

# **User Manual User Level**

## **Controller**

### **APM303**

- The "user level" user manual is designed for users who are qualified to set up an installation (generating set and environment). These users must be able to monitor that the generating set is operating correctly (start, stop, basic settings), to interpret any indications (mechanical, electrical) and may be required to check one or more parameters.
- The "operator level" user manual is designed for those who – in addition to the skills required for users – have the skills required to modify one or more parameters, to change the operation of an installation (generating set and environment). To do this, the operator will have completed training provided by the manufacturer beforehand.
- The "specialist level" user manual is designed for those who – in addition to the skills required for operators – have the skills required to make any special or complex modification to an installation (generating set and environment). To do this, the specialist will have completed training provided by the manufacturer beforehand.

abbreviations used: GS = Generating Set  
ATS = Automatic Transfer Switch

1 - Safety instructions

- Read the safety instructions on starting up a GS. (see General and Safety Manual)
- When the GS is off, the control unit may be powered by a dangerous voltage (preheating, battery charger).
- When on, the **APM303** is powered by a dangerous voltage.
- The **APM303** has been factory preconfigured; modifying its parameters may make the generating set unstable.

2 - Powering on

- Close the battery isolator (if fitted),
- Turn the switch on the front of the central console **ON** (if fitted).

3 - Checks before starting

- Battery voltage,
- Engine oil level,
- Coolant level,
- GS circuit breaker open.
- If the **ALARM!** LED is flashing, refer to section 7.

4 - Front panel, buttons and LEDs



- **STOP** button stops the GS and acknowledges the fault (if **ALARM!** is flashing)
- **AUTO** button selects **AUTO** or **MANUAL** mode
- **START** button starts the GS
- other buttons access to screens (see section 13)

- LED off
- LED on
- LED flashing

**ALARM!**

- no anomaly (alarm or fault)
- fault detected but cleared
- anomaly detected (alarm or fault)

**AUTO**

- **MANUAL** mode by default
- **AUTO** mode selected
- **remote start/stop** on/engine cooling

**RUN**

- GS stopped
- GS started (**MANUAL** mode)
- start or stop in progress

5 - Operation in MANUAL mode: GS on

- **MANUAL** mode inhibits **AUTO** mode.
- If the **ALARM!** LED is off (no fault present), it is possible to start the GS.
- Press the **START** button, the **RUN** LED flashes, the GS starts.
- When the voltage and frequency have stabilised, the **RUN** LED becomes fixed.
- Manually close the GS circuit breaker; the GS takes load or is ready to take load.
- Check the electrical and mechanical values on the **APM303** screens (see section 13).

5 - Operation in MANUAL mode: GS off

- Manually open the GS circuit breaker (the power is cut off).
- Allow the engine to cool down for 3 minutes.
- Press the **STOP** button, the **RUN** LED goes off, the engine stops.

6 - Operation in AUTO mode

- The **AUTO** mode is active only if the **AUTO** LED is fixed.
- Check that the GS circuit breaker is closed.
- Press the **AUTO** button, the **AUTO** LED lights up, **AUTO** mode is selected.
- Start up is possible if the **ALARM!** LED is off.
- Start-up is launched on activation of the **remote start/stop** input, which must be a (\*) **potential-free** contact (no AC or DC voltage). (\*) e.g. coming from a self-regulating ATS.
- On activation of the input, the **RUN** LED flashes and the GS starts.
- When the voltage and frequency have stabilised, the **RUN** LED becomes fixed and the GS takes over.
- On deactivation of the **remote start/stop** input, the **RUN** LED flashes.
- After a cooling period (3 minutes (\*\*)), the GS stops and the **RUN** LED goes off.
- The **AUTO** LED remains on, the GS is on standby, ready for another start. (\*\*\*) If an ATS is fitted, the total number of cooling periods must be correctly adjusted.

- **MANUAL** mode takes priority over active **AUTO** mode:
  - pressing the **START** button activates **MANUAL** mode,
  - pressing the **STOP** button stops the GS.

7 - Appearance of an anomaly

- If the **ALARM!** LED flashes (see section 13), this means that an anomaly (alarm or fault) has been detected.

alarm = GS not stopped	fault = GS stopped
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• To view the anomaly, press  $\nabla$  or  $\blacktriangle$  to show the screen below:



- A The anomaly appears with an order number
- B Pictogram symbolising the anomaly (see sections 9 and 11)
- C Anomaly status (fault only, see section 10)
- D Number of hours GS has been operating when anomaly appeared
- E See section 13 when  $\downarrow$  flashes

*Note:* this screen also shows the events (see section 12).

8 - Active and inactive alarm

- active
- inactive
- An alarm cannot be cleared: it becomes inactive even after intervention from the user.

