

# ECO<sup>®</sup>

Types ECG, AMF – Technical data



## Product Sheet

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### Product overview

**ECO<sup>®</sup> ECG** and **ECO<sup>®</sup> AMF** are microprocessor controlled devices for use in low voltage single genset applications for standby power generation.

The front-side waterproof stainless steel housing provides optimum protection against influences in a harsh environment. Both device types allow the start-stop control of various kinds of prime movers, and provide comprehensive protection functions in order to ensure the safe operation of single-gensets. A magnetic pick up (MPU) can be used to determine the engine speed. Using the test button, the operator can perform regular test runs in order to check the operational readiness of the entire system.

The display language can be selected by the operator. Multiple alarms and up to 50 events are stored in the nonvolatile memory of the device in case of a fault. An integrated beeper and colored LEDs are indicating active alarms.

Via CAN Bus interface the devices monitor the engine controller messages and provide start-stop control via J1939 protocol. Supported ECU's are: Volvo EMS2, Volvo EDC4, Perkins, Scania S6, MAN MFR, MTU ADEC and other.

**ECO<sup>®</sup> ECG** can be either automatically or manually used to control the start- stop-sequence of a single genset including the automatic control of the generator contactor or breaker.

**ECO<sup>®</sup> AMF** is a fully functional automatic mains failure controller including check-synchronizer. It provides the automatic start function in case of a mains failure and the control of a mains breaker and generator breaker. **ECO<sup>®</sup> AMF** automatically controls the transfer of the consumer power from mains- to generator supply and back to the utility grid.

