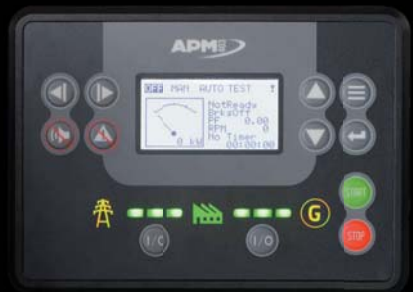


APM403

COMMAND/CONTROL



KOHLER[®]
SDMO[®]

APM403-D0-EN-71



APM403

SIMPLE CONTROL OF GENERATING SETS AND POWER PLANTS + NUMEROUS CONNECTIVITY FUNCTIONS

- ▶ KOHLER-SDMO is renowned as one of the top designers and manufacturers of generating sets worldwide.
- ▶ The industrial manufacturer designs, manufactures and markets a range of generating sets and power plants from 1 kW to 200 MW which meet the needs of all power requirements and which can be adapted to all applications. Thanks to the expertise of its engineering department and to tackle more specific customer demands, KOHLER-SDMO also develops its own command/control systems.
- ▶ The APM403 is the latest addition to the APM* family and is available in two different configurations. The Solo (APM403S) version is fitted as standard on all generating sets intended for LV industrial applications. The Parallel (APM403P) version allows coupling of gensets or mains paralleling.
- ▶ This product meets the needs of professionals in terms of remote management, with the integration of numerous communication peripherals (3G, 4G, etc.)
The APM403 is integrated in the console.

* Advanced Power Management



AVAILABILITY

The APM403 is available on KOHLER-SDMO generating sets, with power outputs from 66 kVA:

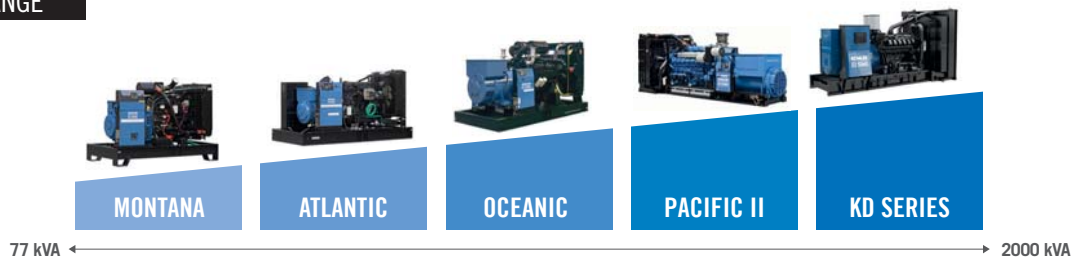
POWER PRODUCTS	APM403S/ APM403P
▶ ADRIATIC	X
▶ MONTANA	0*
▶ ATLANTIC	•
▶ OCEANIC	•
▶ PACIFIC II	•
▶ KD SERIES	•

RENTAL POWER	APM403P
▶ RENTAL COMPACT	0**
▶ RENTAL CONTENERY	•

- Standard
- 0 Option
- X Not available
- * From 77 kVA (J77)
- ** Standard from 450 kVA (R450C3)

EXTENSIVE RANGE

POWER PRODUCTS



RENTAL POWER



PRESENTATION

APM403

DESCRIPTION OF THE APM403*



*APM403P

ADVANTAGES OF THE APM403

FLEXIBLE CONFIGURATION

- ▶ Technical solution can be broken down for multi-configuration – SOLO or COUPLING applications
- ▶ Specific application variables can be customized.

FLEXIBLE COMMUNICATION TOOLS

- ▶ Remote configuration and supervision thanks to the WEBSUPERVISOR application (option)
- ▶ Standard communication tools:
 - CAN USB Host, USB device, RS485
 - SNMP, MODBUS protocol
- ▶ Optional:
 - 4G, Ethernet, GPRS, Airgate
 - TCP/IP protocol

FOCUS

▶ APM403S



The APM403S is dedicated to SOLO operation only. No grid electrical measurements or associated circuit breaker control.

