FUEL/OIL STORAGE MAINTENANCE AND COMPLIANCE

BundGuard® 6 and ORS

The market-leading, intelligent bund alarm, dewatering and oil recovery system



Pollution prevention, sustainability, compliance and peace of mind for site operators

ANDEL

Making water sustainable for a cleaner and safer environment.

BundGuard® 6

BundGuard® 6 brings the latest communications technology and functionality to Andel's market-leading bund dewatering system.



With two-pump capabilities and the option for larger pumps, the 5G-enabled BundGuard® 6 offers a range of enhanced features to site operators:

- 2-pump capabilities
- LCD screen menu display
- High Oil Alarm
- High Oil Alarm Delay (0-60 min)
- High Water Alarm
- Low Water Alarm
- Low Oil Alarm – Oil In Dry Bund Alarm
- Pump Current Monitoring and Maintenance Alarm
- Mains Failure Alarm
- System Fault Alarm
- Pump Disable Alarm
- Connector Disconnection Alarm
- Textual Alarms
- Historical data
- Pump delay customisation
- Outlet water meter support
- Auto changeover
- Over-current disable
- Probe conductivity sensitivity configuration
- FilterSepta® integration
- Multi-language support: Polish, French, Italian, Dutch and English
- Oil recovery system
- Battery backup for communications
- Modbus RTU interface
- Configurable parity on Modbus via menu
- Range of volt-free contacts for onward communications to BMS
- 5G GSM modem
- Multiple forwarding numbers for GSM – maximum 5

Optional xenon amber flashing alarm beacon

Compact, vandal-proof with light diffuser for improved visibility. Weatherproof to IP67. Choice of installation locations.



Benefits at a glance:

- 10-year control panel warranty
- Low maintenance
- Early warning alarm for abnormal oil level – allowing for timely action to prevent damage to the environment
- Fully automatic water pumping
- Dry sump alarm
- Oil in dry sump alarm
- Array of onward communications – VFC (volt-free contact), Modbus and SMS
- Pump current monitoring and maintenance alarm – extends the life of your pumps



BundGuard® protects your site 24 hours a day, 7 days a week, 365 days a year.

The BundGuard® bund dewatering system was first developed in 1992 for the UK electricity industry and its growing need for an effective dewatering solution at substation sites.

Today, over thirty thousand BundGuard® units are installed in 20 countries around the world, protecting site operators, preventing fuel and oil from escaping and contaminating the environment.

BundGuard® is a sustainable, cost-effective and easy-to-fit dewatering and high-oil alarm sysyem, comprising robust UV-resistant control panel, submersible sensor/pump assembly and mounting system.

BundGuard® expels rainwater and keeps oil contained within the bund.

BundGuard® discriminates between oil and water, keeping oil contained and expelling water from the contained or bunded area.

The robust, stainless-steel submersible sensor unit monitors the different liquid levels in the sump via a series of conductive probes that can be configured as required. The mounted control panel activates the pump to remove only water that is safe to sewer or interceptor.

Failsafe systems and a range of relay alarm outputs ensure complete safety and allow onward communication to BMS and other remote monitoring systems.

BundGuard® is robust, reliable and can be adapted to suit a variety of site conditions.

BundGuard® provides peace of mind, ensures compliance with regulations and removes the need for regular bund emptying by waste contractors, reducing costs, carbon footprint and environmental impact.

