

RGK600 - RGK601
RGK600SA - RGK601SA
RGK610

发电机组控制器

说明书册

ZH

RGK600 - RGK601
RGK600SA - RGK601SA
RGK610

Generating set
controller

INSTRUCTIONS MANUAL

GB

**警告！**

- 安装或使用前，请仔细阅读本手册。
- 本设备只能由合格人员根据现行标准进行安装，以避免造成损坏或安全危害。

- 对设备进行任何维护操作前，请消除测量和电源输入的所有电压，并中断 CT 输入终端。
- 此处说明的产品可能会有变更，恕不提前通知。
- 我们竭力确保本档中技术数据和说明的准确性，但对于错误、遗漏或由此产生的意外事件，我们概不负责。
- 建筑物的电气装置中必须装有断路器。断路器必须安装在靠近设备且方便操作人员触及的地方。还必须将断路器标记为设备的断开装置：
IEC / EN 61010-1 § 6.11.2.1。
- 请使用柔软的干布清洁设备；切勿使用研磨剂、洗涤剂或溶剂。

**WARNING!**

- Carefully read the manual before the installation or use.
- This equipment is to be installed by qualified personnel, complying to current standards, to avoid damages or safety hazards.

- Before any maintenance operation on the device, remove all the voltages from measuring and supply inputs and short-circuit the CT input terminals.
- Products illustrated herein are subject to alteration and changes without prior notice.
- Technical data and descriptions in the documentation are accurate, to the best of our knowledge, but no liabilities for errors, omissions or contingencies arising there from are accepted.
- A circuit breaker must be included in the electrical installation of the building. It must be installed close by the equipment and within easy reach of the operator. It must be marked as the disconnecting device of the equipment:
IEC / EN 61010-1 § 6.11.2.1.
- Clean the instrument with a soft dry cloth; do not use abrasives, liquid detergents or solvents.

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简介

RGK600, RGK601 和 RGK610 控制单元设计用于为配备/未配备自动断电控制的发电机组应用提供最先进的功能。RGK600-RGK601-RGK610 采用专用组件制造, 外形精致小巧; 不仅易于安装, 其前面板的设计也非常时尚, LCD 屏幕提供清晰直观的用户界面。

说明

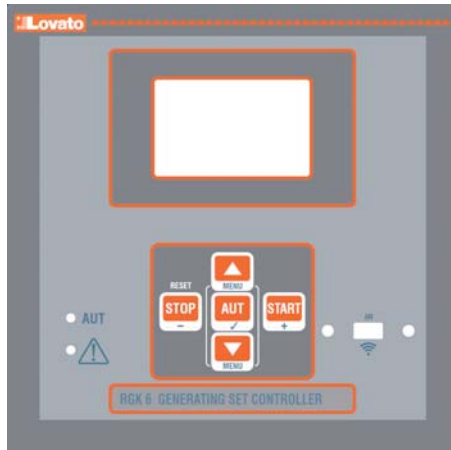
- 有 4 种型号可用：
 - RGK600 - 配备拾取器速度输入的 AMF
 - RGK600SA - 配备拾取器速度输入的独立型号
 - RGK601 - 配备 CAN 总线接口的 AMF
 - RGK601SA - 配备 CAN 总线接口的独立型号。
 - RGK610 - AMF 与加快速度输入和 EXP 插槽 1。
- 采用市电-发电机切换自动管理 (RGK600-RGK601-RGK610) 或远程启动管理 (RGK600SA-RGK601SA) 的发电机组控制。
- 128x80 像素, 4 级灰度背光 LCD 屏。
- 5 个功能与设置键。
- 2 个 LED 指示工作模式和状态。
- 5 种语言的测量、设置和消息文本。
- 高级可编程 I/O 功能。
- 可管理 4 种备用功能, 并使用选择器选择功能。
- 完全由用户自定义的警报。
- 高精度 TRMS 测量。
- 3 相+中性市电电压读数输入。
- 3 相+中性发电机组电压读数输入。
- 3 相负载电流读数输入。
- 12-24 VDC 通用电池电源。
- 前面板光学编程接口: 电位隔离、高速、防水, 兼容 USB 和 WiFi。
- 电阻式传感器的 3 路模拟输入：
 - 油压
 - 冷却剂温度
 - 燃油油位
- 5+3 路数字输入：
 - 4 个可编程序, 负极
 - 3 个可编程序, 负极, 用作电阻输入的备用功能
 - 1 个用于紧急停止按钮, 正极
- 6 路数字输出：
 - 6 个受保护正极静态输出
- 从外部启动的电源控制 (RGK600SA - RGK601SA)
- 发动机转速读数 W、拾取器和来自永磁电池充电器输入的 AC (RGK600-RGK600SA-RGK610)
- CAN 总线-J1939 发动机 ECU 控制通信接口 (RGK601-RGK601SA)。
- EXP 模块的扩展槽 1 (RGK610) - 支持的模块：
EXP1010 (USB), EXP1011 (RS232), EXP1012 (RS485)。
- 存储最近的 50 个事件。
- 支持远程警报。
- IP54 前面板保护。采用可选垫圈可升级到 IP65 防护等级。

Introduction

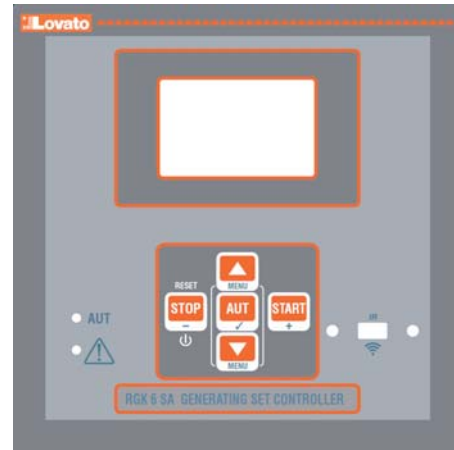
The RGK600, RGK601 and RGK610 control units have been designed to offer state-of-the-art functions for genset applications, both with and without automatic mains outage control. Built with dedicated components and extremely compact, the RGK600-RGK601-RGK610 combine the modern design of the front panel with practical installation and LCD screen that provides a clear and intuitive user interface.

Description

- 4 versions available:
 - RGK600 – AMF with Pick-up speed input
 - RGK600SA – Stand alone with Pick-up speed input
 - RGK601 – AMF with CAN bus interface
 - RGK601SA – Stand alone with CAN bus interface.
 - RGK610 – AMF with Pick-up speed input and 1 slot for EXP.
- Genset control with automatic management of mains-generator switching (RGK600-RGK601-RGK610) or remote starting management (RGK600SA-RGK601SA).
- 128x80 pixel, backlit LCD screen with 4 grey levels.
- 5 keys for function and setting.
- 2 LEDs indicate operating modes and states.
- 5-language text for measurements, settings and messages.
- Advanced programmable I/O functions.
- 4 alternative functions can be managed, selecting the same with a selector.
- Fully user-definable alarms.
- High accuracy TRMS measurement.
- 3-phase + neutral mains voltage reading input.
- 3-phase + neutral genset voltage reading input.
- 3-phase load currents reading input.
- 12-24 VDC universal battery power supply.
- Front optical programming interface: galvanically isolated, high speed, waterproof, USB and WiFi compatible.
- 3 analog inputs for resistive sensors:
 - Oil pressure
 - Coolant temperature
 - Fuel level
- 5 +3 digital inputs:
 - 4 programmable, negative
 - 3 programmable, negative, used as an alternate function of resistive inputs
 - 1 for emergency-stop pushbutton, positive
- 6 digital outputs:
 - 6 protected positive static outputs
- Power control from external start (RGK600SA – RGK601SA)
- Engine speed reading W, pick-up and AC from permanent magnet b.c. input (RGK600-RGK600SA-RGK610)
- CAN bus-J1939 engine ECU control communications interface (RGK601-RGK601SA).
- 1 expansion slot for EXP modules (RGK610) – Supported modules: EXP1010 (USB), EXP1011 (RS232), EXP1012 (RS485).
- Memorization of last 50 events.
- Support for remote alarms.
- IP54 front protection. Upgrade to IP65 with optional gasket.



RGK600 – RGK601 – RGK610



RGK600SA - RGK601SA

前面板按钮功能

STOP / RESET按钮 - 执行手动关闭发动机和退出自动选择 (绿色 AUT LED 灯关闭)。用于重置警报。

AUT 按钮 - 用于自动选择工作模式。绿色 AUT LED 灯。

START 按钮 - 执行手动启动发动机, 退出自动模式并转至手动模式。按住按钮, 即可手动延长曲柄启动的持续时间。

对于 RGK600/601/610, 同时按下 START 和 ▲ 按钮, 即可手动开启或关闭市电接触器。同时按下 START 和 ▼ 按钮, 即可手动开启或关闭发电机接触器。

对于 RGK600SA 和 RGK601SA, 同时按下 START 和 ▲ 按钮, 即可闭合发电机接触器, 同时按下 START 和 ▼ 按钮, 即可断开发电机接触器。

按钮 ▲ 和 ▼ - 用于滚动浏览显示页面或在菜单中选择选项列表。同时按下 ▼ + ▲ 按钮, 即可调出带有旋转图标的主菜单。

前面板 LED 指示

AUT LED (绿色) - 指示自动模式已激活。

警报 LED (红色) - 闪烁, 指示当前警报。

工作模式

按下与所需模式相对应的按钮至少 0.5 秒, 即可改变工作模式。

STOP/RESET 模式 (手动停止) - 发动机不启动。

选择该模式后, 发动机将立即停止, 市电接触器闭合。该模式再现未通电时 RGK600/601/610 的状态。

使用该模式进行编程以设定参数并使用命令菜单。警笛在 STOP 模式中被禁用。

START Mode (手动启动) - 手动启动发动机 (退出 AUT 模式)。可按照“前面板按钮功能”章节中的说明手动切换负载。

AUT Mode (自动) - AUT 模式由偏绿色的 LED

高亮显示。如果断电 (超出设定范围), RGK600/601/610 的发动机将基于 M13 “Mains control” (市电控制) 菜单中设定的时间自动启动, 并在市电参数再次回到所述范围后停止。存在电压时, 负载在两个方向自动切换。

RGK600SA 通过数字输入 (远程启动) 远程启动和停止, 该输入通常由一个 ATS 进行控制。负载可自动切换或远程控制。

对于两种型号来说, 如果发动机启动失败, 系统会继续尝试启动发动机, 直到达到编程设定的最大尝试次数。如果启用自动测试, 则以预设次数运行。

Front buttons functions

STOP / RESET button - Performs a manual shutdown of the engine and then exit the Automatic (AUT green LED turns off). Use to reset the alarms.

AUT button - Used to select the operation mode automatically. The green AUT LED lights.

START button - Performs a manual start of the engine, and exits from the automatic mode, moving to manual mode. Holding it down you can manually extend the duration of cranking.

For RGK600/601/610, pressing simultaneously START and ▲ you can manually switch the mains contactor. Pressing simultaneously START and ▼ you can manually switch the generator contactor.

For RGK600SA and RGK601SA press simultaneously START and ▲ to close the generator contactor, and press simultaneously START and ▼ to open the generator contactor.

Buttons ▲ and ▼ - Used to scroll through the display pages or to select the list of options in a menu. Simultaneously pressing ▼ + ▲ calls up the main menu with rotating icons.

Front LED indications

AUT LED (green) - Indicates that the automatic mode is active.

Alarm LED (red) - Flashing, indicates an active alarm.

Operating modes

To change the operating mode press for at least 0.5 sec the button correspondent to the desired mode.

STOP/RESET mode (Manual stop) - The engine will not start. The engine will stop immediately when this mode is selected- The mains contactor is closed. This mode reproduces the state of the RGK600/601/610 when it is not powered. Use this mode to program the parameters and use the commands menu. The siren is disabled in STOP mode.

START Mode (Manual start) - The engine is started manually (exiting AUT mode). It is possible to manually switch the load as explained in the *Front button function* chapter.

AUT Mode (Automatic) - The AUT mode is highlighted by the relative green LED. The engine of the RGK600/601/610 is started automatically in the case of a mains outage (outside the set limits) and stops when the mains parameters are once again within said limits, on the basis of the times set in menu M13 *Mains control*. In the presence of voltage, the load is switched automatically in both directions.

The RGK600SA is started and stopped remotely through a digital input (remote starting) normally controlled by an ATS. The load can be switched automatically or controlled remotely.

For both models, if the engine fails to start, the system continues attempting to start the engine up to the maximum number of programmed attempts. If the automatic test is enabled, it runs at the preset times.

通电

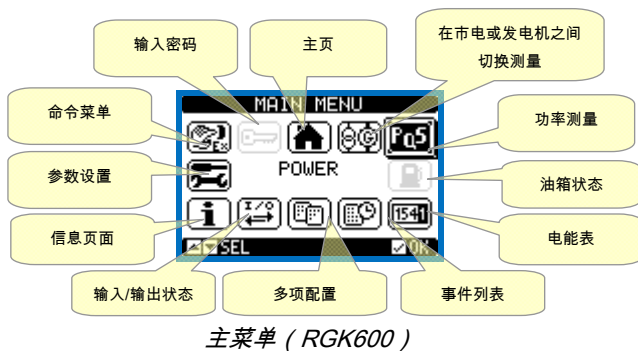
- 为电池端子接通电源，即可直接开启 RGK600, RGK601 和 RGK610 (AMF 型号)。
- 而 RGK600SA 和 RGK601SA (独立型号) 则带有电子电路开关。接通电源后，按住 STOP 按钮 1 秒，即可开启设备；长按 STOP 按钮 5 秒，即可关闭设备。
- 系统通常是在 STOP 模式下接通电源。
- 如果您想继续使用在系统断电前使用的工作模式，应在 *M01"Utility" (公用设施)*
- 系统在 12 和 24 VDC 下均可通电，但必须在 *M05"Battery" (电池)* 菜单中设定正确的电池电压，否则会产生电池电压警报。
- *M02"General" (常规)* 菜单 (连接类型、额定电压、系统频率)、*M11"Engine Starting" (发动机启动)* 菜单以及使用的发动机类型 (传感器、CAN 等) 菜单的参数通常应设定。

Power-up

- RGK600, RGK601 and RGK610 (AMF versions) are switched on directly by applying power to battery terminals.
- RGK600SA and RGK601SA (stand-alone versions) instead have an electronic switch-on/off circuit. With power applied, to switch on the unit press and hold STOP button for 1 sec. To switch off the unit press and hold STOP button for 5s.
- The system normally powers up in STOP mode.
- If you want the operating mode used before the system powers down to be maintained, change parameter P01.03 in menu *M01 Utility*.
- The system can be powered at both 12 and 24 VDC, but the correct battery voltage must be set in menu *M05 Battery*, or a battery voltage alarm will be generated.
- The parameters of menu *M02 General* (type of connection, rated voltage, system frequency), menu *M11 Engine Starting*, and the menus for the type of engine used (sensors, CAN, etc.) should normally be set.

主菜单

- 主菜单由一组图形图标（快捷方式）组成，可进行快速测量和设置。
- 要从正常查看状态下开始，请同时按下 ▲ 和 ▼ 键。显示主菜单屏幕。
- 按下 ▲ 或 ▼ 键，顺时针 / 逆时针旋转，以选择所需功能。所选图标高亮显示，显示屏中心区域显示功能描述。
- 按下 ✓ 启动所选功能。
- 如果部分功能不可用，相应图标将禁用，显示为浅灰色。
- 🏠 P05 等 - 可跳转到该组第一页的快捷方式。仍可从该页开始以常规方式前后移动。
- 🔄 - 切换市电和发电机之间的测量视图。
- 🔑 - 打开密码输入页面，可指定用于解锁受保护功能（参数设定、命令菜单）的数字代码。
- ⚙️ - 参数编程设定菜单访问点。请参见专门章节。
- 🗑️ - 命令菜单访问点，授权用户可执行部分清除-恢复操作。



密码访问

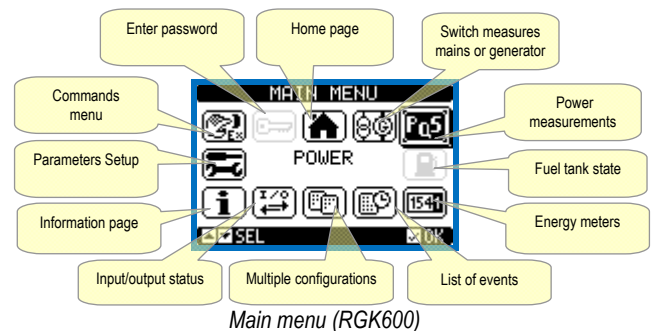
- 密码用于启用或锁定对设置菜单（设置）和命令菜单的访问。
- 对于全新设备（出厂默认），密码管理处于禁用状态，可自由访问。反之，如果密码已启用并定义，则需要先输入密码，通过键盘指定数字代码才能访问。
- 要启用密码管理并定义数字代码，请参见设置菜单。
- 根据输入的代码，有两个访问级别：
 - 用户级别访问** - 可清除记录的值并编辑有限的设置参数。
 - 高级访问级别** - 用户访问权限加上完全的设置编辑-恢复权限。
- 在正常查看状态下按下 ✓ 调出主菜单，选择密码图标并按下 ✓。
- 显示屏显示图中的屏幕：



- 键 ▲ 和 ▼ 用于更改所选数字
- 键 ◀ 和 ▶ 在数字中移动。
- 输入数字代码的所有数字，然后点击 **钥匙** 图标。
- 如果输入的密码代码符合 **用户访问代码** 或 **高级访问代码**，则显示相应的解锁消息。
- 解锁密码后，访问权限持续到：
 - 设备断电。
 - 设备重置（退出设置菜单后）。
 - 两分钟超时期间没有任何按键操作。
- 要退出密码输入屏幕，请按 ✓ 键。

Main menu

- The main menu is made up of a group of graphic icons (shortcuts) that allow rapid access to measurements and settings.
- Starting from normal viewing, press ▲ and ▼ keys together. The main menu screen is displayed.
- Press ▲ or ▼ to rotate clockwise/counter clockwise to select the required function. The selected icon is highlighted and the central part of the display shows the description of the function.
- Press ✓ to activate the selected function.
- If some functions are not available, the correspondent icon will be disabled, that is shown in a light grey colour.
- 🏠 P05 etc. - Shortcuts that allow jumping to the first page of that group. Starting from that page it is still possible to move forward-backward in the usual way.
- 🔄 - Switches the measures visualization between mains and generator.
- 🔑 - Opens the password entry page, where it is possible to specify the numeric codes that unlock protected functions (parameter setting, commands menu).
- ⚙️ - Access point to the setup menu for parameter programming. See dedicated chapter.
- 🗑️ - Access point to the commands menu, where the authorised user can execute some clearing-restoring actions.



Password access

- The password is used to enable or lock the access to setting menu (setup) and to commands menu.
- For brand-new devices (factory default), the password management is disabled and the access is free. If instead the passwords have been enabled and defined, then to get access, it is necessary to enter the password first, specifying the numeric code through the keypad.
- To enable password management and to define numeric codes, see setup menu.
- There are two access levels, depending on the code entered:
 - User-Level access** - Allows clearing of recorded values and the editing of a restricted number of setup parameters.
 - Advanced access level** - Same rights of the user access plus full settings editing-restoring.
- From normal viewing, press ✓ to recall main menu, select the password icon and press ✓.
- The display shows the screen in picture:



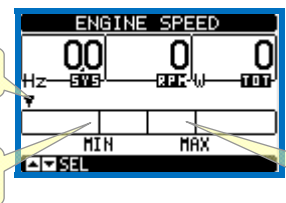
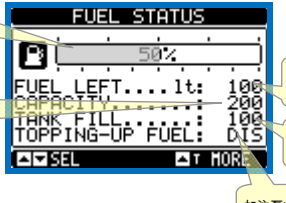
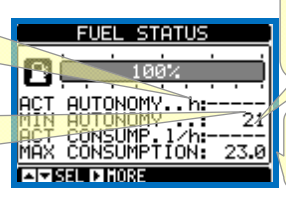
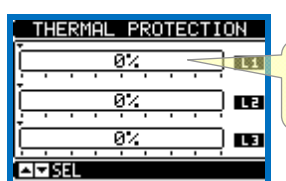
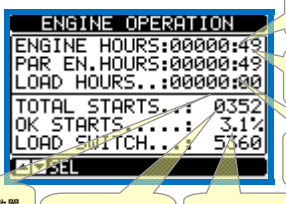
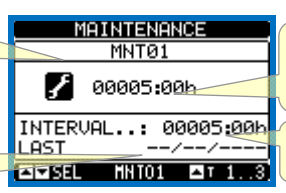
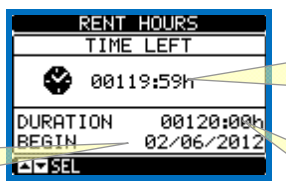
- Keys ▲ and ▼ change the selected digit
- Keys ◀ and ▶ move through the digits.
- Enter all the digits of the numeric code, then move on the **key** icon.
- If the password code entered matches the **User access code** or the **Advanced access code**, then the correspondent unlock message is shown.
- Once unlocked the password, the access rights last until:
 - the device is powered off.
 - the device is reset (after quitting the setup menu).
 - the timeout period of two minutes elapses without any keystroke.
- To quit the password entry screen press ✓ key.

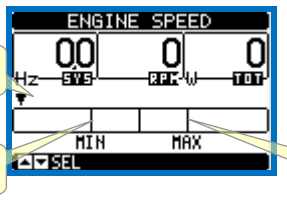
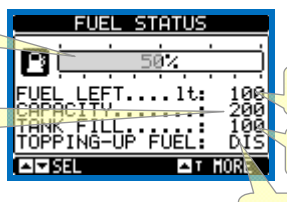
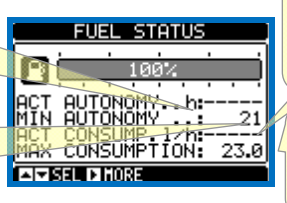
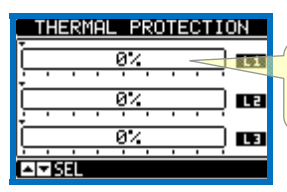
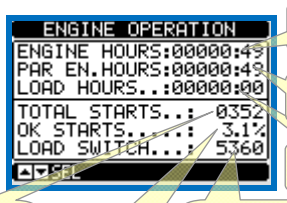
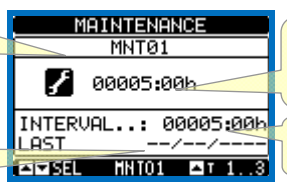
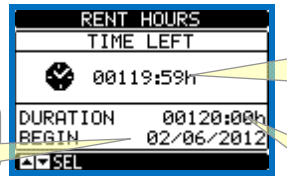
显示页面表

页面	示例
主页 (RGK600/601/610)	<p>发电机标识文本 (P01.10)</p> <p>等效电压</p> <p>总功率</p> <p>运行/停止 发动机状态</p> <p>电压输入限制</p> <p>市电或发电机测量</p> <p>频率、每分钟转速、电池、小时计</p> <p>燃油油位 (模拟输入模式)</p> <p>油压输入状态 (数字)</p> <p>温度开关输入状态 (数字)</p>
主页 (RGK600SA- RGK601SA)	<p>...SA 型号的显示屏幕</p>
线路间电压 相位电压 电流 ... L-L 电压总谐波失真 L-N 电压总谐波失真 电流总谐波失真	<p>度量单位</p> <p>相位指示</p> <p>频率</p> <p>发动机运行</p> <p>电池电压</p> <p>冷却剂温度</p> <p>燃油油位</p> <p>市电/发电机指示器</p> <p>油压</p>
L-L 电压/电流 L-N 电压/电流	<p>电压</p> <p>电流</p>
有功功率 无功功率 表观功率 功率系数	<p>各相功率</p> <p>总功率</p> <p>总功率条形图</p> <p>额定功率百分比</p>
电能表	<p>使用主菜单中的图标，在市电和发电机之间切换</p>
电气测量汇总	<p>市电/发电机指示器</p> <p>相位指示</p> <p>测量指示</p> <p>测量值</p>

Table of display pages

PAGES	EXAMPLE
Home page (RGK600/601/610)	<p>Generator identification text (P01.10)</p> <p>Equivalent voltage</p> <p>Total power</p> <p>Run/stop engine status</p> <p>Voltage into limits</p> <p>Main or generator measure</p> <p>Fuel level (analog input mode)</p> <p>Oil pressure input status (digital)</p> <p>Temperature switch input status (digital)</p> <p>Frequency, RPM, battery, hour meter</p>
Home page (RGK600SA- RGK601SA)	<p>Synoptic for ...SA versions</p>
Line-to-line voltages Phase voltages Current ... L-L voltage THD L-N voltage THD Current THD	<p>Unit of measure</p> <p>Phase indication</p> <p>Frequency</p> <p>Engine operating</p> <p>Battery voltage</p> <p>Coolant temperature</p> <p>Fuel level</p> <p>Mains/Gen. ind.</p> <p>Oil pressure</p>
L-L Voltages/Currents L-N Voltages/Currents	<p>Voltages</p> <p>Currents</p>
Active power Reactive power Apparent power Power factor	<p>Power per phase</p> <p>Total power</p> <p>Total power bar graph</p> <p>Percentage of rated power</p>
Energy meters	<p>To switch between mains and generator use the icon in the main menu</p>
Summary of electrical measurements	<p>Mains/Gen. Indication</p> <p>Phase indication</p> <p>Measurements indication</p> <p>Measurements values</p>

<p>发动机转速</p> <p>注意： 从本页面可自动获取 RPM 和 W 频率之间的比率。请参见参数 P07.02 的说明。</p>	 <p>速度指示器</p> <p>最小设置限制</p> <p>最大设置限制</p>
<p>燃油油位状态</p>	 <p>电流强度指示条</p> <p>油箱总容积</p> <p>可用燃油</p> <p>加注后的量</p> <p>加注泵状态</p>
<p>燃油自主性</p>	 <p>来自 CAN 当前燃油率的尚存自主权</p> <p>来自 CAN 的当前燃油率</p> <p>最大燃油率的尚存自主权</p> <p>最大申明发动机燃油率</p>
<p>发电机热保护</p>	 <p>干预值百分比</p>
<p>发动机计时器和工时计</p>	 <p>总发动机工作小时数</p> <p>部分发动机工作小时数</p> <p>负荷提供小时数</p> <p>尝试的开始计数器</p> <p>成功尝试百分比</p> <p>负荷切换计数器</p>
<p>维护时间间隔</p>	 <p>维护时间隔代码</p> <p>上次检修日期</p> <p>到下次检修的时间</p> <p>预定时间隔</p>
<p>租用</p>	 <p>租用开始日期</p> <p>到期前的时间</p> <p>预定持续时间</p>

<p>Engine speed</p> <p>Note: From this page it is possible to acquire automatically the ratio between RPM and W frequency. See description of parameter P07.02.</p>	 <p>Speed indicator</p> <p>Min. set limit</p> <p>Max. set limit</p>
<p>Fuel level status</p>	 <p>Current level bar</p> <p>Total tank capacity</p> <p>Available fuel</p> <p>Quantity after filling</p> <p>Filling pump state</p>
<p>Fuel autonomy</p>	 <p>Residual autonomy with present fuel rate from CAN</p> <p>Residual autonomy with maximum fuel rate</p> <p>Present fuel rate from CAN</p> <p>Maximum declared engine fuel rate</p>
<p>Generator thermal protection</p>	 <p>Percentage of intervention value</p>
<p>Engine hour and work counters</p>	 <p>Total engine work hours</p> <p>Part. engine work hours</p> <p>Load supplied hours</p> <p>Attempted starts counter</p> <p>Percentage successful attempts</p> <p>Load switching counter</p>
<p>Maintenance intervals</p>	 <p>Maintenance interval code</p> <p>Date of last service</p> <p>Time to next service</p> <p>Programmed interval</p>
<p>Rent</p>	 <p>Rent start date</p> <p>Time to expiry</p> <p>Programmed duration</p>

事件列表	<p>干预日期和时间</p> <p>事件代码</p> <p>事件描述</p>
可选配置	<p>当前配置数据</p> <p>所选配置号</p>
I/O 状态	<p>数字 I/O 状态</p> <p>反向 = 启用</p>
虚拟实时日历时钟	
信息页面	<p>自由用户文本</p>
系统信息	<p>发电机组名称</p> <p>软件 硬件 参数修订级别</p>

注意：如果相关功能禁用，上列部分页面可能不会显示。例如，如果未编程设定租用功能，相应页面将不会显示。

燃油、机油和温度的电阻式传感器

- RGK6.. 可处理燃油油位、发动机温度和机油压力的三个电阻式模拟传感器。
- 如果您在菜单中将模拟器编程设定为以电阻式模拟输入的方式运作（测量源 = RES），屏幕页面会显示从编程曲线中获得的相应模拟测量。
- 如果将测量源编程设定为 OFF，则会在屏幕上的图标下方显示 LED，指示相应数字传感器的数字输入状态。
- 如果没有对数字传感器和模拟传感器进行编程，屏幕会显示破折号。
- 如果将测量源设置为 OFF，则可将相应端子用作常规数字输入（FUEL → INP5, TEMP → INP6, PRESS → INP7）。

List of events	<p>Date and time of intervention</p> <p>Event code</p> <p>Description of event</p>
Alternative configurations	<p>Present config. data</p> <p>Selected config. number</p>
I/O state	<p>Digital I/O state</p> <p>In reverse = enabled</p>
Virtual real time calendar clock	
Info page	<p>Free user text</p>
System info	<p>Generator set name</p> <p>Software Hardware Parameters revision level</p>

Note: Some of the pages listed above may not be displayed if the relevant function is disabled. For example, if the rent function isn't programmed, the corresponding page won't be shown.