INTUITIVE NAVIGATION AND SIMPLIFIED GENSET OR POWER PLANT OPERATION

- ▶ Multilingual support
- ▶ Simple, intuitive configuration specific to operating scenarios

FUNCTIONALITY

START-UP CONFIGURATIONS

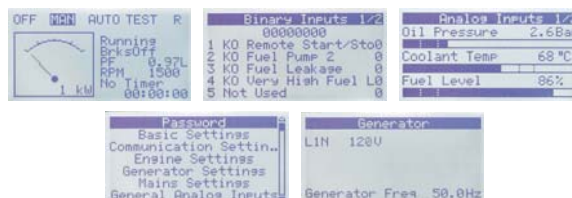
- ▶ Solo
- ▶ Gensets in power plant (up to 8 gensets maximum)
- ▶ LV (Low Voltage)
- ▶ Automatic transfer management as part of a power plant or single generating set
 - Automatic or manual transfer management in SOLO operation
 - Automatic transfer management as part of a power plant
- ▶ Short or long time mains paralleling without cut-out
 - On return to mains power
 - During peak shaving
 - During tests
- ▶ Adapted generating set safety features
- ▶ Adapted mains safety features

CONTROL

- ▶ Basic:
 - Speed
 - Voltage
- ▶ Automatic equipment start and stop depending on the load required by the installation.

MEASUREMENTS AND DISPLAY

- ▶ Mechanical
 - Levels
 - Temperature
 - Pressure
 - Speed
- ▶ Electrical
 - Genset and mains voltage
 - Current
 - Frequency
 - Power factor
 - Power (kW and kVA)
 - Synchronization status
- ▶ Energy meters
- ▶ Metering and electrical and mechanical statistics
- ▶ Delay countdown
- ▶ Equipment status
- ▶ Events display
- ▶ Messages for alarms and faults
- ▶ Display of engine fault codes for engines fitted with an ECU



PRODUCT SPECIFICATIONS

OPERATION CONDITIONS

- | | |
|-------------------------|-----------------|
| ▶ Operating temperature | - 20°C / + 60°C |
| ▶ Storage temperature | - 20°C / + 70°C |

EMC

- | | |
|---|------------|
| ▶ Certification | CE/UL |
| ▶ Electromagnetic compatibility directive | 2014/30/UE |

SAFETY

- | | |
|-------------------------|------------|
| ▶ Low voltage directive | 2014/35/UE |
|-------------------------|------------|

ELECTRICAL MEASUREMENTS

- | | |
|-------------------------|------------------------------|
| ▶ Frequency | 50Hz / 60Hz |
| ▶ Nominal voltage range | 86,6 to 480VAC phase / phase |
| ▶ Nominal current | In = 5A |
| ▶ DC supply range | 8 to 36Vdc |