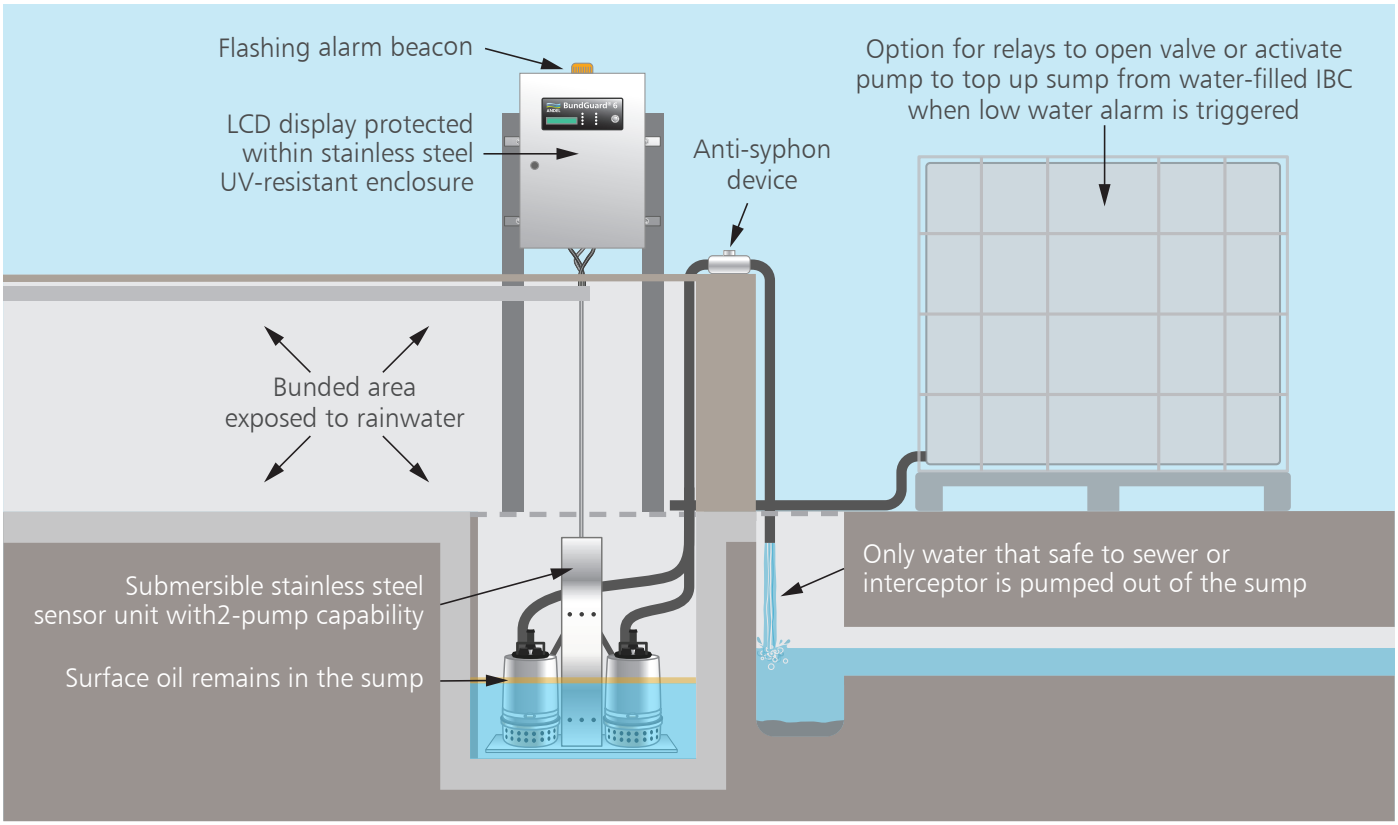
BundGuard® is available in a number of specifications to suit site conditions and customer requirements.

BundGuard® can be relied upon to consistently give accurate readings, avoiding 'chattering', a common problem with dewatering systems, where sensor units give false readings, repeatedly activating on and off with the risk of damaging pumps and burning out components.

BundGuard® control panel and submersible sensor unit are supplied in robust, UV-resistant, stainless-steel enclosures.

With regular maintenance, BundGuard® units have proven to perform for upwards of 15 years in all weather conditions.