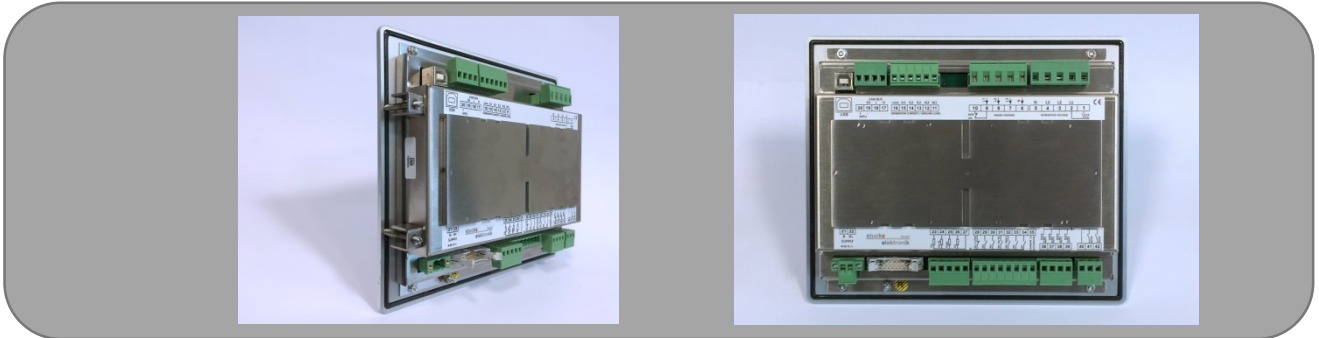


**ECO<sup>®</sup> ECG, ECO<sup>®</sup> AMF**

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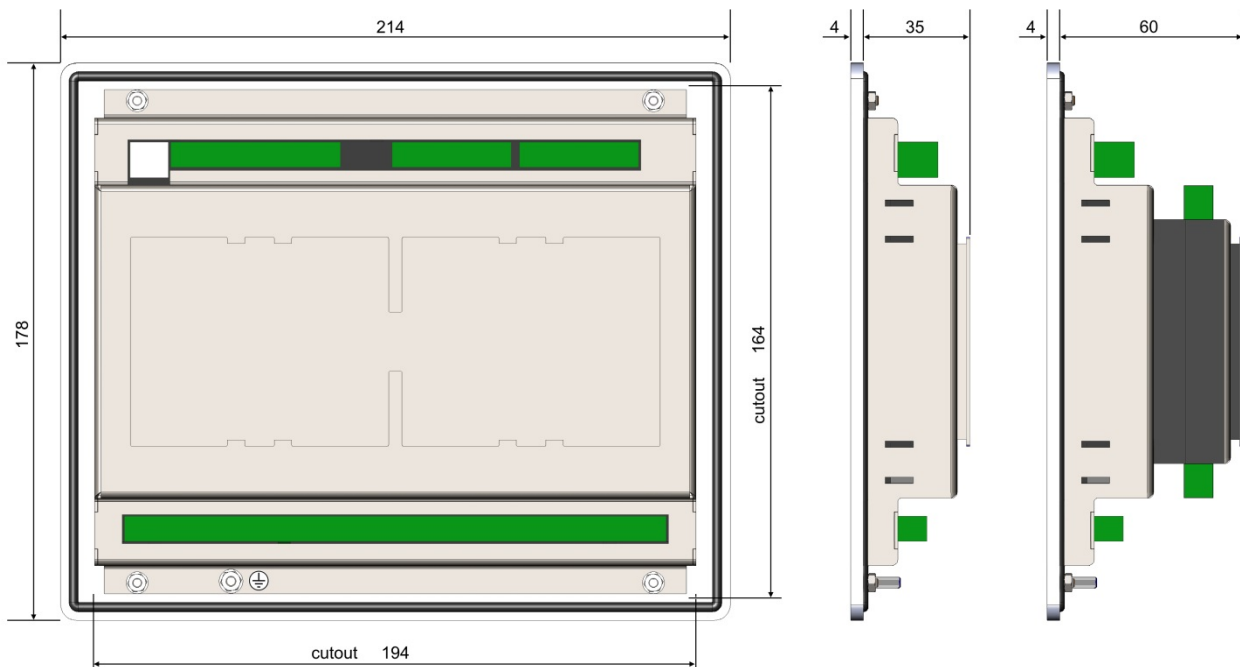
### Panel mounting and terminal connections

Fast mounting brackets and plug-in terminals allow a time-saving installation and easy replacement of a device.



### ECO<sup>®</sup> ECG, ECO<sup>®</sup> AMF rear view

Although the ECO<sup>®</sup> ECG and ECO<sup>®</sup> AMF devices feature small housing dimensions, they still contain all the necessary functions for the control of generator sets.



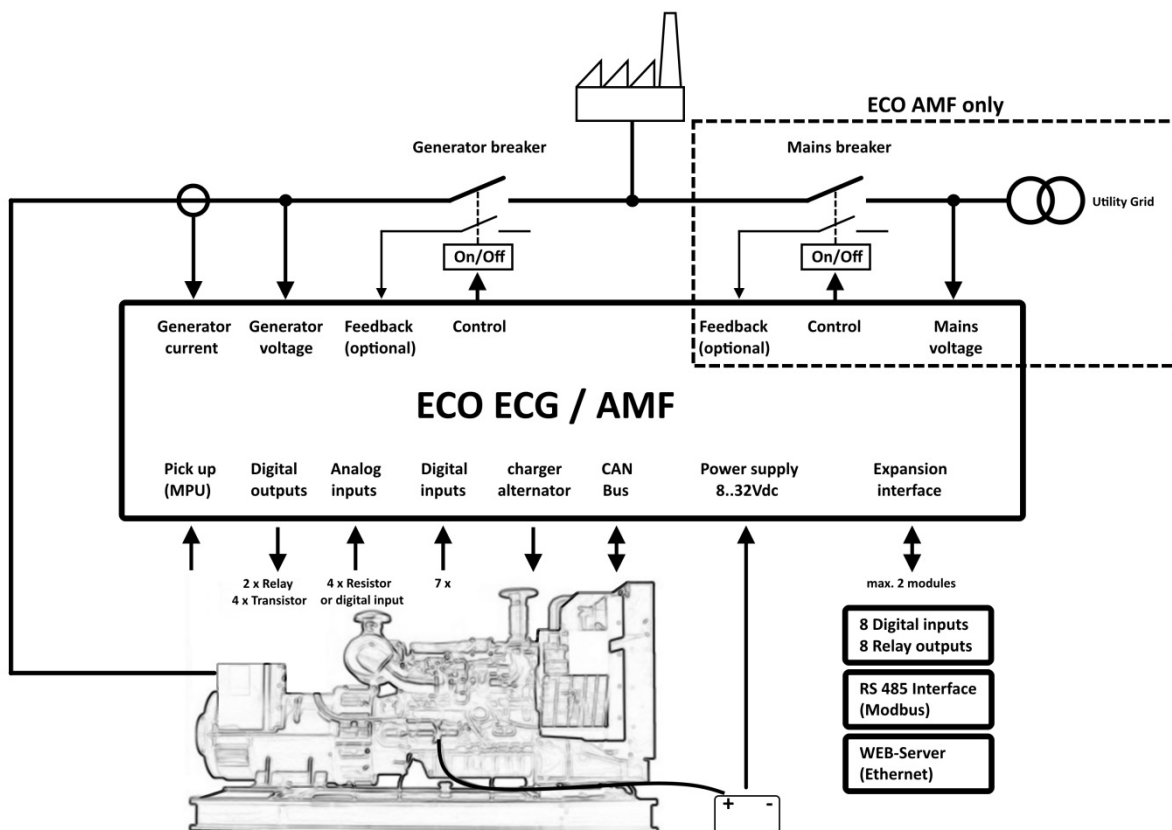
### ECO<sup>®</sup> ECG, ECO<sup>®</sup> AMF dimensions and cut out in mm

