INTELECTRIC
SERIAL HYBRID SYSTEM (iSHS)

TECHNICAL SPECIFICATION

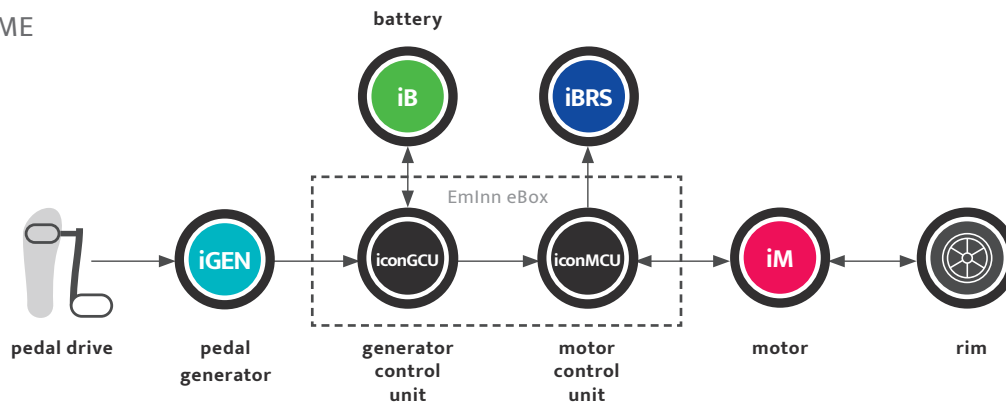|	
Nominal power	250 W
Access to the vehicle	Beacon, keyless
Pedal assistance	up to 25 km/h (max. speed)
Push assistance	Electric push assistance up to 6 km/h forwards
Motor	2 x 125 W support power | DDG electric motor (in-house development, page 7)
iGEN Driving Feel	Natural driving experience | DDG generator (in-house development, page 9)
Battery	Use of interchangeable battery system, optionally 2 pieces á 1,400 Wh AES SuperPack Smart
Battery capacity	30 Ah
Battery range	93 km with 2 batteries (depending on battery equipment, payload, terrain and temperature)
Charging time	1.5 hours with standard charger (SCHUKO socket outlet)
Control System	EmInn eBox
Operating mode	Forward gear with assistance levels | reverse gear | recuperation mode
Wheels/ rims	2-shell polymer full rims 24" (fork & motor rims are DDG in-house developments) | PA66-GF35, page 16

INTELECTRIC *SERIAL HYBRID SYSTEM (iSHS)*

THE INTELECTRIC SERIAL HYBRID SYSTEM (ISHS) IS COMPOSED OF MODULAR COMPONENTS DESIGNED TO ADAPT SEAMLESSLY TO A WIDE RANGE OF VEHICLE REQUIREMENTS.

The Intelectric Serial Hybrid System (iSHS) is composed of interconnected modules—including the generator (iGEN), and EmInn control units which processes input signals and computes commands to drive the motor(s) (iM) via the motor control units (MCU). The battery powers the 48 V system and enables energy recuperation during braking. The rider's mechanical input is converted into electrical energy and transmitted to the wheels entirely without a mechanical drivetrain connection.

iSHS SCHEME

	battery					
	iB	**iBRS**				
		EmInn eBox				
pedal drive	**iGEN**	**iconGCU**	**iconMCU**	**iM**	(rim)	
pedal drive	pedal generator	generator control unit	motor control unit	motor	rim	

SINCE THERE IS NO MECHANICAL CONNECTION VIA CONVENTIONAL BICYCLE CHAINS, THIS RESULTS IN NUMEROUS ADVANTAGES:

- Full design flexibility for component placement and vehicle architecture.
- Support for multiple motors with independently calculated commands based on vehicle dynamics (e.g., electronic differentials, all-wheel drive).
- For larger or more complex vehicles, the serial hybrid architecture offers greater robustness and cost efficiency compared to conventional systems relying on chains, belts, or multi-gear assemblies.

