Engine and generator controllers

- Extensive selection of functions to satisfy all application requirements
- Power supply range 12-24VDC for each single product
- Totally programmable inputs, outputs and alarms
- RS232, RS485, USB, Ethernet communication interface
- Engine control by CANbus
- Setup and supervision software
- Modem control for sending alarm messages and emails.

Engine and generator controllers

- Engine protection controllers ................................................................. 8
- Stand alone gen-set controllers ............................................................... 9
- Automatic mains failure (AMF) gen-set controllers ............................... 10
- Paralleling controllers for mains-generator and generator-generator ........ 11
- Remote and alarm-status relay units ....................................................... 12
- Communication devices and accessories ............................................... 13
- Software .................................................................................................. 14

Dimensions ............................................................................................... 15
ENGINE PROTECTION CONTROLLERS
- Starting with or without power key switch
- Programmable inputs and outputs
- Front LED indicators for engine alarm conditions and diagnostics.

STAND ALONE GEN-SET CONTROLLERS
- Generator voltage and current control
- Engine protection
- Programmable inputs and outputs
- Programmable alarm properties.

AUTOMATIC MAINS FAILURE (AMF) GEN-SET CONTROLLERS
- Automatic starting of generator and load switching to stand-by emergency source in case of mains failure
- Supervision in “open transition” for contactors, motorised circuit breakers and motorised changeover switches
- Engine protection
- Programmable inputs, outputs and alarms.

PARALLELING CONTROLLERS FOR MAINS-GENERATOR AND GENERATOR-GENERATOR
- Mains-generator “closed transition” synchronising
- Mains-generator load sharing with source peak demand control
- Generator paralleling supervision (island mode with load sharing).

REMOTE UNITS
- Remote viewing and control panels
- Remote annunciator for alarm and status indication
- Digital outputs for alarm and status condition remotely.

COMMUNICATION DEVICES, ACCESSORIES AND SOFTWARE
- Communication interfaces
- Additional digital and analog inputs and outputs
- GPRS-GSM module
- Setup and supervision software
- APP.
## Engine and generator controllers

### ENGINE PROT. CONTROLLERS

<table>
<thead>
<tr>
<th>Feature</th>
<th>RGK 30</th>
<th>RGK 400SA</th>
<th>RGK 420SA</th>
<th>RGK 600SA</th>
<th>RGK 601SA</th>
<th>RGK 700SA</th>
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<tr>
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1. Controller uploading of other multilanguage sets.
2. For RGK 400SA only.
### Engine and generator controllers

#### AUTOMATIC MAINS FAILURE (AMF) GEN-SET CONTROLLERS

<table>
<thead>
<tr>
<th><strong>Engine and generator controllers</strong></th>
<th><strong>RGK 600</strong></th>
<th><strong>RGK 601</strong></th>
<th><strong>RGK 610</strong></th>
<th><strong>RGK 700</strong></th>
<th><strong>RGK 750</strong></th>
<th><strong>RGK 800</strong></th>
<th><strong>RGK 900</strong></th>
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<td>50/60Hz</td>
<td>50/60Hz</td>
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<td>6 neg.+1 pos. (emergency)</td>
<td>8 neg.+1 pos. (emergency)</td>
<td>8 neg.+1 pos. (emergency)</td>
<td>12 neg.+1 pos. (emergency)</td>
<td>12 neg.+1 pos. (emergency)</td>
<td>12 neg.+1 pos. (emergency)</td>
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<td>Digital outputs n°</td>
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<td>3 (Relay) + 4 (SSR)</td>
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<td>3 (Relay) + 6 (SSR) + 1(SO)</td>
<td>3 (Relay) + 6 (SSR) + 1(SO)</td>
<td>3 (Relay) + 6 (SSR) + 1(SO)</td>
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<td>12/24VDC</td>
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<td>“W” or generator frequency or “Pick-up”</td>
<td>“W” or generator frequency or “Pick-up”</td>
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<td>“W” or generator frequency or “Pick-up”</td>
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<td>RTC (Real Time Clock)</td>
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<td>Texts for alarms, events and parameters</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
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<td>5 (GB - I - F - P - E)</td>
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<td>●</td>
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<tr>
<td>Load sharing</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
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<tr>
<td>Generator paralleling</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Mains-generator synchronising (closed transition)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>IEC front degree of protection</td>
<td>IP40, IP65 with optional gasket seal</td>
<td>IP65</td>
<td>IP65</td>
<td>IP65</td>
<td>IP65</td>
<td>IP65</td>
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<td>cULus, EAC</td>
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<td>cULus, EAC</td>
<td>cULus, EAC</td>
<td>cULus, EAC</td>
</tr>
</tbody>
</table>
A SUPERIOR CLASS!