BUNDGUARD® 6 TECHNICAL INFORMATION

STAINLESS STEEL CONTROL PANEL:

- Power: 110/230Vac, 440 Watts (1 pump running), 970 Watts (2 pumps running)
- Construction: Stainless steel, IP66 rated
- Dimensions: (H) 415 x (W) 311 x (D) 118 mm
- Indicator LEDs:
  Power – GREEN
  High Oil Alarm – RED
  High Water Alarm – RED
  Low Water Alarm – RED
  Oil In A Dry Bund Alarm – RED
  System Fault – RED
  Pump 1 Active – GREEN
  Pump 2 Active – GREEN
  Pump 1 Disabled – YELLOW
  Pump 2 Disabled – YELLOW
- Display: 2 x 16 characters LCD for pump cycle counter and system status plus set-up menus when accessed
- Fixing: wall/surface mount via external fixing lug

STAINLESS STEEL SENSOR UNIT:

- Power and Voltage: nominal
- Construction: Stainless steel, immersion proof
- Dimensions: (H)550 x (W)240 x (D)285 mm
- Fixing: Free standing in base of sump

STANDARD PUMP:

- Power: 250W
- Voltage: 220-240Vac/50Hz
- Construction: 304 stainless steel with mechanical shaft seal
- Dimensions: (H)320mm x (W)168mm
- Weight: 6kg
- Max Flow: 140 litres per minute
- Max Head: 8m
- Outlet: 1.25 inches BSP
- Fixing: Integrated as part of the sensor unit

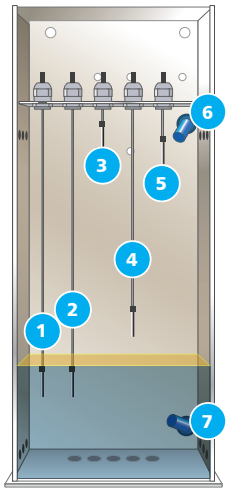
FIXING AND CONFIGURATION:

BundGuard® is supplied complete with a fixing kit, anti-syphon device and 5 metres of 18 bar flexible hose. The unit is configured in the factory prior to delivery though some on-site adjustment may be required on installation. No further calibration is required. Maintenance should be carried out every 6 to 12 months depending on site conditions.

PLUG-AND-PLAY OPTION:

A Plug-and-Play option is also available to simplify site maintenance where site conditions mean that BundGuard® units may require more frequent attention. All connections between the sensor unit and the control panel are via IP68 connectors.

The sensor unit is equipped with conductive probes and oil float switches that can be configured to suit each individual installation.



1. COMMON PROBE
2. LOW WATER LEVEL PROBE
3. HIGH WATER LEVEL PROBE
4. PUMP STOP PROBE
5. PUMP START PROBE
6. HIGH OIL LEVEL FLOAT SWITCH
7. LOW OIL LEVEL FLOAT SWITCH – OIL IN DRY BUND ALARM

The Common Probe 1 is a reference probe for the measurement of conductivity between the other conductive probes within the sensor unit.

The sensitivity of the probes can be configured to suit any site conditions, ensuring BundGuard® always delivers optimum performance, even in bund water that has developed low conductivity.

The control panel recognises conductivity between probes and activates the pump when the water level reaches the Pump Start Probe 5 and switches the pump off when the water level drops below the Pump Stop Probe 4.

If the water rises and reaches the High Water Alarm Probe 3 the system goes into alarm and the second pump is activated. If water in the sump drops below the Low Water Level Probe 2, the system will go into alarm, stopping the pump, with an option for relays to operate a valve or pump to top up the sump from a water-filled IBC.

The High Oil Float Switch 6 puts the control panel into High Oil Alarm. As the oil level drops below the float switch, the alarm is deactivated. If the water level was above the Pump Start Probe, the pump will continue to pump only water until the water level drops below the Pump Stop Probe 4.