Resistive sensors for fuel, oil and temperature

- RGK6.. can handle three analog resistive sensors for fuel level, engine temperature and oil pressure.
- If you program the sensors in their menu to work as a resistive analog input (measure source = RES) then on display pages will show the corresponding analog measurement obtained from the curve programmed.
- If instead the measure source is programmed to OFF, then on the screen will display a LED below the icons that indicates the status of the digital input of the corresponding digital sensor.
- If nor digital neither analog sensors are programmed then the display will show dashes.
- When the source of measure is set to OFF, the corresponding terminal can be used as normal digital input (FUEL → INP5, TEMP → INP6, PRESS → INP7).

为...SA 型号远程启动

- 当编程设定有以下函数之一时，可通过端子 INP4 远程开启和关闭 RGK600SA RGK601SA：
 - 负载远程启动
 - 无载远程启动
 - 不停机时远程启动
- 当端子闭合以接地并关闭，且触点采用与通过前面板电源按钮断开相同的方式断开时，设备为 INP4 供电。
- 如果 INP4 的编程函数不是以上所列的任一函数，由于输入闭合，电池会注入一定的电流，但设备不会开机。在这种情况下，只能通过前面板按钮来开/关电源。
- 当通过远程输入为设备供电时，则会切换为 AUT 模式。
- 如果已经为设备在 STOP 或 START 模式下供电，远程启动输入端的闭合不会对发动机的状态产生任何影响，但是会弹出一个窗口，显示存在远程启动命令。

输入、输出、间隔变量、计数器

- 输入和输出均由代码和序号确定。例如，数字输入通过代码 INPx 确定，其中 x 是输入的编号。同样，数字输出通过代码 OUTx 确定。

代码	说明	基座	EXP
INPx	数字输入端	1...7	-
OUTx	数字输出端	1...6	-
RALx	警报/状态的远程继电器	-	1...24

- 相似地，也有一些内部变量（标记）可关联到输出端或在它们之间组合。例如，可以将一些极限阈值应用到由系统进行的测量（电压、电流、功率等）。在这种情况下，测量值即将超出用户通过专用设置菜单定义的极限时，一个名为 LIMx 的内部变量将激活。
- 此外，有多达 4 个计数器 (CNT1..CNT4) 可以计数来自外部源的脉冲（通过数字输入端 INPx）或出现经验证的特定条件的次数。例如，将极限阈值 LIMx 定义为计数源，将有可能计数某测量超出特定限值的次数。
- 下表分组了 RGK600 管理的所有 I/O 和内部变量。

代码	说明	范围
LIMx	极限阈值	1...4
REMx	远程控制的变量	1...16
UAX	用户警报	1...4
CNTx	可编程计数器	1...2

极限阈值 (LIMx)

- LIMn 阈值是内部变量，其状态取决于所有待测项中用户设定的特定测量的超出范围（例如总有功功率高于 25kW）。
- 要更简便地设定阈值，由于可以限制在一个很宽的范围跨度，因此每个阈值都可以使用基数和乘数进行设置（例如：25 x 1k = 25000）。
- 每个 LIM 有两个阈值（上限和下限）。上限阈值始终必须设置为一个高于下限阈值的值。
- 阈值的含义取决于以下函数：

Min 函数：下限阈值定义触发点，而上限阈值用于复位。程控延迟的所选测量值低于下限阈值时，触发 LIM。测量值高于设定上限时，LIM 状态会在设定的延迟之后复位。

Max 函数：上限阈值定义触发点，而下限阈值用于复位。程控延迟的所选测量值高于上限阈值时，触发 LIM。测量值降

Remote start for ..SA versions

- Versions RGK600SA RGK601SA and can be switched on and off remotely via terminal INP4, when it is programmed with one of the following functions:
 - Remote Start on load
 - Remote Start off load
 - Remote start without stop
- The unit is powered INP4 when the terminal is closed to ground and turned off when the contact is opened in the same way as is done via the power button on the front.
- If the function programmed for INP4 is not one of those listed above, due to the closure of the input you will have some current sink from the battery but the unit will not boot. In this case the power on / off can be made only via the front button.
- When a device is powered on via remote input, it switches to AUT mode.
- If a device is already powered in STOP or START mode, the closure of the remote start input has no effect on the state of the engine, but it pops up a window that shows the presence of the remote start command.

Inputs, outputs, internal variables, counters

- The inputs and outputs are identified by a code and a sequence number. For instance, the digital inputs are identified by code INPx, where x is the number of the input. In the same way, digital outputs are identified by code OUTx.

COD	DESCRIPTION	BASE	EXP
INPx	Digital Inputs	1...7	-
OUTx	Digital Outputs	1...6	-
RALx	Remote relays for Alarm / status	-	1...24

- In a similar way, there are some internal bit-variables (markers) that can be associated to the outputs or combined between them. For instance, it is possible to apply some limit thresholds to the measurements done by the system (voltage, current, power, etc.). In this case, an internal variable named LIMx will be activated when the measurements will go outside the limits defined by the user through the dedicated setting menu.
- Furthermore, there are up to 4 counters (CNT1..CNT4) that can count pulses coming from an external source (through a digital input INPx) or the number of times that a certain condition has been verified. For instance, defining a limit threshold LIMx as the count source, it will be possible to count how many times one measurement has exceeded a certain limit.
- The following table groups all the I/O and the internal variables managed by the RGK600.

CODE	DESCRIPTION	RANGE
LIMx	Limit thresholds	1...4
REMx	Remote-controlled variables	1...16
UAX	User alarms	1...4
CNTx	Programmable counters	1...2

Limit thresholds (LIMx)

- The LIMn thresholds are internal variables whose status depends on the out-of-limits of one particular measurement set by the user (e.g. total active power higher than 25kW) among all those measured.
- To make the setting of the thresholds easier, since the limits can span in a very wide range, each of them can be set using a base number and a multiplier (for example: 25 x 1k = 25000).
- For each LIM, there are two thresholds (upper and lower). The upper threshold must always be set to a value higher than the lower threshold.
- The meaning of the thresholds depends on the following functions:

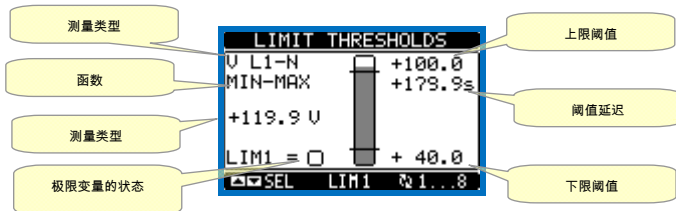
Min function: the lower threshold defines the trip point, while the upper threshold is for the resetting. The LIM trips when the selected measurement is less than the Lower threshold for the programmed delay. When the measured value becomes higher than the upper setpoint, after the set delay, the LIM status is reset.

Max function: the upper threshold defines the trip point, while the lower threshold is for the resetting. The LIM trips when the selected measurement

到低于设定点下限时，LIM 状态会在延迟后复位。

Max+Min 函数：两个阈值均用于触发。测量值低于设定点下限或高于设定点上限时，LIM 会在相应延迟之后触发。测量值回到范围内时，LIM 状态立即复位。

- 触发是指 LIM 变量的激活或失活，具体取决于“正常状态”设置。
- 如果启用 LIMn 锁存，只能使用命令菜单中的专用命令手动复位。
- 请参见设置菜单 M24。



远程控制的变量 (REMx)

- RGK6.. 可管理多达 16 个远程控制的变量 (REM1...REM16)。
- 这些变量的状态可以由用户通过通信协议进行修改，并可以与输出、布尔逻辑等组合使用。
- 例如：使用远程变量 (REMx) 作为输出 (OUTx) 源，可以通过监控软件自由地将继电器通电或断电。这样可以使使用 RGK6.. 继电器来驱动照明或类似负载。
- REM 变量另一个可能的用法是远程启用/禁用其他功能，通过输入端或输出端将其插入布尔逻辑中的 AND。

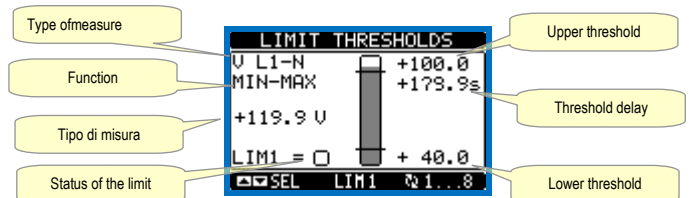
用户警报 (UAx)

- 用户最多可定义 8 个可编程警报 (UA1...UA4)。
- 对于每个警报，可定义：
 - 警报来源，即产生警报的条件。
 - 满足这个条件时必须出现在屏幕上的消息文本
 - 警报的属性（就像标准警报），警报以此方式与发电机控制器交互。
- 例如，产生警报的条件可以是克服一个阈值。这种情况下，源将是其中一个极限阈值 LIMx。
- 相反，如果必须根据外部数字输入的状态显示警报，则源将是一个 INPx。
- 对于每一个警报，用户可以定义将出现在警报页面上的自由消息。
- 可以采用与常规警报相同的方式定义用户警报的属性。您可以选择一个特定警报是否会停止发动机、激活警笛、关闭全局警报输出等。请参见“警报属性”章节。
- 多个警报同时激活时，将依次显示，其总数将显示在状态栏中。
- 要重置已编制锁存功能的警报，请使用命令菜单中的专用命令。
- 关于警报编程和定义的详细信息，请参阅设置菜单 M32。

is more than upper threshold for the programmed delay. When the measured value decreases below the lower setpoint, after the delay, the LIM status is reset.

Max+Min function: both thresholds are for tripping. When the measured value is less than lower or more than upper setpoints, then, after the respective delays, the LIM will trip. When the measured value returns within the limits, the LIM status will be immediately reset.

- Trip denotes either activation or de-activation of the LIM variable, depending on 'Normal status' setting.
- If the LIMn latch is enabled, the reset can be done only manually using the dedicated command in the commands menu.
- See setup menu M24.



Remote-controlled variables (REMx)

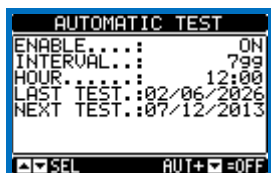
- RGK6.. can manage up to 16 remote-controlled variables (REM1...REM16).
- Those are variables which status can be modified by the user through the communication protocol and that can be used in combination with outputs, Boolean logic, etc.
- Example: using a remote variable (REMx) as a source for an output (OUTx), it will be possible to freely energise or de-energise one relay through the supervision software. This allows to use the RGK6.. relays to drive lighting or similar loads.
- Another possible use of REM variables is to enable/disable other functions remotely, inserting them into a Boolean logic in AND with inputs or outputs.

User Alarms (UAx)

- The user has the possibility to define a maximum of 8 programmable alarms (UA1...UA4).
- For each alarm, it is possible to define:
 - the source that is the condition that generates the alarm,
 - the text of the message that must appear on the screen when this condition is met.
 - The properties of the alarm (just like for standard alarms), that is in which way that alarms interacts with the generator control.
- The condition that generates the alarm can be, for instance, the overcoming of a threshold. In this case, the source will be one of the limit thresholds LIMx.
- If instead, the alarm must be displayed depending on the status of an external digital input, then the source will be an INPx.
- For every alarm, the user can define a free message that will appear on the alarm page.
- The properties of the user alarms can be defined in the same way as the normal alarms. You can choose whether a certain alarm will stop the engine, activate the siren, close the global alarm output, etc. See chapter *Alarm properties*.
- When several alarms are active at the same time, they are displayed sequentially, and their total number is shown on the status bar.
- To reset one alarm that has been programmed with latch, use the dedicated command in the commands menu.
- For details on alarm programming and definition, refer to setup menu M32.

自动测试

- 系统处于 AUT 模式且功能已经启用时，自动测试是一个按设定时间间隔（在设置过程中设定）进行的周期性测试。
- 可以决定在一周中哪些天的哪个具体时段（时:分）进行自动测试。
- 有关自动测试编程设定的更多详细信息，请参阅菜单 M16“Autoamtic test”（自动测试）。
- 启动后，发电机组在设定的时间内运行，之后停止。发电机启动前显示消息“T.AUT”。
- 自动测试可在设置中设为在有外部停止信号时也运行。



- 无需打开设置菜单，可以通过以下方式启用/禁用自动测试：
 - 打开“AUTOMATIC TEST”页面，按下 AUT 和 ▲ 键以启用功能，或按下 AUT 和 ▼ 键将其禁用。
- 可使用 RESET 键停止自动测试。

休眠模式

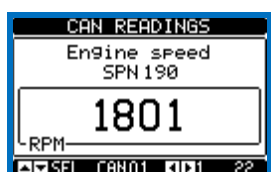
- 在休眠模式下，RGK6..（仅限 AMF）可进入低电池消耗模式，注入电流将降至大约 ...mA。
- 要进入休眠模式，使用命令菜单中的命令 C25。
- 背灯将关闭，显示屏将显示休眠图标。
- 在该模式下，RGK 的运行与电源关闭时的情形相似。
- 要退出休眠模式并回到正常操作，请按 RESET 按钮。

CAN 总线

- CAN 端口使 RGK601 控制器可连接到现代发动机的电子控制单元 (ECU)，以：
 - 无需向发动机添加传感器即可读取 ECU 中的测量值
 - 大大简化布线
 - 获取完整、详细的诊断
 - 避免 CIU 或 Coo（协调员）型解码板的组装
 - 允许由 CAN 直接控制发动机的停止和启动（如允许）
- 面板功能结合发动机 ECU 最广泛用于发电机组应用，采用 SAE J1939 中定义的标准。
- 有关 CAN 参数的详细信息，请参见设置菜单 M21“CAN BUS”。

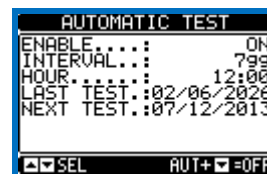
支持的测量

- CAN 端口可解码并提供由 J1939 标准定义、通过编号（SPN、可疑参数编号）识别的一组测量。
- 根据发动机类型，有一定数目的测量值可用（可能测量值的子集），这些值显示在 RGK601 显示屏上。
- 测量分组在数个页面中，可通过按下 ▲ 和 ▼ 键查看。



Automatic test

- The automatic test is a periodic test carried out at set intervals (set during setup) if the system is in AUT mode and the function has been enabled.
- It is possible to decide in which days of the week the automatic test can be executed and at what time of the day (hours:minutes).
- See menu M16 Automatic test for more details on automatic test programming.
- After starting, the genset runs for a set time, after which it will stop. The message 'T.AUT' is displayed before the generator starts.
- The automatic test can be set to run in setup also if there is an external stop signal.



- The automatic test can be enabled/disabled without opening the Setup menu in the following way:
 - Open the 'AUTOMATIC TEST' page and press the keys AUT and ▲ to enable the function, or the keys AUT and ▼ to disable it.
- The automatic test can be stopped with the RESET key.

Sleep mode

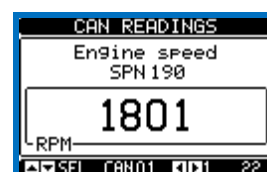
- The sleep mode allows the RGK6.. (AMF only) to enter a low battery consumption mode, where current sink is reduced to about ...mA.
- To enter sleep mode, use command C25 in command menu.
- The back light is turned off and the display shows sleep icon.
- In this mode the RGK act like it is powered off.
- To quit sleep mode and go back to normal operation, press RESET button.

CAN bus

- The CAN port allows RGK601 controllers to be connected to the electronic control units (ECU) of modern engines in order to:
 - Read the measurements contained in the ECU without adding sensors to the engine
 - Considerably simplify wiring
 - Obtain complete, detailed diagnostics
 - Avoid assembly of CIU or Coo (coordinator) type decoding boards
 - Permit direct control from CAN of engine stopping and starting (where permitted)
- The board functions in combination with the ECUs of the engines most widely used in gensets applications, using the standard defined by the SAE J1939.
- For details on CAN parameters, see setup menu M21 CAN BUS.

Supported measurements

- The CAN port is able to decode and make available a set of measurements defined by the J1939 standard and identified by a number (SPN, Suspect Parameter Number).
- According to the type of engine, a certain number of measurements are available (a sub-set of possible measurements) that are shown on the display of the RGK601.
- The measures are grouped in several sub-pages, that can be viewed pressing ▲ and ▼ keys.



- 下一页显示诊断消息。
- 发动机转速、油压和冷却液温度直接从 CAN 获取；因此，相关传感器既不需布线也不需设置。

SPN	说明	度量单位
190	发动机转速	RPM
100	油压	Bar
110	冷却剂温度	°C
247	ECU 发动机小时数	h
102	增压	Bar
105	进气歧管温度	°C
183	燃油率	l/h
513	实际扭矩	%
512	需求扭矩	%
91	油门踏板位置	%
92	负载百分比	%
-	保护指示器	开-关
-	琥珀色警告指示灯	开-关
-	红色警报指示灯	开-关
-	故障指示灯	开-关
174	燃油温度	°C
175	机油温度	°C
94	燃油输送压力	Bar
98	油位	%
101	曲轴箱压力	Bar
109	冷却剂压力	Bar
111	冷却剂液位	%
97	燃油含水	开-关
158	电池电压	VDC
106	进气压力	Bar
108	大气压力	Bar
173	排气温度	°C

- ECU 断开时，测量值不可用，因此以连字符代替。
- 如果特定发动机上测量值不可用，显示 NA (不可用)。
- 如果测量值不正确 (例如，传感器断开)，将转而显示 ERR。

诊断

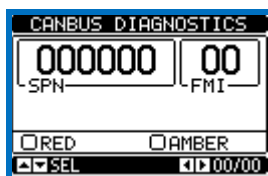
- 出现故障时，许多 ECU 以 J1939 标准代码高亮显示故障，称为 DTC (诊断故障代码)，由 SPN+ FMI 组成，其中 SPN (可疑参数编号) 确定受故障影响的信号，而 FMI (故障模式指示符) 确定故障类型。

例如：

SPN-FMI
100-01

指示 SPN 100 (油压) 和 FMI 01 (过低)。

- 鉴于有许多传感器连接到 ECU，因此需要管理大量的可能代码。出现故障时，RGK601 显示屏上最后的 CAN 专用子页面将同时以代码和相关语言描述予以指示。
- 如有数个警报同时发生，则定期循环。
- 根据代码严重性，通常触发琥珀色指示警报灯 (警告) 或红色警报指示灯 (严重警报)。
- 部分 ECU 不使用 J1939 标准进行警报编码。在这种情况下，会显示 DTC 及其数字代码，在可能情况下还显示未编码的描述。
- 要重置警报，如常按下 RESET。
- 启用时，RGK601 将根据总线上所选的 ECU 类型发送重置警报命令。



- The next page shows the diagnostic messages.
- Engine speed, oil pressure and cooling fluid temperature are taken directly from the CAN; therefore, neither wiring or setting of the related sensors is required.

SPN	Description	U/M
190	Engine speed	RPM
100	Oil pressure	Bar
110	Coolant temperature	°C
247	ECU engine hours	h
102	Boost pressure	Bar
105	Intake manifold temperature	°C
183	Fuel rate	l/h
513	Actual torque	%
512	Demand torque	%
91	Accelerator pedal position	%
92	Load percentage	%
-	Protection indicator	On-Off
-	Amber warning indicator	On-Off
-	Red alarm indicator	On-Off
-	Malfunction indicator	On-Off
174	Fuel temperature	°C
175	Oil temperature	°C
94	Fuel delivery pressure	Bar
98	Oil level	%
101	Crankcase pressure	Bar
109	Coolant pressure	Bar
111	Coolant level	%
97	Water in fuel	On-Off
158	Battery voltage	VDC
106	Air intake pressure	Bar
108	Barometric pressure	Bar
173	Exhaust gas temperature	°C

- When the ECU is off, the measurements are not available and are therefore replaced by hyphens.
- If a measurement is not available on a particular engine, NA (Not Available) is displayed.
- If a measurement is incorrect (for example, the sensor is disconnected) ERR is displayed instead of this.

Diagnostics

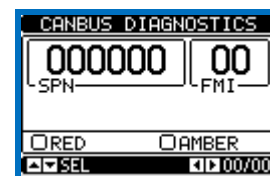
- In the case of failures, many ECUs highlight the problem with a J1939 standard code, called DTC (Diagnostic Trouble Code) consisting of SPN+FMI, where SPN (Suspect Parameter Number) identifies the signal affected by the fault, while FMI (Failure Mode Indicator) identifies the type of failure.

For example:

SPN-FMI
100-01

indicates SPN 100 (oil pressure) and FMI 01 (too low).

- In view of the many sensors connected to an ECU, a high number of possible codes is managed. In the case of a fault, this is indicated on the display of the RGK601 with both a code and with a description in the related language, in the last of the sub-pages dedicated to the CAN.
- In the case of several simultaneous alarms, these are cycled periodically.
- According to the seriousness of the code, an amber alarm indicator (warning) or red alarm indicator (critical alarm) is usually generated.
- Some ECUs do not use the J1939 standard to code the alarms. Also in this case, the DTCs are displayed with their numeric code and, when possible, with an uncoded description.
- To reset the alarms, press RESET, as usual.
- If enabled, the RGK601 will send a reset alarm command, according to the type of ECU selected, on the BUS.



IR 编程端口

- RGK6.. 的参数可通过前面板光学端口使用 IR-USB CX01 编程加密狗或 IR-WiFi CX02 加密狗进行配置。
- 该编程端口具有以下优势：
 - 无需接触设备背面或打开电气插板即可配置和维护 RGK6..。
 - 与 RGK6.. 的内部电路电位隔离，可最大程度保障操作人员的安全。
 - 高速数据传输。
 - Ip65 前面板。
 - 通过设备配置限制未授权访问的可能性。
- 只需将 CX.. 加密狗的插头连接到前面板上的相应接口即可，如果编程加密狗上的 LINK LED 闪烁绿色，即表示设备被识别。

通过 PC 设置参数 (设置)

- 您可以使用 *Customization Manager* 设置软件将 (预编程) 设置参数从 RGK6.. 传输到 PC 硬盘，反之亦然。
- 从 PC 传输到 RGK 时，可能只会传输部分参数，即指定菜单的参数。
- PC 可用于设置参数及以下内容：
 - 压力、温度、燃油油位传感器曲线和发电机保护特性相关的数据
 - 每次通电和退出键盘设置时显示的自定义徽标。
 - 信息页面，您可以在这里输入应用程序信息、特征、数据等。
 - 加载另一套语言为默认值。


IR programming port

- The parameters of the RGK6.. can be configured through the front optical port, using the IR-USB CX01 programming dongle, or with the IR-WiFi CX02 dongle.
- This programming port has the following advantages:
 - You can configure and service the RGK6.. without access to the rear of the device or having to open the electrical board.
 - It is galvanically isolated from the internal circuits of the RGK6.., guaranteeing the greatest safety for the operator.
 - High speed data transfer.
 - Ip65 front panel.
 - Limits the possibility of unauthorized access with device config.
- Simply hold the CX.. dongle up to the front panel, connecting the plugs to the relevant connectors, and the device will be acknowledged as shown by the LINK LED on the programming dongle flashing green.

Parameter setting (setup) with PC

- You can use the *Customization manager* set-up software to transfer (previously programmed) set-up parameters from the RGK6.. to the hard drive of the PC and vice versa.
- The parameter may be partially transferred from the PC to the RGK, transferring only the parameters of the specified menus.
- The PC can be used to set parameters and also the following:
 - Data on the characteristics of the pressure, temperature, fuel level sensor curves, and the generator protection
 - Customised logo displayed on power-up and every time you exit keyboard setup.
 - Info page where you can enter application information, characteristics, data, etc.
 - Load alternative set of languages to default.

通过前面板设置参数

- 要打开参数编程菜单（设置）：
 - 将装置转到STOP/RESET模式
 - 在常规测量视图中同时按下▲▼键，调出主菜单
 - 选择图标。如果禁用（显示为灰色），您必须输入密码（请参见“密码访问”章节）。
 - 按下✓打开设置菜单。
- 显示图中所示的表，根据功能显示所有参数的设置子菜单。
- 使用▲或▼键选择所需菜单，并以✓确认。
- 按下STOP返回到阀门视图。

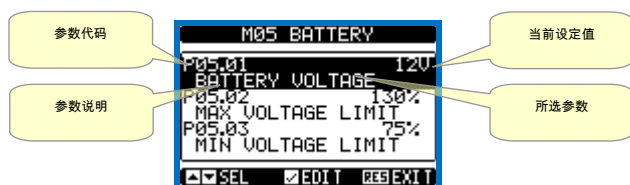


设置：菜单选择

- 下表列出了可用的子菜单：


代码	菜单	说明
M01	UTILITY	语言、亮度、显示页面等
M02	GENERAL	系统规格
M03	PASSWORD	密码设置
M04x	CONFIGURATIONS	1..4 种配置可选
M05	BATTERY	发电机组电池参数
M06	ACOUSTIC ALARMS	内置蜂鸣器和外置警笛控制
M07	ENGINE SPEED	极限阈值、转速阀门源
M08	OIL PRESSURE	极限阈值、阀门源
M09	COOLANT TEMP.	极限阈值、阀门源
M10	FUEL LEVEL	加注、极限阈值、测量源
M11	ENGINE STARTING	发动机启动/停止模式
M12	LOAD SWITCHING	负载切换模式
M13	MAINS CONTROL	可接受的市电电压范围
M14	GEN CONTROL	可接受的发电机电压范围
M15	GEN PROTECTION	接地故障、保护曲线、阈值
M16	AUTOMATIC TEST	自动测试模式、持续时间、期间
M17	MAINTENANCE	维护时间间隔
M18	PROG.INPUTS	可编程数字输入功能
M19	PROG.OUTPUTS	可编程数字输出功能
M20	COMMUNICATION	节点地址，格式，协议
M21	CAN BUS	ECU 类型、控制选项（RGK601）
M22	LOAD MANAGEMENT	优先级负载、假负载管理
M23	MISCELLANEOUS	互备、EJP、功能等
M24	LIMIT THRESHOLDS	可定制极限阈值
M25	COUNTERS	可编程通用计数器
M27	REMOTE ALARMS	外部继电器警报/状态信号
M32	USER ALARM	可编程警报
M33	ALARM PROPERTIES	警报作用启用

- 选择子菜单并按下✓显示参数。
- 显示每个参数的代码、说明和实际设定值。



设置：参数选择

Parameter setting (setup) from front panel

- To open the parameters programming menu (setup):
 - Turn the unit in STOP/RESET mode
 - In normal measurements view, press ▲▼ simultaneously to call up the Main menu
 - Select the icon. If it is disabled (displayed in grey) you must enter the password (see chapter Password access).
 - Press ✓ to open the setup menu.
- The table shown in the illustration is displayed, with the settings sub-menus of all the parameters on the basis of their function.
- Select the required menu with keys ▲ or ▼ and confirm with ✓.
- Press STOP to return to the valves view.