- **CUSTOMISING OPTION**
  There is a customising slot available on the front to show controller brand name, logo, trademark, part number, brief indication or wording, etc.

- **PROGRAMMING OPTICAL PORT**
  The optical port on the panel front, using a standard USB or Wi-Fi point, allows communication with a PC, smartphone and tablet, to carry out programming, diagnostics and data download, without removing power to the electric panel.

- **IP65 DEGREE OF PROTECTION**
  The controller front and the internal display frame seal have been designed to warrant an IP65 protection degree. This with the UV film also allow outdoor installation.

- **COMPACT SIZE**
  Slim frame profile and reduced total depth simplify installation of the controllers in very compact electric panels.

- **CABLING AND EXPANSION MODULE FIXING SYSTEM**
  The controller rear has 4 fitting slots to secure cables connected to the terminals with cable ties, in an orderly way inside the electric panel. In addition, a plastic retainer is supplied as standard to keep the expansion modules in place when installed in applications with strong vibrations.

- **EXPANDABILITY**
  Basic RGK 750, RGK 800 and RGK 900 controller functions can be easily extended using up to 4 EXP series expansion modules:
  - Digital and analog inputs and outputs
  - Opto-isolated static outputs
  - Relay outputs
  - Opto-isolated RS232 interface
  - Opto-isolated RS485 interface
  - Opto-isolated Ethernet interface with Web server function
  - GPRS/GSM modem.

- **INSTALLATION**
  The fixing with metal screws guarantees excellent adhesion over time.

---

**Dimensions**

- RGK 700
- RGK 800
- RGK 900

**RGK 750 (2 modules)**

**RGK 800 (3 modules)**

**RGK 900 (4 modules)**
Engine and generator controllers
RGK 700 - 750 - 800 - 900

- **GPRS/GSM MODEM**
  Once a data-enabled SIM card is inserted, RGK 750 - RGK 800 - RGK 900 controllers can send SMS and email messages with alarm and event conditions as well as the latest logged events to a FTP server.

- **OPTO-ISOLATED ETHERNET INTERFACE WITH WEB SERVER FUNCTION**
  Web Browsing of the single controller connected in Ethernet by EXP10 13 expansion module.

- **CANBUS COMMUNICATION PORT**
  Most models are standard equipped with CAN-J1939 communication port.

- **PLC FUNCTION**
  Capability to combine together internal status of controllers with signals incoming from the field to activate outputs and generate alarms.

- **LOAD MANAGEMENT**
  There are different methods of controlling the load conditions; each controller has special parameters as follows:
  - RGK 700 - RGK 750 - RGK 800 types: load shedding and dummy load modes
  - RGK 900 types: base-load and peak shaving modes.

- **PARALLELING**
  RGK 900 and RGK 900SA controllers can control the switching between the mains and generators without having to switch off the power supply to the load. In addition, they can control the paralleling connection of two or more generators sharing in this way the load on more than one source. The RGK 900MC can control and synchronise mains parallel operation with a power bus composed by a series of generating sets.

- **REMOTE UNITS**
  Remote display panels
  There are “mirror” display units available to remotely operate as if in front of the generating set.

- **SUPERVISION SOFTWARE**
  Synergy is web-based and provides for an easy and efficient way to monitor and control electrical installations as well as field equipment.

- **EXPANDABILITY**
  An extensive selection of modules is available to increase the controller functionality.

- **MAINTENANCE**
  Maintenance supervision at programmed intervals.

- **STREAMLINE DESIGN**
  The controller has an ergonomic design and, at the same time, particular care has been given to details.
Engine and generator controllers

### Engine protection controllers

<table>
<thead>
<tr>
<th>Order code</th>
<th>Description</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>RGK 30</td>
<td>12/24VDC, for external start-stop key switch, 96x48mm/3.78x1.89&quot;</td>
<td>1</td>
<td>0.160</td>
</tr>
</tbody>
</table>

**General characteristics for RGK 30**

**OPERATOR INTERFACE**
- 2 programming key buttons
- 1 LED indicator for engine status
- 1 LED indicator for glow plug pre-heating
- 5 LED indicators for alarm status
- Remote starting only.

**INPUTS/OUTPUTS**
- Digital inputs: 3 negative and 1 positive (start/stop by remote key switch)
- Digital outputs: 2 relay (1 programmable).

