter works with all of the most-common types of AC motors (Asynchronous Induction, Synchronous Permanent Magnet, and IPM – Internal Permanent Magnet) without changing hardware or loading different software. Unico offers more than one rating – the most popular unit is a water-cooled inverter that can accept a DC input of 0-900VDC and has a nominal 520VAC rating.

Switching frequency is user-adjustable up to 32kHz. The inverter contains a dynamic protection curve that automatically adjusts based on operating conditions including DC input voltage, switching frequency, overload, output frequency, and ambient temperature.

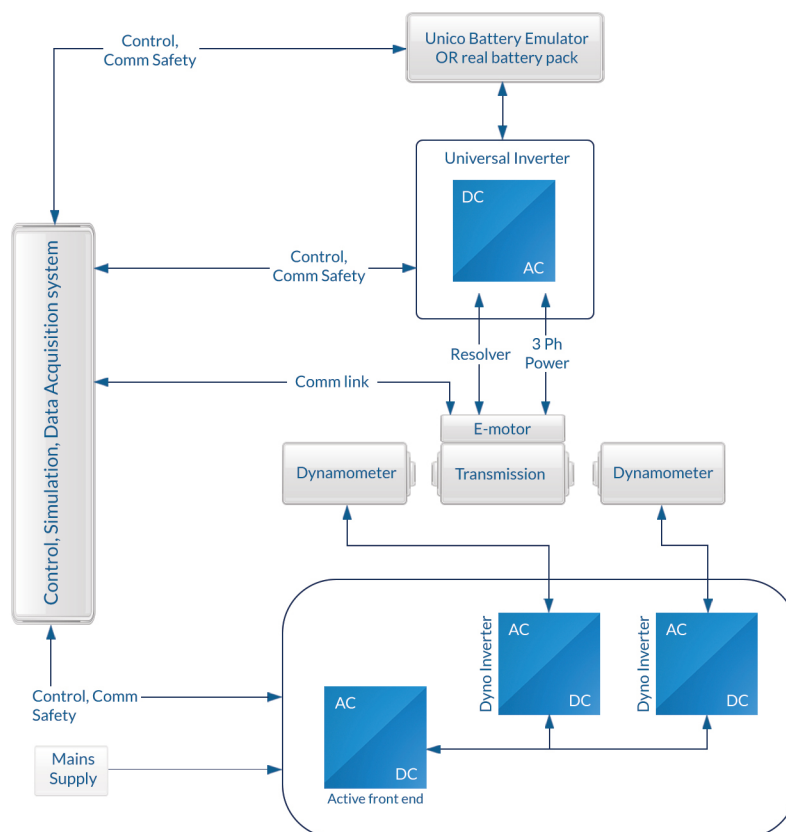
APPLICATIONS

- E-Motor design validation
- E-Motor characterization
- Endurance, durability, environmental testing
- Replacement of the EV-Inverter for test purposes (Inverter emulation)
- Inverter control algorithm development and optimization
- Suitable for E-motor, E-Axle, wheel motor or other powertrain configurations

FEATURES

- IGBT and SiC inverter technology
- Modern fast controller technology
- Various power, torque and speed ranges
- Wide range of fundamental motor frequency and inverter switching frequency
- Support for varieties of position feedback sensors
- Work with variable DC supply such as Battery Emulator, real battery pack or fuel cell
- Air cooled or water cooled design
- Supports IPM*, SPM* and IM* torque and current control (and slip for IM)
- Built-in automated Flux ID test to characterize motor magnetics
- Supports MTPA/V operation of PM E-Motors
- User control modes: Speed, Torque, Idq

BLOCK DIAGRAM



SPECIFICATION

UNIVERSAL INVERTER

DC Power input	Battery Emulator, Battery Pack, Fuel cell
DC Input voltage	0 to 850VDC, higher voltage available
Connected motor types	Permanent magnet (IPM, SPM), Induction
Power	30kW to 800kW
Motor voltage	Up to 600VRMS (variable based on DC supply)
Full four quadrant	Standard
Fundamental frequency	Up to 2000Hz
Encoder type	Resolver, Quadrature, SinCos (SSI / EnDAT Interface)
Switching frequency	Up to 32kHz, dynamically adjustable or user adjustable
Modulation methods	Space vector, voltage blocking (DPWM)
Motor current	Wide range possible. Please discuss your requirements
Battery Emulator Specification	See Battery Emulator Brochure

GENERAL SPECIFICATIONS

Ambient	Up to 40°C, max 1000m above sea level, 95%RH non-condensing
Enclosure	NEMA 1 (other options available upon request)
Cooling	Air cooled (water cooled or air-conditioned cabinets upon request)
Cabinet Paint	RAL 7035 Rough Semi-gloss Poly Powder finish
Certification Compliance	UL, CE (other certifications available)
Control	Local and remote
Built in remote interface	Analog as well as RS-422, RS-485, two ports (other interface and protocol, see options below)
Safety and control interlocks	Hardwired [performance level d], opto-isolated, software configurable

OPTIONS

Additional analog and digital input, output	Technical discussion required			
Cabinet paint finish	Customer specific			
Protection class	NEMA 12			
External communication interface	• CAN open	• CC-Link	• ControlNet	• ControlNet
	• Ethernet	• EtherCAT(async)	• Interbus	• LonWorks
	• Modbus Plus	• Profibus DPV1	• Profibus Master	• EtherCAT (sync)

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UNITED STATES

CORPORATE HEADQUARTERS
3725 Nicholson Rd. P. O. Box 0505
Franksville, WI 53126-0505
(262) 886-5678

UNITED KINGDOM

Unico (UK) Ltd.
Garamonde Drive Wymbush,
Milton Keynes MK8 8LF
+44.1908.260000

GERMANY

Unico Deutschland GmbH
Dortmunder Straße 7
D-57234 Wilnsdorf
+49.2739.303.0

CANADA

1515 Matheson Blvd, East
Unit # B5
Mississauga, Ontario
L4W 2P5
Canada
(905) 602-4677

COLUMBIA

Centro Empresarial Metropolitano
KM. 3.4, Calle 80-Via Siberia-Cota.
Modulo 1, Bodega 6
+(57-1)-7469550/7469569
+57 -3173650663

AUSTRALIA

(Manufacturing, Engineering,
Sales And Service)
Unit 3, 553 Boundary Road
Darra, Queensland 4076
+61.7.3713.7830
+61(0)439.700.548

FRANCE

2 Avenue De La République
Saint Piat, 28130
+33 6 16 83 86 66



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