## Product Sheet

### Connections ECO<sup>®</sup> ECG and ECO<sup>®</sup> AMF

ECO<sup>®</sup> ECG and ECO<sup>®</sup> AMF provide the following connections for measurement and control of the genset:

- Generator current measurement 3 phase + ground current
- Generator voltage measurement 3 phase + neutral
- Generator contactor or breaker control
- Mains contactor or breaker control (ECO<sup>®</sup> AMF only)
- Mains voltage measurement 3 phase + neutral (ECO<sup>®</sup> AMF only)



- Magnetic pick up
- 2 Programmable function relays and 4 programmable transistor outputs
- 4 Programmable analog/digital inputs (resistive senders)
- 7 Programmable digital inputs
- Charger alternator excitation
- Can Bus interface to engine control unit
- Power supply 24Vdc
- Expansion interface for optional modules

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### Additional I/O modules

Optional functions can easily be added to the **ECO<sup>®</sup> ECG** and **ECO<sup>®</sup> AMF** devices. There are three different I/O modules available, of which up to two can be snapped onto the basic device simultaneously.



**ECO<sup>®</sup> ECG, ECO<sup>®</sup> AMF side view with additional I/O module**

The following different I/O modules are currently available:

- **ECO<sup>®</sup> IO** Digital I/O module with 8 digital Inputs 24VDC and 8 relay outputs 6A/250V.
- **ECO<sup>®</sup> 485** Serial interface module with RS 485 interface for Modbus communication.
- **ECO<sup>®</sup> WEB** WEB server module with Ethernet interface for remote monitoring and control.



**ECO<sup>®</sup> IO, ECO<sup>®</sup> 485, ECO<sup>®</sup> WEB**

## Product Sheet

### Technical specification ECO<sup>®</sup> ECG, ECO<sup>®</sup> AMF

No.	Description	Condition / Characteristics	
1	Dimension (w x h x d)	214 × 178 × 35 (mm) , Cut out 194 x 164 (mm)	
2	Weight	1,35 kg	
3	Power supply	12-36 V DC	
4	Power consumption	<10 W	
5	Ambient condition	Service temperature	-20°C to +70°C
		Storage temperature	-30°C to +70°C
		Transport temperature	-30°C to +70°C
		Humidity	< 80 %
6	Degree of protection	Front panel	IP65 (IEC529)
		Terminal side	IP20 (IEC529)
7	Voltage measurement	Voltage range:	3 to 300VAC L-N, 5 to 500VAC L-L
		Frequency range:	5 Hz to 99,9 Hz, if voltage >20VAC L-N
7	Voltage measurement	Voltage resolution:	1 V
		Voltage accuracy:	1% of full scale
8	Current measurement	CT secondary current:	1A / 5A
		Max. input current:	7A continuously, 20A for 1 second
9	Pick up	Frequency range:	35Hz to 10kHz
		Voltage range:	1V to 35V peak
10	Resistive sensor	Resistance range:	0 to 1,3k Ohm
		accuracy:	1% of full scale
11	Digital inputs	Function:	Switch to battery -
		current:	1mA / input
12	Transistor outputs	Function:	P-Chanel MOSFET
		current:	max.1A / output
13	Relay outputs	Mains CB on:	NC contact, 8A / 230VAC
		Generator CB on:	NO contact, 8A / 230VAC
10	Transistor outputs	Output 5:	NO contact, 5A / 230VAC
		Output 6:	NO contact, 5A / 230VAC
14	Charger alternator	12V excitation current:	210mA
		24V excitation current:	105mA
15	Communication	USB:	SCADA and setup interface
		CAN bus:	Engine interface, J1939 protocol
10	Resistive sensor	Optional expansion RS485:	Modbus RTU
		Optional expansion Ethernet	Web-server, remote data and setup