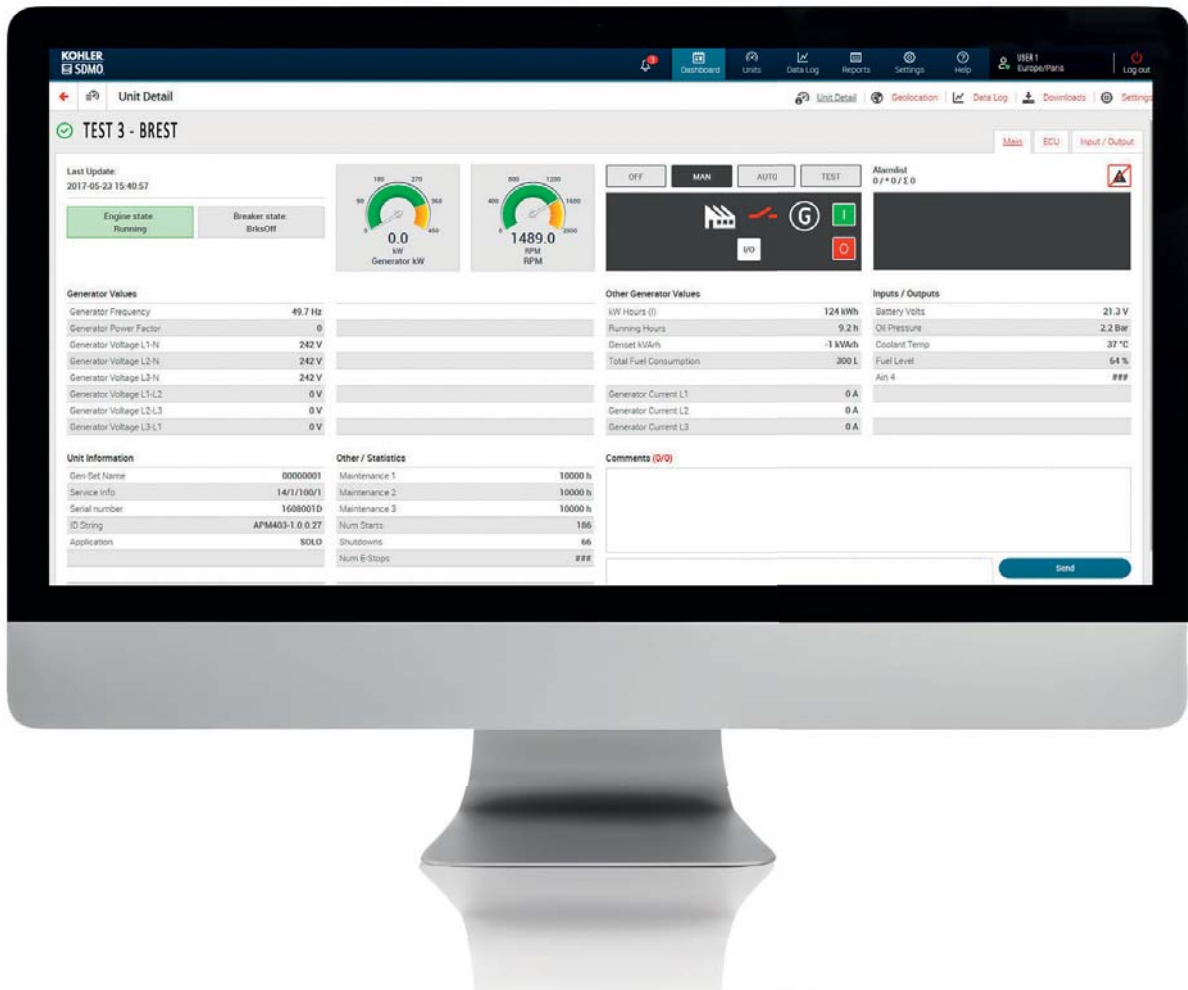
LANGUAGES

- ▶ English, French, Spanish, Italian, Dutch, German, Brazilian Portuguese, Turkish, Norwegian, Polish, Chinese, Russian

REMOTE MANAGEMENT/SUPERVISION

WEB INTERFACE

Remote management and supervision web interface available for APM403 controllers, called WEBSUPERVISOR.



- ▶ Available as an option, it offers a range of options, from supervision of a single generating set to management of a complete group. The generating set operating parameters are sent to a server via GSM/3G/4G communication. This interface can be accessed from a PC, a tablet or a smartphone.
- ▶ The interface also allows users to monitor and evaluate the operation of their equipment at any time and from anywhere.

- ▶ Access to the application is secured by passwords, and allows user authorizations to be adjusted as required. Email alert messages can also be configured and sent in accordance with events predefined by the user.

	OPTION CODE
Remote management/supervision via ETHERNET report	CEA12
Remote management/supervision via GSM	CEA72
Remote management/supervision via 4G	CEA73



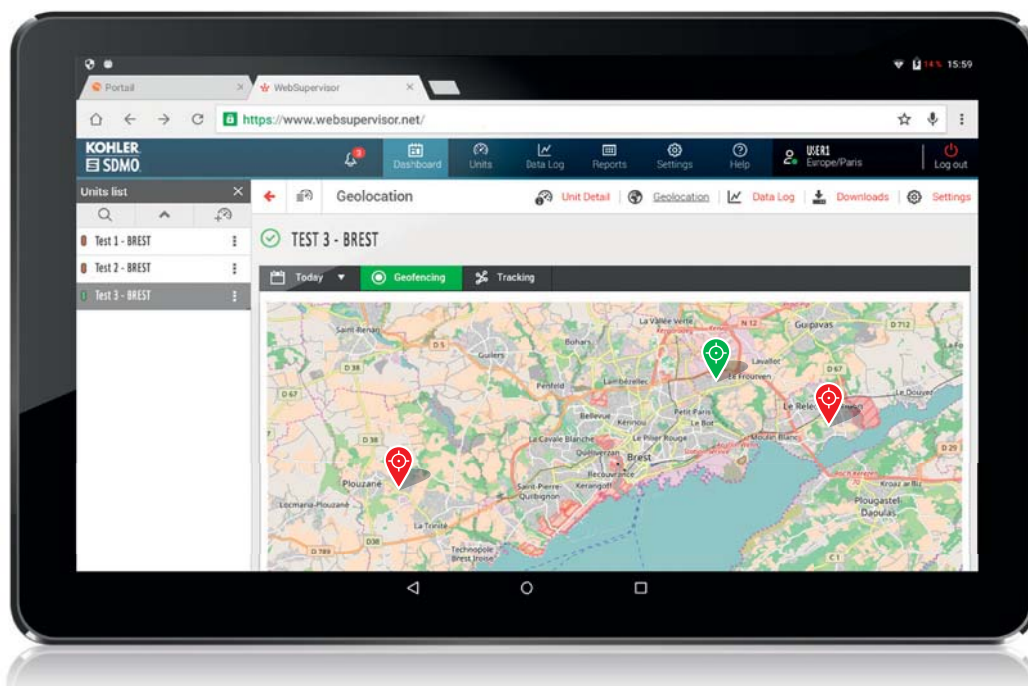
The application offers the following possibilities:

► **REMOTE MANAGEMENT**

- Starting/stopping of the genset or installation
- Opening/closing of the circuit breakers
- Online parameter updating

► **SUPERVISION**

- Periodic dashboards displaying genset availability and associated production
- Implementation of optimized maintenance plans
- Data archiving
- Display of physical and mechanical values
- Display of genset status
- Display of genset events stack
- Genset status notification
- Geolocation of installations (GPS option)



CONFIGURATIONS

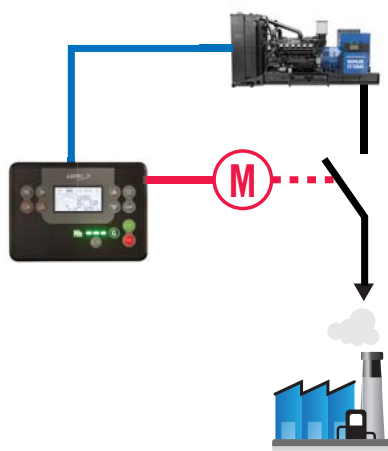
A612	A622	A631	A633	A651	A661
<p>APM403S</p>  <p>APM403P</p> 	<p>APM403P</p> 	<p>APM403P</p> 	<p>APM403P</p> 	<p>APM403P</p> 	<p>APM403P</p> 

▶ APM403S

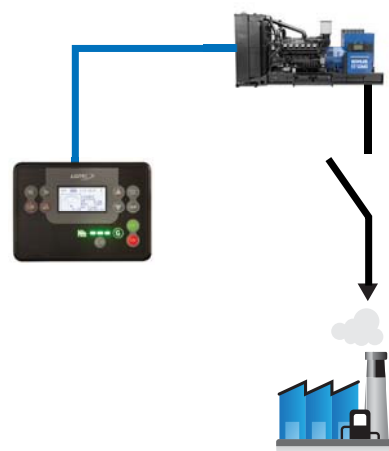
CONFIGURATION A612

Single generating set, without mains power, without coupling, without automatic transfer switch

WITHOUT MAINS PARALLELING	With self-regulating automatic transfer switch	A612
	With manual circuit breaker	A612




▶ With self-regulating automatic transfer switch



▶ With manual circuit breaker

 Circuit breaker control

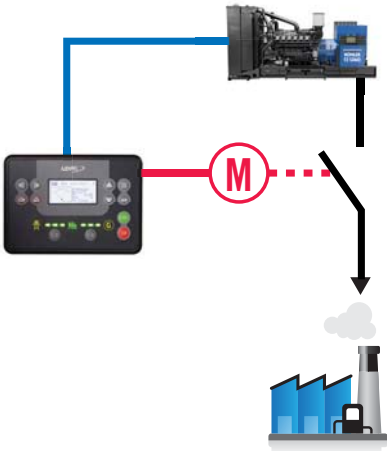
 Current and voltage measurement

▶ APM403P

CONFIGURATION A612

Single generating set, without mains power, without coupling, without automatic transfer switch, with motorized circuit breaker controlled by the APM403

WITHOUT MAINS PARALLELING	With motorized circuit breaker controlled by the APM403	A612
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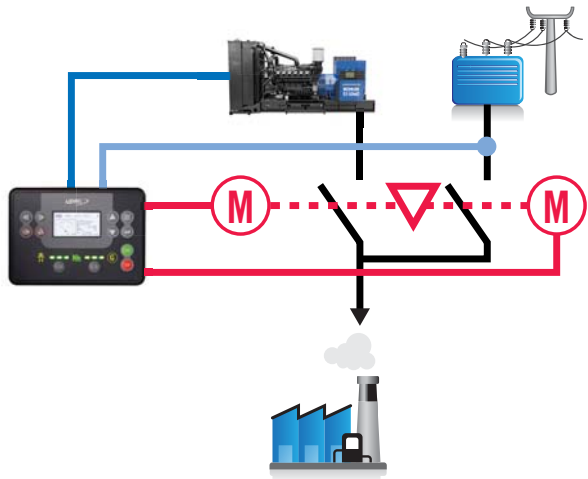