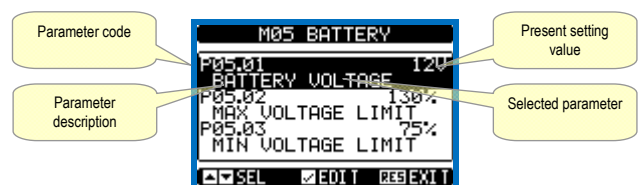


Settings: menu selection

- The following table lists the available submenus:

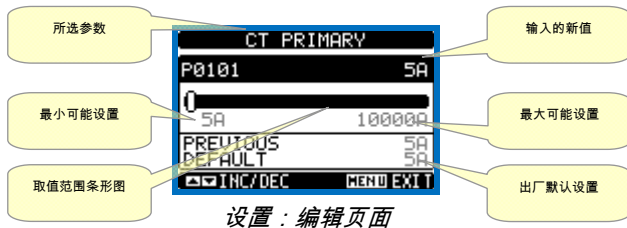
Cod	MENU	DESCRIPTION
M01	UTILITY	Language, brightness, display pages, etc.
M02	GENERAL	System specifications
M03	PASSWORD	Password settings
M04	CONFIGURATIONS	1..4 multiple configurations selectable
M05	BATTERY	Genset battery parameters
M06	ACOUSTIC ALARMS	Internal buzzer and external siren control
M07	ENGINE SPEED	Limit thresholds, rpm valve source
M08	OIL PRESSURE	Limit thresholds, valve source
M09	COOLANT TEMP.	Limit thresholds, valve source
M10	FUEL LEVEL	Filling, limit thresholds, measurement
M11	ENGINE STARTING	Engine start/stop mode
M12	LOAD SWITCHING	Load switching mode
M13	MAINS CONTROL	Mains voltage limits of acceptability
M14	GEN CONTROL	Generator voltage limits of acceptability
M15	GEN PROTECTION	Ground-fault, protection curves,
M16	AUTOMATIC TEST	Automatic test mode, duration, period
M17	MAINTENANCE	Maintenance intervals
M18	PROG. INPUTS	Programmable digital inputs functions
M19	PROG. OUTPUTS	Programmable digital outputs functions
M20	COMMUNICATION	Node address, format, protocol
M21	CAN BUS	ECU type, control options (RGK601)
M22	LOAD MANAGEMENT	Priority loads, dummy load management
M23	MISCELLANEOUS	Mutual stand-by, EJP, function, etc.
M24	LIMIT THRESHOLDS	Customisable limit thresholds
M25	COUNTERS	Programmable generic counters
M27	REMOTE ALARMS	External relay alarm/state signals
M32	USER ALARM	Programmable alarms
M33	ALARM PROPERTIES	Alarms effect enabling

- Select the sub-menu and press ✓ to show the parameters.
- Each parameter is shown with code, description and actual setting value.



Set-up: parameter selection

- 要修改参数设置，选中并按下✓。
- 如果没有输入高级访问代码，就不可能进入编辑页面，将显示拒绝访问消息。
- 反之，如果确认访问权限，将显示编辑屏幕。



设置：编辑页面

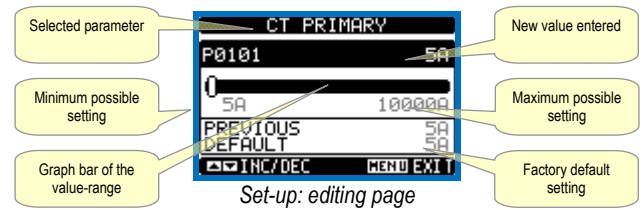
- 显示编辑屏幕时，可通过+ 和 -键修改参数设置。屏幕显示新设置、显示设置范围的图形条、最大和最小值、先前的设置和出厂默认值。
- 按下+和▲键，将值设定为可能的最小值，按下▲和-则设定为最大值。
- 同时按下+和-，将设定值设为出厂默认值。
- 输入文本字符串时，使用键▲和▼键选择字母数字字符，+和-用于在文本字符串中移动光标。同时按下▲和▼键，将字符选择直接移到字符“A”。
- 按下✓返回到参数选择。输入的值将保存。
- 按下STOP保存所有设定值并退出设置菜单。控制器执行复位并返回到正常操作。
- 如果用户超过2分钟未按任何键，系统将自动退出设置并返回正常查看状态，不会保存对参数所做的更改。
- 注意：可将设置数据（可使用键盘修改的设置）备份保存在RGK600的eeprom内存中。必要时可在工作内存中恢复此数据。数据备份“copy”和“restore”命令可在命令菜单中找到。

参数表

M01 - UTILITY	度量单位	默认值	范围
P01.01 语言		English	English Italiano Francais Espagnol Portuguese
P01.02 设置电源输送时钟		OFF	OFF-ON
P01.03 通电工作模式		STOP mode	STOP mode Previous
P01.04 LCD 对比度	%	50	0-100
P01.05 显示屏15背光1515强度高	%	100	0-100
P01.06 显示屏15背光1515强度低	%	25	0-50
P01.07 切换到低背光的时间	s	180	5-600
P01.08 返回默认页面	s	300	OFF/10-600
P01.09 默认页面		MAIN	(页面列表)
P01.10 发电机标识符		(空)	20 个字符的字符串
P01.11 自动关闭延迟	分	OFF	OFF/1-1440

P01.01 - 选择显示文本语言。
P01.02 - 通电后激活的自动时钟设置访问。
P01.03 - 通电后以 STOP 模式启动系统或以关停时的相同模式启动。
P01.04 - 调整 LCD 对比度。
P01.05 - 显示屏背光亮调整。
P01.07 - 显示屏背光低延迟。
P01.08 - 没有按键操作时的默认页面显示还原延迟。如果设置为 OFF，显示屏将始终显示手动选择的最后一页。
P01.09 - 通电和延迟后显示默认页面。
P01.10 - 带特定发电机字母数字标识符名称的自由文本。也用于通过 SMS/电子邮件远程报告警报/事件后的识别。
P01.11 - 如将该值设置为分钟数，则当设备处于 STOP 模式的时间达到设定时间时，装置将自动断电（仅限 .SA 型号）。

- To modify the setting of one parameter, select it and then press ✓.
- If the Advanced level access code has not been entered, it will not be possible to enter editing page and an access denied message will be shown.
- If instead the access rights are confirmed, then the editing screen will be shown.



Set-up: editing page

- When the editing screen is displayed, the parameter setting can be modified with + and -keys. The screen shows the new setting, a graphic bar that shows the setting range, the maximum and minimum values, the previous setting and the factory default.
- Pressing + and ▲ the value is set to the minimum possible, while with ▲ and - it is set to the maximum.
- Pressing simultaneously + and -, the setting is set to factory default.
- During the entry of a text string, keys ▲ and ▼ are used to select the alphanumeric character while + and - are used to move the cursor along the text string. Pressing keys ▲ and ▼ simultaneously will move the character selection straight to character 'A'.
- Press ✓ to go back to the parameter selection. The entered value is stored.
- Press STOP to save all the settings and to quit the setup menu. The controller executes a reset and returns to normal operation.
- If the user does not press any key for more than 2 minutes, the system leaves the setup automatically and goes back to normal viewing without saving the changes done on parameters.
- N.B.: a backup copy of the setup data (settings that can be modified using the keyboard) can be saved in the eeprom memory of the RGK600. This data can be restored when necessary in the work memory. The data backup 'copy' and 'restore' commands can be found in the commands menu.

Parameter table

M01 - UTILITY	UdM	Default	Range
P01.01 Language		English	English Italiano Francais Espagnol Portuguese
P01.02 Set power delivery clock		OFF	OFF-ON
P01.03 Power-on operating mode		STOP mode	STOP mode Previous
P01.04 LCD contrast	%	50	0-100
P01.05 Display 26AN bus26e26 intensity high	%	100	0-100
P01.06 Display 26AN bus26e26 intensity low	%	25	0-50
P01.07 Time to switch to low backlighting	s	180	5-600
P01.08 Return to default page	s	300	OFF / 10-600
P01.09 Default page		MAIN	(page list)
P01.10 Generator identifier		(empty)	String 20 chr.
P01.11 Automatic switch off delay	min	OFF	OFF/1-1440

P01.01 - Select display text language.
P01.02 - Active automatic clock settings access after power-up.
P01.03 - Start system in STOP mode after power-up or in same mode it was switched off in.
P01.04 - Adjust LCD contrast.
P01.05 - Display backlight high adjustment.
P01.07 - Display backlight low delay.
P01.08 - Default page display restore delay when no key pressed. If set to OFF the display will always show the last page selected manually.
P01.09 - Default page displayed on power-up and after delay.
P01.10 - Free text with alphanumeric identifier name of specific generator. Used also for identification after remote reporting alarms/events via SMS/E-mail.
P01.11 - When set to a value in minutes, after the device has been in STOP mode for the set time the unit will power OFF automatically (only for .SA versions).

M02 - GENERAL		度量单位	默认值	范围
P02.01	CT 一级	A	5	1-10000
P02.02	CT 二级	A	5	1-5
P02.03	CT 电流读数		Load	Load Generator
P02.04	VT 使用		OFF	OFF-ON
P02.05	VT 一级	V	100	50-50000
P02.06	VT 二级	V	100	50-500
P02.07	相序控制		OFF	OFF L1-L2-L3 L3-L2-L1

- P02.01** - 一级相位电流互感器的值。例如：将 800/5 CT 设置为 800。
P02.02 - 二级相位电流互感器的值。例如：将 800/5 CT 置为 5。
P02.03 - 定位相位 CT。如果定位在负载上，电流（及相对功率和电能）根据断路器的闭合切换到市电或发电机。
P02.04 - 在市电/发电机电压测量输入端使用变压器 (TV)。
P02.05 - 任意变压器的一级值。
P02.06 - 任意变压器的二级值。
P02.07 - 启用相序控制。OFF = 未控制。Direct = L1-L2-L3。
Reverse = L3-L2-L1。注意：也启用相应警报。

M03 - PASSWORD		度量单位	默认值	范围
P03.01	使用密码		OFF	OFF-ON
P03.02	用户级别密码		1000	0-9999
P03.03	高级密码		2000	0-9999
P03.04	远程访问密码		OFF	OFF/1-9999

- P03.01** - 如果设置为 OFF，密码管理禁用，任何人都可以访问设置和命令菜单。
P03.02 - P03.01 启用时，通过本参数指定的值可激活动户级访问。请参见“密码访问”章节。
P03.03 - 与 P03.02 类似，通过本参数指定的值可激活高级访问。
P03.04 - 如果设置为一个数值，将成为从远程控制发送命令前通过串行通信指定的代码。

M04 - CONFIGURATIONS (CNFn, n=1...4)		度量单位	默认值	范围
P04.n.01	额定电压	V	400	50-50000
P04.n.02	连接类型		L1-L2-L3-N	L1-L2-L3-N L1-L2-L3 L1-N-L2 L1-N
P04.n.03	电压控制类型		L-L	L-L L-N L-L + L-N
P04.n.04	额定电流	A	5	1-10000
P04.n.05	额定频率	Hz	50	50 60
P04.n.06	发动机额定转速	RPM	1500	750-3600
P04.n.07	额定有功功率	kW	Aut	Aut / 1-10000
P04.n.08	额定表现功率	kVA	Aut	Aut / 1-10000

- 注意：该菜单分为 4 个部分，分别为 4 种配置 CNF1...CNF4。有关变量配置的管理，请参见相关章节。**
P04.n.01 - 市电和发电机额定电压。始终为多相系统设定线路间电压。
P04.n.02 - 连接类型选择，3 相带/不带中线、2 相或单相。
P04.n.03 - 线路间电压、相位电压或二者上执行的电压控制。
P04.n.04 - 发电机额定电流。用于保护阈值的百分比设定。
P04.n.05 - 市电和发电机额定频率。
P04.n.06 - 发动机额定转速。
P04.n.07 - 发电机额定有功功率。用于保护阈值、假负载管理、优先级负载等的百分比设定。如果设置为 AUT，使用 CT 一级和额定电压计算。
P04.n.08 - 发电机额定表现功率。

M05 - BATTERY		度量单位	默认值	范围
P05.01	电池额定电压	V	12	12 / 24
P05.02	最大电压限值	%	130	110-140%
P05.03	最小电压限值	%	75	60-130%
P05.04	最小/最大电压延迟	s	10	0-120

- P05.01** - 电池额定电压。
P05.02 - 电池最大电压警报干预阈值。
P05.03 - 电池最小电压警报干预阈值。
P05.04 - 电池最小和最大警报干预延迟。

M02 - GENERAL		UdM	Default	Range
P02.01	CT Primary	A	5	1-10000
P02.02	CT Secondary	A	5	1-5
P02.03	CT Current valve		Load	Load Generator
P02.04	VT Use		OFF	OFF-ON
P02.05	VT Primary	V	100	50-50000
P02.06	VT Secondary	V	100	50-500
P02.07	Phase sequence control		OFF	OFF L1-L2-L3 L3-L2-L1

- P02.01** - Value of the phase current transformers primary. Example: set 800 for 800/5 CT.
P02.02 - Value of the phase current transformers secondary. Example: set 5 for 800/5 CT.
P02.03 - Positioning of phase CT. If positioned on load, the current (and the relative power and energy) are switched to the mains or generator on the basis of which circuit breaker is closed.
P02.04 - Using voltage transformers (TV) on mains/generator voltage metering inputs.
P02.05 - Primary value of any voltage transformers.
P02.06 - Secondary value of any voltage transformers.
P02.07 - Enable phase sequence control. OFF = no control. Direct = L1-L2-L3.
Reverse = L3-L2-L1. Note: Enable also corresponding alarms.

M03 - PASSWORD		UdM	Default	Range
P03.01	Use password.		OFF	OFF-ON
P03.02	User level password		1000	0-9999
P03.03	Advanced level password		2000	0-9999
P03.04	Remote access password		OFF	OFF/1-9999

- P03.01** - If set to OFF, password management is disabled and anyone has access to the settings and commands menu.
P03.02 - With P03.01 enabled, this is the value to specify for activating user level access. See Password access chapter.
P03.03 - As for P03.02, with reference to Advanced level access.
P03.04 - If set to a numeric value, this becomes the code to specify via serial communication before sending commands from a remote control.

M04 - CONFIGURATIONS (CNFn, n=1...4)		UdM	Default	Range
P04.n.01	Rated voltage	V	400	50-50000
P04.n.02	Type of connection		L1-L2-L3-N	L1-L2-L3-N L1-L2-L3 L1-N-L2 L1-N
P04.n.03	Type of voltage control		L-L	L-L L-N L-L + L-N
P04.n.04	Rated current	A	5	1-10000
P04.n.05	Rated frequency	Hz	50	50 60
P04.n.06	Rated engine rpm	RPM	1500	750-3600
P04.n.07	Rated active power	kW	Aut	Aut / 1-10000
P04.n.08	Rated apparent power	kVA	Aut	Aut / 1-10000

- Note: This menu is divided into 4 sections, which refer to 4 configurations CNF1...CNF4. See relevant chapter on managing the variable configurations.**
P04.n.01 - Rated voltage of mains and generator. Always set the line-to-line voltage for polyphase systems
P04.n.02 - Choice of the type of connection, 3-phase with/without neutral, 2-phase or single phase.
P04.n.03 - Voltage controls performed on line-to-line voltages, phase voltages or both.
P04.n.04 - Rated current of the generator. Used for the percentage settings of the protection thresholds.
P04.n.05 - Rated frequency of mains and generator.
P04.n.06 - Rated engine rpm.
P04.n.07 - Rated active power of the generator. Used for the percentage settings of the protection thresholds, dummy load management, priority loads, etc. If set to Aut, it is calculated using the CT primary and rated voltage.
P04.n.08 - Rated apparent power of the generator.

M05 - BATTERY		UdM	Default	Range
P05.01	Battery rated voltage	V	12	12 / 24
P05.02	MAX. voltage limit	%	130	110-140%
P05.03	MIN. voltage limit	%	75	60-130%
P05.04	MIN./MAX. voltage delay	s	10	0-120

- P05.01** - Rated battery voltage.
P05.02 - Battery MAX. voltage alarm intervention threshold.
P05.03 - Battery MIN. voltage alarm intervention threshold.
P05.04 - Battery MIN. and MAX. alarms intervention delay.

M06 – ACOUSTIC ALARMS		度量单位	默认值	范围
P06.01	警报的警笛模式。		Time	OFF Keyboard Time Repeat
P06.02	警报警笛激活时间。	s	30	OFF/1-600
P06.03	启动前警笛激活时间。	s	OFF	OFF/1-600
P06.04	远程控制初始化的警笛激活时间。	s	OFF	OFF/1-60
P06.05	断电警笛激活时间。 (仅限 AMF 型号)	s	OFF	OFF/1-60
P06.06	有声警告设备		SIREN	OFF SIREN

P06.01 - OFF = 警笛禁用。Keyboard = 警笛不断响起，直到按下前面板上的按键。Timed = 使用 P06.02 在指定的时间段激活。Repeated = 在时间段 P06.02 激活，暂停 3 倍时间，然后周期性重复。

P06.02 - 警报蜂鸣器激活的持续时间。

P06.03 - 发动机启动前蜂鸣器激活的持续时间。

P06.04 - 通过通信信道远程控制后蜂鸣器激活的时间。

P06.05 - 断电后蜂鸣器激活的持续时间。

P06.06 - 启用声音信号。

M07 – ENGINE SPEED		度量单位	默认值	范围
P07.01	发动机转速读数源		W/Pick-Up (针对 RGK600) CAN (针对 RGK601)	OFF Freq-Gen. (W/Pick-up) (CAN)
P07.02	RPM/W 比 - 拾取器		1.0000	0.0001- 50.000
P07.03	最大转速范围	%	110	80-120
P07.04	最大转速警报延迟	s	3.0	0.5-60.0
P07.05	最小转速范围	%	90	80-100
P07.06	最小转速警报延迟	s	5	0-600

P07.01 - 选择发动机转速读数源。OFF = 未显示和控制转速。Freq.Gen = 基于功率交流发电机频率计算转速。额定转速对应于额定频率。
W/Pick-up (仅针对 RGK600) = 使用信号 W、拾取器或永磁电池充电器交流发电机的交流电频率，并根据采用以下参数设置的 RPM/W 比来测量 RPM。CAN (仅针对 RGK601) = 由发动机 ECU 经 CAN 总线读取 RPM。

P07.02 - RPM 之比和 W 或拾取器信号频率。可手动设定或通过以下步骤自动获取：在发动机以标称转速运行时，从发动机转速页面同时按下 START 和 AUT5 秒。系统将使用 W 信号的当前频率计算参数 P07.02 的值，获取当前转速作为额定转速。

P07.03 - P07.04 - 产生发动机转速过高警报的极限阈值和延迟。

P07.05 - P07.06 - 产生发动机转速过低警报的极限阈值和延迟。

M08 – OIL PRESSURE		度量单位	默认值	范围
P08.01	读数源		OFF	OFF RES CAN
P08.03	电阻式传感器类型		VDO	VDO VEGLIA DATCON CUSTOM ...
P08.04	电阻式传感器偏差	Ohm	0	-30.0 - +30.0
P08.05	压力度量单位		bar	bar psi
P08.06	最小压力预警	(bar/psi)	3.0	0.1-180.0
P08.07	最小压力警报范围	(bar/psi)	2.0	0.1-180.0

P08.01 - 指定用于读取油压的源。OFF = 模拟测量未管理。PRESS 端子可用作可编程数字输入端 INP5。RES = 从 PRESS 端子带模拟输入的电阻式传感器读取。CAN = 从 CAN 总线读取。

P08.03 - 使用电阻式传感器时，选择使用的曲线。可使用 Customisation Manager 软件对曲线进行自定义设置。

P08.04 - 使用电阻式传感器时，您可以以欧姆为单位加上或减去偏差，以补偿线缆长度等。也可以不打开设置，使用命令菜单中的快速功能（可以在标定时查看测量值）设置该值。

P08.05 - 选择油压的度量单位。

P08.06 - P08.07 - 分别定义最小油压的预警和警报阈值。请参见各警报。

M06 – ACOUSTIC ALARMS		UdM	Default	Range
P06.01	Siren mode for alarm.		Time	OFF Keyboard Time Repeat
P06.02	Siren activation time for alarm.	S	30	OFF/1-600
P06.03	Siren activation time before starting.	S	OFF	OFF / 1-600
P06.04	Siren activation time for remote control initialisation.	S	OFF	OFF / 1-60
P06.05	Siren activation time for mains outage. (only AMF versions)	S	OFF	OFF / 1-60
P06.06	Acoustic warning devices		SIREN	OFF SIREN

P06.01 - OFF = siren disabled. Keyboard = Siren goes off continuously until silenced by pressing a key on the front panel. Timed = Activated for the specified time with P06.02. Repeated = Activated for time P06.02, pause for 3x time, then repeated periodically.

P06.02 - Duration of buzzer activation for alarm.

P06.03 - Duration of buzzer activation before engine start.

P06.04 - Duration of buzzer activation after remote control via communication channel.

P06.05 - Duration of buzzer activation after mains outage.

P06.06 - Acoustic signal enable.

M07 – ENGINE SPEED		UdM	Default	Range
P07.01	Engine speed reading source		W/Pick-Up (for RGK600) CAN (for RGK601)	OFF Freq-Gen. (W/Pick-up) (CAN)
P07.02	RPM/W ratio – pick-up		1.0000	0.0001-50.000
P07.03	MAX. speed limit	%	110	80-120
P07.04	MAX. speed alarm delay	s	3.0	0.5-60.0
P07.05	MIN. speed limit	%	90	80-100
P07.06	MIN. speed alarm delay	s	5	0-600

P07.01 - Select source for engine speed readings. OFF = rpm not displayed and controlled. Freq. Gen = RPM calculated on the basis of power alternator frequency. Rated RPM corresponds to rated frequency. W/Pick-up (only for RGK600) = RPM measured using the frequency of signal W, Pick-up or AC from permanent magnet battery charger alternator, with reference to RPM/W ratio set with the following parameter. CAN (only for RGK601) = RPM read by engine ECU through CAN bus.

P07.02 - Ratio between the RPM and the frequency of the W or pick-up signal. Can be set manually or acquired automatically through the following procedure: From the engine speed page, with engine running at nominal speed, press START and AUT together for 5 seconds. The system will acquire the present speed as the rated one, using the present frequency of the W signal to calculate the value of parameter P07.02.

P07.03 - P07.04 - Limit threshold and delay for generating engine speed too high alarm.

P07.05 - P07.06 - Limit threshold and delay for generating engine speed too low alarm.

M08 – OIL PRESSURE		UdM	Default	Range
P08.01	Reading source		OFF	OFF RES CAN
P08.03	Type of resistive sensor		VDO	VDO VEGLIA DATCON CUSTOM ...
P08.04	Resistive sensor offset	Ohm	0	-30.0 - +30.0
P08.05	Pressure units of measurement		bar	bar psi
P08.06	MIN. pressure prealarm	(bar/psi)	3.0	0.1-180.0
P08.07	MIN. pressure alarm limit	(bar/psi)	2.0	0.1-180.0

P08.01 - Specifies which source is used for reading the oil pressure. OFF = Analog measure not managed. Terminal PRESS becomes available as programmable digital input INP5. RES = read from resistive sensor with analog input on PRESS terminal. CAN = Read from CAN bus.

P08.03 - When using a resistive sensor, selects which curve to use. The curves can be custom set using the Customisation Manager software.

P08.04 - When using a resistive sensor, this lets you add or subtract an offset in Ohms from the set curve, to compensate for cable length for example. This value can also be set without opening setup by using the quick function in the commands menu which lets you view the measurements while calibrating.

P08.05 - Selects the unit of measurement for the oil pressure.

P08.06 - P08.07 - Define respectively the prealarm and alarm thresholds for MIN. oil pressure. See respective alarms.

M09 – COOLANT TEMPERATURE		度量单位	默认值	范围
P09.01	读数源		OFF	OFF RES CAN
P09.03	电阻式传感器类型		VDO	VDO VEGLIA DATCON CUSTOM
P09.04	电阻式传感器偏差	Ohm	0	-30.0 - +30.0
P09.05	18温度度量单位		°C	°C °F
P09.06	最大温度预警	°	90	20-300
P09.07	最大温度警报范围	°	100	20-300
P09.08	最小温度警报范围	°	OFF	OFF/20-300
P09.09	负载增加温度	°	OFF	OFF/20-300
P09.10	加热器激活阈值	°	OFF	OFF/20-300
P09.11	加热器失活阈值	°	OFF	OFF/20-300
P09.12	温度传感器故障警报延迟	分	OFF	OFF/1 - 60

P09.01 - 指定用于读取冷却剂温度的源。**OFF** = 模拟测量未管理。TEMP 端子可用作可编程数字输入端 INP6。**RES** = 从 TEMP 端子带模拟输入的电阻式传感器读取。**CAN** = 从 CAN 总线读取。

P09.02 - 指定前一参数是否选择 AINx 的信道编号 (x)。

P09.03 - 使用电阻式传感器时, 选择使用的曲线。可使用 Customisation Manager 软件对曲线进行自定义设置。

P09.04 - 使用电阻式传感器时, 您可以以欧姆为单位加上或减去偏差, 以补偿线缆长度等。也可以不打开设置, 使用命令菜单中的快速功能 (可以在标定时查看测量值) 设置该值。

P09.05 - 选择温度的度量单位。

P09.06 - P09.07 - 分别定义液体最大温度的警报和预警阈值。请参见各警报。

P09.08 - 定义最小液体温度警报阈值。请参见各警报。

P09.09 - 如果发动机温度高于该阈值 (发动机过热), 则 5 秒后负载连接到发电机, 而不是等待 P14.05 设置的常规存在延迟。反之, 如果温度过低, 那么系统将等待整个存在时间过去。

P09.10 - P09.11 - 对编程设定有预热功能的输出端设定开-关控制阈值

P09.12 - 温度电阻式传感器故障警报产生前的延迟。

M10 – FUEL LEVEL		度量单位	默认值	范围
P10.01	读数源		OFF	OFF RES CAN
P10.03	电阻式传感器类型		VDO	VDO VEGLIA DATCON CUSTOM
P10.04	电阻式传感器偏差	Ohm	0	-30.0 - +30.0
P10.05	18容量度量单位		%	% l gal
P10.06	油箱容积		OFF	OFF/1-30000
P10.07	最小燃油油位预警	%	20	0-100
P10.08	最小燃油油位	%	10	0-100
P10.09	启动燃油泵加注时的油位	%	OFF	OFF/1-100
P10.10	停止燃油泵加注时的油位	%	OFF	OFF/1-100

P10.01 - 指定用于读取燃油油位的源。**OFF** = 模拟测量未管理。FUEL 端子可用作可编程数字输入端 INP7。**RES** = 从 FUEL 端子带模拟输入的电阻式传感器读取。**CAN** = 从 CAN 总线读取。

P10.03 - 使用电阻式传感器时, 选择使用的曲线。可使用 Customisation Manager 软件对曲线进行自定义设置。

P10.04 - 使用电阻式传感器时, 您可以以欧姆为单位加上或减去偏差, 以补偿线缆长度等。也可以不打开设置, 使用命令菜单中的快速功能 (可以在标定时查看测量值) 设置该值。

P10.05 - 选择燃油油箱容积和可用燃油的度量单位。

P10.06 - 定义用于指示自主性的燃油油箱容积。

P10.07 - P10.08 - 定义最小燃油油位的预警和警报阈值。请参见各警报。

P10.09 - 燃油降到该油位以下时燃油加注泵启动。

P10.10 - 燃油达到或高于该油位时燃油加注泵停止。

M09 – COOLANT TEMPERATURE		UdM	Default	Range
P09.01	Reading source		OFF	OFF RES CAN
P09.03	Type of resistive sensor		VDO	VDO VEGLIA DATCON CUSTOM
P09.04	Resistive sensor offset	Ohm	0	-30.0 - +30.0
P09.05	Temperature 18AN bus measurement		°C	°C °F
P09.06	MAX. temperature prealarm	°	90	20-300
P09.07	MAX. temperature alarm limit	°	100	20-300
P09.08	MIN. temperature alarm limit	°	OFF	OFF/20-300
P09.09	Load increase temperature	°	OFF	OFF/20-300
P09.10	Heater activation threshold	°	OFF	OFF/20-300
P09.11	Heater deactivation threshold	°	OFF	OFF/20-300
P09.12	Temperature sensor fault alarm delay	min	OFF	OFF / 1 - 60

P09.01 - Specifies which source is used for reading the coolant temperature. OFF = Analog measure not managed. Terminal TEMP becomes available as programmable digital input INP6. RES = Read from resistive sensor with analog input on TEMP terminal. CAN = Read from CAN bus.