**Certifications and compliance**

Certifications obtained: UL Listed, for USA and Canada (cULus-File E93601), as Auxiliary Devices-Generator controllers; EAC.
Compliant with standards: IEC/EN 61010-1, IEC/EN 61000-6-2, EN 55011, UL 508, CSA C22.2 n° 14.
### Accessories and software

#### Engine and generator controllers

**Stand alone gen-set controllers**

<table>
<thead>
<tr>
<th>Order code</th>
<th>Description</th>
<th>Qty per pkg</th>
<th>Wt n°</th>
<th>kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>RGK 400SA</td>
<td>12/24VDC, icon LCD display, 5 inputs, 5 outputs</td>
<td>1</td>
<td>0.410</td>
<td></td>
</tr>
<tr>
<td>RGK 420SA</td>
<td>12/24VDC, icon LCD display, built-in position key switch, 5 inputs, 5 outputs</td>
<td>1</td>
<td>0.430</td>
<td></td>
</tr>
<tr>
<td>RGK 500SA</td>
<td>12/24VDC, graphic LCD display, w/Pick-up speed input, 4 inputs, 6 outputs</td>
<td>1</td>
<td>0.540</td>
<td></td>
</tr>
<tr>
<td>RGK 601SA</td>
<td>12/24VDC, graphic LCD display, CANbus port, 4 inputs, 6 outputs</td>
<td>1</td>
<td>0.530</td>
<td></td>
</tr>
<tr>
<td>RGK 700SA</td>
<td>12/24VDC, graphic LCD display, RS232 serial port, CANbus port, 6 inputs, 7 outputs</td>
<td>1</td>
<td>0.900</td>
<td></td>
</tr>
<tr>
<td>RGK 800SA</td>
<td>12/24VDC, graphic LCD display, RS485 serial port, Expandable with EXP modules, 8 inputs, 10 outputs</td>
<td>1</td>
<td>0.980</td>
<td></td>
</tr>
</tbody>
</table>

#### Programmable functions and properties

<table>
<thead>
<tr>
<th>Character</th>
<th>RGK 4...SA</th>
<th>RGK 6...SA</th>
<th>RGK 700SA</th>
<th>RGK 800SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inputs</td>
<td>5</td>
<td>4</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Relay outputs</td>
<td>–</td>
<td>–</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Protected static outputs</td>
<td>5</td>
<td>6</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Resistive/Digital inputs</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

**General characteristics for RGK 400SA - RGK 420SA**
- Key with 3 positions (OFF, local start, remote start), removable in OFF and remote start position (for RGK 420SA)
- Power supply: 7...33VDC
- VAC inputs: Generator L1-L2-L3-N
- Single, two and three phase voltage control
- Rated measurement voltage range: 100...480VLL (3P+N)
- Programmable VT ratio
- Frequency measurement range: 45...65Hz
- Current input: 1PH, 1/5A or 1/1A
- Display: LCD with icons (Sx25x5mm/2.05x1.38")
- Programming port: IR with support of CX01 (USB) and CX02 (Wi-Fi) dongles
- NFC technology for parameter setup
- Powersave mode
- Inputs: 5 negative + 1 positive for emergency
- Outputs: 5 positive, 2A, protected
- Common pin dedicated to EV and START outputs to be used with emergency push button
- Engine running detection: "+", Hz
- Engine speed inputs: "W" or Magnetic "Pick-up"
- 1 analog ohmic input for oil pressure, engine temperature or fuel level control
- Alarm and parameter text in 5 languages
- Customisable alarm text (2 alarms)
- Operating temperature: -30...+60°C
- Parameter configuration by NFC technology with NFC app
- Compatible with Sendy, Sendy+ and Xpress software.

**General characteristics for RGK 600SA - RGK 601SA - RGK 700SA - RGK 800SA**
- Power supply: 7...33VDC
- VAC inputs: Generator L1-L2-L3-N
- Single, two and three phase voltage control
- Rated measurement voltage range: 100...480VAC for RGK 600SA and RGK 601SA
- 30...600VAC for RGK 700SA and RGK 800SA
- Programmable VT ratio
- Frequency measurement range: 45...65Hz
- Current input: 3PH, 5/1A or 1/1A
- Graphic LCD: 128x64 pixels with backlight
- Programming port: IR with support of CX01 (USB) and CX02 (Wi-Fi) dongles
- Common pin dedicated to EV and START outputs to be used with emergency push button
- Engine running detection: "+", Hz
- Engine speed inputs: "W" or Magnetic "Pick-up" (RGK 601SA excluded)
- 1 CANbus-J1939 port (RGK 600SA excluded)
- 3 analog ohmic inputs for oil pressure, engine temperature and fuel level control
- 1 built-in alarm remote port
- Non-volatile memory for event storage
- Alarm, event and parameter text in 5 languages
- Customisable alarm text (8 alarms)
- Operating temperature: -30...+70°C
- Modbus-RTU and Modbus-ASCII protocols
- Compatible with Sendy, Sendy+ and Xpress software.

For RGK 700SA - RGK 800SA only
- PLC logic for inputs, outputs and internal status
- 1 communication port: RS232 for RGK 700SA; RS485 for RGK 800SA
- Degree of protection: IEC IP65 on front; suitable for use with UL/CSA Type 4X outdoor enclosure installation.

