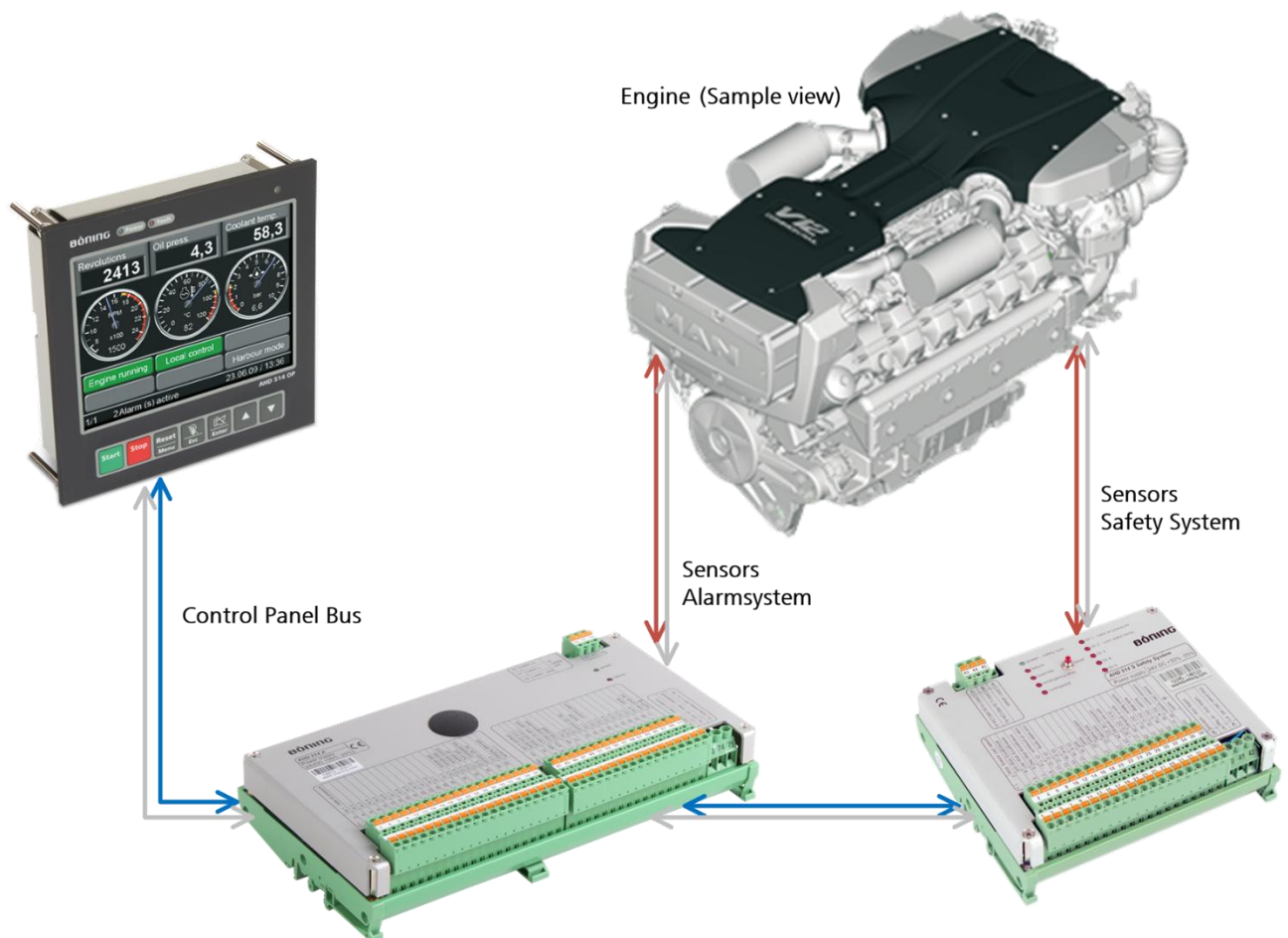


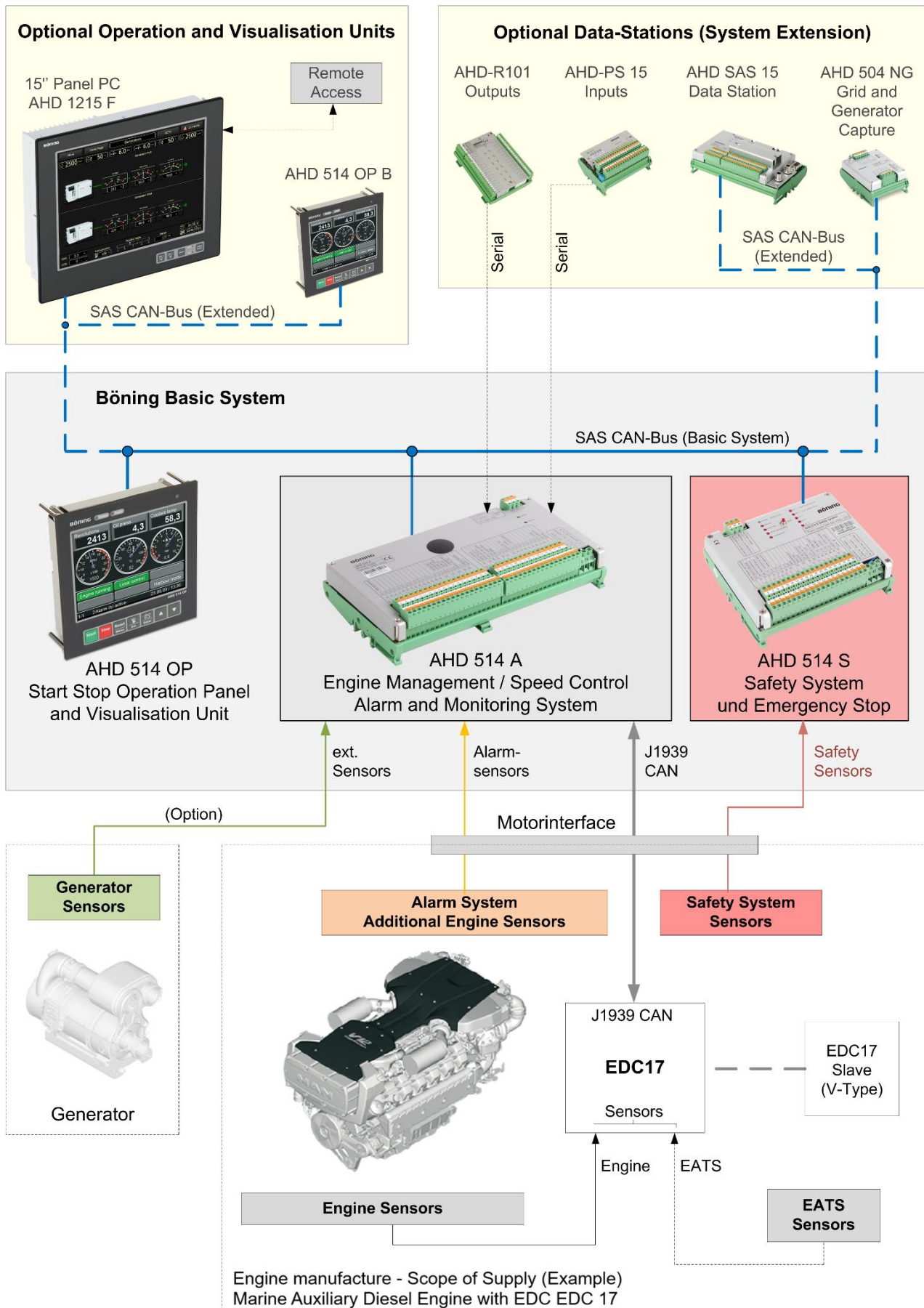
AHD 514 System

Engine Monitoring with Safety and Control function



- ***Solution for monitoring and controlling marine diesel engines and generators***
- ***Certified according to the guidelines of the main classification societies (ABS, BV, CRS, DNV, LR, RS)***
- ***Complete solution with class compliant safety and emergency stop system***
- ***System is flexible and configurable for many engine types***
- ***Compact control panel with color display and integrated start/stop function***
- ***Thanks to its integrated drive management function, it can also be used with current engine generations (e.g., engines equipped with an EDC17 control unit)***
- ***Features: Dynamic alarm limits, start/stop, speed adjustment via CAN bus, ramp function and adjustable idling phase after engine start***
- ***Extendable with addition of extra modules***
- ***Meets today's demands on functionality and quality; many thousands of systems are already in use worldwide***

System Overview



System Description

The AHD 514 system family has been enhanced for controlling and monitoring genset drives equipped with the latest engine control units (such as the EDC 17).