P09.02 - Channel number (x) to specify if AINx was selected for the previous parameter.

P09.03 - When using a resistive sensor, selects which curve to use. The curves can be custom set using the Customisation manager software.

P09.04 - When using a resistive sensor, this lets you add or subtract an offset in Ohms from the set curve, to compensate for cable length for example. This value can also be set without opening setup by using the quick function in the commands menu which lets you view the measurements while calibrating.

P09.05 - Selects the unit of measurement for the temperature.

P09.06 - P09.07 - Define respectively the alarm and prealarm thresholds for MAX. temperature of the liquid. See respective alarms.

P09.08 - Defines the min. liquid temperature alarm threshold. See respective alarms.

P09.09 - If the engine temperature is higher than this threshold (engine is warm), then the load is connected to the generator after 5s instead of waiting the usual presence delay set with P14.05. If instead the temperature is lower, then the system will wait the elapsing of the whole presence time.

P09.10 - P09.11 - Defines the thresholds for on-off control of the output programmed with the preheating function

P09.12 - Delay before a temperature resistive sensor fault alarm is generated.

M10- FUEL LEVEL		UdM	Default	Range
P10.01	Reading source		OFF	OFF RES CAN
P10.03	Type of resistive sensor		VDO	VDO VEGLIA DATCON CUSTOM
P10.04	Resistive sensor offset	Ohm	0	-30.0 - +30.0
P10.05	Capacity 18AN bus measurement		%	% l gal
P10.06	Tank capacity		OFF	OFF / 1-30000
P10.07	MIN. fuel level prealarm	%	20	0-100
P10.08	MIN. fuel level	%	10	0-100
P10.09	Start filling with fuel pump level	%	OFF	OFF/ 1-100
P10.10	Stop filling with fuel pump level	%	OFF	OFF/ 1-100

P10.01 - Specifies which source is used for reading the fuel level. OFF = Analog measure not managed. Terminal FUEL becomes available as programmable digital input INP7. RES = Read from resistive sensor with analog input on FUEL terminal. CAN = Read from CAN bus.

P10.03 - When using a resistive sensor, selects which curve to use. The curves can be custom set using the Customisation manager software.

P10.04 - When using a resistive sensor, this lets you add or subtract an offset in Ohms from the set curve, to compensate for cable length for example. This value can also be set without opening setup by using the quick function in the commands menu, which lets you view the measurements while calibrating.

P10.05 - Selects the unit of measurement for fuel tank capacity and available fuel.

P10.06 - Defines the fuel tank capacity, used to indicate autonomy.

P10.07 - P10.08 - Defines respectively the prealarm and alarm thresholds for min. fuel level. See respective alarms.

P10.09 - The fuel filling pump starts when the fuel drops below this level.

P10.10 - The fuel filling pump stops when the fuel reaches or is higher than this level.

M11 – ENGINE STARTING		度量单位	默认值	范围
P11.01	电池充电器交流发电机电压发动机启动阈值	VDC	10.0	OFF/3.0-30
P11.02	发电机电压发动机启动阈值	%	25	OFF/10-100
P11.03	发电机频率发动机启动阈值	%	30	OFF/10-100
P11.04	发动机转速启动阈值	%	30	OFF/10-100
P11.05	电热塞预热时间	s	OFF	OFF/1-600
P11.06	燃油预热断开温度	°	OFF	OFF/20-300
P11.07	燃油预热超时	s	OFF	OFF/1-900
P11.08	Ev 和启动之间的时间	s	1.0	0.1-30.0
P11.09	1919启动尝试的次数		5	1-30
P11.10	1919启动尝试的持续时间	s	5	1-60
P11.11	1919启动尝试之间的停顿	s	5	1-60
P11.12	尝试启动结束和下次尝试之间的停顿	s	OFF	OFF/1-60
P11.13	启动后的警报抑制时间	s	8	1-120
P11.14	启动后的超速抑制时间	s	8	0-300
P11.15	减速时间	s	OFF	OFF/1-600
P11.16	减速结束温度	°	OFF	OFF/20-300
P11.17	冷却循环模式		Load	Always Load Temp.Thresh.
P11.18	冷却时间	s	120	1-3600
P11.19	冷却结束温度阈值	°	OFF	OFF/1-250
P11.20	停止磁铁时间	s	OFF	OFF/1-60
P11.21	气阀延迟	s	OFF	OFF/1-60
P11.22	启动注油阀时间	s	OFF	OFF/1-60
P11.23	扼流时间	s	OFF	OFF/1-60
P11.24	扼流断开阈值	%	5	OFF/1-100
P11.25	使用空气尝试启动的次数		2	1-10
P11.26	空气尝试模式		Consecutive	Consecutive Alternating
P11.27	压缩空气启动尝试模式		OFF	OFF Consecutive Alternating
P11.28	燃油电磁阀模式		Normal	Normal Continuous
P11.29	电热塞模式		Normal	Normal +Start +Cycle
P11.30	停止磁铁模式		Normal	Normal Pulse No pause
P11.31	停止前减速		Enabled	Enabled Disabled

P11.01 - 电池充电器交流发电机电压发动机运行确认阈值 (D+)。如果交流发电机未配备有 D+ 输出端, 则必须禁用该参数。
P11.02 - 发电机电压发动机运行确认阈值 (VAC)。
P11.03 - 发电机频率发动机运行确认阈值。
P11.04 - 根据“W”、拾取器或永磁电池交流电设定的速度信号确认阈值。
P11.05 - 启动前电热塞预热时间。
P11.06 - 超过即禁用燃油预热的发动机温度。
P11.07 - 最大燃油预热时间。
P11.08 - 燃油 EV 激活和启动马达激活之间的时间。
P11.09 - 发动机启动尝试总次数。
P11.10 - 尝试启动的持续时间。
P11.11 - 一次启动尝试 (其间未检测到发动机运行信号) 和下次尝试之间的停顿。
P11.12 - 一次启动尝试 (因启动错误而停止) 和下次尝试之间的停顿。
P11.13 - 发动机启动后的警报抑制时间。用于“发动机运行”属性已激活的警报。例如: 最小油压
P11.14 - 与前一参数一样, 特指最大速度警报。
P11.15 - 编程设定有减速器功能的输出端通电时间。
P11.16 - 超过即禁用减速功能的发动机温度。
P11.17 - 冷却循环模式。Always = 自动模式下每次发动机停止时冷却循环一直运行 (除非发生立即停止发动机的警报)。Load = 冷却循环只在发电机连接到负载时运行。Temperature threshold = 冷却循环只在发动机温度高于以下参数中指定的阈值时运行。
P11.18 - 最大冷却循环持续时间。例如: 负载从发电机上断开与发动机实际停止之间的时间。
P11.19 - 低于该温度冷却停止。
P11.20 - 编程设定有停止磁铁功能的输出端通电时间。
P11.21 - 启动输出 (启动马达) 激活和编程设定有气阀功能的输出端激活之间的时间。
P11.22 - 编程设定有启动注油阀功能的输出端通电时间。
P11.23 - 编程设定有扼流功能的输出端通电时间。
P11.24 - 用于设定发电机额定电压的百分比阈值, 超出该值之后编程设定为扼流圈的输出端失电。
P11.25 - 扼流圈打开时的尝试次数。
P11.26 - 汽油发动机的扼流命令模式。Consecutive = 全部使用扼流圈启动。Alternate = 使用和不使用扼流圈交替启动。
P11.27 - 压缩空气启动输出命令模式: OFF = 编程设定有压缩空气启动功能的输出端禁用。Consecutive = 前一半启动使用启动输出, 后一半启动使用编程设定为压缩空气的输出。Alternate = 交替激活启动输出和编程设定为压缩空气的输出进行启动。
P11.28 - 燃油电磁阀输出命令模式: Normal = 在启动尝试之间,

M11 – ENGINE STARTING		UdM	Default	Range
P11.01	Battery charger alternator voltage engine start threshold	VDC	10.0	OFF/3.0-30
P11.02	Generator voltage engine start threshold	%	25	OFF/10-100
P11.03	Generator frequency engine start threshold	%	30	OFF/10-100
P11.04	Engine speed start threshold	%	30	OFF/10-100
P11.05	Glow plugs preheating time	s	OFF	OFF/1-600
P11.06	Fuel preheating disconnection temperature	°	OFF	OFF/20-300
P11.07	Fuel preheating timeout	s	OFF	OFF/1-900
P11.08	Time between Ev and start	s	1.0	0.1-30.0
P11.09	Number of 19AN bus19e starts		5	1-30
P11.10	Duration of 19AN bus19e starts	s	5	1-60
P11.11	Pause between 19AN bus19e starts	s	5	1-60
P11.12	Pause between end of attempted start and next attempt	s	OFF	OFF/1-60
P11.13	Alarms inhibition time after starting	s	8	1-120
P11.14	Overspeed inhibition time after starting	s	8	0-300
P11.15	Deceleration time	s	OFF	OFF/1-600
P11.16	Deceleration end temperature	°	OFF	OFF/20-300
P11.17	Cooling cycle mode		Load	Always Load Temp. Thresh.
P11.18	Cooling time	s	120	1-3600
P11.19	Cooling end temperature threshold	°	OFF	OFF/1-250
P11.20	Stop magnets time	s	OFF	OFF/1-60
P11.21	Gas valve delay	s	OFF	OFF/1-60
P11.22	Priming valve time	s	OFF	OFF/1-60
P11.23	Choke time	s	OFF	OFF/1-60
P11.24	Choke disconnect threshold	%	5	OFF/1-100
P11.25	No. of attempted starts with air		2	1-10
P11.26	Air attempts mode		Consecutive	Consecutive Alternating
P11.27	Compressed air starting attempts mode		OFF	OFF Consecutive Alternating
P11.28	Fuel solenoid valve mode		Normal	Normal Continuous
P11.29	Glow plugs mode		Normal	Normal +Start +Cycle
P11.30	Stop magnets mode		Normal	Normal Pulse No pause
P11.31	Deceleration before stop		Enabled	Enabled Disabled

P11.01 – Battery charger alternator voltage engine running acknowledgement threshold (D+). If the alternator is not provided with D+ output, you must disable this parameter.
P11.02 – Generator voltage engine running acknowledgement threshold (VAC).
P11.03 – Generator frequency engine running acknowledgement threshold.
P11.04 – Speed signal acknowledgement threshold from “W”, pick-up or permanent magnet AC.
P11.05 – Glow plug preheating time before starting.
P11.06 – Engine temperature above which fuel preheating is disabled.
P11.07 – Max. fuel preheating time.
P11.08 – Time between the activation of fuel EV and the activation of starting motor.
P11.09 – Total number of automatic engine start attempts.
P11.10 – Duration of start attempt.
P11.11 – Pause between one start attempt, during which no engine running signal was detected, and next attempt.
P11.12 – Pause between one start attempt which was stopped due to a false start and next start attempt.
P11.13 – Alarms inhibition time immediately after engine start. Used for alarms with the “engine running” property activated. Example: min. oil pressure
P11.14 – As for previous parameter, with reference in particular to max. speed alarms.
P11.15 – Programmed output energizing time with decelerator function.
P11.16 – Engine temperature above which the deceleration function is disabled.
P11.17 – Cooling cycle mode. Always = The cooling cycle runs always every time the engine stops in automatic mode (unless there is an alarm that stops the engine immediately). Load = The cooling cycle only runs if the generator has connected to the load. Temperature threshold = The cooling cycle is only run for as long as the engine temperature is higher than the threshold specified in the following parameters.
P11.18 – Max. duration of the cooling cycle. Example: time between load disconnection from the generator and when the engine actually stops.
P11.19 – Temperature below which cooling is stopped.
P11.20 – Programmed output energizing time with stop magnets function.
P11.21 – Time from the activation of the start output (starter motor) and the activation of the output programmed with the function gas valve.
P11.22 – Programmed output energizing time with priming valve function.
P11.23 – Programmed output energizing time with choke function.
P11.24 – Percentage threshold with reference to set rated generator voltage, after which the output programmed as choke is de-energized.
P11.25 – Number of attempts with choke on.
P11.26 – Choke command mode for petrol engines. Consecutive = All starts use the choke. Alternate = Alternate starts with and without choke.
P11.27 – Compressed air start output command mode: OFF = The output programmed with the compressed air start function is disabled. Consecutive = The first half of the starts are with the starting output, the second half with the output programmed for compressed air. Alternate = The starts alternate between activation of the starting output and the output programmed for compressed air.
P11.28 – Fuel solenoid valve output command mode: Normal = The fuel solenoid valve relay is disabled between start attempts. Continuous = The fuel solenoid valve remains

燃油电磁阀继电器禁用。Continuous = 在启动尝试之间，燃油电磁阀仍启用。

P11.29 - 电热塞预热输出命令模式：Normal = 启动前，电热塞输出在设定时间内通电。+Start= 在启动相位，电热塞输出仍保持通电。+Cycle= 在启动循环中，电热塞输出也会保持通电。

P11.30 - 停止磁铁输出命令模式：Normal= 停止磁铁输出在停止相位通电，并在发动机停止后的设定时间内继续通电。Pulse = 停止磁铁输出仅对一个定时的脉冲保持通电。No pause= 停止磁铁输出在两次启动之间未通电。在停止相位，停止磁铁输出在设定时间内保持通电。

P11.31 - Enabled = 冷却循环的最后 5 秒将为减速输出通电。Disabled= 减速输出不会在停止前通电。

M12 – LOAD CHANGEOVER	度量单位	默认值	范围
P12.01 市电/发电机联锁时间	s	0.5	0.0-60.0
P12.02 馈电警报延迟	s	5	1-60
P12.03 开关类型		Contactors	Contactors Breakers Changeover
P12.04 发电机接触器因电气故障断开		ON	OFF-ON
P12.05 断路器/换向器命令类型		Pulse	Continuous Pulse
P12.06 打开脉冲持续时间	s	10	0-600
P12.07 关闭脉冲持续时间	s	1	0-600
P12.08 断路器断开命令		OBP	OBP OAP
P12.09 启动后闭合发电机接触器		CLOSE- OPEN	OFF CLOSE OPEN CLOSE-OPEN

P12.01 - 从打开市电开关，到之后给出发电机开关闭合命令的时间，反之亦然。

P12.02 - 存在消除警报所需电压的情况下，系统容许开关上的馈电输入状态与面板控制的状态不相符的最大时间。这一时间过后，将生成开关故障警报。

P12.03 - 选择开关的类型。Contactors = 通过 2 个输出发出命令。Motorized circuit breakers = 通过 4 个输出发出命令（开-关市电/开-关发电机）。Motorized changeovers = 通过 3 个输出发出命令（关闭市电、打开市电和发电机、关闭发电机）。

注意：当使用机动断路器或换向器时，必须使用馈电输入。

P12.04 - 当设置为 ON 时，如果在启用电气故障属性的情况下出现任何警报，发电机接触器将断开。

P12.05 - 机动断路器或换向器存在以下打开命令：Pulse = 持续完成控制所需的时间，并延长达以下两个参数中设置的时间。Continuous = 连续发出断开或闭合命令。

P12.06 - **P12.07** - 脉冲类型命令延长（命令的最小持续时间）。

P12.08 - 定义断路器断开命令时间：OBP（存在前断开）= 备用电源存在电压前发送断开命令到设备（例如：市电断电后，在发电机提供电压前立即发送市电断路器断开命令）。OAP（存在后断开）= 断开命令仅在备用电源获得电压后生成。

P12.09 - （仅适用于 RGK600SA 和 RGK601SA）- 定义发电机接触器在手动 START 命令发出之后的活动。OFF = 发电机接触器保持断开状态，闭合/断开命令必须通过 START+▲ 和 START+▼ 手动完成。CLOSE = 发动机启动后，无需明确命令，发电机接触器便会闭合。OPEN = 必须手动闭合接触器。如果发电机电压超出有效限值，将自动断开。CLOSE+OPEN = 对发电机接触器进行全自动控制，即使在发动机为手动控制的情况下也不例外。

M13 – MAINS VOLTAGE CONTROL	度量单位	默认值	范围
P13.01 最小电压限值	%	85	70-100
P13.02 最小电压延迟	s	5	0-600
P13.03 最大电压限值	%	115	100-130/OFF
P13.04 最大电压延迟	s	5	0-600
P13.05 市电恢复到限值范围内的延迟	s	20	1-9999
P13.06 最小/最大限值迟滞	%	3.0	0.0-5.0
P13.07 最大不对称限值	%	15	OFF/5-25
P13.08 最大不对称延迟	s	5	0-600
P13.09 最大频率限值	%	110	100-120/OFF
P13.10 最大频率延迟	s	5	0-600
P13.11 最小频率限值	%	90	OFF/80-100
P13.12 最小频率延迟	s	5	0-600
P13.13 市电控制模式		INT	OFF INT EXT
P13.14 STOP 模式下的市电控制		OFF	OFF ON OFF+GLOB ON+GLOB
P13.15 MAN 模式下的市电控制		OFF	OFF ON OFF+GLOB ON+GLOB
P13.16 市电断电后发动机启动延迟	s	OFF	OFF/1-9999

enabled between start attempts.

P11.29 - Glowplug preheating output command mode: Normal = The glowplugs output is energized for the set time before starting. +Start= The glowplugs output remains energized also during the starting phase. +Cycle= The glowplugs output remains energized also during the starting cycle.

P11.30 - Stop magnets output command mode: Normal = The stop magnets output is energized during the stop phase and continues for the set time after the engine has stopped. Pulse = The stop magnets output remains energized for a timed pulse only. No pause = The stop magnets outputs is not energized between one start and the next. Output The stop magnets output remains energized during the stop phase for the set time.

P11.31 - Enabled = Deceleration output is energized in the last 5 seconds of the cooling cycle. Disabled = Deceleration output is not energized prior to stop.

M12 – LOAD CHANGEOVER	UdM	Default	Range
P12.01 Mains/generator interlock time	s	0.5	0.0-60.0
P12.02 Feedback alarm delay	s	5	1-60
P12.03 Switchgear type		Contactors	Contactors Breakers Changeover
P12.04 Generator contactor open for electrical fault		ON	OFF-ON
P12.05 Type of circuit breaker/commutator command		Pulse	Continuous Pulse
P12.06 Opening pulse duration	s	10	0-600
P12.07 Closing pulse duration	s	1	0-600
P12.08 Circuit breakers open command		OBP	OBP OAP
P12.09 Close generator contactor after start		CLOSE- OPEN	OFF CLOSE OPEN CLOSE-OPEN

P12.01 - Time from the opening of the Mains switchgear, after which the Generator switchgear closing command is given and vice versa.

P12.02 - Max. time for which the system tolerates that the input of the feedback on the switchgear state fails to correspond to the state controlled by the board, in the presence of the voltage necessary to move the same. Switchgear fault alarms are generated after this time.

P12.03 - Selects the type of switchgear. Contactors = Command with 2 outputs. Motorized circuit breakers = Command with 4 outputs (open-close Mains/open-close generator). Motorized changeovers = Command with 3 outputs (Close Mains, Open both, close generator).

Note: When motorized breakers or changeover are used, the use of feedback inputs is mandatory.

P12.04 - When set to ON, if any alarm with the Electrical fault property enabled is active, the generator contactor is opened.

P12.05 - There are the following opening commands for motorized circuit breakers or commutators: Pulse = Maintained for the time necessary to complete the manoeuvre and extended for the time set in the two following parameters. Continuous = Opening or closing command maintained continuously.

P12.06 - **P12.07** - Impulse type command extension times (min. permanence times for the command).

P12.08 - Defines the circuit breakers open command times: OBP (Open Before Presence) = Sends the open command to a device before there is voltage at the alternative source (for example: following a mains outage, the mains circuit breaker open command is sent immediately, before voltage is supplied by the generator). OAP (Open After Presence) = The opening command is only generated after voltage from the alternative source is available.

P12.09 - (available only for RGK600SA and RGK601SA) - Defines the behaviour of the generator contactor after a manual START command. OFF = The generator contactor remains opened, and close/open commands have to be issued manually with START+▲ and START+▼. CLOSE = After engine start, the generator contactor is closed without the need for an explicit command. OPEN = The contactor must be closed manually. If the generator voltage goes out of valid limits, it is opened automatically. CLOSE+OPEN = The control of the generator contactor is fully automatic even when engine control is manual.

M13 – MAINS VOLTAGE CONTROL	UdM	Default	Range
P13.01 MIN. voltage limit	%	85	70-100
P13.02 MIN voltage delay	s	5	0-600
P13.03 MAX. voltage limit	%	115	100-130 / OFF
P13.04 MAX. voltage delay	s	5	0-600
P13.05 Mains restore delay within limits	s	20	1-9999
P13.06 MIN./MAX. limits hysteresis	%	3.0	0.0-5.0
P13.07 MAX. asymmetry limit	%	15	OFF / 5-25
P13.08 MAX. asymmetry delay	s	5	0-600
P13.09 MAX. frequency limit	%	110	100-120/OFF
P13.10 MAX. frequency delay	s	5	0-600
P13.11 MIN. frequency limit	%	90	OFF/80-100
P13.12 MIN. frequency delay	s	5	0-600
P13.13 MAINS control mode		INT	OFF INT EXT
P13.14 MAINS control in STOP mode		OFF	OFF ON OFF+GLOB ON+GLOB
P13.15 MAINS control in MAN mode		OFF	OFF ON OFF+GLOB ON+GLOB
P13.16 Engine start delay after mains outage	s	OFF	OFF / 1-9999

P13.17	发电机组未启动的市电延迟	s	2	0-999
P13.18	发电机运行且发电机处于限值范围内时，市电超出限值时延迟重复。		OFF	OFF ON

注意：RGK600SA 和 RGK601SA 型号中没有菜单。

- P13.01** - 最小电压干预阈值的百分比值。
P13.02 - 最小电压干预延迟。
P13.03 - 最大电压干预阈值的百分比值（可禁用）。
P13.04 - 最大电压干预延迟。
P13.05 - 延迟后，市电电压被视为处于限值范围内。
P13.06 - 根据设置用于使电压恢复到限值范围内的最小和最大值计算的 % 迟滞。
P13.07 - 根据额定电压，相位间不对称的最大阈值
P13.08 - 不对称干预延迟。
P13.09 - 最大频率干预阈值（可禁用）。
P13.10 - 最大频率干预延迟。
P13.11 - 最小频率干预阈值（可禁用）。
P13.12 - 最小频率干预延迟。
P13.13 - **OFF** = 禁用市电控制。**INT** = 市电由 RGK600 控制。
EXT = 市电由外部设备控制。可编程输入可与外部市电控制功能（连接至外部市电控制设备）配合使用。
P13.14 - **OFF** = 禁用 RESET 模式下的市电电压控制。**ON** = 启用 RESET 模式下的市电控制。**OFF+GBL** = 禁用 RESET 模式下的市电控制，但编程设定了全局警报功能干预的继电器干预，或不依赖于市电是否存在。**ON+GBL** = 启用 RESET 模式下的市电控制，编程设定了全局警报功能干预的继电器干预，或不依赖于市电是否存在。
P13.15 - 关于 MANUAL 模式请参考 P13.14。
P13.16 - 市电电压不符合设定限值时发电机启动延迟。如果设置为 OFF，启动周期将在市电接触器断开时启动。
P13.17 - 发电机尚未启动时，限值范围内的市电电压延迟。
P13.18 - **OFF** - 如果在发电机电压存在且处于限值范围内时市电出现故障，则会从市电转换至发电机，而不会等待市电故障延迟时间。
ON - 如果在发电机电压存在且处于限值范围内时市电出现故障，则会在市电故障延迟时间后从市电切换至发电机。

M14 – GENERATOR VOLTAGE CONTROL		度量单位	默认值	范围
P14.01	最小电压限值	%	80	70-100
P14.02	最小电压延迟	s	5	0-600
P14.03	最大电压限值	%	115	100-130/OFF
P14.04	最大电压延迟	s	5	0-600
P14.05	发电机电压恢复到限值范围内的延迟	s	20	1-9999
P14.06	最小/最大限值迟滞	%	3.0	0.0-5.0
P14.07	最大不对称限值	%	15	OFF/5-25
P14.08	最大不对称延迟	s	5	0-600
P14.09	最大频率限值	%	110	100-120/OFF
P14.10	最大频率延迟	s	5	0-600
P14.11	最小频率限值	%	90	OFF/80-100
P14.12	最小频率延迟	s	5	0-600
P14.13	发电机电压控制模式		INT	OFF INT EXT
P14.14	发电机电压低警报延迟	s	240	1-600
P14.15	发电机电压高警报延迟	s	10	1-600

- P14.01** - 最小电压干预阈值的百分比值。
P14.02 - 最小电压干预延迟。
P14.03 - 最大电压干预阈值的百分比值（可禁用）。
P14.04 - 最大电压干预延迟。
P14.05 - 延迟后，发电机电压被视为处于限值范围内。
P14.06 - 根据设置用于使电压恢复到限值范围内的最小和最大值计算的 % 迟滞。
P14.07 - 根据额定电压，相位间不对称的最大阈值
P14.08 - 不对称干预延迟。
P14.09 - 最大频率干预阈值（可禁用）。
P14.10 - 最大频率干预延迟。
P14.11 - 最小频率干预阈值（可禁用）。
P14.12 - 最小频率干预延迟。
P14.13 - **OFF** = 禁用发电机控制。**INT** = 发电机由 RGK600 控制。**EXT** = 发电机由外部设备控制。可编程输入可与外部市电控制功能（连接至外部发电机控制设备）配合使用。
P14.14 - A28 发电机低电压警报延迟。
P14.15 - A29 发电机高电压警报延迟。

P13.17	Mains delay if genset hasn't started	s	2	0-999
P13.18	Repetition of delay mains out of limits with engine running and generator within limits.		OFF	OFF ON

- Note: Menu not present in RGK600SA and RGK601SA versions.**
P13.01 – Percentage value for minimum voltage intervention threshold.
P13.02 – Minimum voltage intervention delay.
P13.03 – Percentage value for maximum voltage intervention threshold (can be disabled).
P13.04 – Maximum voltage intervention delay.
P13.05 – Delay after which the mains voltage is considered within the limits.
P13.06 – % hysteresis calculated with reference to the minimum and maximum value set, to restore the voltage to within the limits.
P13.07 – Maximum threshold for asymmetry between the phases, with reference to the rated voltage
P13.08 – Asymmetry intervention delay.
P13.09 – Max. frequency intervention threshold (can be disabled).
P13.10 – Max. frequency intervention delay.
P13.11 – Min. frequency intervention threshold (can be disabled).
P13.12 – Min. frequency intervention delay.
P13.13 – **OFF** = Mains control disabled. **INT** = Mains controlled by RGK600.
EXT = Mains controlled by external device. A programmable input can be used with the *External mains control* function connected to the external mains control device.
P13.14 – **OFF** = Mains voltage control in RESET mode disabled. **ON** = Mains control in RESET mode enabled. **OFF+GBL** = Mains control in RESET disabled, but the relay programmed with the global alarm function intervenes or not depending on whether the mains is respectively absent or present. **OFF+GBL** = Mains control in RESET enabled, and the relay programmed with the global alarm function intervenes or not depending on whether the mains is respectively absent or present.
P13.15 – See P13.14 with reference to MANUAL mode.
P13.16 – Engine start delay when mains voltage fails to meet set limits. If set to OFF, the starting cycle starts when the mains contactor opens.
P13.17 – Mains voltage delay within limits – engine hasn't started yet.
P13.18 – **OFF** – If mains fails while generator voltage is present and into limits, the changeover from mains to generator is done without waiting for mains fail delay time.
ON – If mains fails while generator voltage is present and into limits, the changeover from mains to generator is done after waiting for mains fail delay time.