Ⓜ - Circuit breaker control — Current and voltage measurement

CONFIGURATION A622

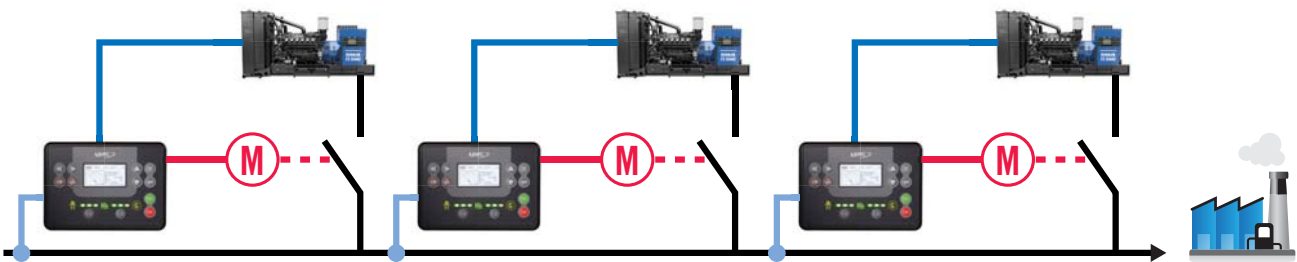
Single generating set, with mains power, without coupling, with automatic transfer switch controlled by the APM403

Ⓜ - Circuit breaker control — Current and voltage measurement
▽ Mechanical locking on the transfer switch — Voltage measurement



CONFIGURATION A631

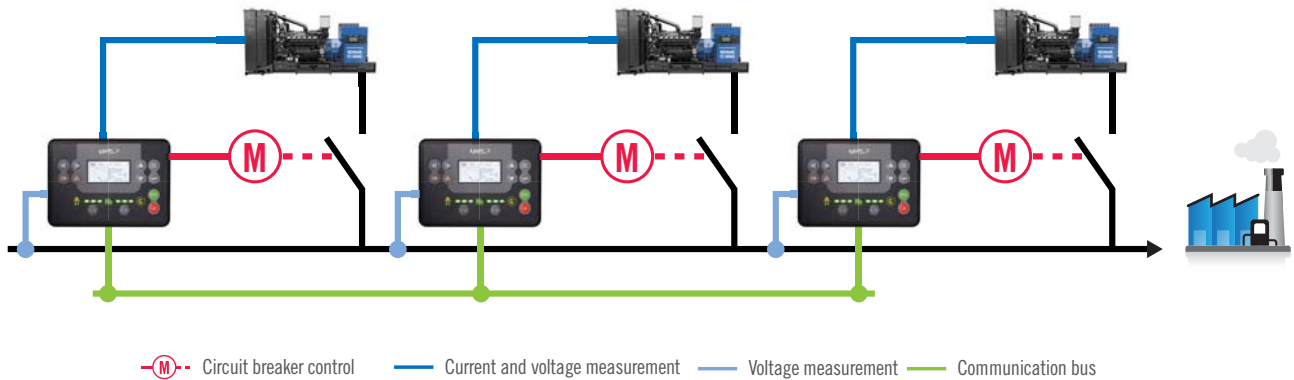
Generating sets coupled as a power plant, without mains power, without automatic transfer switch, **droop power distribution**



Ⓜ - Circuit breaker control — Current and voltage measurement — Voltage measurement

CONFIGURATION A633

Generating sets coupled as a power plant, without mains power, without automatic transfer switch, **regulation of active and reactive power by digital communication bus**



CONFIGURATION A651

Single generating set, with mains power, with automatic transfer switch, **short time paralleling on mains return**



Adapted genset safety features
Adapted mains safety features

CONFIGURATION A661

Single generating set, with mains power, with automatic transfer switch, **long time paralleling**



Adapted genset safety features
Adapted mains safety features



GENSET AND MAINS SAFETY FEATURES

PROTECTION	CODE
▶ Synchronizing or synchronism-check	ANSI 25
▶ Undervoltage	ANSI 27
▶ Directional power or reverse power	ANSI 32
▶ Undercurrent or Underpower	ANSI 37P
▶ Reverse-phase or phase-balance current	ANSI 46
▶ Phase-sequence or phase-balance voltage	ANSI 47
▶ Instantaneous overcurrent	ANSI 50
▶ AC inverse time overcurrent and overload	ANSI 51
▶ Overvoltage	ANSI 59
▶ Overfrequency	ANSI 81H
▶ Underfrequency	ANSI 81L
▶ Rate-of-Change Frequency	ANSI 81R
▶ Phase Angle Measuring or Out-of-Step	ANSI 78

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