The basic system consists of:

- AHD 514 A alarm and monitoring system with integrated start / stop functions
- AHD 514 S safety and emergency stop system
- AHD 514 OP operation panel for starting, stopping and displaying engine data and alerting

The device AHD 514 OP B works as a remote start/stop station. The available system inputs and outputs meet all classification requirements.

Additional modules for systems extensions (AHD-SAS 15, AHD-PS 15, AHD-R 101, AHD 504 NG) can be easily integrated to include other special or custom functionalities.

All data of the AHD 514 system are broadcast on the common SAS CAN Bus, so that the system can be connected to larger Panel PCs, or the Böning Vessel Monitoring System or Integrated Bridge System.

Alarm and monitoring system AHD 514 A

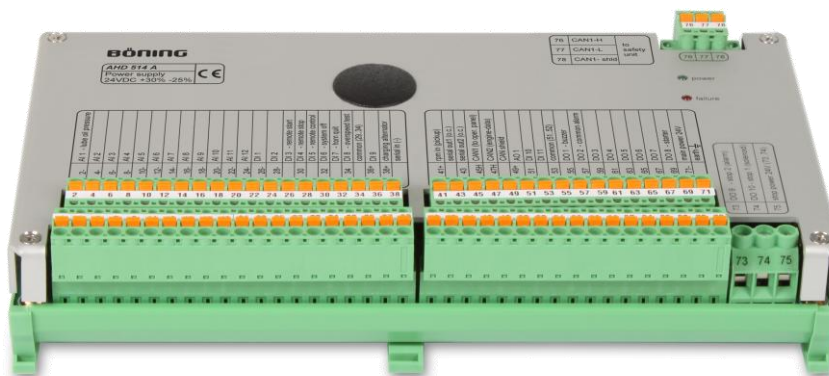
AHD 514 A works as a combined alarm and monitoring system with integrated start / stop function. As a central system component, the device fulfills all the requirements for correct interfacing with the respective engine control unit.

For operation with EDC17 based engines, a VCU software module was integrated, which provides the function of an *engine management computer* and provides the necessary communication protocols.