For RGK 800SA only
- Neutral current measurement range: 0.050...6A or 0.050...1.2A
- 400Hz frequency support
- 1 programmable analog input
- Modbus-TCP communication protocol
- Current leakage control towards earth/ground
- Clock-calendar (RTC)

**Certification and compliance**

Certifications obtained: UL Listed, for USA and Canada (cULus - File E33601), as Auxiliary Devices - Generator controllers; EAC. Compliant with standards: IEC/EN 61010-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3, UL 508, CSA C22.2 n° 14.
Automatic mains failure (AMF) gen-set controllers

<table>
<thead>
<tr>
<th>Order code</th>
<th>Description</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>RGK 600</td>
<td>12/24VDC, graphic LCD display, w/Pick-up speed input, 4 inputs, 6 outputs</td>
<td>1</td>
<td>0.540</td>
</tr>
<tr>
<td>RGK 601</td>
<td>12/24VDC, graphic LCD display, CANbus port, 4 inputs, 6 outputs</td>
<td>1</td>
<td>0.540</td>
</tr>
<tr>
<td>RGK 610</td>
<td>12/24VDC, graphic LCD display, w/Pick-up speed input, 4 inputs, 6 outputs,</td>
<td>1</td>
<td>0.600</td>
</tr>
<tr>
<td></td>
<td>expandable with EXP... modules</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RGK 700</td>
<td>12/24VDC, graphic LCD display, RS232 serial port, CANbus port, 7 outputs</td>
<td>1</td>
<td>0.880</td>
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<tr>
<td>RGK 750</td>
<td>12/24VDC, graphic LCD display, RS485 serial port, CANbus port, 8 inputs,</td>
<td>1</td>
<td>0.960</td>
</tr>
<tr>
<td></td>
<td>10 outputs, expandable with EXP... modules</td>
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<td></td>
</tr>
<tr>
<td>RGK 800</td>
<td>12/24VDC, graphic LCD display, RS485 serial port, CANbus port, 8 inputs,</td>
<td>1</td>
<td>0.960</td>
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<tr>
<td></td>
<td>10 outputs, expandable with EXP... modules</td>
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Programmable functions and properties

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>RGK 600</th>
<th>RGK 601</th>
<th>RGK 700</th>
<th>RGK 750</th>
<th>RGK 800</th>
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<tbody>
<tr>
<td>Inputs</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>8</td>
<td></td>
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<tr>
<td>Relay outputs</td>
<td>–</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Protected static outputs</td>
<td>6</td>
<td>4</td>
<td>7</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Resistive/ Digital inputs</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
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<table>
<thead>
<tr>
<th>Order code</th>
<th>Description</th>
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<tbody>
<tr>
<td>EXP 10</td>
<td>Opto-isolated USB interface</td>
</tr>
<tr>
<td>EXP 11</td>
<td>Opto-isolated RS232 interface</td>
</tr>
<tr>
<td>EXP 12</td>
<td>Opto-isolated RS485 interface</td>
</tr>
<tr>
<td>EXP 42T</td>
<td>6 digital inputs, PCB tropicalized</td>
</tr>
<tr>
<td>EXP 43T</td>
<td>4 digital input and 2 static outputs, PCB tropicalized</td>
</tr>
</tbody>
</table>

General characteristics for
- RGK 600 - RGK 601 - RGK 610 - RGK 700 - RGK 750 - RGK 800
  - Power supply: 7...33VDC
  - VAC inputs: Mains and generator L1-L2-L3-N
  - Voltage control for one, two and three phase systems with or without neutral
  - Rated measurement voltage: 840VAC for RGK 600, RGK 601, RGK 610 and RGK 750
  - 600VAC for RGK 700 and RGK 800
  - Rated measurement voltage range: 100...480VAC for RGK 800, RGK 601, RGK 610 and RGK 750
  - 30...600VAC for RGK 700 and RGK 800
  - Frequency measurement range: 45-65Hz
  - Programmable VT ratio
  - Current measurement range (3 PH): 0.050...6A or 0.050...1.2A
  - Graphic LCD: 128x60 pixels with backlight
  - 1 USB/optical and Wi-Fi port on front for programming
  - Engine running detection: “D+”, generator voltage and frequency
  - Engine speed inputs: “W” or Magnetic “Pick-up” (RGK 601 excluded)
  - 1 CANbus-J1939 port (RGK 600 and RGK 610 excluded)
  - 3 analog ohmic inputs for oil pressure, engine temperature and fuel level control
  - 1 built-in alarm remote port
  - Non-volatile memory for event storage
  - Alarm, event and parameter text in 5 languages
  - Alarm text customisable (8 alarms)
  - Event log
  - Modbus-RTU and Modbus-ASCII communication protocols (RGK 600 and RGK 610 excluded)
  - Compatible with Syncropress, Syncropress and Xpress software
  - 1 communication port: RS232 for RGK 700; RS485 for RGK 800
  - 2 slots for EXP modules for RGK 750
  - 3 slots for EXP modules for RGK 800.

