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

**POWER PRODUCTS**

<table>
<thead>
<tr>
<th></th>
<th>APM403S/ APM403P</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADRATIC</td>
<td>X</td>
</tr>
<tr>
<td>MONTANA</td>
<td>0*</td>
</tr>
<tr>
<td>ATLANTIC</td>
<td></td>
</tr>
<tr>
<td>OCEANIC</td>
<td></td>
</tr>
<tr>
<td>PACIFIC II</td>
<td></td>
</tr>
<tr>
<td>KD SERIES</td>
<td></td>
</tr>
</tbody>
</table>

**RENTAL POWER**

<table>
<thead>
<tr>
<th></th>
<th>APM403P</th>
</tr>
</thead>
<tbody>
<tr>
<td>RENTAL COMPACT</td>
<td>0**</td>
</tr>
<tr>
<td>RENTAL CONTENERGY</td>
<td></td>
</tr>
</tbody>
</table>

- Standard
- Option
- X Not available
- * From 77 kVA (J77)
- ** Standard from 450 kVA (R450C3)
**DESCRIPTION OF THE APM403**

**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.

**PRODUCT SPECIFICATIONS**

**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**

**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 à 480VAC phase / phase
- Nominal current range: In = 5A
- Battery range: 8 à 36V

**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.

<table>
<thead>
<tr>
<th>Option Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEA12</td>
<td>Remote management/supervision via ETHERNET report</td>
</tr>
<tr>
<td>CEA72</td>
<td>Remote management/supervision via GSM</td>
</tr>
<tr>
<td>CEA73</td>
<td>Remote management/supervision via 4G</td>
</tr>
</tbody>
</table>
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

## CONFIGURATION A612

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

<table>
<thead>
<tr>
<th>WITHOUT MAINS PARALLELING</th>
<th>With self-regulating automatic transfer switch</th>
<th>A612</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>With manual circuit breaker</td>
<td>A612</td>
</tr>
</tbody>
</table>

- **APM403S**
  - **Circuit breaker control**
  - **Current and voltage measurement**

![Diagram showing CONFIGURATION A612 with APM403S](image-url)
**APM403P**

**CONFIGURATION A612**

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

<table>
<thead>
<tr>
<th>WITHOUT MAINS PARALLELING</th>
<th>With motorized circuit breaker controlled by the APM403</th>
<th>A612</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- 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**

**CONFIGURATION A661**

Single generating set, with mains power, with automatic transfer switch, **long time paralleling**
## GENSET AND MAINS
### SAFETY FEATURES

<table>
<thead>
<tr>
<th>PROTECTION</th>
<th>ANSI CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring of authorization for coupling two parts of the mains</td>
<td>ANSI 25</td>
</tr>
<tr>
<td>Protection for monitoring undervoltage</td>
<td>ANSI 27</td>
</tr>
<tr>
<td>Maximum active/reactive power</td>
<td>ANSI 32</td>
</tr>
<tr>
<td>Minimum active power</td>
<td>ANSI 37P</td>
</tr>
<tr>
<td>Protection against phase current imbalance</td>
<td>ANSI 46</td>
</tr>
<tr>
<td>Protection against reverse voltage and detection of reverse machine rotation</td>
<td>ANSI 47</td>
</tr>
<tr>
<td>Three-phase protection against short circuits between phases</td>
<td>ANSI 50</td>
</tr>
<tr>
<td>Three-phase protection against overloads and short circuits between phases</td>
<td>ANSI 51</td>
</tr>
<tr>
<td>Protection for monitoring overvoltage or undervoltage</td>
<td>ANSI 59</td>
</tr>
<tr>
<td>Protection against abnormally high frequency</td>
<td>ANSI 81H</td>
</tr>
<tr>
<td>Protection against abnormally low frequency</td>
<td>ANSI 81L</td>
</tr>
<tr>
<td>Protection against rapid uncoupling of two parts of the mains</td>
<td>ANSI 81R</td>
</tr>
<tr>
<td>Protection against uncoupling upon vector surge</td>
<td>ANSI 78</td>
</tr>
</tbody>
</table>