The integrated alarm and event memory stores up to 30,000 alarms and events. The most recent 56 entries can be displayed on the operation panel AHD 514 OP. All logged events can also be read out with the Böning configuration tool DeviceConfig and transferred to a PC.

AHD 514 A Main features:

- Input / Output
 - 12 inputs for analog and binary sensors
 - Inputs for control signals (i.e., start, stop, speed adjustment, acknowledgment)
 - Outputs for control signals and signal transmitters
 - Configurable analog outputs
 - 2 wire-break monitored stop outputs
 - Direct connection for AHD-R101, AHD-PS 15 (System extension)
 - 2 CAN busses and RS485 (optional)
- Functions
 - Idling phase adjustable after engine start
 - Dynamic limit alerting
 - Speed adjustment via ramp
 - Warning and alarm parametrization
 - Safety system (AHD 514 S) monitoring and simultaneous safety stop
 - Self-monitoring device with system failure alarm
 - Alarm and event history
- Communication (J1939 CAN)
 - Engine start/stop
 - Speed specification (setpoint speed via ramp)
 - Processing of engine sensors (via control unit)
 - Handling of date, time and operating hours
 - Handling of EDC17 protocol, status and error messages (DM1 master / slave messages)



AHD 514 A

Safety System AHD 514 S

AHD 514 S is a device that combines safety and emergency functions, to meet the classification societies' requirements for ship's diesel engines monitoring.

The device monitors the necessary redundant sensors, and initiates an automatic safety stop if the stop criterion is fulfilled. With a separate power supply, it works independently from the rest of the system. The triggering of an emergency stop generates its own stop signal. This function is also available in the event of a processor failure.

AHD 514 S Main features:

- Input / Output
 - 5 wire-break monitored inputs (binary)
 - 2 wire-break monitored emergency stop inputs
 - Speed detection (pickup)
 - Inputs for control signals (i.e., reset, acknowledgement, override, test)
 - Outputs for control signals and signal transmitters
 - Analog output (local speed display)
 - 3 wire-break monitored stop outputs (stop / operating magnet, quick-closing flap, emergency stop system)
 - CAN bus
- Functions
 - Emergency stop system with independent power supply and control function
 - Emergency stop system monitoring
 - Stop override (except overspeed)
 - Test overspeed stop
 - Self-monitored device with system failure alarm
 - Reset button and LED indicators on the front plate



AHD 514 S

Operation Panel AHD 514 OP

AHD 514 OP is a compact operation panel for console installation. It comes with a 5.7" display, auto-dimming functions, and dedicated alarm and history pages.

Its integrated start and stop buttons allow direct start and stop from the control panel. Additional buttons are used for page switching, alarm acknowledgment and menu options.

AHD 514 OP B is intended to be the remote station (e.g., on the bridge) and can be used as a remote panel for remote start and stop the engine.

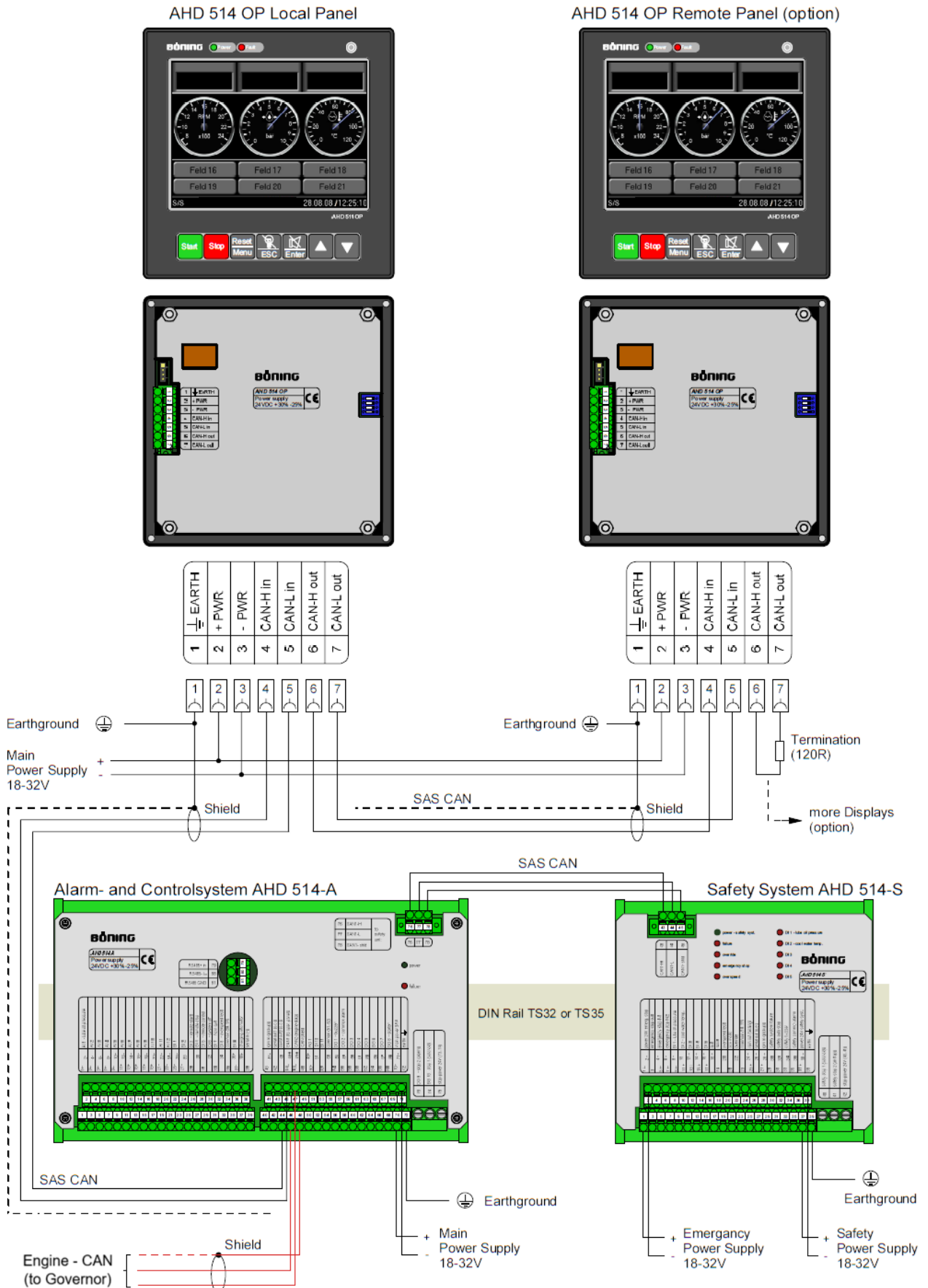
AHD 514 OP Main features:

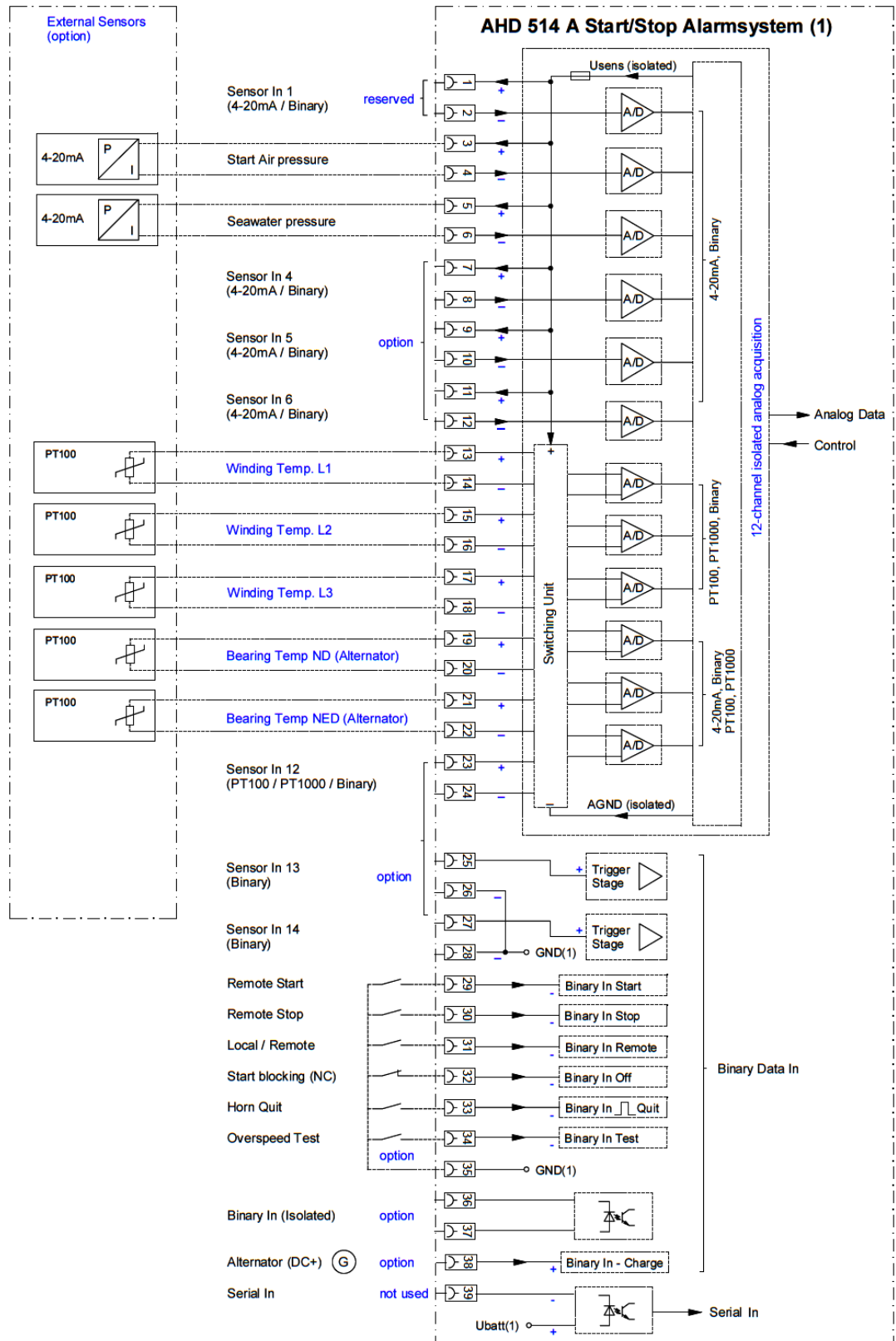
- Color display with 5.7" (500 cd/m² brightness)
- Integrated Start and Stop buttons
- Internal horn
- CAN bus