For RGK 700 - RGK 750 - RGK 800 only
  - Degree of protection: IEC IP65 on front.

For RGK 700 - RGK 800 only
  - 1 communication port: RS232 for RGK 700; RS485 for RGK 800
  - Degree of protection: IEC IP65 on front; suitable for use with UL/CSA Type 4X outdoor enclosure installation.

For RGK 800 only
  - Neutral current measurement range: 0.050...6A or 0.050...1.2A
  - 400Hz frequency support
  - 1 programmable analog input
  - Modbus-TCP communication protocol
  - Current leakage control towards earth/ground
  - Clock-calendar (RTC).

Certifications and compliance
Certifications obtained: UL Listed, for USA and Canada (cULus - File E93601), as Auxiliary Devices - Generator controllers except for RGK 750; EAC (except for RGK 750). Compliant with standards: IEC/EN 61010-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3, UL 508, CSA C22.2 n° 14.
Paralleling controllers for mains-generator and generator-generator

<table>
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<th>Order code</th>
<th>Description</th>
<th>Qty</th>
<th>Wt per pkg</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXP10 00</td>
<td>4 opto-isolated digital inputs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXP10 01</td>
<td>4 opto-isolated static outputs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXP10 02</td>
<td>2 digital inputs and 2 static outputs, opto-isolated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXP10 03</td>
<td>2 relay outputs rated 5A 250VAC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXP10 04</td>
<td>2 opto-isolated analog inputs 0/4-20mA or PT100 or 0-10V or 0...±5V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXP10 05</td>
<td>2 opto-isolated static outputs 0/4-20mA or 0-10V or 0...±5V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXP10 08</td>
<td>2 opto-isolated digital inputs and 2 relay outputs rated 5A 250VAC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXP10 40</td>
<td>2 digital/resistive inputs, 2 static outputs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXP10 41</td>
<td>2 thermocouple inputs, 2 static outputs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXP10 42T</td>
<td>6 digital inputs, PCB tropicalized</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXP10 43T</td>
<td>4 digital input and 2 static outputs, PCB tropicalized</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Communications interfaces.
- EXP10 10 Opto-isolated USB interface
- EXP10 11 Opto-isolated RS232 interface
- EXP10 12 Opto-isolated RS485 interface
- EXP10 13 Ethernet interface with web server function
- EXP10 15 GPRS/GSM modem

**Engine and generator controllers**

**RGK 900SA** is designed for applications with load sharing on an isolated bus, without mains:
- a) Parallel among generators working together in island mode on power bus with load shared among them
- b) Generators connected together to maintain the power reserve (total power available minus load power) within a preset range, switching on and off generators according to a priority level.

**RGK 900SA** is designed for applications with load sharing on an isolated bus, without mains:
- a) Single generator in maintained parallel with the mains (for emergency, with AMF in closed transition).
- b) Single generator in maintained parallel with the mains in peak-shaving mode, the mains and power bus composed by multiple generators, each controlled by an RGK 900SA.

**Main characteristics**
- Power supply: 7...36VDC
- VAC inputs: L1-L2-L3-N for RGK 900 only
- VAC inputs: Generator L1-L2-L3-N
- Voltage measurement rated value: 600VAC (UL/CSA)
- Voltage measurement range: 30-720VAC
- Frequency measurement range: 45...65Hz or 360...440Hz
- Programmable VT ratio
- Current measurement input (3 PH+N): 0.05-6A or 0.05...1.2A
- Fourth CT for neutral measurement or earth/ground leakage detection
- Graphic LCD, 128x112 pixels with backlight
- 13 digital inputs
- 3 relay outputs rated 8A 250VAC
- 6 static outputs rated 2A, protected
- 1 static output 50mA
- Engine running detection: “D-” generator voltage and frequency
- 1 engine speed input: “W” or “Magnetic Pick-up”
- 3 analog ohmic inputs for oil pressure, engine temperature and fuel level control
- 1 programmable analog input
- 2 analog outputs for engine speed control (governor) / voltage regulator (AVR)
- Alarm-event parameter text in 5 languages (Webupload)
- Alarm text customisable (16 alarms)
- Event log
- Modbus-RTU, Modbus-ASCII and Modbus-TCP communication protocols
- Boolean logic for inputs, outputs and internal status
- Compatible with software
- Degree of protection: IEC IP65 on front; suitable for use with UL/CSA Type 4X outdoor enclosure installation
- Built-in buzzer
- Multi-level passwords
- Sleep function (power saving mode)
- Synchronising and load sharing.