OVERVIEW OF THE SERVERAL INTELECTRIC PORTFOLIO
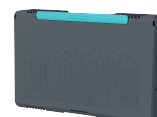
iM — MOTOR

iGEN — GENERATOR

iB — BATTERY

iM1500

iGEN

iB1400/
AES SuperPack Smart

iBRS — BRAKE SYSTEM

iCON — CONTROL SYSTEMS

RIMS 20/24 INCH*

203 front brake disc

220 rear brake disc

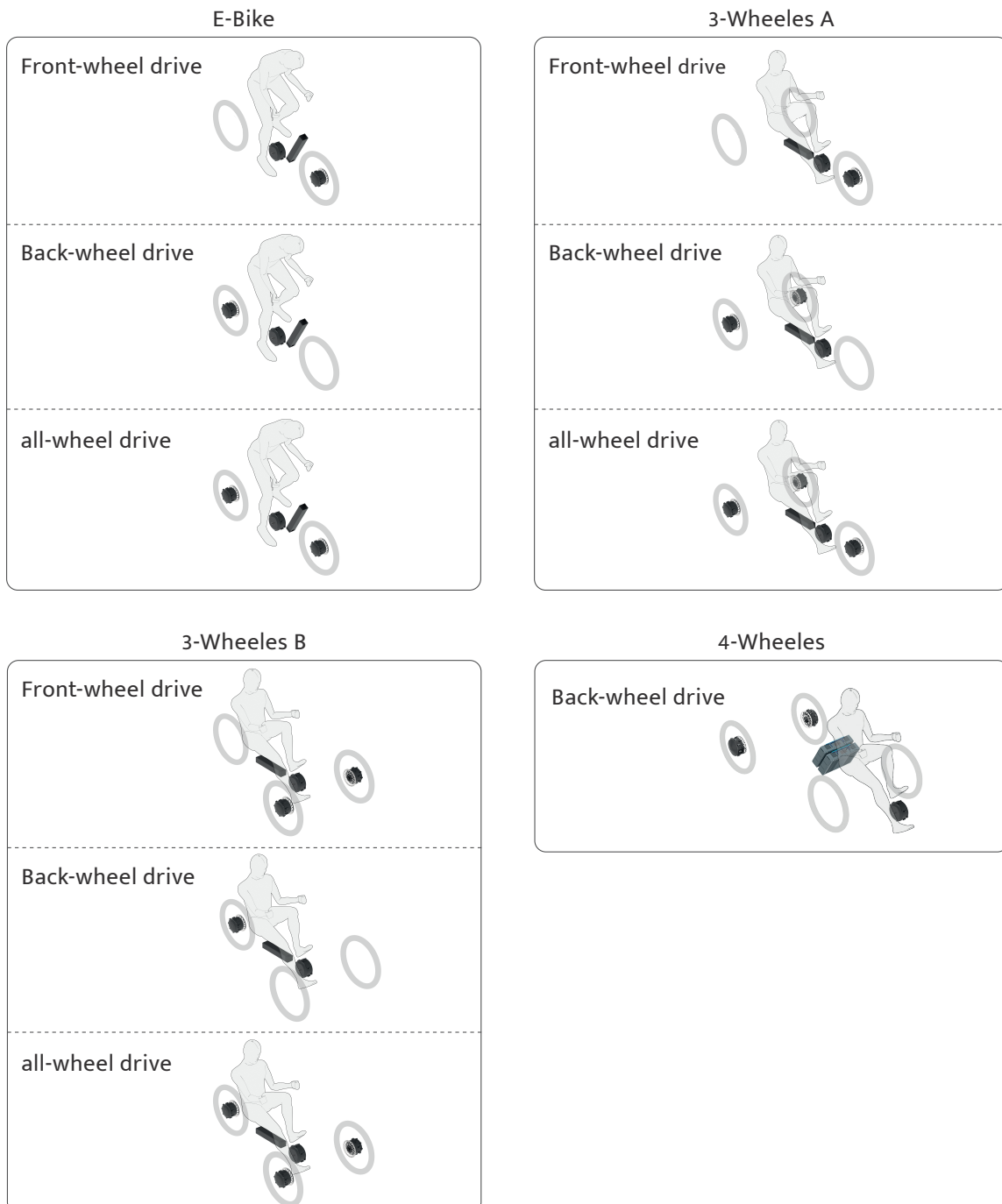4 piston brake

HALL sensor brake lever

iconMCU   iconVCU

iconGCU   iconIOT

iconPCB   iconHMI

icoFR20   icoFR24

icoMR1000.20   icoMR1000.24

icoMR1500.20   icoMR1500.24
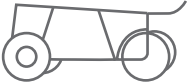
* 28 inch wheel planned

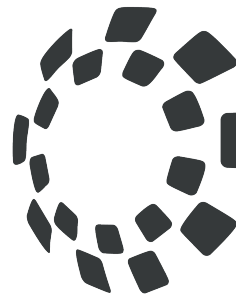# POSSIBLE ARRANGEMENTS OF THE COMPONENTS OF THE SYSTEM IN RELATION TO VEHICLES.

E-Bike

Front-wheel drive

Back-wheel drive

all-wheel drive

3-Wheeles A

Front-wheel drive

Back-wheel drive

all-wheel drive

3-Wheeles B

Front-wheel drive

Back-wheel drive

all-wheel drive

4-Wheeles

Back-wheel drive

OVERVIEW OF THE SERVERAL INTELECTRIC PORTFOLIO*

iSHS COMPONENTS	4 WHEELER	3 WHEELER	E-BIKE
MOTOR (iM)			
iM1500	• •	•	•
GENERATOR (iGEN)			
iGEN	•	•	•
BATTERY (iB)			
iB1400 (AES SuperPack Smart)	• •	•	
BRAKE SYSTEM (iBRS)			
iBRS	•	•	•
CONTROL SYSTEM (iCON)			
iconVCU	•	•	•
iconMCU	•	•	•
iconGCU	•	•	•
iconPCB	•	•	•
iconHMI	•	•	•
RIM (24 INCH)			
icoFR24	• •	•	•
icoMR1500.24	• •	• •	•

* There are many other application combinations (page 4).

FOR MORE INFOMATION CONTACT US.

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