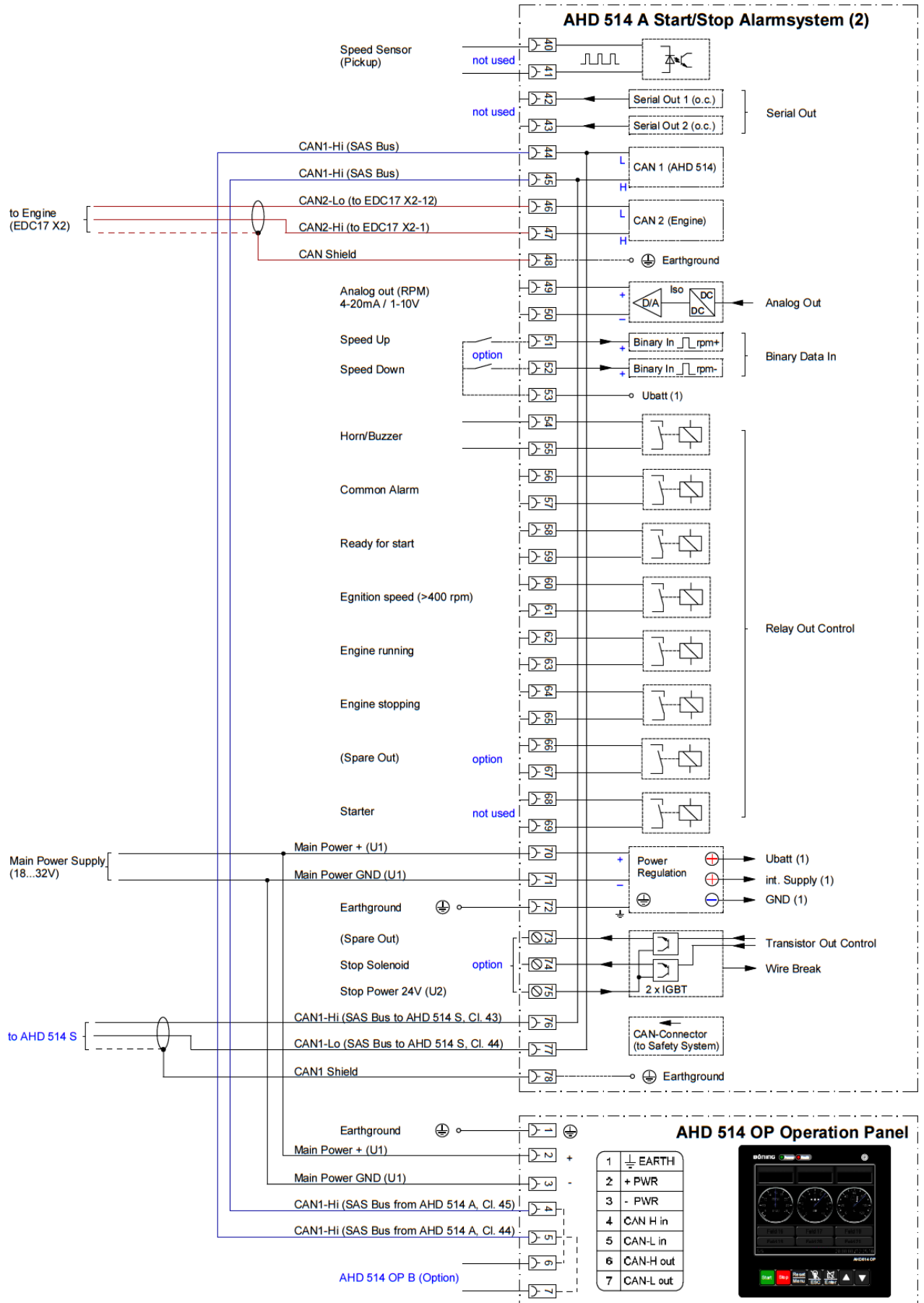


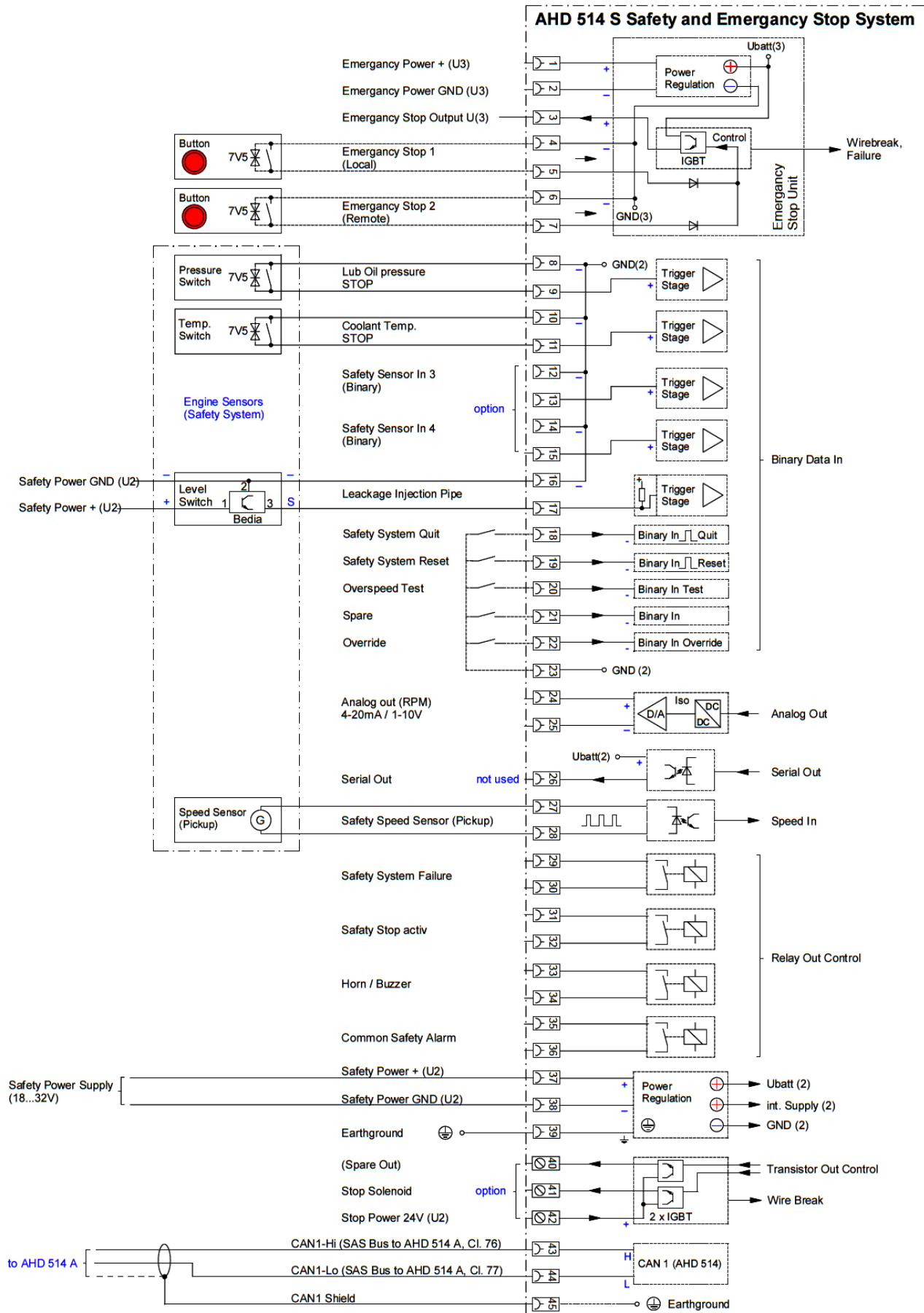
AHD 514 OP / AHD 514 OP B

Example of Generator Application (Auxiliary diesel engine with governor, connected via CAN)