**Accessories and software**
- Menus for quick selection of rated parameter settings
- “Autocall” function for automatic sending of emails and/or SMS at predefined events/alarms
- Mains (for RGK 900 only) / Generator controls: Phase sequence, phase loss, max and min voltage and frequency, voltage asymmetry
- Programmable maintenance at various intervals
- Current leakage control towards earth/ground
- Mains-generator synchronising (ATS closed transition)
- Mains in base-load with generator in peak shaving
- Paralleling supervision of generators (island mode)
- Generating set start scheduling.

**Certifications and compliance**
- Certifications obtained: UL Listed for USA and Canada (cULus - File E95601), as Auxiliary Devices, Generator controllers; EAC.

**General characteristics**
- Power supply: 7...36VDC
- VAC inputs: L1-L2-L3-N for RGK 900 only
- VAC inputs: Generator L1-L2-L3-N
- Voltage measurement rated value: 600VAC (UL/CSA)
- Voltage measurement range: 30-720VAC
- Frequency measurement range: 45...65Hz or 360...440Hz
- Programmable VT ratio
- Current measurement input (3 PH+N): 0.05-6A or 0.05...1.2A
- Fourth CT for neutral measurement or earth/ground leakage detection
- Graphic LCD, 128x112 pixels with backlight
- 13 digital inputs
- 3 relay outputs rated 8A 250VAC
- 6 static outputs rated 2A, protected
- 1 static output 50mA
- Engine running detection: “D-” generator voltage and frequency
- 1 engine speed input: “W” or “Magnetic Pick-up”
- 3 analog ohmic inputs for oil pressure, engine temperature and fuel level control
- 1 programmable analog input
- 2 analog outputs for engine speed control (governor) / voltage regulator (AVR)
- Alarm-event parameter text in 5 languages (Webupload)
- Alarm text customisable (16 alarms)
- Event log
- Modbus-RTU, Modbus-ASCII and Modbus-TCP communication protocols
- Boolean logic for inputs, outputs and internal status
- Compatible with software
- Degree of protection: IEC IP65 on front; suitable for use with UL/CSA Type 4X outdoor enclosure installation
- Built-in buzzer
- Multi-level passwords
- Sleep function (power saving mode)
- Synchronising and load sharing.

**MAIN FUNCTIONS**
- Menus for quick selection of rated parameter settings
- “Autocall” function for automatic sending of emails and/or SMS at predefined events/alarms
- Mains (for RGK 900 only) / Generator controls: Phase sequence, phase loss, max and min voltage and frequency, voltage asymmetry
- Programmable maintenance at various intervals
- Current leakage control towards earth/ground
- Mains-generator synchronising (ATS closed transition)
- Mains in base-load with generator in peak shaving
- Paralleling supervision of generators (island mode)
- Generating set start scheduling.

**Communications interfaces.**
- Modbus-RTU, Modbus-ASCII and Modbus-TCP
- Event log
- SMS at predefined events/alarms
- Alarm text customisable (16 alarms)
- Built-in buzzer
- Multi-level passwords
- Sleep function (power saving mode)
- Synchronising and load sharing.

**Accessories and software**
- Menus for quick selection of rated parameter settings
- “Autocall” function for automatic sending of emails and/or SMS at predefined events/alarms
- Mains (for RGK 900 only) / Generator controls: Phase sequence, phase loss, max and min voltage and frequency, voltage asymmetry
- Programmable maintenance at various intervals
- Current leakage control towards earth/ground
- Mains-generator synchronising (ATS closed transition)
- Mains in base-load with generator in peak shaving
- Paralleling supervision of generators (island mode)
- Generating set start scheduling.

**Certifications and compliance**
- Certifications obtained: UL Listed for USA and Canada (cULus - File E95601), as Auxiliary Devices, Generator controllers; EAC.
Remote units

<table>
<thead>
<tr>
<th>Order code</th>
<th>Description</th>
<th>Qty</th>
<th>Wt</th>
</tr>
</thead>
<tbody>
<tr>
<td>RGK 800RD SA</td>
<td>Remote display panel for RGK 800SA, 12/24VDC, IP65 protection degree</td>
<td>1</td>
<td>0.820</td>
</tr>
<tr>
<td>RGK 800RD</td>
<td>Remote display panel for RGK 800, 12/24VDC, IP65 protection degree</td>
<td>1</td>
<td>0.820</td>
</tr>
<tr>
<td>RGK 900RD SA</td>
<td>Remote display panel for RGK 900SA, 12/24VDC, IP65 protection degree</td>
<td>1</td>
<td>0.980</td>
</tr>
<tr>
<td>RGK 900RD</td>
<td>Remote display panel for RGK 900, 12/24VDC, IP65 protection degree</td>
<td>1</td>
<td>0.980</td>
</tr>
<tr>
<td>RGK RA</td>
<td>Remote display unit for RGK 7..., RGK 8..., graphic LCD, touch screen 128x112 pixels, IP54 protection</td>
<td>1</td>
<td>0.360</td>
</tr>
</tbody>
</table>