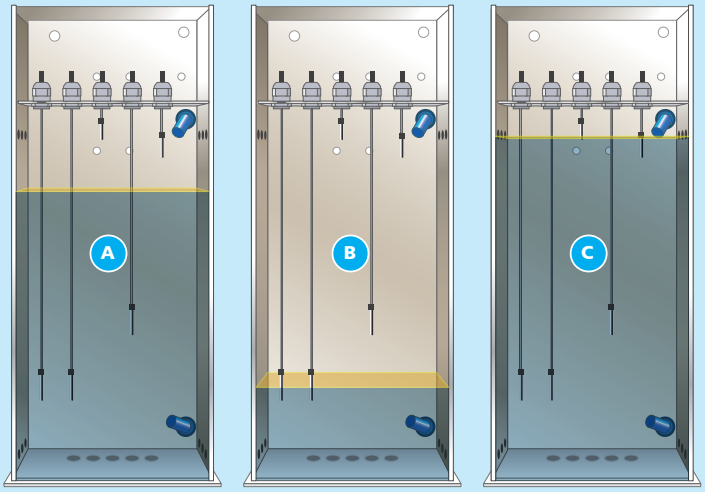
The Low Oil Float Switch 7 puts the control panel into Low Oil Alarm if no water is detected between the Common Probe 1 and the Low Water Level Probe 2.

All alarms initiate onward communication to BMS and other monitoring systems via Modbus, email and SMS. BundGuard® 6 has been developed to deal with a range of site conditions and climates.

BundGuard® prevents oil from a bund entering the ground or watercourse and causing a pollution incident.

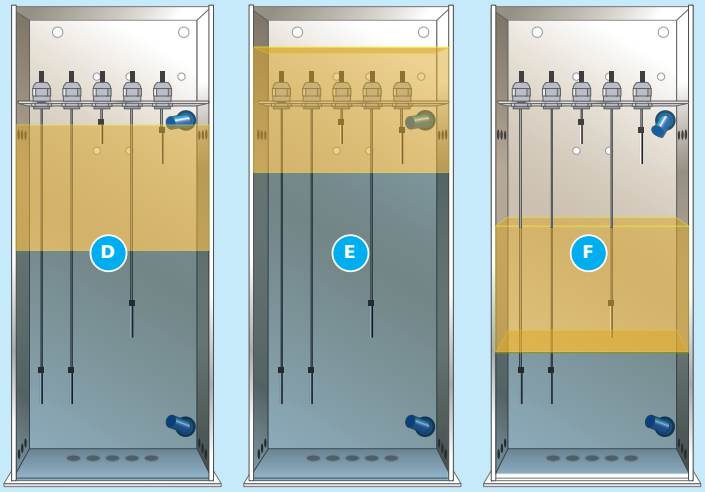
BundGuard® provides a failsafe, dewatering and high oil alarm system with a range of relay alarm outputs, ensuring complete safety with onward communication to BMS and other remote monitoring systems.

Sensor unit cycle with varying water levels and a thin film of oil:



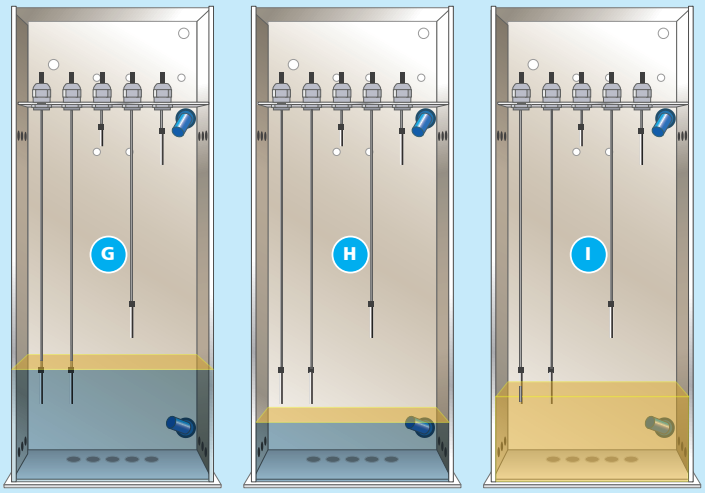
- **A** If water entering the sump reaches the level of the Pump Start Probe, the control panel activates the pump and water is pumped out of the sump.
- **B** When the water level is pumped below the Stop Pump Probe, the control panel deactivates the pump. Any oil on top of the water remains a safe distance from the pump inlets.
- **C** If the water level continues to rise due to an unusually high volume of water entering the sump (greater than 150 l/min) and reaches the level of the High Water Level Probe, the control panel will go into High Water Level Alarm and the second pump will be activated if fitted.