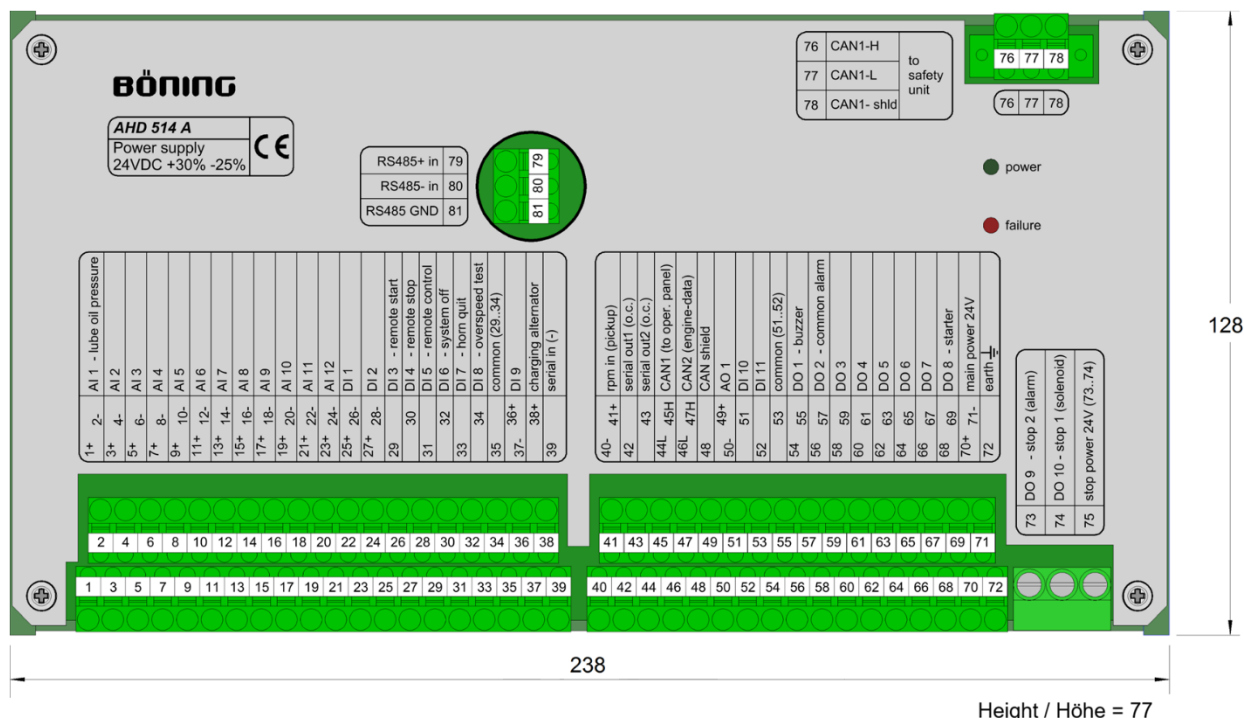








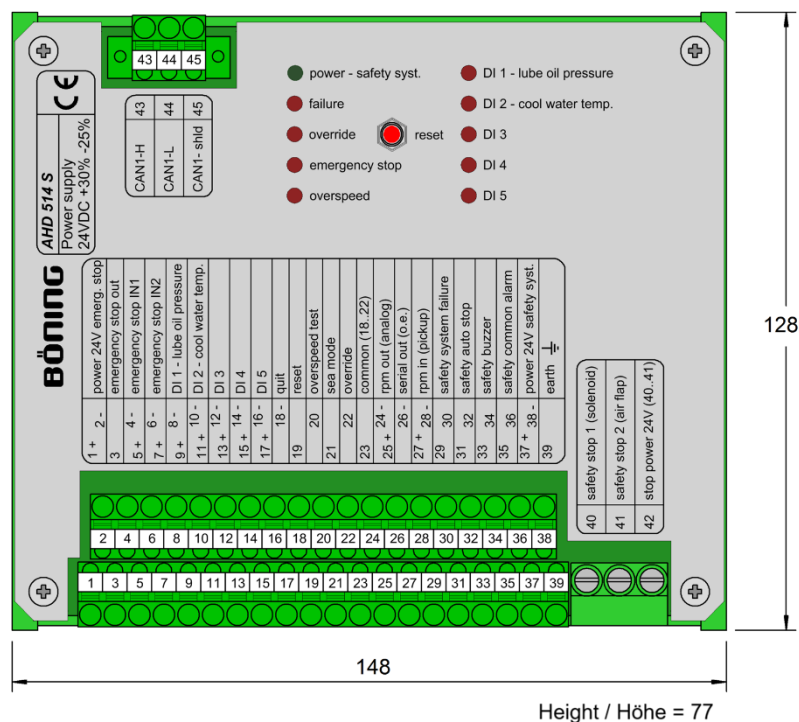
AHD 514 A: Image and Dimensions



AHD 514 A: Technical Data

Dimensions W x H x D	238 mm x 128 mm x 77 mm
Weight	Appr. 0,70 kg
Operating Temperature	-30°C ... +70°C
Storage Temperature	-50°C ... +85°C
Protection Class	IP 20
Power Supply	24 V DC (+30% / -25%)
Current Consumption	Max. 225 mA (24 V DC)
Inputs	6 x analog (4 – 20 mA) / binary 3 x analog (PT100/PT1000) / binary 3 x analog (4 – 20 mA) / (PT100 / PT1000) / binary Analog inputs can be parameterized 1 x engine speed input, galvanically isolated 2 x binary, wire break monitored 8 x binary (control inputs) 2 x binary (electronic fuse monitoring)
Outputs	8 x relay 6 A (32 V DC), potential-free (control outputs, starter relay) 2 x transistor, 8 A (32 V DC), wire break monitored, short-circuit-proof for engine stop 1 x analog output (4–20 mA / 1–5 V / 2–10 V) 2 x LED indicators
Ports	2 x CAN bus (communication / optional external engine bus J1939) 1 x RS232 (9-pin Sub-D, error diagnosis / log readout, firmware update) 1 x serial input (optocoupler) 2 x serial output (optocoupler)
Installation Type	Profile module housing, installation on DIN rail TS32 / TS35
Approvals	ABS, BV, CRS, DNV, LR, RS
Item Number	AHD 514 A: 12972 AHD 514 A COM: 14527