Alarm-status relay unit

<table>
<thead>
<tr>
<th>Order code</th>
<th>Description</th>
<th>Qty</th>
<th>Wt</th>
</tr>
</thead>
<tbody>
<tr>
<td>RGK RR</td>
<td>Alarm-status relay unit 12/24VDC, 12 relay outputs, pulse input, CANbus communication port</td>
<td>1</td>
<td>0.420</td>
</tr>
</tbody>
</table>

Remote display panel RGK...RD characteristics
For remote controller supervision and viewing, the user operates the remote display panel as if directly in front of the generating set.
- 12/24VDC battery power supply
- Graphic LCD with backlight:
  - 128x80 pixels for RGK 800...
  - 128x112 pixels for RGK 900...
- 13 function and setting keys
- 10 Indication LEDs for operating modes and status
- Built-in buzzer
- 4 digital inputs
- 2 digital outputs
- Conductor cross section: 0.2...2.5mm² (24...12 AWG; 18...12 AWG per UL/CSA)
- front degree of protection: IEC IP65; UL/CSA Type 4X outdoor enclosure installation
- Serial interface ports: opto-isolated RS485 (RGK...SA); CANbus-J1979 (RGK...SA).

Remote display unit RGK RA characteristics
Alarm conditions can be viewed on the remote display and alarm silencing can also be activated.
- Dual 100-240VAC / 12-24VDC power supply
- Touch screen 120x112 pixel backlight graphic LCD
- Built-in buzzer
- Static (SSR) output for global alarm signalling
- Opto-isolated RS485 interface port
- Conductor cross section: 0.2...2.5mm² (24...12 AWG; 18...12 AWG per UL/CSA)
- Front degree of protection: IEC IP54; UL Type 1.

Alarm-status relay unit characteristics
External relay expansion unit for alarm and status remoting.
- Fixing on 35mm DIN rail (IEC/EN 60715).
- Communication with RGK... controllers by CANbus or pulse inputs:
  - 12 relay outputs of which 5 with changeover (SPDT) contact rated 5A 250VAC / B300 and 7 N/O (SPST) contact rated 2.5A 250VAC / C300
  - 12/24VDC power supply
  - Up to 2 RGK RR units can be connected in cascade for a total of 24 relays
  - Maximum installation distance from the RGK 6... and RGK 700... RGK 900 controllers:
    - CANbus: 30m/33yd (high speed)
    - Inputs/Outputs: 1.000m/1,094yd (low speed)
    - Conductor cross section: 0.2...2.5mm² (24...12 AWG)
    - Tightening torque: 0.56 Nm/4.5lbin.

Certifications and compliance
Certifications obtained: UL Listed, for USA and Canada (cULus – File E93601), as Auxiliary Devices, Generator controllers remote and relay units; EAC. Comply with standards: IEC/EN 61010-1, IEC/EN 61000-6-2, IEC 61000-6-3, UL508, CSA C22.2 n° 14.

For wiring schemes and technical characteristics, refer to technical instructions in Downloads of local or global website or consult Technical support; see contact details on inside front cover.
Engine and generator controllers

**Communication devices for RGK 4... - RGK 6... - RGK 7... - RGK 8... - RGK 9...**

<table>
<thead>
<tr>
<th>Order code</th>
<th>Description</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>CX 01</td>
<td>USB/optical dongle with PC~controller connecting cable for programming, data download, diagnostics and firmware upgrade</td>
<td>1</td>
<td>0.090</td>
</tr>
<tr>
<td>CX 02</td>
<td>Wi-Fi dongle for PC~controller programming, data download, diagnostics, project upload/download and controller cloning</td>
<td>1</td>
<td>0.090</td>
</tr>
<tr>
<td>CX 03</td>
<td>GSM/GPRS penta-band antenna (850/900/1800/1900/2100MHz) for EXP10 15 expansion module for RGK 800... - RGK 900...</td>
<td>1</td>
<td>0.090</td>
</tr>
</tbody>
</table>

**General characteristics**

Communication and connection devices for generator set controllers RGK 4... - RGK 6... - RGK 7... - RGK 8... - RGK 9... for personal computers, smartphones, tablets, modems, bus drives.

CX 01
The USB/optical connector, complete with cable, allows to connect RGK 4... - RGK 6... - RGK 7... - RGK 8... - RGK 9... controllers to a PC without having to disconnect the power supply from the electric panel and to carry out parameter programming, data and event download, diagnostics and firmware upgrade.