Sensor unit cycle with varying water levels and a significant volume of oil:



- **D** When water entering the sump raises the level of oil to the High Oil Level Float Switch, the system goes into High Oil Alarm. The pump is not activated because the water level has not reached the Pump Start Probe.
- **E** If the water level continues to rise and reaches the Pump Start Probe, still in High Oil Alarm, the pump is activated and pumps only water out of the sump until the water level drops below the Pump Stop Probe.
- **F** When oil is no longer lifting the High Oil Float Switch, the control panel will no longer be in High Oil Alarm and the activity will have been logged for future analysis. Any oil on top of the water always remains a safe distance away from the pump inlets.

Sensor unit function with low water and no water alarm:



- **G** BundGuard® functionality relies on there always being water in the sump and any oil in the sump floating on the surface of the water, remaining a safe distance from the pump inlets.
- **H** If the water level drops below the Low Water Level Probe, the system will go into alarm, stopping the pump and sending onward communication to remote monitoring systems. There is an option for relays to control a valve or pump to top up water in the sump from an IBC when the low water alarm is triggered.
- **I** If the sump is dry and the Low Oil Level Float Switch – Oil In Dry Bund Alarm is activated, the system will shut off and the pump inlets will be contaminated with oil. The pump inlets need cleaning and the sump needs topping up with water before the system can operate safely again.

BundGuard® ORS

BundGuard® Oil Recovery System has been specifically developed to recover excessive oil on sites with leaking transformers.

Excess oil in a bund vastly increases the risk of a pollution incident as well as requiring regular and costly oil removal from a tankering service.



BundGuard® ORS recovers excess oil from a bund while continuing to safely remove excess rainwater, discriminating between oil and water.

Benefits at a glance:

- 10-year control panel warranty
- Low maintenance
- Reduces the risk of a pollution incident
- Reduces tankering costs
- Reduces environmental impact
- Reduces the need for regular engineer visits by eliminating repeated high oil alarm notifications
- Recovered oil can be recycled or sold
- Array of onward communications – VFC (volt-free contact), Modbus and SMS
- Pump current monitoring and maintenance alarm

The BundGuard® ORS system is a modification of BundGuard® 6 comprising control panel, submersible sensor/pump assembly and mounting system.

The upper pump removes excessive oil from the surface of the sump fluid, pumping the oil to an IBC. A non-return valve in the oil pump prevents oil returning to the sump.

When the pre-set water level is reached, the lower pump is activated, operating independently, removing excess rainwater from the sump to a level that always keeps the lower pump primed. BundGuard® ORS discriminates between water and oil, maintaining the required 110% capacity of the bund.

The control panel automatically activates and deactivates the pumps, manages visual indicators and alarm outputs and the LCD display and LED indicators show system status at all times.

A float switch, attached to the IBC where the oil is being stored will trigger an alarm and instantly disable the oil pump when the vessel is full. The control panel sends a simultaneous alarm to BMS and other remote monitoring systems so that prompt action can be taken.