M14 – GENERATOR VOLTAGE CONTROL		UdM	Default	Range
P14.01	MIN. voltage limit	%	80	70-100
P14.02	MIN voltage delay	s	5	0-600
P14.03	MAX. voltage limit	%	115	100-130 / OFF
P14.04	MAX. voltage delay	s	5	0-600
P14.05	Generator voltage return delay within limits	s	20	1-9999
P14.06	MIN./MAX. limits hysteresis	%	3.0	0.0-5.0
P14.07	MAX. asymmetry limit	%	15	OFF / 5-25
P14.08	MAX. asymmetry delay	s	5	0-600
P14.09	MAX. frequency limit	%	110	100-120/OFF
P14.10	MAX. frequency delay	s	5	0-600
P14.11	MIN. frequency limit	%	90	OFF/80-100
P14.12	MIN. frequency delay	s	5	0-600
P14.13	Generator voltage control mode		INT	OFF INT EXT
P14.14	Generator voltage low alarm delay	s	240	1-600
P14.15	Generator voltage high alarm delay	s	10	1-600

- P14.01 – Percentage value for minimum voltage intervention threshold.
P14.02 – Minimum voltage intervention delay.
P14.03 – Percentage value for maximum voltage intervention threshold (can be disabled).
P14.04 – Maximum voltage intervention delay.
P14.05 – Delay after which the generator voltage is considered within the limits.
P14.06 – % hysteresis calculated with reference to the minimum and maximum value set, to restore the voltage to within the limits.
P14.07 – Maximum threshold for asymmetry between the phases, with reference to the rated voltage
P14.08 – Asymmetry intervention delay.
P14.09 – Max. frequency intervention threshold (can be disabled).
P14.10 – Max. frequency intervention delay.
P14.11 – Min. frequency intervention threshold (can be disabled).
P14.12 – Min. frequency intervention delay.
P14.13 – **OFF** = Generator control disabled. **INT** = Generator controlled by RGK600. **EXT** = Generator controlled by external device. A programmable input can be used with the *External mains control* function connected to the external generator control device.
P14.14 – A28 Low generator voltage alarm delay.
P14.15 – A29 High generator voltage alarm delay.

M15 – GENERATOR PROTECTION		度量单位	默认值	范围
P15.01	最大电流警报极限阈值	%	OFF	100-500/OFF
P15.02	最大电流干预延迟	s	4.0	0.0-60.0
P15.03	短路警报极限阈值	%	OFF	100-500/OFF
P15.04	短路干预延迟	s	0.02	0.00-10.00
P15.05	保护重置时间	s	60	0-5000
P15.06	保护等级		OFF	OFF P1 P2 P3 P4
P15.07	热保护重置时间	s	60	0-5000
<p>P15.01 - 根据额定电流, 设置用于激活A31发电机最大电流警报的百分比阈值。</p> <p>P15.02 - 前一参数阈值干预延迟。</p> <p>P15.03 - 根据额定电流, 设置用于激活A32发电机短路警报的百分比阈值。</p> <p>P15.04 - 前一参数阈值干预延迟。</p> <p>P15.05 - 经过此时间后可重置热保护警报。</p> <p>P15.06 - 为发电机选择一种可用的集成热保护曲线。可使用 <i>Customisation Manager</i> 软件对曲线进行自定义设置。设置后, 将在页面上显示发电机的热状态。</p> <p>P15.07 - 热保护跳闸后进行重置所需的最小时间。</p> <p>P15.08 - 接地故障警报的干预阈值。设置后, 将在显示屏上显示相应页面。</p> <p>P15.09 - 前一参数阈值干预延迟。</p>				

M16 – AUTOMATIC TEST		度量单位	默认值	范围
P16.01	启用自动测试		OFF	OFF / ON
P16.02	各测试间的时间间隔	天	7	1-60
P16.03	在周一启用测试		ON	OFF / ON
P16.04	在周二启用测试		ON	OFF / ON
P16.05	在周三启用测试		ON	OFF / ON
P16.06	在周四启用测试		ON	OFF / ON
P16.07	在周五启用测试		ON	OFF / ON
P16.08	在周六启用测试		ON	OFF / ON
P16.09	在周日启用测试		ON	OFF / ON
P16.10	测试开始时间	h	12	00-23
P16.11	测试开始分钟	分	00	00-59
P16.12	测试持续时间	分	10	1-600
P16.13	通过负载切换自动进行测试		OFF	OFF Load Dummy load
P16.14	启用外部停止时仍然运行自动测试		OFF	OFF/ON
<p>P16.01 - 启用定期测试。该参数可直接在前面板上更改, 无需使用设置 (参见“自动测试”章节), 并且其当前状态显示在显示屏的相关页面上。</p> <p>P16.02 - 一次定期测试与下一次测试之间的时间间隔。如果测试在周期到期时未启用, 时间间隔将延长到下一启用日期。</p> <p>P16.03...P16.09 在一周中的每一天启用自动测试。OFF 表示不会在该日进行测试。警告!! 必须将日历时钟设置为正确日期和时间。</p> <p>P16.10 - P16.11 设置定期测试开始的时间 (时和分)。警告!! 必须将日历时钟设置为正确日期和时间。</p> <p>P16.12 - 定期测试的持续时间 (单位为分钟)。</p> <p>P16.13 - 定期测试过程中的负载管理: OFF = 不会切换负载。Load = 启用从市电到发电机的负载切换。Dummy load = 切换至假负载, 不切换系统负载。</p> <p>P16.14 - 即使启用了编程设定有外部停止功能的输入, 仍然运行定期测试。</p>				

M17 – MAINTENANCE		度量单位	默认值	范围
(MNTn, n=1...3)				
P17.n.01	检修时间间隔 n	h	OFF	OFF/1-9999
P17.n.02	检修时间间隔 n 计数		Engine hours	Total hrs Engine hrs Load hrs
<p>注意: 该菜单分为 3 个部分, 分别指 3 个独立的检修时间间隔 MNT1...MNT3。</p> <p>P17.n.01 - 定义编程设定的维护周期, 单位为小时。如果设置为 OFF, 将禁用该检修时间间隔。</p> <p>P17.n.02 - 定义如何计算特定维护时间间隔的时间: Total hours = 自上一次检修日期起经过的实际时间。 Engine hours = 发动机的运转时间 (小时)。 Load hours = 发电机提供负载的时间 (小时)。</p>				

M15 – GENERATOR PROTECTION		UdM	Default	Range
P15.01	Max. current alarm limit threshold	%	OFF	100-500/OFF
P15.02	Max. current intervention delay	s	4.0	0.0-60.0
P15.03	Short-circuit alarm limit threshold	%	OFF	100-500/OFF
P15.04	Short-circuit intervention delay	s	0.02	0.00-10.00
P15.05	Protection reset time	s	60	0-5000
P15.06	Protection class		OFF	OFF P1 P2 P3 P4
P15.07	Thermal protection reset time	s	60	0-5000
<p>P15.01 - Percentage threshold with reference to the rated current set for activating the A31Max. generator current alarm.</p> <p>P15.02 - Previous parameter threshold intervention delay.</p> <p>P15.03 - Percentage threshold with reference to the rated current set for activating the A32Generator short-circuit alarm.</p> <p>P15.04 - Previous parameter threshold intervention delay.</p> <p>P15.05 - Time after which the thermal protection alarm can be reset.</p> <p>P15.06 - Selects one of the possible integral thermal protection curves for the generator. The curves can be custom set using the <i>Customisation manager</i> software. If set, this enables displaying the page with the thermal state of the generator.</p> <p>P15.07 - Min. time required for reset after thermal protection tripped.</p> <p>P15.08 - Intervention threshold for <i>Earth fault</i> alarm. If set this enables displaying the corresponding page on the display.</p> <p>P15.09 - Previous parameter threshold intervention delay.</p>				

M16 – AUTOMATIC TEST		UdM	Default	Range
P16.01	Enable automatic TEST		OFF	OFF / ON
P16.02	Time interval between TESTS	dd	7	1-60
P16.03	Enable TEST on Monday		ON	OFF / ON
P16.04	Enable TEST on Tuesday		ON	OFF / ON
P16.05	Enable TEST on Wednesday		ON	OFF / ON
P16.06	Enable TEST on Thursday		ON	OFF / ON
P16.07	Enable TEST on Friday		ON	OFF / ON
P16.08	Enable TEST on Saturday		ON	OFF / ON
P16.09	Enable TEST on Sunday		ON	OFF / ON
P16.10	TEST start time	h	12	00-23
P16.11	TEST start minutes	min	00	00-59
P16.12	TEST duration	min	10	1-600
P16.13	Automatic TEST with load switching		OFF	OFF Load Dummy load
P16.14	Automatic TEST run also with external stop enabled		OFF	OFF/ON
<p>P16.01 - Enable periodic test. This parameter can be changed directly on the front panel without using setup (see chapter Automatic Test) and its current state is shown on the relevant page of the display.</p> <p>P16.02 - Time interval between one periodic test and the next. If the test isn't enabled the day the period expires, the interval will be extended to the next enabled day.</p> <p>P16.03...P16.09 Enables the automatic test in each single day of the week. OFF means the test will not be performed on that day. Warning!! The calendar clock must be set to the right date and time.</p> <p>P16.10 - P16.11 Sets the time (hour and minutes) when the periodic test starts. Warning!! The calendar clock must be set to the right date and time.</p> <p>P16.12 - Duration in minutes of the periodic test</p> <p>P16.13 - Load management during the periodic test: OFF = The load will not be switched. Load = Enables switching the load from the mains to the generator. Dummy load = The dummy load is switched in, and the system load will not be switched.</p> <p>P16.14 - Runs the periodic test even if the input programmed with the External stop function is enabled.</p>				

M17 – MAINTENANCE		UdM	Default	Range
(MNTn, n=1...3)				
P17.n.01	Service interval n	h	OFF	OFF/1-9999
P17.n.02	Service interval n count		Engine hours	Total hrs Engine hrs Load hrs
<p>Note: This menu is divided into 3 sections, which refer to 3 independent service intervals MNT1...MNT3.</p> <p>P17.n.01 - Defines the programmed maintenance period, in hours. If set to OFF, this service interval is disabled.</p> <p>P17.n.02 - Defines how the time should be counted for the specific maintenance interval: Total hours = The actual time that elapsed from the date of the previous service. Engine hours = The operating hours of the engine. Load hours = The hours for which the generator supplied the load.</p>				

M18 – PROGRAMMABLE INPUTS		度量单位	默认值	范围
(INPn, n=1...7)				
P18.n.01	INPn 输入功能		(各不相同)	(请参考输入功能表)
P18.n.02	功能索引 (x)		OFF	OFF / 1...99
P18.n.03	触点类型		NO	NO/NC
P18.n.04	闭合延迟	s	0.05	0.00-600.00
P18.n.05	断开延迟	s	0.05	0.00-600.00
<p>注意：该菜单分为 7 个部分，指的是可由 RGK600 管理的 7 个数字输入 INP1...INP7。当信号的测量源设置为 OFF 时，INP1 至 INP4 的输入是指相应的端子，INP5、INP6 和 INP7 是指 FUEL、TEMP 和 PRESS 端子。例如：如果 P09.01 设置为 OFF，则 TEMP 端子将被用作数字输入 INP6。</p> <p>P18.n.1 - 选择所选输入的功能 (请参考可编程输入功能表)。</p> <p>P18.n.2 - 与在前一个参数中编程设定的功能相关联的索引。例如：如果将输入功能设置为执行 Cxx 命令菜单，并且您希望该输入执行命令菜单中的 C.07 命令，那么应将 P18.n.02 的值设置为 7。</p> <p>P18.n.3 - 选择触点的类型：NO (常开) 或 NC (常闭)。</p> <p>P18.n.4 - 所选输入的触点闭合延迟。</p> <p>P18.n.5 - 所选输入的触点断开延迟。</p>				

M19 – PROGRAMMABLE OUTPUTS		度量单位	默认值	范围
(OUT1...6)				
P19.n.01	输出功能 OUTn		(各不相同)	(请参考输出功能表)
P19.n.02	功能索引 (x)		1	OFF / 1...99
P19.n.03	正常/反向输出		NOR	NOR / REV
<p>注意：该菜单分为 6 个部分，指的是可由 RGK600 管理的 6 个数字输出 OUT1、OUT2、OUT3、OUT4、OUT5 和 OUT6。</p> <p>P19.n.1 - 选择所选输出的功能 (请参考可编程输出功能表)。</p> <p>P19.n.2 - 与在前一个参数中编程设定的功能相关联的索引。例如：如果将输出功能设置为警报 Axx，并且您希望针对警报 A31 使该输出通电，那么应将 P19.n.02 的值设置为 31。</p> <p>P19.n.3 - 设置与输出相关的功能不活动时输出的状态： NOR = 输出失电，REV = 输出通电。</p>				

M20 – COMMUNICATION		度量单位	默认值	范围
P20.01	节点串行地址		01	01-255
P20.02	串行速度	bps	9600	1200 2400 4800 9600 19200 38400 57600 115200
P20.03	数据格式		8位 - n	8位，无奇偶校验 8位，奇位，偶 7位，奇 7位，偶
P20.04	停止位		1	1-2
P20.05	协议		(各不相同)	Modbus RTU Modbus ASCII Propr. ASCII
<p>前面板上的IR通信端口拥有固定的通信参数，因此不需要设置菜单。</p> <p>P20.n.01 - 通讯协议的串行 (节点) 地址。</p> <p>P20.n.02 - 通讯端口传输速度。</p> <p>P20.n.03 - 数据格式。7位设置只可用于 ASCII 协议。</p> <p>P20.n.04 - 停止位数。</p> <p>P20.n.05 - 选择通讯协议。</p>				

M21 – CAN BUS		度量单位	默认值	范围
P21.01	发动机 ECU 类型		OFF	OFF GENERIC J1939 VOLVO EDC VOLVO EMS VOLVO EMS2 SCANIA S6 DEUTZ EMR2 PERKINS 2800 JOHN DEERE IVECO NEF IVECO CURSOR
P21.02	ECU 工作模式		M	M M+E M+E+T

M18 – PROGRAMMABLE INPUTS		UdM	Default	Range
(INPn, n=1...7)				
P18.n.01	INPn input function		(various)	(see Input functions table)
P18.n.02	Function index (x)		OFF	OFF / 1...99
P18.n.03	Contact type		NO	NO/NC
P18.n.04	Closing delay	s	0.05	0.00-600.00
P18.n.05	Opening delay	s	0.05	0.00-600.00
<p>Note: This menu is divided into 7 sections that refer to 7 possible digital inputs INP1...INP7, which can be managed by the RGK600. Inputs from INP1 to INP4 refers to the relevant terminals, while INP5, INP6 and INP7 are referred to terminals FUEL, TEMP and PRESS when the measure source of this signals is set to OFF. Example: if P09.01 is set to OFF, terminal TEMP will be used as digital input INP6.</p> <p>P18.n.1 - Selects the functions of the selected input (see programmable inputs functions table).</p> <p>P18.n.2 - Index associated with the function programmed in the previous parameter. Example: If the input function is set to Cxx commands menu execution, and you want this input to perform command C.07 in the commands menu, P18.n.02 should be set to value 7.</p> <p>P18.n.3 - Select type of contact: NO (Normally Open) or NC (Normally Closed).</p> <p>P18.n.4 - Contact closing delay for selected input.</p> <p>P18.n.5 - Contact opening delay for selected input.</p>				

M19 – PROGRAMMABLE OUTPUTS		UdM	Default	Range
(OUT1...6)				
P19.n.01	Output function OUTn		(various)	(see Output functions table)
P19.n.02	Function index (x)		1	OFF / 1...99
P19.n.03	Normal/reverse output		NOR	NOR / REV
<p>Note: This menu is divided into 6 sections that refer to 6 possible digital outputs OUT1, OUT2, OUT3, OUT4, OUT5 and OUT6, which can be managed by the RGK600.</p> <p>P19.n.1 - Selects the functions of the selected output (see programmable outputs functions table).</p> <p>P19.n.2 - Index associated with the function programmed in the previous parameter. Example: If the output function is set to Alarm Axx, and you want this output to be energized for alarm A31, then P19.n.02 should be set to value 31.</p> <p>P19.n.3 - Sets the state of the output when the function associated with the same is inactive: NOR = output de-energized, REV = output energized.</p>				

M20 – COMMUNICATION		UdM	Default	Range
P20.01	Node serial address		01	01-255
P20.02	Serial speed	bps	9600	1200 2400 4800 9600 19200 38400 57600 115200
P20.03	Data format		8 bit - n	8 bit, no parity 8 bit, odd bit, even 7 bit, odd 7 bit, even
P20.04	Stop bits		1	1-2
P20.05	Protocol		(various)	Modbus RTU Modbus ASCII Propr. ASCII
<p>The front IR communication port has fixed communication parameters, so no setup menu is required.</p> <p>P20.n.01 - Serial (node) address of the communication protocol.</p> <p>P20.n.02 - Communication port transmission speed.</p> <p>P20.n.03 - Data format. 7 bit settings can only be used for ASCII protocol.</p> <p>P20.n.04 - Stop bit number.</p> <p>P20.n.05 - Select communication protocol.</p>				

M21 – CAN BUS		UdM	Default	Range
P21.01	Engine ECU type		OFF	OFF GENERIC J1939 VOLVO EDC VOLVO EMS VOLVO EMS2 SCANIA S6 DEUTZ EMR2 PERKINS 2800 JOHN DEERE IVECO NEF IVECO CURSOR
P21.02	ECU operating mode		M	M M+E M+E+T M+E+T+C
P21.03	ECU power input		ON	OFF-1...600-ON
P21.04	CAN alarms redirect		OFF	OFF-ON
<p>P21.01 - Selects the type of engine ECU. If the ECU you wish to use can't be found in the list of possible choices, select <i>Generic J1939</i>. In this case, the RGK600 only analyses</p>				

				M+E+T+C
P21.03	ECU 电源输入		ON	OFF-1...600-ON
P21.04	CAN 警报重定向		OFF	OFF-ON

P21.01 - 选择发动机 ECU 的类型。如果在可用选择列表找不到您想使用的 ECU，请选择 *Generic J1939*。在这种情况下，RGK600 仅分析 CAN 上符合 SAE J1939 标准的信息。

P21.02 - CAN 总线上的通信模式。M = 仅为测量。RGK600 仅捕捉发动机 ECU 发送至 CAN 的测量值（压力、温度等）。M+E - 除了测量值，RGK600 还捕捉和显示 ECU 的诊断和警报消息。M+E+T - 同上，此外 RGK600 也会向 CAN 总线发送用于重置诊断等的命令。M+E+T+C = 同上，此外发动机启动/停止命令也通过 CAN 总线管理。

P21.03 - 电磁阀失电后，编程设定有 ECU 加电功能的输出完成 ECU 加电延长的时间。这也是按下前面板键盘上的键后，ECU 通电以读取其发送的测量值的时间。

P21.04 - 某些主要警报由 CAN 消息而不是以传统方式生成。OFF = 以标准方式管理警报（油量、温度等）。ECU 诊断报告将显示在 CAN 诊断页面上。通常，所有 CAN 警报还会生成累积的 **黄灯**（预警报）或 **红灯**（严重警报），可通过其属性进行管理。ON = 与警报表直接对应的 CAN 诊断消息也会生成此警报，并激活黄灯和红灯。请参考“警报”章节了解可重定向的警报列表。

messages on the CAN that meet SAE J1939 standards.

P21.02- Communication mode on CAN bus. M = Measurements only. The RGK600 only captures the measurements (pressures, temperatures, etc.) sent to the CAN by the engine ECU. M+E - As well as the measurements, the RGK600 captures and displays the diagnostic and alarm messages of the ECU. M+E+T - As above, but the RGK600 also sends the commands for resetting diagnostics, etc. to the CAN bus. M+E+T+C = As above, but engine start/stop commands are also managed via CAN bus.

P21.03 - ECU power extension time through the output programmed with the function ECU Power, after the solenoid valve has been de-energized. This is also the time for which the ECU is powered after the keys have been pressed on the front keyboard, to read the measurements sent by the same.

P21.04 - Some of the main alarms are generated by a CAN message, instead of in the traditional way. OFF = The alarms (oil, temperature, etc.) are managed in the standard way. The ECU diagnostic reports are displayed on the page CAN Diagnostics. Usually all the CAN alarms also generate the cumulative Yellow lamp (prealarm) or Red lamp (critical alarm), which can be managed with their properties. ON = CAN diagnostics messages with a direct correspondence in the alarms table also generate this alarm, as well as activating the yellow and red lamp. See the alarms chapter for the list of redirectable alarms.

M22 - LOAD MANAGEMENT	度量单位	默认值	范围
P22.01 根据电源阈值 (kW) 启动		OFF	OFF-ON
P22.02 发电机启动阈值	kW	0	0-9999
P22.03 启动阈值延迟	s	0	0-9999
P22.04 停止阈值	kW	0	0-9999
P22.05 停止阈值延迟	s	0	0-9999
P22.06 假负载管理 (假负载)		OFF	OFF 1 STEP 2 STEP 3 STEP 4 STEP
P22.07 假负载步级接入阈值	kW	0	0-9999
P22.08 假负载接入延迟	s	0	0-9999
P22.09 假负载步级断开阈值	kW	0	0-9999
P22.10 假负载断开延迟	s	0	0-9999
P22.11 假负载开启时间	分	0	0-600
P22.12 假负载关闭时间	分	0	0-600
P22.13 无优先级负载接入/断开管理 (分区切断负载)		OFF	OFF 1 STEP 2 STEP 3 STEP 4 STEP
P22.14 分区切断负载步级接入阈值	kW	0	0-9999
P22.15 分区切断负载接入延迟	s	0	0-9999
P22.16 分区切断负载步级断开阈值	kW	0	0-9999
P22.17 分区切断负载断开延迟	s	0	0-9999
P22.18 最大千瓦警报阈值	%	OFF	OFF/5-250
P22.19 最大千瓦警报延迟	s	0	0-9999

P22.01...P22.05 - 用于在负载超出市电支路上测量的阈值（单位为 kW）时启动发电机，通常是为了防止超出使用发电机提供负载的电力供应商设置的最大限制。当负载降至 P22.04 以下时，发电机停止，负载切换回市电。

P22.06 - 启用假负载管理，设置其步级数。当发电机负载过低时，将根据增量逻辑设置的最大步级数接入假负载。

P22.07...P22.10 - 接入或断开假负载步级的阈值和延迟。

P22.11...P22.12 - 如果启用，假负载将按这些参数定义的时间间隔周期性地接入和断开。

P22.13 - 启用定义要断开的负载区数的无优先级负载接入和断开管理（分区切断负载）。当发电机上的负载过低时，将接入无优先级负载。而当负载过高时，无优先级负载将根据增量逻辑分区断开。

P22.14...P22.17 - 断开或接入无优先级负载区的阈值和延迟。

P22.18...P22.19 - 生成警报 A35 “发电机功率超过阈值”的阈值和延迟。

M22 - LOAD MANAGEMENT	UdM	Default	Range
P22.01 Start-up on power threshold kW		OFF	OFF-ON
P22.02 Generator start-up threshold	kW	0	0-9999
P22.03 Start-up threshold delay	s	0	0-9999
P22.04 Stop threshold	kW	0	0-9999
P22.05 Stop threshold delay	s	0	0-9999
P22.06 Dummy load management (dummy load)		OFF	OFF 1 STEP 2 STEP 3 STEP 4 STEP
P22.07 Dummy load step switch-in threshold	kW	0	0-9999
P22.08 Dummy load switch-in delay	s	0	0-9999
P22.09 Dummy load step switch-out threshold	kW	0	0-9999
P22.10 Dummy load switch-out delay	s	0	0-9999
P22.11 Dummy load ON time	min	0	0-600
P22.12 Dummy load OFF time	min	0	0-600
P22.13 Non-priority loads switch in/out management (load shedding)		OFF	OFF 1 STEP 2 STEP 3 STEP 4 STEP
P22.14 Load shedding step switch-in threshold	kW	0	0-9999
P22.15 Load shedding switch-in delay	s	0	0-9999
P22.16 Load shedding step switch-out threshold	kW	0	0-9999
P22.17 Load shedding switch-out delay	s	0	0-9999
P22.18 Max. kW alarm threshold	%	OFF	OFF/5-250
P22.19 Max. kW alarm delay	s	0	0-9999

P22.01...P22.05 - Used to start the generator when the load exceeds a threshold in kW measured on a branch of the mains, normally to prevent exceeding the maximum limit set by the energy provider supplying the load with the generator. When the load drops to below P22.04, the generator is stopped and the load is switched back to the mains.

P22.06 - Enable dummy load management, setting the number of steps for the same. When the generator load is too low, dummy loads are switched in for the maximum number of steps set on the basis of incremental logic.

P22.07...P22.10 - Thresholds and delays for switching-in or switching-out a dummy load step.

P22.11...P22.12 - If enabled, the dummy load will be switched in and out cyclically at the time intervals defined by these parameters.

P22.13 - Enable non-priority load switch in and out (load shedding) defining the number of load sections to disconnect. When the load on the generator is low enough, non priority loads are switched in. Otherwise when it is too high, non-priority loads are disconnected in various sections, on the basis of incremental logic.

P22.14...P22.17 - Thresholds and delays for switching-out or switching-in a non-priority load section.

P22.18...P22.19 - Thresholds and delays for generating the alarm A35 Generator kW threshold exceeded.

M23 - MISCELLANEOUS	度量单位	默认值	范围
P23.01 租用小时数预充电	h	OFF	OFF/1-99999
P23.02 租用小时数计算方法		Engine hours	Total hrs Engine hrs Load hrs
P23.03 启用紧急输入		ON	OFF/ON
P23.04 远程警报模式		OFF	OFF OUT CAN
P23.05 EJP 功能模式		Normal	Normal EJP EJP-T

M23 - MISCELLANEOUS	UdM	Default	Range
P23.01 Rent hours pre-charge	h	OFF	OFF/1-99999
P23.02 Rent hours calculation method		Engine hours	Total hrs Engine hrs Load hrs
P23.03 Enable emergency input		ON	OFF/ON
P23.04 Remote alarms mode		OFF	OFF OUT CAN
P23.05 EJP function mode		Normal	Normal EJP EJP-T SCR

				SCR
P23.06	EJP 启动延迟	分	25	0-240
P23.07	EJP 切换延迟	分	5	0-240
P23.08	ELP 再次切换阻止		ON	OFF/ON
P23.09	根据市电馈电警报启动		OFF	OFF/ON
P23.10	工作模式输出		OFF	OFF R S S-R ...

P23.01 - 根据命令 C14“再充电租用小时数”，计数器中用于预充电的租用小时数。

P23.02 - 租用小时数计数器计数模式。当该计数器达到零时，将生成警报 A48“租用小时数过期”。**Total hours** = 根据过期的实际时间减少计数。
Engine hours = 发动机的运转时间（小时）。
Load hours = 提供负载的小时数。

P23.03 - 启用并入 +COM1（即输出 OUT1 和 OUT2 的共同正极，默认功能：启动电磁阀和为其加注燃油）端子中的紧急输入。
ON= 当 +COM1 从电池的端子断开时，将自动生成警报 A23“紧急停机”。**OFF**= 当 +COM1 从电池端子断开时，不生成警报。

P23.04 - RGK600 和 RGKRR 继电器远程装置间的连接类型。
OFF= 禁用通信。**OUT**= 通过为远程警报功能设置的、连接到 RGKRR 数字输入的可编程输出进行通信。**CAN**= RGK600 和 RGKRR 通过 CAN 接口通信。除非有针对特定 ECU 的其他指示，否则通常可以在同一 CAN 线路上同时与 RGKRR 和发动机 ECU 通信。请参考 RGKRR 手册了解更多详细信息。

P23.05 - **Normal**= AUT 模式下的标准工作方式。**EJP**= 使用 2 个可编程输入，为 EJP 设置远程启动和远程切换功能。当启动输入端闭合，且启用发动机启动延迟 (P23.09) 时，延迟过后将运行启动周期。之后，当收到远程切换许可时，如果发动机正常启动，负载将从市电切换为发电机。通过打开远程切换许可，负载将恢复为市电，当启动输入打开时，发电机组将运行停止周期。EJP 功能只能在系统处于自动模式时启用。断路器和警报功能与往常一样。**EJP-T**= EJP/T 是之前的 EJP 的简化功能，使用该功能的情况下，发动机启动的控制方法相同，但负载的切换是由计时器而非外部信号进行控制。因此，该功能仅使用一种数字输入，即启动输入。切换延迟从启动命令关闭时启动，可使用参数 P23.10 切换延迟进行设置。
SCR=SCR 功能与 EJP 功能非常相似。在该模式下，启动输入启用发电机组的方法与 EJP 相同，但不等待 P23.09 延迟。远程切换输入在 P23.10 切换延迟后仍然具有切换许可功能。

P23.06 - 发电机 EJP 启动信号关闭和启动周期开始之间的延迟。

P23.07 - 在 EJP 和 SCR 模式下负载从市电切换到发电机的延迟。

P23.08 - 如果设置为 ON，在 EJP 和 EJP-T 模式下，当发电机发生故障时负载将不会切换回市电，而仅在 EJP 输入信号授予许可时切换。

P23.09 - 如果设置为 On，当市电开关发生故障而不阻止关闭和之后生成警报 A41“市电接触器异常”时，发动机将启动，且负载切换至发电机。

P23.10 - 定义在何种工作模式下启用编程设定了工作模式功能的输出。例如，如果将该参数编程为 R+S，工作模式输出将在 RGK600 处于 RESET/STOP 或 START 模式时启用。

M24 - LIMIT THRESHOLDS (LIMn, n = 1...4)	度量单位	默认值	范围
P24.n.01 基准测量		OFF	OFF- (测量列表) CNTx
P24.n.02 基准测量源		OFF	OFF MAINS GEN
P24.n.03 信道编号 (x)		1	1..99
P24.n.04 函数		Max	Max Min Min+Max
P24.n.05 上限阈值		0	-9999 - +9999
P24.n.06 乘数		x1	/100 - x10k
P24.n.07 延迟	s	0	0.0 - 600.0
P24.n.08 下限阈值		0	-9999 - +9999
P24.n.09 乘数		x1	/100 - x10k
P24.n.10 延迟	s	0	0.0 - 600.0
P24.n.11 闲置状态		OFF	OFF-ON
P24.n.12 内存		OFF	OFF-ON

注意：该菜单分为 4 个部分，即极限阈值 LIM1..4

P24.n.01 - 定义对哪些 RGK600 测量值应用极限阈值。

P24.n.02 - 如果基准测量是电气测量，则该参数定义其是否为发电机。

P24.n.03 - 如果基准测量是内部多信道测量，则定义为信道。

P24.n.04 - 定义极限阈值的工作模式。**Max** = 当测量值大于 P24.n.03 时，启用 LIMn。P24.n.06 是重置阈值。**Min** = 当测量值小于 P24.n.06 时，

P23.06	EJP starting delay	min	25	0-240
P23.07	EJP switching delay	min	5	0-240
P23.08	ELP re-switching block		ON	OFF/ON
P23.09	Start on mains feedback alarm		OFF	OFF/ON
P23.10	Operating mode output		OFF	OFF R S S-R ...