9 - List of alarms

- Battery voltage low or charging alternator not working
- flat battery
- low fuel level
- GS overload
- alternator phase rotation
- alarm input no. x (x=1, 2 or 3)
- GS maintenance to be carried out (non-contractual) activation conditions, see user manual, operator level

10 - Active and inactive faults - Clearing

active, not cleared		19397.0	
inactive, not cleared		19397.0	
active, cleared after pressing		19397.0	
inactive, cleared after pressing		19397.0	

11 - List of faults

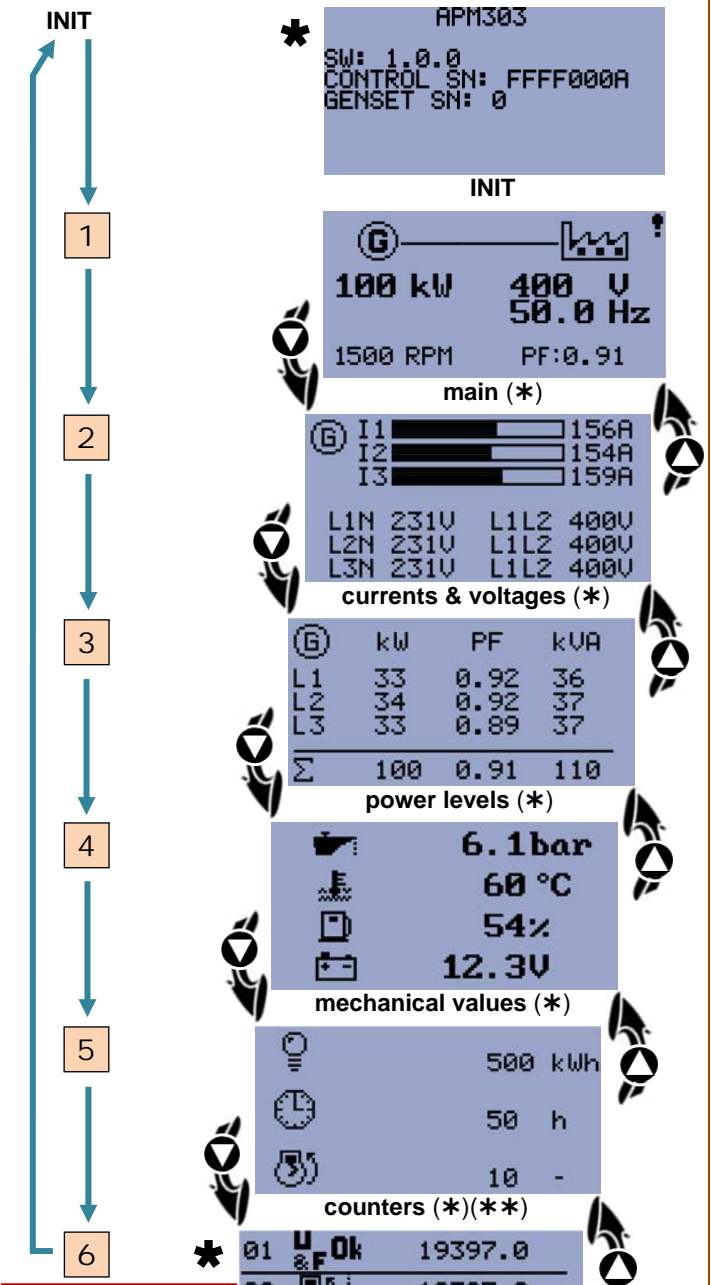
- emergency stop
  - low fuel level
  - low oil pressure
  - coolant temperature high
  - speed too high
  - speed too low
  - max. alternator voltage (59)
  - min. alternator voltage (27)
  - max. alternator frequency (81H)
  - min. alternator frequency (81L)
  - alternator short circuit (50/51)
  - GS failure to start
  - GS failure to stop
  - fault input no. x (x=1, 2 or 3)
  - Circ. breaker pos. inconsistent
- activation conditions, see user manual, operator level

12 - Events list

- The APM303 is powered on
- start up in **MANUAL** mode
- start up in **AUTO** mode
- stop in **MANUAL** mode
- stop in **AUTO** mode
- AUTO** mode is activated
- AUTO** mode is deactivated
- GS stabilised
- automatic start when battery low
- automatic stop after battery recharge
- Modbus order received (see Modbus manual)

13 - Displaying the different screens

- Automatic scrolling through 7 screens (1 to 6 + INIT).
- Manual scrolling through 6 screens (1 to 6), by pressing repeatedly on or .



\* visible in automatic scrolling if:  
 -alarm active  
 -fault active  
 -fault not acknowledged

possible if ↓ is flashing

12 - Events and anomalies

When ↓ is fixed (after 4 seconds), the list of events and anomalies can be viewed by pressing .

02		19397.0	
03	AUTO	19397.0	
04		19397.0	
05		19396.0	
03	AUTO	19397.0	
04		19397.0	
05		19396.0	

etc.

When the no. 12 appears at the bottom of the screen, pressing again displays screen 1.

(\* non-contractual indications (\*\* RESET not possible)

14 - Dual output report pack (optional)

"general alarm and fault" and "GS ready to take load"