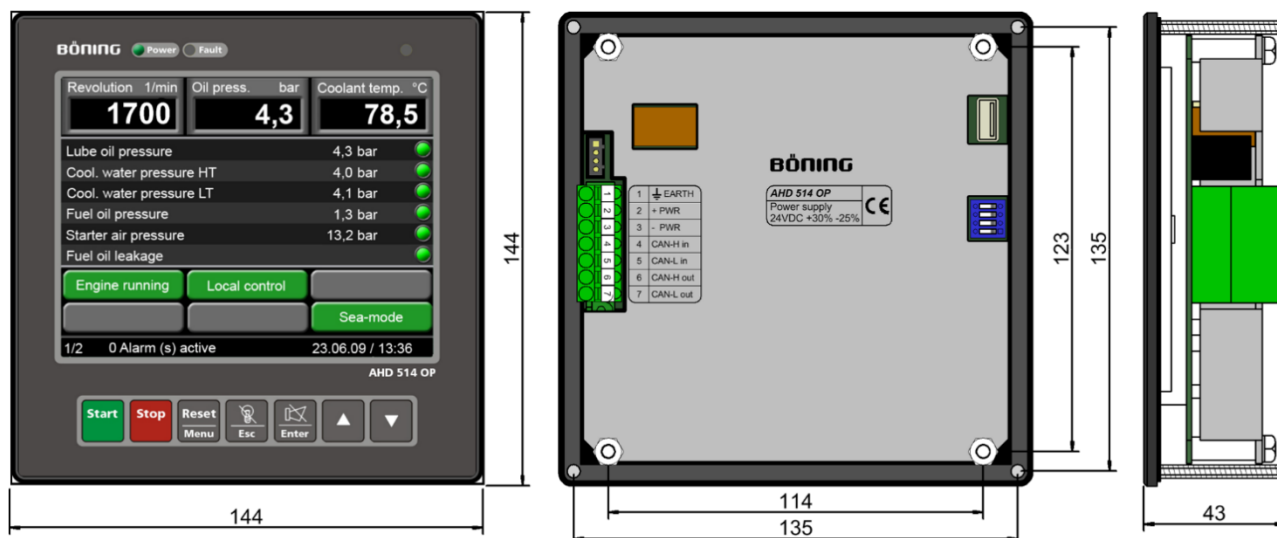
AHD 514 S: Image and Dimensions



AHD 514 S: Technical Data

Dimensions W x H x D	148 mm x 128 mm x 77 mm
Weight	Appr. 0.50 kg
Operating Temperature	-30°C ... +70°C
Storage Temperature	-50°C ... +85°C
Protection Class	IP 20
Power Supply	Safety system: 24 V DC (+30% / -25%) Emergency stop system: 24 V DC (+30% / -25%)
Current Consumption	Max. 98 mA (24 V DC)
Inputs	2 x binary, wire break monitored (emergency stop) 5 x binary, wire break monitored (stop criteria) 5 x binary (control inputs) 1 x engine speed input, galvanically isolated
Outputs	4 x relay 6 A (32 V DC), potential-free (for horn, collective alarm, etc.) 2 x transistor, 8 A (32 V DC), wire break monitored, short-circuit-proof (solenoid / operating solenoid, flapper valves; stop by safety system) 1 x transistor, 8 A (32 V DC), wire break monitored, short-circuit-proof (stop by emergency stop system) 1 x power output 4-20 mA (for external engine speed display) 10 x LED indicators
Ports	1 x CAN bus (communication) 1 x serial output (optocoupler)
Installation Type	Profile module housing, installation on DIN Rail TS32 / TS35
Approvals	ABS, BV, CRS, DNV, LR, RS
Item Number	12973

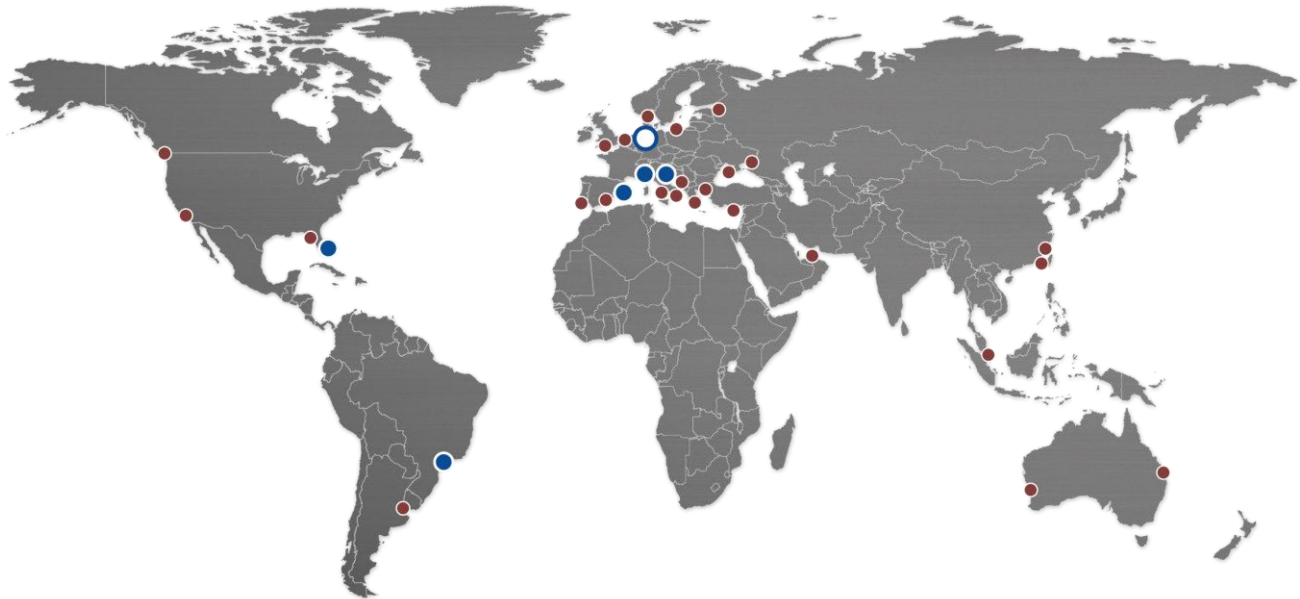
Operation Panel: AHD 514 OP / AHD 514 OP B: Image and Dimensions



AHD 514 OP / AHD 514 OP B: Technical Data

Dimensions W x H x D	144 mm x 144 mm x 43 mm
Panel Cutout, W x H	131 mm x 131 mm
Weight	Appr. 0.5 kg
Operating Temperature	-30°C ... +70°C
Storage Temperature	-50°C ... +85°C
Protection Class	IP 56 (front), IP 20 (rear)
Power Supply	24 V DC (+30% / -25%)
Current Consumption	Max. 200 mA (24 V DC)
Display	5.7" LCD color display
Viewable Screen Area	116 mm x 87 mm
Luminosity	500 cd/m²
Display Resolution	640 (h) x 480 (v) pixels
Color Depth	15 bits
Ports	1 x CAN bus (communication)
Installation Type	Housing for installation in panel cutout
Approvals	ABS, BV, CRS, DNV, LR, RS
Item Number	AHD 514 OP: 12974 AHD 514 OP B: 14503

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