P23.01 - Number of rent hours to pre-charge in the counter on command C14 Recharge rent hours.

P23.02 - Rent hours counter down count mode. When this counter reaches zero, the A48 Rent hours expired alarm is generated. Total hours = Decreasing count on the basis of the real time expired. Engine hours = The operating hours of the engine. Load hours = Hours supplying load.

P23.03 - Enable emergency input incorporated in terminal +COM1, common positive of outputs OUT1 and OUT2 (default function: Start and fuel solenoid valve). ON = When +COM1 is disconnected from the positive terminal of the battery, the A23 Emergency stopalarm is automatically generated. OFF = When +COM1 is disconnected from battery terminal, no alarm is generated.

P23.04 - Type of connection between RGK600 and RGKRR relay remote unit. OFF = Communication disabled. OUT= Communication through programmable output set for Remote alarms function, connected to the digital input of the RGKRR. CAN = The RGK600 and RGKRR communicate through the CAN interface. Unless there are indications to the contrary for a specific ECU, it is usually possible to communicate simultaneously with the RGKRR and the engine ECU on the same CAN line. See RGKRR manual for more details.

P23.05 - Normal = Standard operation in AUT mode. EJP = 2 programmable inputs are used, set with the functions Remote starting and Remote switching for EJP. When the starting input closes the engine start (P23.09) delay is enabled, after which the start cycle runs. Then, when the remote switching go-ahead is received, if the engine started properly, the load will be switched from the mains to the generator. The load is restored to the mains by the remote switching go-ahead opening and the genset runs a stop cycle when the start input opens. The EJP function is only enabled if the system is in automatic mode. The cutouts and alarms function as usual. EJP-T = The EJP/T function is a simplified variation of the previous EJP, and in this case the engine start is controlled in the same way, but a timer switches the load instead of an external signal. This function therefore uses only one digital input, the starting input. The switching delay starts from when the start command closes, and can be set using parameter P23.10 Switching delay.
SCR = The SCR function is very similar to the EJP function. In this mode, the starting input enables genset starting as for EJP, without waiting for delay P23.09. The remote switching input still has a switching go-ahead function after Switching delay P23.10.

P23.06 - Delay between the closing of the generator EJP starting signal and the beginning of the starting cycle.

P23.07 - Delay for switching the load from mains to generator in EJP and SCR mode.

P23.08 - If ON, in EJP and EJP-T mode, the load will not be switched back to the mains in the case of a generator malfunction, but only when the signals on the EJP inputs give a go-ahead.

P23.09 - If On, in the case of a mains switchgear malfunction which doesn't prevent closing and the consequent generation of the alarm A41 Mains contactor anomaly, the engine is started and the load switched to the generator.

P23.10 - Defines in which operating mode the programmed output with the Operating mode function is enabled. For example, if this parameter is programmed for R+S, the Operating mode output will be enabled when the RGK600 is in RESET/STOP or START mode.

M24 - LIMIT THRESHOLDS (LIMn, n = 1...4)	UdM	Default	Range
P24.n.01 Reference measurement		OFF	OFF- (List measure) CNTx
P24.n.02 Reference measurement source		OFF	OFF MAINS GEN
P24.n.03 Channel no. (x)		1	1..99
P24.n.04 Function		Max	Max Min Min+Max
P24.n.05 Upper threshold		0	-9999 - +9999
P24.n.06 Multiplier		x1	/100 - x10k
P24.n.07 Delay	s	0	0.0 - 600.0
P24.n.08 Lower threshold		0	-9999 - +9999
P24.n.09 Multiplier		x1	/100 - x10k
P24.n.10 Delay	s	0	0.0 - 600.0
P24.n.11 Idle state		OFF	OFF-ON
P24.n.12 Memory		OFF	OFF-ON

Note: this menu is divided into 4 sections for the limit thresholds LIM1..4

P24.n.01 - Defines to which RGK600 measurements the limit threshold applies.

P24.n.02 - If the reference measurement is an electrical measurement, this defines if it refers to the generator.

P24.n.03 - If the reference measurement is an internal multichannel measurement, the channel is defined.

P24.n.04 - Defines the operating mode of the limit threshold. Max = LIMn enabled when the measurement exceeds P24.n.03. P24.n.06 is the reset threshold. Min = LIMn enabled when the measurement is less than P24.n.06. P24.n.03 is the reset threshold. Min+Max = LIMn enabled when the measurement is greater than P24.n.03 or less than P24.n.06.

启用 LIMn。P24.n.03 是重置阈值。Min+Max= 当测量值大于 P24.n.03 或小于 P24.n.06 时，启用 LIMn。
P24.n.05和P24.n.06 - 定义 P24.n.03 与 P24.n.04 相乘得出的上限阈值。
P24.n.07 - 上限阈值干预延迟。
P24.n.08、P08.n.09、P08.n.10 - 下限阈值的相关参数。
P24.n.11 - 转换限制 LIMn 的状态。
P24.n.12 - 定义是否将阈值保留在内存中，以及是通过命令菜单手动重置 (ON) 还是自动重置 (OFF)。

M25 – COUNTERS		度量单位	默认值	范围
(CNTn, n = 1...2)				
P25.n.01	计数源		OFF	OFF ON INPx OUTx LIMx REMX RALx
P25.n.02	信道编号 (x)		1	1-99
P25.n.03	乘数		1	1-1000
P25.n.04	除数		1	1-1000
P25.n.05	计数器描述		CNTn	(文本 - 16 个字符)
P25.n.06	26度量单位		UMn	(文本 - 6 个字符)
P25.n.07	重置源		OFF	OFF-ON-INPx-OUTx- LIMx-REMX- -RALx
P25.n.08	信道编号 (x)		1	OFF/1-99

注意：该菜单分为 2 个部分，即计数器 CNT1..2。
P25.n.01 - 增加计数 (输出侧) 的信号。这可能是 RGK600 启动 (ON)、超出阈值 (LIMx)、启用外部输入 (INPx)，或因为逻辑条件等。
P25.n.02 - 与上一个参数相关的信道编号 x。
P25.n.03 - 乘数 K。计数的脉冲在显示前会乘以该值。
P25.n.04 - 除数 K。计数的脉冲在显示前会除以该值。如果是 1 以外的值，计数器显示时会保留 2 位小数。
P25.n.05 - 计数器说明。16 字符自由文本。
P25.n.06 - 计数器度量单位。6 字符自由文本。
P25.n.07 - 重置计数的信号。只要启用该信号，计数就会保持为零。
P25.n.08 - 与上一个参数相关的信道编号 x。

M27 – REMOTE ALARM / STATUS		度量单位	默认值	范围
(RALn, n = 1...24)				
P27.n.01	输出功能 RALn		(各不相同)	(请参考输出功能表)
P27.n.02	功能索引 (x)		1	OFF / 1...99
P27.n.03	正常/反向输出		NOR	NOR / REV

注意：该菜单分为 24 个部分，即状态/警报远程变量 RAL1...RAL24，适用于 RGKRR 外部装置。
P27.n.01 - 选择远程输出功能 RALn。远程输出 (通过 RGKRR 远程装置中继) 具有与本地输出相同的功能，包括工作状态、警报等。
P27.n.02 - 与在第一个参数中编程设定的功能相关联的索引。
 例如：如果将远程输出功能设置为警报 Axx，并且您希望针对警报 A31 使该输出通电，那么应将 P27.n.02 的值设置为 31。
P27.n.03 - 设置与输出相关的功能不活动时输出的状态：
 NOR= 输出失电，REV = 输出通电。

M32 – USER ALARMS		度量单位	默认值	范围
(UAN, n=1...4)				
P32.n.01	警报源		OFF	OFF INPx OUTx LIMx REMX RALx
P32.n.02	信道编号 (x)		1	1-8
P32.n.03	文本		Uan	(文本 - 20 个字符)

注意：该菜单分为 4 个部分，即用户警报 UA1...UA4。
P32.n.01 - 定义生成用户警报的数字输入或内部变量 (激活时)。
P32.n.02 - 与上一个参数相关的信道编号 x。
P32.n.03 - 显示在警报窗口中的自由文本。
 应用举例：用户警报 UA3 必须由输入端 INP5 闭合生成，并且必须显示消息 "Panels open" (面板打开)。
 在这种情况下，需要设置菜单的第 3 部分 (警报 UA3)：
 P32.3.01 = INPx
 P32.3.02 = 5
 P32.3.03 = 'Panels open'

P24.n.05 和 P24.n.06 - Define the upper threshold, obtained by multiplying value P24.n.03 by P24.n.04.
 P24.n.07 - Upper threshold intervention delay.
 P24.n.08, P08.n.09, P08.n.10 - As above, with reference to the lower threshold.
 P24.n.11 - Inverts the state of limit LIMn.
 P24.n.12 - Defines whether the threshold remains memorized and is reset manually through command menu (ON) or if it is reset automatically (OFF).

M25 – COUNTERS		UdM	Default	Range
(CNTn, n = 1...2)				
P25.n.01	Count source		OFF	OFF ON INPx OUTx LIMx REMX RALx
P25.n.02	Channel number (x)		1	1-99
P25.n.03	Multiplier		1	1-1000
P25.n.04	Divisor		1	1-1000
P25.n.05	Description of the counter		CNTn	(Text - 16 characters)
P25.n.06	26AN bus measurement		Umn	(Text - 6 characters)
P25.n.07	Reset source		OFF	OFF-ON-INPx- OUTx-LIMx- REMX- -RALx
P25.n.08	Channel number (x)		1	OFF/1-99

Note: this menu is divided into 2 sections for counters CNT1..2
P25.n.01 - Signal that increments the count (on the output side). This may be the start-up of the RGK600 (ON), when a threshold is exceeded (LIMx), an external input is enabled (INPx), or for a logic condition (PLCx), etc.
P25.n.02 - Channel number x with reference to the previous parameter.
P25.n.03 - Multiplier K. The counted pulses are multiplied by this value before being displayed.
P25.n.04 - Divisional K. The counted pulses are divided by this value before being displayed. If other than 1, the counter is displayed with 2 decimal points.
P25.n.05 - Counter description. 16-character free text.
P25.n.06 - Counter unit of measurement. 6-character free text.
P25.n.07 - Signal that resets the count. As long as this signal is enabled, the count remains zero.
P25.n.08 - Channel number x with reference to the previous parameter.

M27 – REMOTE ALARM / STATUS		UdM	Default	Range
(RALn, n = 1...24)				
P27.n.01	Output function RALn		(various)	(See Output functions table)
P27.n.02	Function index (x)		1	OFF / 1...99
P27.n.03	Normal/reverse output		NOR	NOR / REV

Note: this menu is divided into 24 sections for the state/alerts remote variables RAL1...RAL24, available with the RGKRR external unit.
P27.n.01 - Selects the remote output function RALn. The remote outputs (relay from RGKRR remote unit) can have the same functions as local outputs, including operating states, alarms, etc.
P27.n.02 - Index associated with the function programmed in the previous parameter.
 Example: If the remote output function is set to Alarm Axx, and you want this output to be energized for alarm A31, then P27.n.02 should be set to value 31.
P27.n.03 - Sets the state of the output when the function associated with the same is inactive:
 NOR = output de-energized, REV = output energized.

M32 – USER ALARMS		UdM	Default	Range
(UAN, n=1...4)				
P32.n.01	Alarm source		OFF	OFF INPx OUTx LIMx REMX RALx
P32.n.02	Channel number (x)		1	1-8
P32.n.03	Text		Uan	(text - 20 char)

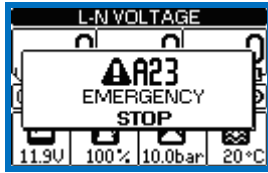
Note: this menu is divided into 4 sections for user alarms UA1...UA4.
P32.n.01 - Defines the digital input or internal variable that generates the user alarm when it is activated.
P32.n.02 - Channel number x with reference to the previous parameter.
P32.n.03 - Free text that appears in the alarm window.
 Example of application: User alarm UA3 must be generated by the closing of input INP5, and must display the message 'Panels open'.
 In this case, set the section of menu 3 (for alarm UA3):
 P32.3.01 = INPx
 P32.3.02 = 5
 P32.3.03 = 'Panels open'

警报

Alarms

- When an alarm is generated, the display will show an alarm icon, the code

- 当警报生成时，显示屏将以所选语言显示警报图标、警报代码和说明。



- 如果按下页面中的导航键，显示警报指示的弹出窗口将暂时消失，几秒后再次显示。
- 警报激活后，前面板上警报图标旁边的红色 LED 将闪烁。显示屏上会持续显示一个闪烁图标，代表警报的类型。
- 如启用警报，本地和远程警报蜂鸣器将激活。
- 要重置警报，可按下 **RESET** 键。
- 切换至 **STOP/RESET** 模式，可防止重置警报后发动机意外启动。
- 如果无法重置警报，则仍须解决导致警报生成的问题。
- 在存在一个或多个警报的情况下，RGK6.. 的行为取决于活动警报的“属性”设置。

警报属性

可以为每个警报分配各种属性，包括用户警报（*用户警报*，Uax）：

- 启用警报** - 警报的一般启用。如果不启用该警报，则可以将其视为不存在。
- 保留警报** - 即使已消除警报原因，也会保存该警报。
- 全局警报** - 激活分配给此功能的输出。
- 机械故障** - 激活分配给此功能的输出。
- 电气故障** - 激活分配给此功能的输出。
- 警笛** - 按照声音警报菜单的配置，激活分配给此功能的输出。
- 发动机停机** - 发动机停止运转。
- 发动机冷却** - 根据冷却模式的编程设定（持续时间和条件），在冷却循环结束后关闭发动机。
- 发动机运行时激活** - 只有在发动机运行时并且警报激活时间过后，才能生成警报。
- 禁止** - 通过激活可以编程设定“禁止警报”功能的输入，可以临时禁用该警报。
- 无 LCD** - 警报可以正常管理，但是无法在显示屏上显示。

警报表

代码	说明													
		启用	保留	全局警报	机械故障	电气故障	警笛	发动机停机	冷却	马达运行	禁用	无 LCD		
A01	发动机温度警告 (模拟传感器)			•			•				•			
A02	发动机温度高 (模拟传感器)		•	•	•		•	•			•			
A03	模拟温度传感器故障		•	•	•		•				•			
A04	发动机温度高 (数字传感器)	•	•	•	•		•	•			•			
A05	发动机温度低 (模拟传感器)			•			•							
A06	油压预警 (模拟传感器)			•			•				•			
A07	油压低 (模拟传感器)		•	•	•		•	•			•			
A08	模拟压力传感器故障		•	•	•		•							
A09	油压低 (数字传感器)	•	•	•	•		•	•			•			
A10	数字压力传感器故障	•	•	•	•		•							
A11	燃油油位预警 (模拟传感器)			•			•							

and the description of the alarm in the language selected.



- If the navigation keys in the pages are pressed, the pop-up window showing the alarm indications will disappear momentarily, to reappear again after a few seconds.
- The red LED near the alarm icon on the front panel will flash when an alarm is active. In the area of synoptic on the display remains a flashing icon that represents the type of the alarm.
- If enabled, the local and remote alarm buzzers will be activated.
- Alarms can be reset by pressing the key **RESET**.
- Switching to **STOP/RESET** mode prevents unexpected engine starting after resetting the alarm.
- If the alarm cannot be reset, the problem that generated the alarm must still be solved.
- In the case of one or more alarms, the behaviour of the RGK6.. depends on the *properties* settings of the active alarms.

Alarm properties

Various properties can be assigned to each alarm, including user alarms (*User Alarms*, Uax):

- Alarm enabled** – General enabling of the alarm. If the alarm isn't enabled, it's as if it doesn't exist.
- Retained alarm** – Remains in the memory even if the cause of the alarm has been eliminated.
- Global alarm** – Activates the output assigned to this function.
- Mechanical fault** – Activates the output assigned to this function.
- Electrical fault** – Activates the output assigned to this function.
- Siren** – Activates the output assigned to this function, as configured in the acoustic Alarms menu.
- Engine stop** – Stops the engine.
- Engine cooling** – Stops the engine after a cooling cycle, depending on the cooling mode programming (duration and conditions).
- Active with engine running** – The alarm is only generated when the engine is running and the alarms activation time has elapsed.
- Inhibition** – The alarm can be temporarily disabled by activating an input that can be programmed with the Inhibit alarms function.
- No LCD** – The alarm is managed normally, but not shown on the display.

Alarm table

COD	DESCRIPTION													
		Enabled	Retained	Glob. Al.	M. Fault	E. Fault	Siren	Engine	Cooling	Motor	Inhibit.	No LCD		
A01	Engine temperature warning (analog sensor)			•			•				•			
A02	High engine temperature (analog sensor)		•	•	•		•	•			•			
A03	Analog temperature sensor fault		•	•	•		•				•			
A04	High engine temperature (digital sensor)	•	•	•	•		•	•			•			
A05	Low engine temperature (analog sensor)			•			•							
A06	Oil pressure prealarm (analog sensor)			•			•				•			
A07	Low oil pressure (analog sensor)		•	•	•		•	•			•			
A08	Analog pressure sensor fault		•	•	•		•							
A09	Low oil pressure (digital sensor)	•	•	•	•		•	•			•			
A10	Digital pressure sensor fault	•	•	•	•		•							
A11	Fuel level prealarm (analog sensor)			•			•							
A12	Fuel level low (analog sensor)			•			•							

A24	意外停机	如果在警报激活时间过后发动机未被系统关闭而自行关闭,则生成该警报。
A25	无法停机	如果发动机在开始停止相位之后的 65 秒内无法停机,则生成该警报。
A26	发电机频率低	如果发动机正在运行但是发电机频率在 P14.12 中设置的时限内低于 P14.11,则生成该警报。
A27	发电机频率高	如果发电机频率在 P14.10 中设置的时限内高于 P14.09,则生成该警报。
A28	发电机电压低	如果发动机正在运行但是发电机电压在 P14.14 中设置的时限内低于 P14.01,则生成该警报。
A29	发电机电压高	如果发电机电压在 P14.15 中设置的时限内高于 P14.13,则生成该警报。
A30	发电机电压不对称	如果发电机电压不平衡度超过 P14.07 且持续时间达到 P14.08 中设定的时限,则生成该警报。
A31	发电机最大电流	发电机电流在 P15.02 中设置的延迟时间内超过 P15.01 中设置的阈值百分比。生成该警报时,必须在 P15.05 中设定的时间之后才能进行重置。
A32	发电机短路	发电机电流在 P15.04 中设置的延迟时间内超过 P15.03 中设置的阈值百分比。
A33	发电机过载	由于超过选定的电流百分比和防护曲线导致电子断路器跳闸。生成该警报时,必须在 P15.07 中设置的时间之后才能进行重置。
A34	发电机外部保护干预	在已编程的情况下,如果在发电机组运行时发电机热熔断断路器的数字输入触点闭合,则生成该警报。
A35	发电机功率超过阈值	发电机有功功率在 P22.19 中设定延迟时间内超过 P22.18 中设置的阈值百分比。
A37	发电机相序错误	发电机相序与编程相序不符。
A38	市电相序错误	市电相序与编程相序不符。
A39	系统频率设置错误	系统频率与设定的额定频率不符时生成的警报。
A40	发电机接触器异常	设定时间过后,检测到命令输出的状态与发电机接触器/断路器馈电输入之间存在偏差时生成的警报。
A41	市电接触器异常	设定时间过后,检测到命令输出的状态与市电接触器/断路器馈电输入之间存在偏差时生成的警报。
A42	维护请求 1	相关维护间隔的维护时间达到零时生成的警报。参见菜单 M17。使用命令菜单重置工作小时和该警报。
A43	维护请求 2	
A44	维护请求 3	
A45	系统错误	RGK600 内部错误。请参阅“系统错误”章节,寻找可能的解决方案。
A46	储罐太空	相关可编程输入端发送信号通知“储罐太空”(默认主动打开)。燃油加注泵停机。
A47	储罐太满	相关可编程输入端发送信号通知“储罐太满”(默认主动关闭)。燃油加注泵停机。
A48	租用小时数过期	租用小时数为零时生成的警报。使用命令菜单重置租用小时数和该警报。
A49	散热器冷却剂液位低	冷却剂液位低于最低液位时生成的警报。该警报由数字输入或 CAN 诊断消息生成。
A50	手动断路器闭合	检测到设定有“断路器状态警报”功能的输入端处于禁用状态时生成的警报。
A51	手动断路器断开	检测到设定有“断路器状态警报”功能的输入端处于启用状态时生成的警报。
A52	电池充电器警报	市电电压在限值范围内时,由设定了“电池充电器警报”功能(连接到外部电池充电器)的输入端生成的警报。
A53	CAN 总线红灯警报	发动机 ECU 在 CAN 总线上生成的针对严重异常的全局警报。
A54	CAN 总线黄灯警报	发动机 ECU 在 CAN 总线上生成的针对预警或轻度异常的全局警报。
A55	CAN 总线错误	CAN 总线通信错误。检查线路图并重新连接线缆。
A56	燃油被盗	与发动机最大额定燃油消耗相比,储罐油位下降的平均速度太高。怀疑燃油被盗。
A57	无法更改配置	用于选择 4 种可能配置的数字输入的位置已改变,但是却不具备保证所述更改的条件(例如:发动机处于运行或工作模式而非 OFF 模式)。
A58	燃油含水	触点发出“燃油含水”信号时生成的警报。该警报由数字输入或 CAN 诊断消息生成。

A23	Emergency stopping	This alarm is generated when terminal +COM1 is disconnected (with P23.03 enabled) or by the opening of a digital input programmed with the 'Emergency stop' function'.
A24	Unexpected stop	This alarm is generated when the engine stops on its own after the alarms activation time if it wasn't stopped by the system.
A25	No stop	Alarm generated if the engine still hasn't stopped 65 seconds after the stop phase began.
A26	Low generator frequency	This alarm is generated when the engine is running but the generator frequency is lower than P14.11 for the time set in P14.12.
A27	High generator frequency	This alarm is generated when the generator frequency is higher than P14.09 for the time set in P14.10.
A28	Low generator voltage	This alarm is generated when the engine is running but the generator voltage is lower than P14.01 for the time set in P14.14.
A29	High generator voltage	This alarm is generated when the generator voltage is higher than P14.13 for the time set in P14.15.
A30	Generator voltages asymmetry	Alarm generated when the imbalance between the generator voltages exceeds P14.07 for the time set in P14.08.
A31	Max. generator current	The generator current exceeds the percentage threshold set in P15.01 for the delay set in P15.02. When this alarm is generated, you must wait for the time set in P15.05 before resetting it.
A32	Generator short-circuit	The generator current exceeds the percentage threshold set in P15.03 for the delay set in P15.04.
A33	Generator overload	Electronic cutout tripped because of percentage current and protection curve selected. When this alarm is generated, you must wait for the time set in P15.07 before resetting it.
A34	Generator external protection intervention	If programmed, this alarm is generated when the contact of the digital input of the generator thermal cutout closes, if the genset is running.
A35	Generator kW threshold exceeded	The generator active power exceeds the percentage threshold set in P22.18 for the delay set in P22.19.
A37	Generator phase sequence error	The generator phase sequence doesn't correspond to the programmed sequence.
A38	Mains phase sequence error	The mains phase sequence doesn't correspond to the programmed sequence.
A39	System frequency settings error	Alarm generated when the system frequency doesn't correspond to the set rated frequency.
A40	Generator contactor anomaly	Alarm generated if a discrepancy is detected after the set time between the state of the command output and the generator contactor/circuit breaker feedback input.
A41	Mains contactor anomaly	Alarm generated if a discrepancy is detected after the set time between the state of the command output and the mains contactor/circuit breaker feedback input.
A42	Maintenance request 1	Alarm generated when the maintenance hours of the relevant interval reach zero. See menu M17. Use the commands menu to reset the operating hours and the alarm.
A43	Maintenance request 2	
A44	Maintenance request 3	
A45	System error	RGK600 internal error. See System errors chapter for possible solutions.
A46	Tank too empty	The relevant programmable input signals tank too empty (active open default). Filling pump stopped.
A47	Tank too full	The relevant programmable input signals 'tank too full' (active closed default). Filling pump stopped.
A48	Rent hours expired	Alarm generated when the rent hours reach zero. Use the commands menu to reset the rent hours and the alarm.
A49	Radiator coolant level low	Alarm generated when the coolant level is lower than the min. level. Generated by digital input or CAN diagnostics message.
A50	Manual circuit breaker closed	Alarm generated in MAN mode during the starting phase, when the disabled state of the input programmed with the function <i>Circuit breaker state alarm</i> is detected.
A51	Manual circuit breaker open	Alarm generated in AUT mode during the starting phase, with the engine running, when the enabled state of the input programmed with the function <i>Circuit breaker state alarm</i> is detected.
A52	Battery charger alarm	Alarm generated by the input programmed with the function <i>Battery charger alarm</i> connected to an external battery charger when the mains voltage is within the limits.
A53	CAN bus red lamp alarm	Global alarm generated on the CAN bus by the engine ECU for critical anomalies.
A54	CAN bus yellow lamp alarm	Global alarm generated on the CAN bus by the engine ECU for prealarms or minor anomalies.
A55	CAN bus error	CAN bus communication error. Check wiring diagrams and connecting cables.

A59	燃油加注泵故障	储罐燃油油位在 5 分钟内的上升幅度未达到 1% 或以上时生成的警报。 01 及以上版本的软件可提供此故障信息。
UA1 ... UA4	用户警报	通过启用菜单 M32 中的变量或相关输入生成用户警报。

A56	Fuel theft	The tank level has dropped at too high an average rate compared to the max. nominal engine fuel consumption. Suspected theft of fuel.
A57	Cannot change configuration	The position of the digital inputs for selecting the 4 possible configurations has changed, but there are no conditions that warrant said change (for example: engine running or operating mode other than OFF).
A58	Water in fuel	Alarm generated when the contact signals 'water in fuel'. Generated by digital input or CAN diagnostics message.
A59	Fuel filling pump failure	Alarm generated when the fuel level in the tank does not increase of at least 1% in a time of 5min. Available from SW rev. 01 onward.
UA1 ... UA4	User alarm	The user alarm is generated by enabling the variable or associated input in menu M32.