The PC identifies the connection as a standard USB.

CX 02
By Wi-Fi connection, RGK 4... - RGK 6... - RGK 7... - RGK 8... - RGK 9... controllers can be viewed by PC, smartphone and tablet with no need for cabling and to carry out parameter programming, data and event download, diagnostics project upload/download and controller cloning.

CX 03
Antenna compatible with the major part of worldwide mobile networks thanks to the available frequencies at 850/900/1800/1900/2100MHz.

IP67 IEC protection degree.

Fixing by Ø10mm/0.39" drilling.

Cable length 2.5m/7.23yd.

For wiring schemes and technical characteristics, refer to technical instructions in Downloads of local or global website or consult Technical support; see contact details on inside front cover.

**Accessories**

<table>
<thead>
<tr>
<th>Order code</th>
<th>Description</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1 C2</td>
<td>For PC~controller, 1.8m/2yd long</td>
<td>1</td>
<td>0.090</td>
</tr>
<tr>
<td>S1 C3</td>
<td>For PC~GSM modem 1.8/2yd long</td>
<td>1</td>
<td>0.210</td>
</tr>
<tr>
<td>S1 C4</td>
<td>For PC~RS232/RS485, converter drive, 1.8m/2yd long</td>
<td>1</td>
<td>0.147</td>
</tr>
</tbody>
</table>

**Converters.**

EXC CON 01
RS485/ Ethernet converter, 12...49VDC, including DIN rail fixing kit

EXC M3G 01
RS485 Gateway/3G modem, 9.5...27VAC/9.5...35VDC, including antenna (with 2.5m cable) and programming cable

For RGK 600..., RGK 601... and RGK 610 controllers.

EXPB0 01
IP65 144mm/5.67” housing gasket
For RGK 4...SA.

EXPB0 05
IP65 110mm/4.33” housing gasket
RS32/RS485 opto-isolated converter drive, 38.490 baud rate maximum, automatic or manual TRANSMIT line supervision, 220...240VAC ±10% (110...120VAC supply on request).
Engine and generator controllers
Software

Supervision and Energy management software
The Synergy software provides for the remote control and supervision of the RGK controllers. Its structure and applications are based on MS SQL relational database management system. Consulting is made through popular programs for Internet browsing available across different platforms and operating systems. It is a highly versatile system, simultaneously accessible to a large number of users/workstations via intranets, VPN or Internet.

Parameter configuration and remote control software
The Synergy software shared by the entire latest generation of RGK gen-set controllers with communication port. It can be installed in the Windows® environment and connect individually (one node at a time) to the RGK gen-set controller connected to the network.

- Supports connection via CX01 (USB) or CX02 (Wi-Fi) dongle, USB, RS232, RS485, Ethernet and modem
- Product configuration:
  - Parameter setting
  - Project file management
- Product firmware upgrade (via CX01)
- Remote control:
  - Monitoring of main measurements
  - Sending commands to products
  - Reading alarms and events memory.

APP for smartphone and tablets
The Samt (Setup And Maintenance 1) application allows the user to program the controller, view alarm conditions, send commands, read measurements, download statistical data and events and send retrieved data by email. The connection is made by Wi-Fi with a smartphone or tablet using CX02 dongle. It is iOS and Android compatible. For more details, consult Technical support; see contact details on inside front cover.

NFC App for RGK 4...SA, with integrated NFC technology, allows remote parameter configuration. The parameters can be saved in a file for archive purposes. It is Android compatible. For more details, consult Technical support; see contact details on inside front cover.
Engine and generator controllers
Dimensions [mm (in)]

ENGINE PROTECTION CONTROLLERS
RGK 30

Cutout

Dimensions [mm (in)]

STAND-ALONE GEN-SET CONTROLLERS
RGK 400SA

Cutout

Dimensions [mm (in)]

GEN-SET CONTROLLERS RGK 600... - RGK 601... - RGK 610

Cutout

Dimensions [mm (in)]

GEN-SET CONTROLLERS RGK 700... - RGK 750... - RGK 800... - RGK 900... - REMOTE DISPLAY PANELS RGK 800RD - RGK 800RD SA - RGK 900RD - RGK 900RD SA

Cutout

Dimensions [mm (in)]

REMOTE DISPLAY UNIT RGK RA

Cutout

Dimensions [mm (in)]

ALARM-STATUS RELAY UNIT RGK RR

Dimensions [mm (in)]
The products described in this publication are subject to be revised or improved at any moment. Catalogue descriptions and details, such as technical and operational data, drawings, diagrams and instructions, etc., do not have any contractual value. In addition, products should be installed and used by qualified personnel and in compliance with the regulations in force for electrical systems in order to avoid damages and safety hazards.