BUNDGUARD® ORS TECHNICAL INFORMATION

SUPPLY VOLTAGE:

- 230Vac, 50 Hz

POWER CONSUMPTION:

- 4.5W (standby)
- 970W (pumps running)

FUSE RATING:

- Control: FS1 0.5A 240Vac T1 20mm
- Pump 1: FS1 5A 240Vac T5 20mm
- Pump 2: FS1 5A 240Vac T5 20mm
- Mains Alert (common alarm output): FS1 1A 240Vac T1 20mm

WEIGHT:

Control: 5.9Kg
Sensor and pumps: 8.45Kg

PUMP FLOW RATE:

140 litres per min @ 2-3m head

STAINLESS STEEL CONTROL UNIT:

- Dimensions: (H) 415 x (W) 311 x (D) 118 mm

STAINLESS STEEL SENSOR UNIT:

- Dimensions: (H) 555mm, (W) 180mm, (D) 230mm

ALARM RELAY RATINGS:

Mains failure alarm: 220Vdc @ 0.1 Amps
High oil alarm: 220Vdc @ 0.1 Amps
High level alarm: 220Vdc @ 0.1 Amps
IBC Full alarm: 220Vdc @ 0.1 Amps
System fault alarm: 220Vdc @ 0.1 Amps

Special builds

Andel has a team of experts that can adapt the BundGuard® system to deal with a variety of site conditions and special requirements.

Special-build units can detect a wide range of pollutants and contaminants, keeping them contained within the bund.

Special-build BundGuard® units can take inputs from other probes that can detect a wide range of pollutants and unwanted contaminants in site trade effluent, as well as interface to customers' existing pollutant detection systems.

If predetermined levels of a pollutant are detected, the system will go into alarm, deactivating the pumps and containing contaminants within the bund, preventing contamination to the drainage system. BundGuard® also alerts the site to initiate a response via BMS or other monitoring systems.

BundGuard® can be adapted to deal with a wide range of special-build and bespoke requirements.





Bespoke special-build installation, built to interface with an existing glycol alarm system.

Typical special-build requirements:

- Semi ATEX units – sensors and pumps for zone 0 areas and control panels fitted in non-hazardous areas
- Units linked to pH sensors
- Units linked to ammonia sensors
- Units linked to detect unwanted contaminants in site trade effluent
- Units linked to FliterSepta®, Andel's above-ground interceptor
- Control panels in GRP enclosures
- Automatic sump frost protector system for extreme cold weather conditions
- Power coupling for portable generators.

Additional products

FilterSepta®



BundGuard® is designed for use with an on-site, underground drainage interceptor to maintain the 110% capacity within an oil storage bund.

In the absence of a drainage interceptor, Andel recommends FilterSepta®, an above-ground interceptor and filter unit that guarantees a Class 1 discharge of water from the bund to surface water, adhering to EN858-1:2002.

FilterSepta® eliminates the need for costly underground interceptor or separator tank installation and maintenance and is ideal for both retrofit and new installations.

FilterSepta® comes with a 10-year UV-resistance warranty

SumpGuard®



SumpGuard® is a simple, cost-effective solution that provides additional protection to Andel's BundGuard® dewatering system when installed in sites susceptible to freezing temperatures.

SumpGuard® automatically monitors and modulates the temperature in the sump 24/7 with a submersible heating element that prevents water in the sump from freezing.

SumpGuard® allows BundGuard® to operate to full efficiency ensuring bunded areas remain free of water wherever there is a risk of freezing weather conditions.

For over a quarter of a century Andel has supplied specialist products and services to many of the world's leading blue chip organisations.

ScottishPower · sse · nationalgrid · UK Power Networks · Northern Ireland Electricity Networks

TAURON Polska Energia · enel · ESB Energy for generations · EDF · TenneT

TasNetworks · Terna Driving Energy · arriva · DB · SNCF

RFI Rete Ferroviaria Italiana Gruppo Ferrovie dello Stato Italiane · UNDERGROUND · NetworkRail · B · PKP

Microsoft · GLOBAL SWITCH · Google · TATA STEEL · outokumpu

AIRBUS · CBRE · mitie · servest · ISS · sodexo

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ANDEL

Making water sustainable for a cleaner and safer environment.

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