可编程输入功能表

- 下表列出了可分配给 INPn 可编程数字输入端的所有功能。
- 可以将每个输入设置用于反向功能 (NA - NC)，在独立的设定时间延迟通电或失电。
- 一些功能需要参数 P18.n.02 指定的索引 (x) 所定义的另一个数值参数。
- 请参阅菜单 M18 "Programmable inputs" (可编程输入) 了解更多详细信息。

Programmable inputs function table

- The following table shows all the functions that can be attributed to the INPn programmable digital inputs.
- Each input can be set for an reverse function (NA – NC), delayed energizing or de-energizing at independently set times.
- Some functions require another numeric parameter, defined in the index (x) specified by parameter P18.n.02.
- See menu M18 Programmable inputs for more details.

功能	说明
禁用	禁用输入
可配置	用户配置可自由使用，例如在 PLC 逻辑中使用输入。
油压	发动机油压低数字传感器
发动机温度	发动机最高温度数字传感器
燃油油位	燃油油位低数字传感器
紧急停机	断开时，A23A23。如果使用带内置输入的普通 +COM1，则不需要。
远程停机	在 AUT 模式下远程关闭发动机。
无载远程启动	在 AUT 模式中不向发电机施载的情况下，远程启动发动机。该信号必须在您想让发动机运行的时间段内予以保留。禁用该信号时，发动机开始停机循环。
负载远程启动	在 AUT 模式中向发电机施载的情况下，远程启动发动机。该信号必须在您想让发动机运行的时间段内予以保留。禁用该信号时，发动机开始停机循环。
不停机时远程启动	出现警报时，在不具备停机功能的情况下远程启

Function	Description
Disabled	Disabled input
Configurable	User configuration free To use for example if the input is used in PLC logic.
Oil pressure	Engine oil pressure low digital sensor
Engine temperature	Engine max. temperature digital sensor
Fuel level	Fuel level low digital sensor
Emergency stop	Generates alarm A23 when open. Not required if common +COM1 with built-in input is used.
Remote stop	Stops the engine remotely in AUT mode.
Remote start Off load	Starts the engine remotely without switching the load to the generator in AUT mode. The signal must be maintained for the time you want the engine to run. The engine begins the stop cycle when the signal is disabled.
Remote start On load	Starts the engine remotely, switching the load to the generator in AUT mode. The signal must be maintained for the time you want the engine to run. The engine begins the stop cycle when the signal is disabled.
Remote start without stop	Starts the engine remotely without the stop function in the case of an alarm. The signal must be maintained for the time you want the engine to run. The engine begins the stop cycle when the signal is disabled.

	动发动机。该信号必须在您想让发动机运行的时间段内予以保留。禁用该信号时，发动机开始停机循环。
自动测试	启动由外部计时器控制的定期测试。
发电机热保护	来自外部设备的发电机断路器干预信号。
遥控锁	禁止串行端口写入和命令操作。仍然可以读取数据。
设置锁定	禁止访问参数设置菜单。
外部市电控制	来自外部设备的市电电压控制信号。启用该功能即表示电压在限值范围内。 RGK600SA/601SA 上无此功能。
外部发电机控制	来自外部设备的发电机电压控制信号。启用该功能即表示电压在限值范围内。
启用市电负载	继续将负载连接至市电。 RGK600SA/601SA上无此功能。
启用发电机负载	继续将负载连接至发电机。
远程转换	AUT 模式下启用此功能时，从市电切换至发电机。 RGK600SA/601SA上无此功能。
禁止自动返回到市电。	当其数值在限值范围内时，禁止自动切换到市电。 RGK600SA/601SA上无此功能。
市电开关馈电	用于向 RGK 通知其实际状态（反馈）的市电开关辅助触点。命令输出与A41之间存在偏差时生成警报 A41。 RGK600SA/601SA上无此功能。
发电机开关馈电。	同上，此处所指对象为发电机开关。命令输出与A40之间存在偏差时生成警报 A40。
油箱为空	油箱太空。通过开路触点生成警报A46。 加注泵停机。 可以独立实现启动-停止功能。
开始加注	油箱液位低传感器。通过开路触点启动加注泵。
停止加注	油箱满。通过闭合触点关闭加注泵。
油箱太满	油箱太满。通过闭合触点生成警报A47。 加注泵停机。 可以独立实现启动-停止功能。
键盘锁	禁用前面板键盘功能。
功能块发电机组和键盘	功能块发电机和键盘。
散热器冷却剂液位	启用该输入可生成警报 <i>A49散热器液位低</i> 。
重置警笛	禁用警笛。
断路器状态警报	在手动模式且该输入处于开启状态的情况下，启动被禁止，生成警报 <i>A50断路器闭合</i> 。如果未使用发电机接触器但使用了热磁断路器，则在手动模式下使用此功能。某些负载断开时需要通过此功能启动发电机。在 AUT 模式且该输入端处于闭合状态的情况下，启动被禁止，生成警报 <i>A51断路器断开</i> 。需要通过此功能防止在不必要的情况下启动发电机和消耗燃油。
电池充电器故障	启用该输入时，生成警报 <i>A52外部电池充电器故障</i> 。只有存在市电电压时才能生成该警报。
警报抑制	如果启用此功能，则在激活 <i>禁止警报</i> 属性时禁止生成警报。
警报重置	在触发警报的条件中止时，重置保留的警报。
命令菜单 C(xx)	执行来自于索引参数 (xx) 所定义的命令菜单的命令。
模拟 STOP 键	闭合该输入端等同于按下此键。
模拟 AUTO 键	闭合该输入端等同于按下此键。
模拟 START 键	闭合该输入端等同于按下此键。
燃油被盗	激活时，能生成“燃油被盗”警报，等同于通过模拟油位进行的燃油被盗检测。
禁止自动测试	禁止进行自动测试
LED 测试	让前面板上的所有 LED 灯闪烁（测试灯）
选择配置 (x)	从 4 种可能的配置中选择一种。由索引参数 (x) 定义二进制代码权重。参见 <i>多重配置</i> 章节。
燃油含水	生成警报 <i>A58燃油含水</i>

Automatic test	Starts the periodic test managed by an external timer.
Generator thermal protection	Generator cutout intervention signal from external device.
Remote control lock	Inhibits the serial port writing and command operations. The data can still be read.
Settings lock	Inhibits access to the parameters setup menu.
External MAINS control	Mains voltage control signal from external device. Enabled indicates the voltage is within the limits. Not available on RGK600SA/601SA.
External GEN control	Generator voltage control signal from external device. Enabled indicates the voltage is within the limits.
Enable mains load	Go-ahead for connection of load to mains. Not available on RGK600SA/601SA.
Enable generator load	Go-ahead for connection of load to generator.
Remote changeover	In AUT mode, when enabled this switches from mains to generator. Not available on RGK600SA/601SA.
Inhibit automatic return to mains.	Inhibits automatic reswitching to the mains when its values are within the limits. Not available on RGK600SA/601SA.
MAINS switch feedback.	Auxiliary contact of mains switchgear used to inform RGK of its actual state (feedback). An alarm A41 is generated in the case of discrepancy between the command output and state. Not available on RGK600SA/601SA.
GEN switch feedback.	As above, with reference to the generator switchgear. An alarm A40 is generated in the case of discrepancy between the command output and state.
Fuel tank empty	Tank too empty. Generates the alarm A46 with an open contact. The filling pump is stopped. Can function independently of start-stop.
Start filling.	Tank low level sensor. The filling pump is started with an open contact.
Stop filling	Tank full The filling pump is stopped with a closed contact.
Fuel tank too full	Tank too full. Generates the alarm A47 with a closed contact. The filling pump is stopped. Can function independently of start-stop.
Keyboard lock	Inhibits the functions of the front keyboard.
Block genset and keyboard	Block generator and keyboard.
Radiator coolant level	The alarm <i>A49Radiator liquid low</i> is generated with the input enabled.
Reset siren	Disables the siren.
Breaker status alarm	In the manual mode and with input ON, starting is inhibited, generating the alarm <i>A50 Circuit breaker closed</i> . In manual mode this function is used when the generator contactor isn't used and a thermal magnetic circuit breaker is used. This function is required to start the generator when certain the load is disconnected. In AUT mode and with input OFF, starting is inhibited, generating the alarm <i>A51 Circuit breaker open</i> . This function is required to prevent starting the generator and consuming fuel needlessly.
Battery charger failure	With the input enabled, generates the alarm <i>A52 External battery charger fault</i> . The alarm is only generated when there is mains voltage.
Alarm Inhibition	If enabled, disables the alarms that have the property <i>Inhibit alarms activated</i> .
Alarm Reset	Resets the retained alarms for which the condition that triggered the same has ceased.
Commands menu C(xx)	Executes the command from the commands menu defined by index parameter (xx).
Simulate STOP key	Closing the input is the equivalent of pressing the key.
Simulate AUTO key	Closing the input is the equivalent of pressing the key.
Simulate START key	Closing the input is the equivalent of pressing the key.
Fuel theft	When active, it generates Fuel theft alarm, a san alternative to the fuel theft detection made by analog level.
Automatic test Inhibit	Inhibits the automatic test
LED Test	Makes all the LEDS on the front panel flash (test lamps)
Select configuration (x)	Selects one of four possible configurations. The binary code weight is defined by index parameter (x). See chapter <i>Multiple configurations</i> .
Water in fuel	Generates the alarm <i>A58 Water in fuel</i>

输出功能表

- 下表列出了可分配给 OUTn 可编程数字输出端的所有功能。
- 可以配置每项输出，以便其具备正常或反向 (NOR 或 REV) 功能。
- 一些功能需要参数 P19.n.02 指定的索引 (x) 所定义的另一个数值参数。
- 请参阅菜单 M19“Programmable outputs” (可编程输出) 了解更多详细信息。

功能	说明
禁用	禁用输出。
可配置	用户配置可自由使用，例如在 PLC 逻辑中使用输出。
闭合市电接触器/断路器	发送命令闭合市电接触器/断路器 R GK600SA/601SA 上无此功能。
闭合发电机接触器/断路器	发送命令闭合发电机接触器/断路器。
断开市电断路器	发送命令断开市电断路器 R GK600SA/601SA 上无此功能。
断开发电机断路器	发送命令断开发电机断路器。
断开市电/发电机	断开机转换器的两个断路器/中线位置。
启动马达	为启动马达供电。
燃油电磁阀	为燃油阀通电。
ECU 电源	为发动机 ECU 供电。
全局警报	在存在启用“全局警报”属性的任何警报时启用的输出。
机械故障	至少有一个已启用该属性的警报被激活时该输出将通电。
电气故障	至少有一个已启用该属性的警报被激活时该输出将通电。
警笛	为警笛供电。
减速器	发动机一启动就对启动相位的转速进行减速，减速持续时间应为设定的最大值。
加速器	与上述功能相反的功能。
停止磁铁	为发动机停机供电的输出。
电热塞	启动前进行电热塞预热。
气阀	输气电磁阀。在启动马达激活之后打开，在停机命令之前关闭。
扼流圈	用于汽油发动机的扼流圈。
启动注油阀	注油以启动燃气发动机。只有在首次启动操作时才会同时启用启动注油阀和燃气电磁阀。
假负载步级 (x)	控制接触器，切换至假负载 (x=1...4)。
分区切断负载步级 (x)	控制接触器，进行分区切断负载 (x=1...4)。
压缩空气	用压缩空气启动发动机，来代替启动马达。参见参数 P11.26。
工作模式	R GK600 处于采用参数 P23.13 设定的模式之一时输出端通电。
市电电压状态	市电电压恢复至允许范围内时通电。R GK600SA/601SA 上无此功能。
发电机电压状态	发电机电压恢复至设定范围内时通电。
发动机运行	发动机运行时通电。
RESET 模式	R GK6.. 处于 OFF 模式时通电。
START 模式	R GK6.. 处于手动 START 模式时通电。
AUT 模式	R GK6.. 处于 AUT 模式时通电。
正在冷却	冷却循环运行时通电。
发电机准备就绪	表示 R GK6.. 处于自动模式且无活动警报。
预热阀	控制燃油预热阀。参见参数 P11.06 和 P11.07 的说明。
加热器	使用发动机温度读数和参数 P09.10 与 P09.11 来控制发动机加热器。
燃油补给泵	控制燃油加注泵。可以通过启动和停机输入或者根据模拟传感器检测到的油位实现控制。参见参数 P10.09 和 P10.10。
远程警报/状态	用于在数字 I/O 模式下与 R GKRR 通信的脉冲输出。
REM(x) 远程变量	输出由远程变量 REMx (x=1..16) 控制。
LIM 限值 (x)	输出由索引参数定义的极限阈值 LIM(x) (x=1..4) 的状态进行控制。
警报 A01-Axx	在启用警报 Axx (xx=1... 警报编号) 时输出端通电。
警报 UA1..Uax	在启用警报 Uax (x=1...4) 时输出端通电。

Output function table

- The following table shows all the functions that can be attributed to the OUTn programmable digital inputs.
- Each output can be configured so it has a normal or reverse (NOR or REV) function.
- Some functions require another numeric parameter, defined in the index (x) specified by parameter P19.n.02.
- See menu M19 Programmable outputs for more details.

Function	Description
Disabled	Output disabled.
Configurable	User configuration free to use for example if the output is used in PLC logic.
Close mains contactor/circuit breaker	Command to close mains contactor/circuit breaker Not available on R GK600SA/601SA.
Close generator contactor/circuit breaker	Command to close generator contactor/circuit breaker.
Open mains circuit breaker	Command to open mains circuit breaker Not available on R GK600SA/601SA.
Open generator circuit breaker	Command to open generator circuit breaker.
Open mains/generator	Open both circuit breakers/neutral position of motorized changeover.
Starter motor	Powers the starter motor.
Fuel solenoid valve	Energizes the fuel valve .
ECU power	Powers the engine ECU.
Global alarm	Output enabled in the presence of any alarm with the Global alarm propriety enabled.
Mechanical failure	Output energized if at least one alarm with this property enabled is presently active.
Electrical failure	Output energized if at least one alarm with this property enabled is presently active.
Siren	Powers the siren.
Decelerator	Reduce rpm in starting phase Energized as soon as the engine starts, for the max duration set.
Accelerator	Opposite function to the above.
Stop magnets	Output energized for engine stop .
Glow plugs	Glowplug preheating before starting.
Gas valve	Gas delivery solenoid valve. Opening delayed in relation to starter motor activation, and closed in advance in relation to stop command.
Choke	Choke for petrol engines.
Priming valve	Petrol injection for starting gas-fuelled engines The priming valve relay is enabled at the same time as the gas solenoid valve only during the first start attempt.
Dummy load steps (x)	Controls the contactors to switch in the dummy load (x=1...4).
Load shedding steps (x)	Controls the contactors for load shedding (x=1...4).
Compressed air	Start engine with compressed air, as an alternative/alternating with starter motor. See parameter P11.26.
Operating mode	Output energized when the R GK600 is in one of the modes set with parameter P23.13.
Mains voltage state	Energized when the mains voltage returns within the set limits. Not available on R GK600SA/601SA.
Generator voltage state	Energized when the generator voltage returns within the set limits.
Engine running	Energized when the engine is running.
RESET mode	Energized when the R GK6.. is OFF.
START mode	Energized when the R GK6.. is in manual START mode.
AUT mode	Energized when the R GK6.. is in AUT mode.
Cooling in progress	Energized when the cooling cycle is running
Generator ready	Indicates the R GK6.. is in automatic mode and there are no active alarms.
Preheating valve	Controls the fuel preheating valve See description of parameters P11.06 and P11.07.
Heater	Controls the engine heater, using engine temperature reading and parameters P09.10 and P09.11.
Topping-up fuel pump	Controls the fuel filling pump Can be controlled by the start and stop inputs, or on the basis of the level detected by the analog sensor. See parameters P10.09 and P10.10.
Remote alarms/states	Pulse output for communication with the R GKRR in digital I/O mode.
REM(x) remote variable	Output controlled by remote variable REMx (x=1..16).
LIM limits (x)	Output controlled by the state of the limit threshold LIM(x) (x=1..4) defined by the index parameter.
Alarms A01-Axx	Output energized with alarm Axx is enabled (xx=1...alarms number).
Alarms UA1..Uax	Output energized with alarm Uax is enabled (x=1...4).

命令菜单

- 通过命令菜单可以执行一些非经常性操作，例如峰值读数重置、计数器清零、警报重置等。
- 如果输入了高级密码，可通过命令菜单执行有益于设备配置的自动操作。
- 下表列出了命令菜单中的可用功能，按所需访问级别划分。

代码	命令	访问级别	说明
C01	重置维护时间间隔 1	用户	重置维护警报 MNT1 并且按照设置小时数为计数器充电。
C02	重置维护时间间隔 2	用户	同上，此处所指的对象为 MNT2。
C03	重置维护时间间隔 3	用户	同上，此处所指的对象为 MNT3。
C04	重置发动机部分小时计数器	用户	重置发动机的部分计数器。
C05	重置市电部分计数器。	用户	重置市电部分能量计数器。
C06	重置发电机部分计数器。	用户	重置发电机部分能量计数器。
C07	重置通用计数器 CNTx	用户	重置通用计数器 CNTx。
C08	重置 LIMx 限值	用户	重置 LIMx 限值变量状态
C10	发动机总小时计数器设置	高级	重置发动机总小时计数器。
C11	发动机小时计数器设置	高级	您可以将发动机的总小时计数器设置为所需值。
C12	重置启动计数器	高级	重置启动尝试计数器和成功启动百分比。
C13	重置关闭计数器	高级	重置发电机负载计数器。
C14	重置市电总计数器。	高级	重置市电总能量计数器。 (仅限 RGK600)
C15	重置发电机总计数器。	高级	重置发电机总能量计数器。
C16	重载租用小时数	高级	重载租用计时器至设定值。
C17	重置事件列表	高级	重置历史事件列表。
C18	重置默认参数	高级	将设置菜单中的所有参数重置为默认值。
C19	将参数保存在备用存储器上	高级	将当前设置的参数备份保存，以便将来恢复这些数据。
C20	从备用存储器上重新加载参数	高级	将保存在备份存储器上的参数转移到活动设置存储器中。
C21	燃油净化	高级	在不启动发动机的情况下为燃油阀通电。最多使其通电 5 分钟，或者直到选择 OFF 模式为止。
C22	强制 I/O	高级	启用测试模式，以便您能为任意输出手动通电。 警告！ 此模式下，由安装者独自负责输出命令。
C23	电阻式传感器偏差调整	高级	您可以通过增减电阻式传感器测量的电阻值来标定电阻式传感器，从而补偿线缆长度或电阻偏差。此标定会显示工程级测量值。
C25	休眠模式	高级	启用省电的休眠模式。

注意：该命令仅在 RGK600 和 RGK601 上可用。

- 选定所需命令后，按下 ✓ 执行该命令。设备将显示确认提示。再次按 ✓，该命令将开始执行。
- 如需取消命令执行，则按 RESET。
- 如需退出命令菜单，则按 RESET。

Commands menu

- The commands menu allows executing some occasional operations like reading peaks resetting, counters clearing, alarms reset, etc.
- If the Advanced level password has been entered, then the commands menu allows executing the automatic operations useful for the device configuration.
- The following table lists the functions available in the commands menu, divided by the access level required.

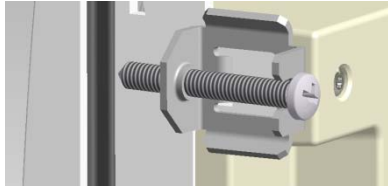
COD.	COMMAND	ACCESS LEVEL	DESCRIPTION
C01	Reset maintenance interval 1	User	Resets maintenance alarm MNT1 and recharges the counter with the set number of hours.
C02	Reset maintenance interval 2	User	As above, with reference to MNT2.
C03	Reset maintenance interval 3	User	As above, with reference to MNT3.
C04	Reset engine partial hour counter	User	Resets the partial counter of the engine.
C05	Reset mains partial counter.	User	Resets the mains partial energy counter.
C06	Reset generator partial counter.	User	Resets the generator partial energy counter.
C07	Reset generic counters CNTx	User	Resets generic counters CNTx.
C08	Reset LIMx limits	User	Reset limits LIMx variable status
C10	Engine total hour counter reset	Advanced	Resets engine total hour counter.
C11	Engine hour counter settings	Advanced	Lets you set the total hour counter of the engine to the desired value.
C12	Reset starting counter	Advanced	Resets the starting attempts counter and the successful starts percentage.
C13	Reset closing counters	Advanced	Resets the generator on-load counter.
C14	Reset mains total counter.	Advanced	Resets the mains total energy counter. (only for RGK600)
C15	Reset generator total counter.	Advanced	Resets the generator total energy counter.
C16	Reload rent hours	Advanced	Reloads rent timer to set value.
C17	Reset events list	Advanced	Resets the list of historical events.
C18	Reset default parameters	Advanced	Resets all the parameters in the setup menu to the default values.
C19	Save parameters in backup memory	Advanced	Copies the parameters currently set to a backup for restoring in the future.
C20	Reload parameters from backup memory	Advanced	Transfers the parameters saved in the backup memory to the active settings memory.
C21	Fuel purge	Advanced	Energizes the fuel valve without starting the engine. The valve remains energized for max 5 min. or until the OFF mode is selected.
C22	Forced I/O	Advanced	Enables test mode so you can manually energize any output. Warning! In this mode the installer alone is responsible for the output commands.
C23	Resistive sensors offset regulation	Advanced	Lets you calibrate the resistive sensors, adding/subtracting a value in Ohms to/from the resistance measured by the resistive sensors, to compensate for cable length or resistance offset. The calibration displays the measured value in engineering magnitudes.
C.25	Sleep mode	Advanced	Enables battery-saving sleep mode.

Note: Commands available only for RGK600 and RGK601.

- Once the required command has been selected, press ✓ to execute it. The device will prompt for a confirmation. Pressing ✓ again, the command will be executed.
- To cancel the command execution press RESET.
- To quit command menu press RESET.

安装

- RGK600 设计为面板式安装。正确安装能确保前面板达到 IP65 防护等级。
- 将设备插入面板孔，确保在面板与设备前框架之间妥善安装垫圈。
- 确保自定义标签的贴条不被垫圈覆盖且不得损坏密封件。应将其装入面板内。
- 从面板内侧，将 4 个固定夹分别放入壳侧上对应的方孔内，然后向后移动以便固定钩子。



- 采用相同的方法将 4 个固定夹安装妥当。
- 采用最大为 0.5Nm 的扭矩拧紧固定螺钉。
- 如需拆卸该系统，则按照相反顺序重复上述步骤。
- 有关电气连接，请参见特定章节中的接线图以及技术特性表中说明的要求。

Installation

- RGK600 is designed for flush-mount installation. With proper mounting, it guarantees IP65 front protection.
- Insert the device into the panel hole, making sure that the gasket is properly positioned between the panel and the device front frame.
- Make sure the tongue of the custom label doesn't get trapped under the gasket and break the seal. It should be positioned inside the board.
- From inside the panel, for each four of the fixing clips, position the clip in its square hole on the housing side, then move it backwards in order to position the hook.

- Repeat the same operation for the four clips.
- Tighten the fixing screw with a maximum torque of 0,5Nm.
- In case it is necessary to dismount the system, repeat the steps in opposite order.
- For the electrical connection see the wiring diagrams in the dedicated chapter and the requirements reported in the technical characteristics table.

接线图

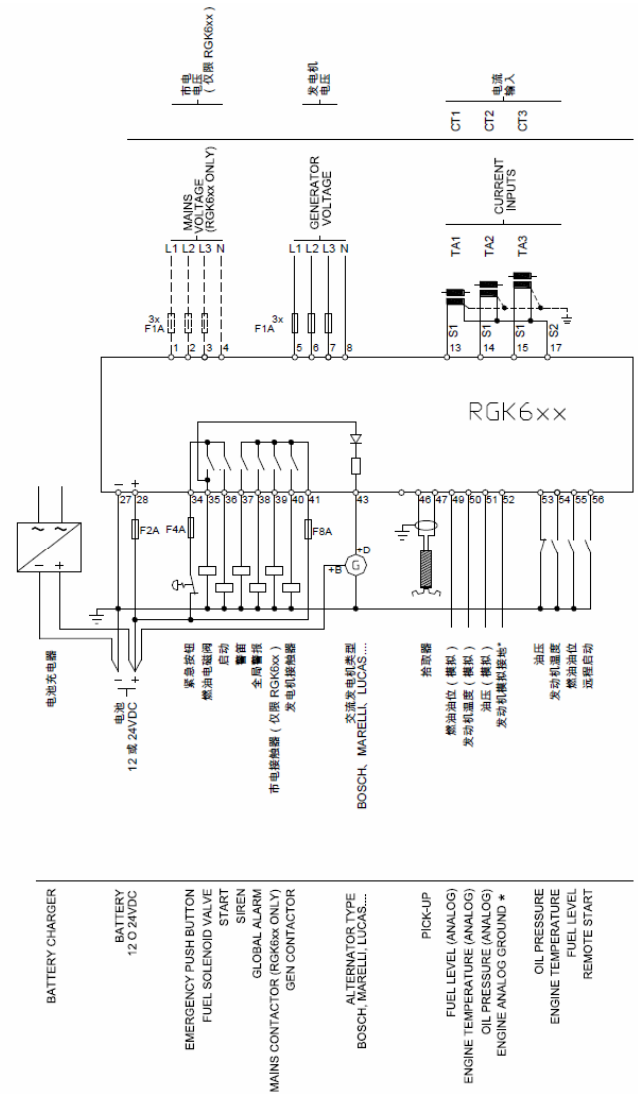
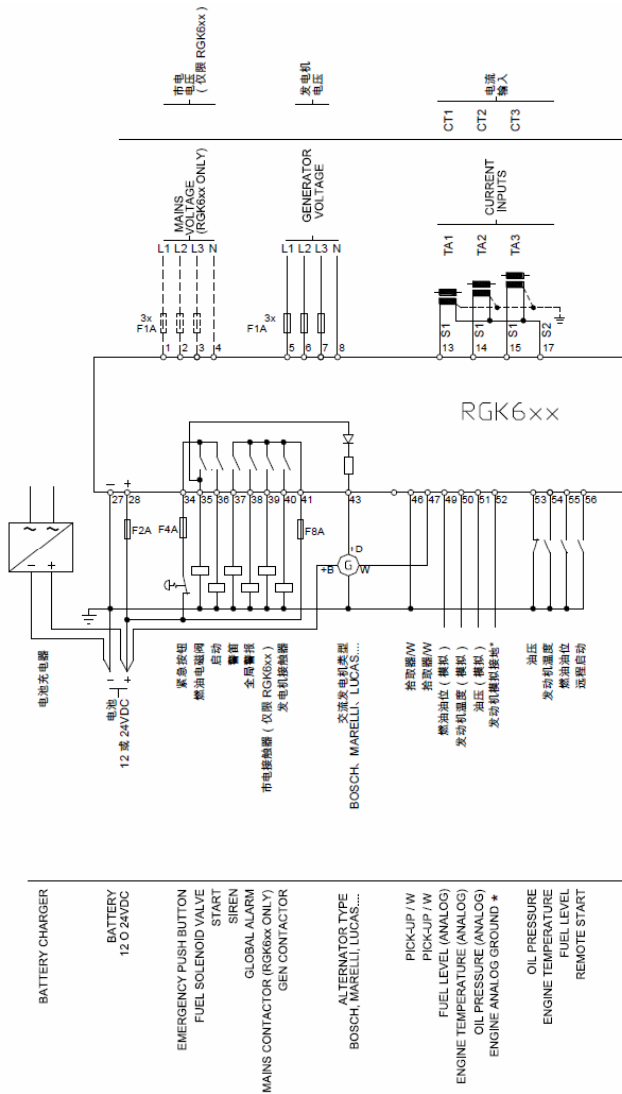
Wiring diagrams

带“W”输入信号的三相发电机组接线图

带“拾取器”输入信号的三相发电机组接线图


Wiring diagram for three-phase generating set with “W” input signal

Wiring diagram for three-phase generating set with “Pick-up” input signal



* 模拟传感器的参考接地线直接连接发动机缸体。即使模拟输入被全部或部分用作数字输入也要连接到发动机缸体。

* Reference earth for analog sensors to be connected directly to the engine block. Connect to the engine block even if the analog inputs are used totally or partly as digital.

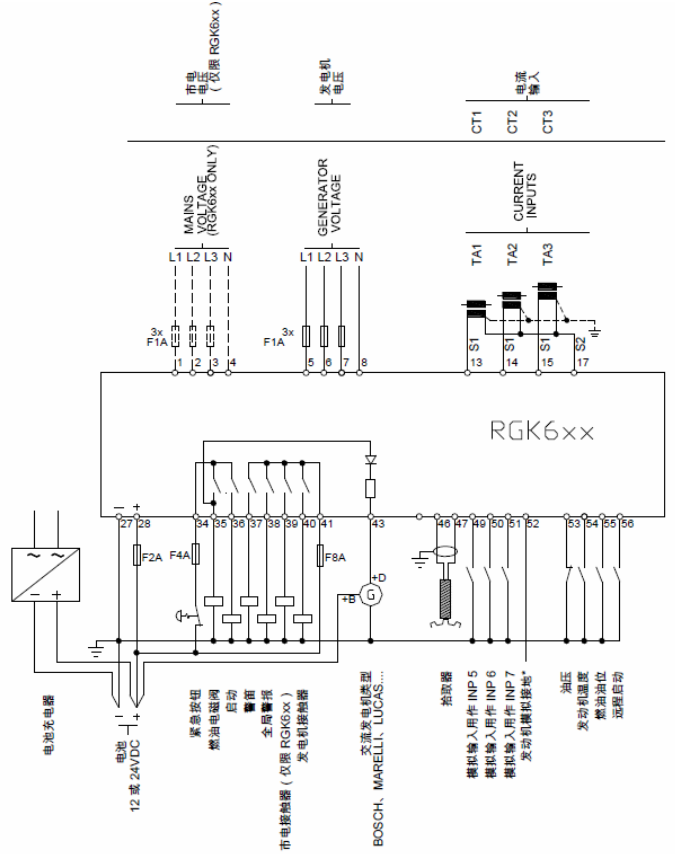
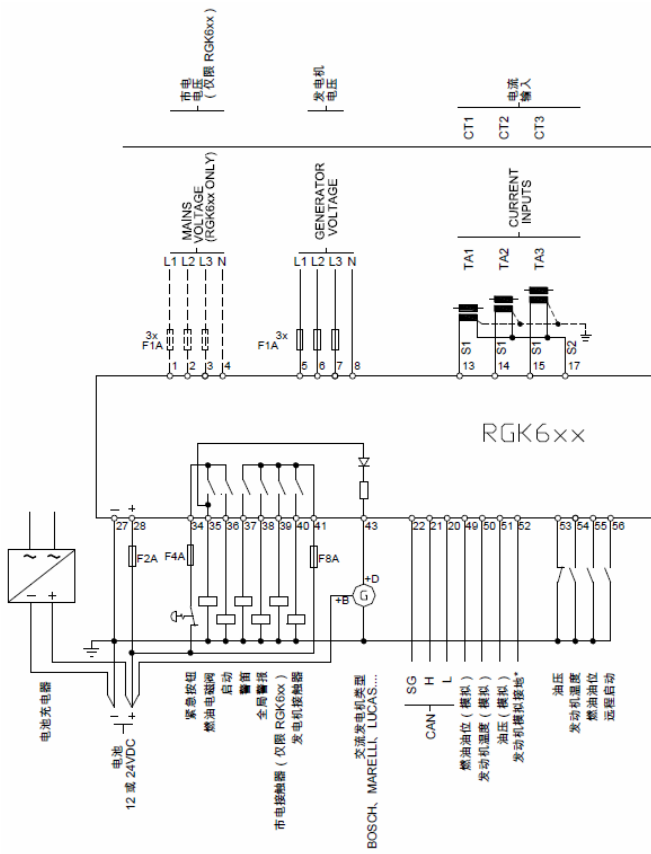
	<p style="text-align: center;">备注</p> <p style="text-align: center;">虚线部分指使用 RGK6xx 控制器</p>	<p style="text-align: center;">NOTES</p> <p style="text-align: center;">The dotted section refers to use with RGK6xx control</p>
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配有 CAN 总线通信端口的三相发电机组接线图

Wiring diagram for three-phase generating set with CAN bus communication port

配有模拟输入 (被用作数字输入) 的三相发电机组接线图

Wiring diagram for three-phase generating set with analog inputs used as digital inputs



BATTERY CHARGER
BATTERY
12 O 24VDC
EMERGENCY PUSH BUTTON
FUEL SOLENOID VALVE
START
SIREN
GLOBAL ALARM
GEN CONTACTOR (RGK6xx ONLY)
ALTERNATOR TYPE
BOSCH, MARELLI, LUCAS, ...
SG
H
L
CAN
FUEL LEVEL (ANALOG)
ENGINE TEMPERATURE (ANALOG)
OIL PRESSURE (ANALOG)
ENGINE ANALOG GROUND *
OIL PRESSURE
ENGINE TEMPERATURE
FUEL LEVEL
REMOTE START

BATTERY CHARGER
BATTERY
12 O 24VDC
EMERGENCY PUSH BUTTON
FUEL SOLENOID VALVE
START
SIREN
GLOBAL ALARM
GEN CONTACTOR (RGK6xx ONLY)
ALTERNATOR TYPE
BOSCH, MARELLI, LUCAS, ...
PICK-UP
ANALOG INPUT USED AS INP 5
ANALOG INPUT USED AS INP 6
ANALOG INPUT USED AS INP 7
ENGINE ANALOG GROUND *
OIL PRESSURE
ENGINE TEMPERATURE
FUEL LEVEL
REMOTE START

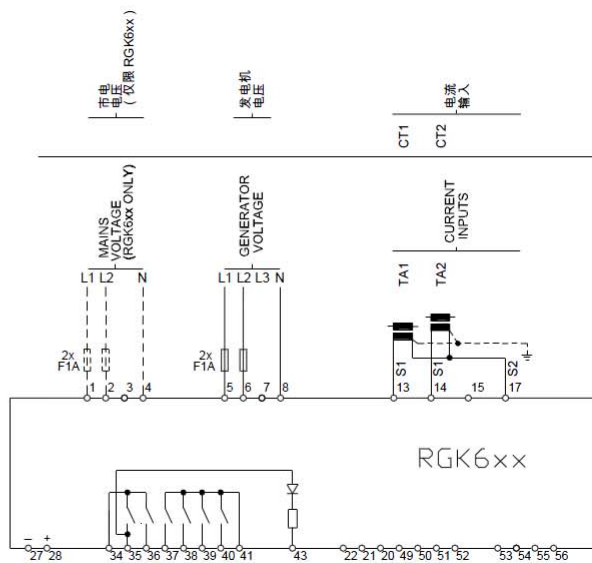
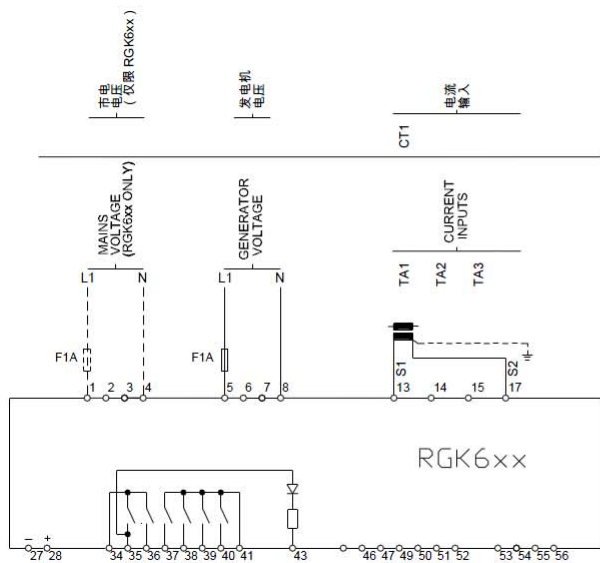
* 模拟传感器的参考接地线直接连接发动机缸体。即使模拟输入被全部或部分用作数字输入也要连接到发动机缸体。

* Reference earth for analog sensors to be connected directly to the engine block. Connect to the engine block even if the analog inputs are used totally or partly as digital.

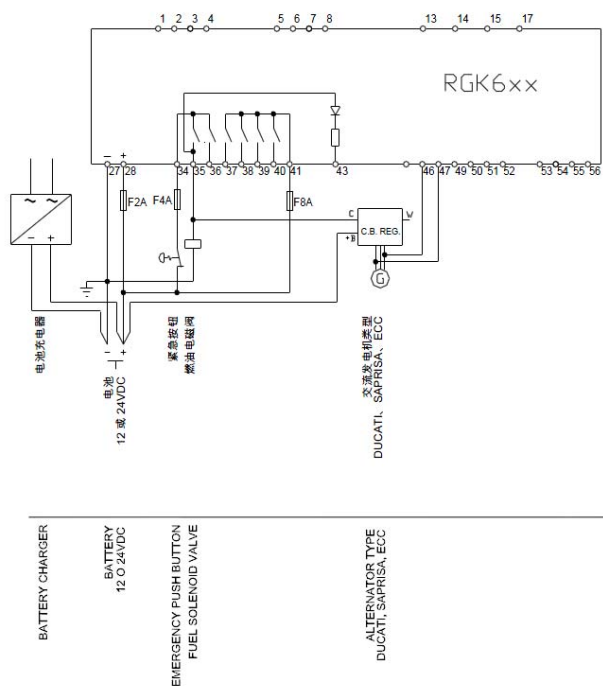
备注	NOTES
虚线部分指使用 RGK6xx 控制器	The dotted section refers to use with RGK6xx control

CAN 总线连接件	CAN bus connection
CAN 总线连接件的母线两端均有两个 120Ω 的端接电阻器。RGK6xx 控制装置包含该电阻器。仅对发动机 CAN 总线端子提供电阻器	The CAN bus connection has two 120-Ohm termination resistors at both ends of the bus. RGK6xx control unit included this resistor. Provide the resistor only on the engine CAN bus terminals

单相发电机组接线图	两相发电机组接线图
<i>Wiring for single-phase generating set</i>	<i>Wiring for two-phase generating set</i>



配备永磁电池充电器交流发电机的发电机组接线图	
<i>Wiring for generating set with permanent magnet battery charger alternator</i>	



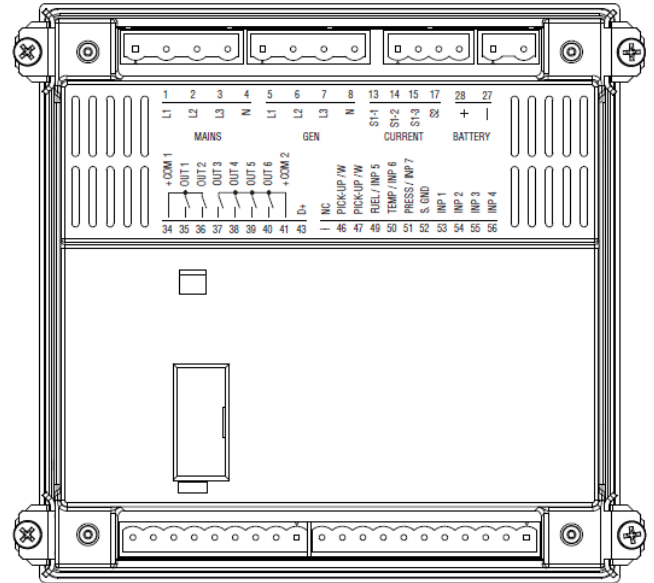
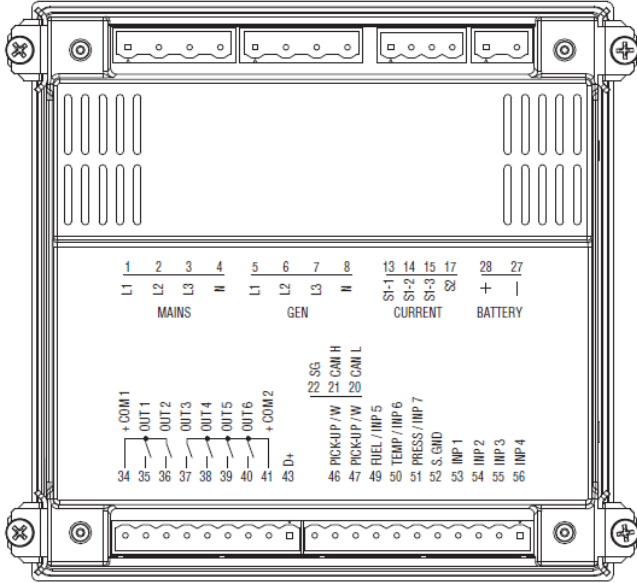
备注	NOTES
<p>如果交流发电机没有输出端 D + , 则有必要禁用参数 P11.01。</p>	<p>If the alternator has no output D + is necessary to disable the parameter P11.01.</p>

端子位置

Terminals position

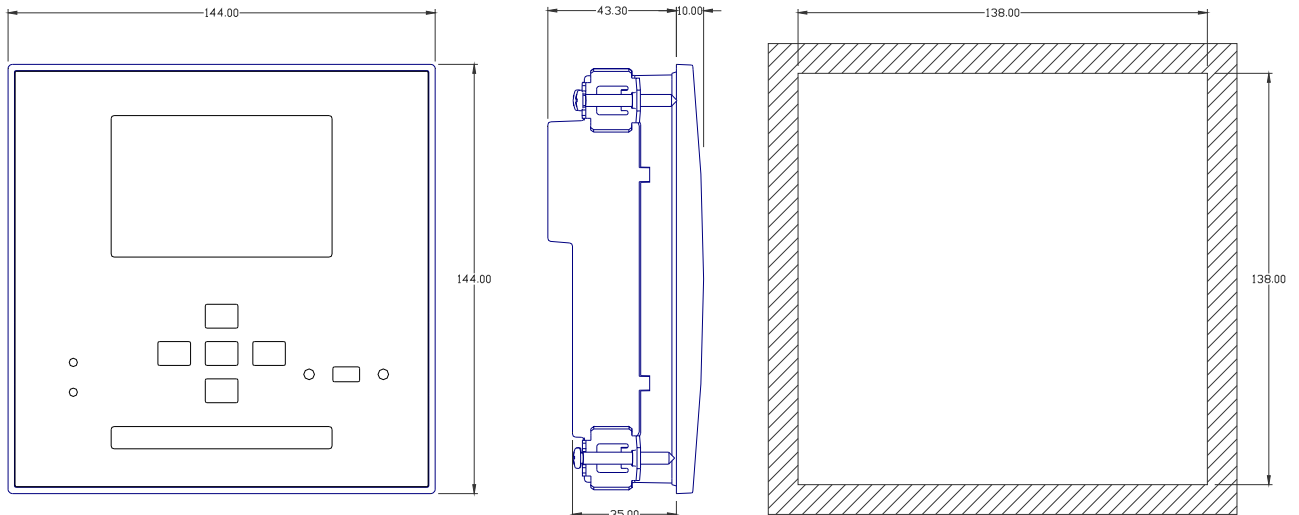
RGK600-601-600SA-601SA

RGK610



机械尺寸和前面板开孔尺寸 (mm)

Mechanical dimensions and front panel cut-out (mm)



技术规格

电源							
电池额定电压	12 或 24V= 中性						
最大耗电量	12V= 为 90mA , 24V= 为 45mA						
最大功耗	1.1W						
电压范围	7.5...33V=						
启动时的最小电压	4.5V=						
待机电流 (背光关闭)	12V= 为 40mA , 24V= 为 25mA						
休眠模式电流 (仅限 AMF 型号)	12V= 为 25mA , 24V= 为 15mA						
OFF 模式电流 (仅限 SA 型号)	28V= 时 <20uA						
微切断抗扰度	100ms						
数字输入 : 端子 53、54、55、56							
输入类型	负						
电流输入	≤6mA						
输入“低”压	≤2.2						
输入“高”压	≥3.4						
输入延时	≥50ms						
远程启动输入 : 端子 56 (仅限 SA 型号)							
输入类型	负						
电流输入	≤10mA (24V=)						
输入“低”压	≤2.0V						
输入“高”压	≥3.0V						
输入延时	≥50ms						
紧急输入 : 端子 34							
输入类型	正 (OUT1 和 2 公共端子)						
电流输入	≤8mA						
输入“低”压	≤2.2V						
输入“高”压	≥3.4V						
输入延时	≥50ms						
模拟输入端							
燃油油位传感器输入	<table border="0"> <tr> <td>电流测量范围</td> <td>8mA= 最大值 0-1000Ω</td> </tr> <tr> <td>低输入电阻</td> <td><300 Ω</td> </tr> <tr> <td>高输入电阻</td> <td>>600 Ω</td> </tr> </table>	电流测量范围	8mA= 最大值 0-1000Ω	低输入电阻	<300 Ω	高输入电阻	>600 Ω
电流测量范围	8mA= 最大值 0-1000Ω						
低输入电阻	<300 Ω						
高输入电阻	>600 Ω						
已组态为数字输入 - INP 5							
温度传感器输入	<table border="0"> <tr> <td>电流测量范围</td> <td>5mA= 最大值 0-1500Ω</td> </tr> <tr> <td>低输入电阻</td> <td><450 Ω</td> </tr> <tr> <td>高输入电阻</td> <td>>900 Ω</td> </tr> </table>	电流测量范围	5mA= 最大值 0-1500Ω	低输入电阻	<450 Ω	高输入电阻	>900 Ω
电流测量范围	5mA= 最大值 0-1500Ω						
低输入电阻	<450 Ω						
高输入电阻	>900 Ω						
已组态为数字输入 - INP 6							
压力传感器输入	<table border="0"> <tr> <td>电流测量范围</td> <td>15mA= 最大值 0-500Ω</td> </tr> <tr> <td>低输入电阻</td> <td><150 Ω</td> </tr> <tr> <td>高输入电阻</td> <td>>300 Ω</td> </tr> </table>	电流测量范围	15mA= 最大值 0-500Ω	低输入电阻	<150 Ω	高输入电阻	>300 Ω
电流测量范围	15mA= 最大值 0-500Ω						
低输入电阻	<150 Ω						
高输入电阻	>300 Ω						
已组态为数字输入 - INP 7							
模拟接地输入电压	-0.5 - +0.5V=						
速度输入“W”/拾取器							
输入类型	交流耦合						
电压范围	2-75Vpp						
频率范围	40-2000Hz						
测量输入阻抗	>100K Ω						
预励磁交流发电机的发动机运行输入 (500rpm)							
电压范围	0-36V=						
最大输入电流	<1mA						
+D 端子的最大电压	12 或 24VDC (电池电压)						
预励磁电流	240mA 12V= - 120mA 24V=						
市电和发电机电压输入							
最大额定电压 Ue	480V~ L-L (277VAC L-N)						
测量范围	50-576V~ L-L (333V~ L-N)						
频率范围	45-65Hz						
测量方法	真均方根						
测量输入阻抗	> 0.5MΩ L-N > 1,0MΩ L-L						
接线方式	单相、两相、三相, 不带或带中性点或平衡三相系统。						

Technical characteristics

Supply							
Battery rated voltage	12 or 24V= indifferently						
Maximum current consumption	90mA at 12V= e 45mA at 24V=						
Maximum power consumption/dissipation	1.1W						
Voltage range	7.5...33V=						
Minimum voltage at the starting	4.5V=						
Stand-by current (back-light off)	40mA at 12V= and 25mA at 24V=						
Sleep mode current (AMF version only)	25mA at 12V= and 15mA at 24V=						
OFF mode current (SA version only)	<20uA at 28V=						
Micro interruption immunity	100ms						
Digital inputs : terminals 53,54,55,56							
Input type	Negative						
Current input	≤6mA						
Input "low" voltage	≤2.2						
Input "high" voltage	≥3.4						
Input delay	≥50ms						
Remote start input : terminal 56 (SA versions only)							
Input type	Negative						
Current input	≤10mA (24V=)						
Input "low" voltage	≤2.0V						
Input "high" voltage	≥3.0V						
Input delay	≥50ms						
Emergency input : terminal 34							
Input type	Positive (OUT1 and 2 common terminal)						
Current input	≤8mA						
Input "low" voltage	≤2.2V						
Input "high" voltage	≥3.4V						
Input delay	≥50ms						
Analog inputs							
Fuel level sensor input	<table border="0"> <tr> <td>Current Measuring range</td> <td>8mA= Max 0-1000Ω</td> </tr> <tr> <td>Closed state resistance</td> <td><300 Ω</td> </tr> <tr> <td>Open state resistance</td> <td>>600 Ω</td> </tr> </table>	Current Measuring range	8mA= Max 0-1000Ω	Closed state resistance	<300 Ω	Open state resistance	>600 Ω
Current Measuring range	8mA= Max 0-1000Ω						
Closed state resistance	<300 Ω						
Open state resistance	>600 Ω						
Configured as digital input - INP 5							
Temperature sensor input	<table border="0"> <tr> <td>Current Measuring range</td> <td>5mA= Max 0-1500Ω</td> </tr> <tr> <td>Closed state resistance</td> <td><450 Ω</td> </tr> <tr> <td>Open state resistance</td> <td>>900 Ω</td> </tr> </table>	Current Measuring range	5mA= Max 0-1500Ω	Closed state resistance	<450 Ω	Open state resistance	>900 Ω
Current Measuring range	5mA= Max 0-1500Ω						
Closed state resistance	<450 Ω						
Open state resistance	>900 Ω						
Configured as digital input - INP 6							
Pressure sensor inputs	<table border="0"> <tr> <td>Current Measuring range</td> <td>15mA= Max 0-500Ω</td> </tr> <tr> <td>Closed state resistance</td> <td><150 Ω</td> </tr> <tr> <td>Open state resistance</td> <td>>300 Ω</td> </tr> </table>	Current Measuring range	15mA= Max 0-500Ω	Closed state resistance	<150 Ω	Open state resistance	>300 Ω
Current Measuring range	15mA= Max 0-500Ω						
Closed state resistance	<150 Ω						
Open state resistance	>300 Ω						
Configured as digital input - INP 7							
Analog ground input voltage	-0.5 - +0.5V=						
Speed input "W"/PICK-UP							
Input type	AC coupling						
Voltage range	2-75Vpp						
Frequency range	40-2000Hz						
Measuring input impedance	>100K Ω						
Engine running input (500rpm) for pre-excited alternator							
Voltage range	0-36V=						
Maximum input current	<1mA						
Maximum voltage at +D terminal	12 or 24VDC (battery voltage)						
Pre-excitation current	240mA 12V= - 120mA 24V=						
Mains and generator voltage inputs							
Maximum rated voltage Ue	480V~ L-L (277VAC L-N)						
Measuring range	50-576V~ L-L (333V~ L-N)						
Frequency range	45-65Hz						
Measuring method	True RMS						
Measuring input impedance	> 0.5MΩ L-N > 1,0MΩ L-L						
Wiring mode	Single-phase, two-phase, three-phase with or without neutral or balanced three-phase system.						

电流输入端	
额定电流 I _e	1A~ 或 5A~
测量范围	量程为 5A 时: 0.050 – 6A~ 量程为 1A 时: 0.050 – 1.2A~
输入类型	外部电流互感器提供的分路 (低电压)。最大 5A
测量方法	真均方根
过载容量	+20% I _e
过载峰值	1s 为 50A
功耗	<0.6VA
测量精度	
市电和发电机电压	±0.25% f.s. ±1 位
SSR 输出 OUT1 和 OUT2 (+ 电池电压输出)	
输出类型	2 x 1 常开 + 一个公共端子
额定电压	12-24V=, 电池提供
额定电流	每个为 2A DC1
保护	过载、短路和反极性
SSR 输出 OUT3 – OUT4 – OUT5 – OUT6 (+ 电池电压输出)	
输出类型	4 x 1 常开 + 一个公共端子
额定电压	12-24V=, 电池提供
额定电流	每个为 2A DC1
保护	过载、短路和反极性
绝缘电压	
额定绝缘电压 U _i	480V~
额定冲击耐压 U _{imp}	6.5kV
工频耐压	3.5kV
环境条件	
工作温度	-30 - +70°C
存储温度	-30 - +80°C
相对湿度	<80% (IEC/EN 60068-2-78)
最大污染度	2
过电压类别	3
测量类别	III
气候顺序	Z/ABDM (IEC/EN 60068-2-61)
耐冲击性	15g (IEC/EN 60068-2-27)
抗振性	0.7g (IEC/EN 60068-2-6)
连接件	
端子类型	插入式 / 可拆卸
电缆截面 (最小...最大)	0.2-2.5 mm ² (24...12 AWG)
UL 评级	0.75-2.5 mm ² (18...12 AWG)
电缆截面 (最小...最大)	0.75-2.5 mm ² (18...12 AWG)
上紧扭矩	0.56 Nm (5 lbin)
壳体	
型号	面板式安装
材质	聚碳酸酯
防护等级	前面板为 IP54 带可选垫圈为 IP65 端子为 IP20
重量	580g
认证及合规性	
所获认证	cULus
参考标准	IEC/EN 61010-1、IEC/EN 61000-6-2 IEC/EN 61000-6-3 UL508 和 CSA C22.2-N°14
UL 标志	仅使用 60°C/75°C 铜 (CU) 导体 AWG 范围: 18 - 12 AWG 多股或单股绞线 现场接线端子上紧扭矩: 4.5lb.in 在 Type 1 或 4X 型外壳上进行平板式安装

Current inputs	
Rated current I _e	1A~ or 5A~
Measuring range	for 5A scale: 0.050 – 6A~ for 1A scale: 0.050 – 1.2A~
Type of input	Shunt supplied by an external current transformer (low voltage). Max. 5A
Measuring method	True RMS
Overload capacity	+20% I _e
Overload peak	50A for 1 second
Power consumption	<0.6VA
Measuring accuracy	
Mains and generator voltage	±0.25% f.s. ±1digit
SSR output OUT1 and OUT 2 (+ battery voltage output)	
Output type	2 x 1 NO + one common terminal
Rated voltage	12-24V= from battery
Rated current	2A DC1 each
Protection	Overload, short circuit and reverse polarity
SSR output OUT3 – OUT 4 – OUT 5 – OUT 6 (+ battery voltage output)	
Output type	4 x 1 NO + one common terminal
Rated voltage	12-24V= from battery
Rated current	2A DC1 each
Protection	Overload, short circuit and reverse polarity
Insulation voltage	
Rated insulation voltage U _i	480V~
Rated impulse withstand voltage U _{imp}	6.5kV
Power frequency withstand voltage	3.5kV
Ambient conditions	
Operating temperature	-30 - +70°C
Storage temperature	-30 - +80°C
Relative humidity	<80% (IEC/EN 60068-2-78)
Maximum pollution degree	2
Overvoltage category	3
Measurement category	III
Climatic sequence	Z/ABDM (IEC/EN 60068-2-61)
Shock resistance	15g (IEC/EN 60068-2-27)
Vibration resistance	0.7g (IEC/EN 60068-2-6)
Connections	
Terminal type	Plug-in / removable
Cable cross section (min... max)	0.2-2.5 mm ² (24...12 AWG)
UL Rating	0.75-2.5 mm ² (18...12 AWG)
Cable cross section (min... max)	0.75-2.5 mm ² (18...12 AWG)
Tightening torque	0.56 Nm (5 lbin)
Housing	
Version	Flush mount
Material	Polycarbonate
Degree of protection	IP54 on front IP65 with optional gasket IP20 terminals
Weight	580g
Certifications and compliance	
Certifications obtained	cULus
Reference standards	IEC/EN 61010-1, IEC/EN 61000-6-2 IEC/EN 61000-6-3 UL508 and CSA C22.2-N°14
UL Marking	Use 60°C/75°C copper (CU) conductor only AWG Range: 18 - 12 AWG stranded or solid Field Wiring Terminals Tightening Torque: 4.5lb.in Flat panel mounting on a Type 1 or 4X enclosure

手册修订记录

版本	日期	备注
00	14/03/2013	• 准备
01	01/08/2013	• 第一版
02	29/08/2013	• 添加对参数 P12.09 的说明
03	12/09/2013	• 微小变更
04	15/10/2013	• 微小变更
05	05/11/2013	• 更改参数 P04.n.01、P07.01、P11.08、P12.09、P16.12 的范围或说明
06	10/02/2014	• 添加来自永磁电池充电器交流发电机 AC 信号获得的速度感应接线图。 • 添加 UL 标识。

Manual revision history

Rev	Date	Notes
00	14/03/2013	• Preliminary
01	01/08/2013	• First release
02	29/08/2013	• Added description of parameter P12.09
03	12/09/2013	• Minor changes
04	15/10/2013	• Minor changes
05	05/11/2013	• Changes to range or description of parameters P04.n.01, P07.01, P11.08, P12.09, P16.12.
06	10/02/2014	• Added wiring diagrams for speed sensing through AC signal from permanent magnet b.c. alternator. • Added UL markings.