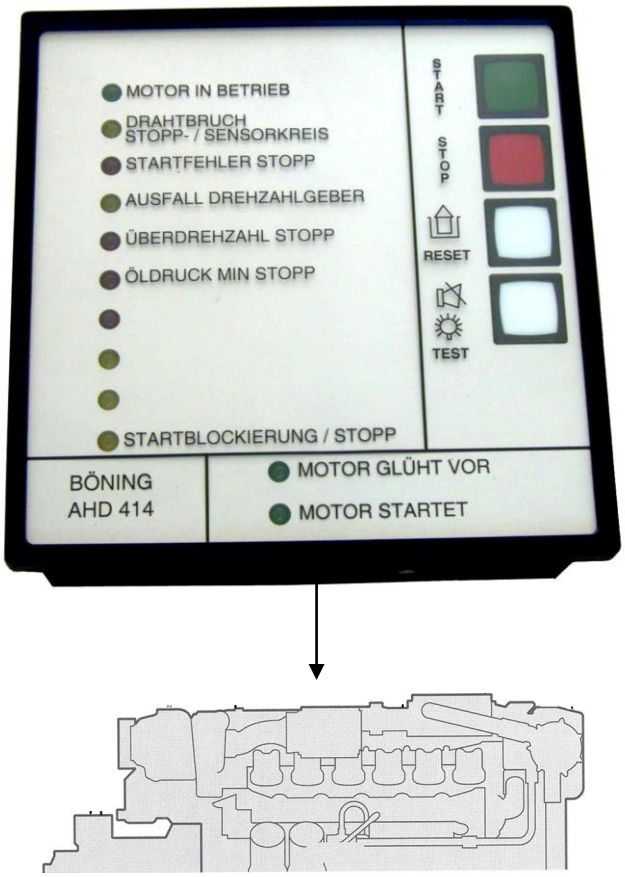
AHD 414 Start/Stop Diesel Monitoring Unit



- ***Compact system with all necessary functions for starting, stopping and monitoring of diesel generator sets***
- ***Panel installation in proven technology***
- ***Designed for auxiliary diesel generator sets and emergency or smaller main engines***
- ***Flexible and adjustable to application requirements***

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General Information

The AHD 414 Start/Stop Diesel Monitoring Unit is a compact unit designed for starting, stopping and monitoring diesel engines. A number of individual functions allow adaptation to various conditions. The device is designed for panel installation and constructed for auxiliary diesel generator sets and emergency or smaller main engines. Frontside buttons allow simple and comfortable operation locally. Separate inputs exist for remote control (start and stop from the bridge).

The engine is started directly from the device or remotely via the remote start input. All start release criteria must be met before the starter is activated. Several start attempts in a row can be made. Start time, pause interval and the number of start attempts can be configured for this purpose. After the ignition speed has been reached, the starter is released and the system switches to the monitoring mode "Engine Running."

All necessary parameters, including engine speed, are monitored during operation. Threshold violations are alerted acoustically and optically and depending on the parameterization, the engine is also stopped. Overspeed always leads to an immediate stop.

Override

If the device is used as a safety system, a corresponding configuration can release an override function. Activating the override input suppresses an active stop-criterion (except overspeed) or cancels an already existing stop. As long as the engine speed is high enough (greater than the ignition speed), a stopping process initiated by a stop alarm can be interrupted.

Wire Break Stop Circuit

As long as the stopping solenoid K3 is not active, the stop circuit is monitored with a test current. When the circuit is interrupted, the alarm "Wire Break Stop Circuit/Encoder Line" is raised. The corresponding indicator LED flashes, and the horn is activated.

Wire Break Encoder Line Stop Criteria

The encoder lines are tested by installing a Zener diode (type: ZD5, 6V or BZX56V) parallel to the corresponding sensor contact. This creates a voltage difference at the "normally" opened contact, which is monitored by the system. When interrupted, the alarm "Wire Break Stop Circuit/Encoder Line" and the corresponding measuring point alarm are raised. Both LEDs flash simultaneously, and the horn is activated.

Mechanics

The device consists of an electronics card with processor system and all required peripheral parts. It is attached to the front plate with four mounting bolts. Rearside, the device is protected with an aluminum plate, which can be easily removed. This provides access to a programming chip (EPROM), which contains the parameter data set. For subsequent modifications, the chip can be removed from its slot and replaced with a modified module.

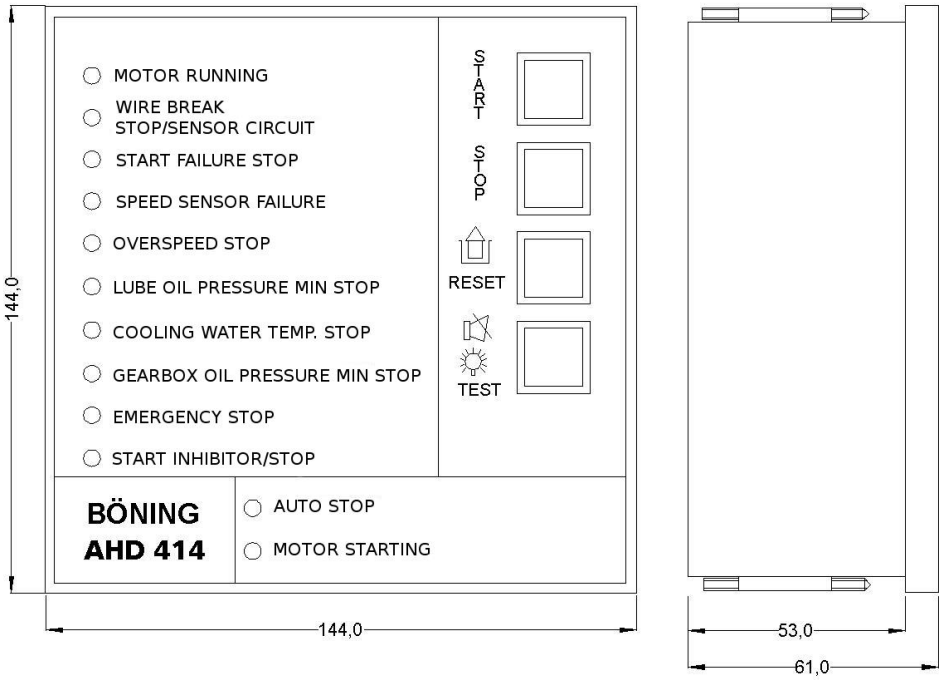
Configuration:

The project specific technical specification is the basis for the device configuration. Upon request, the AHD 414 Start/Stop Diesel Monitoring Unit is preconfigured before delivery. If the customer wishes to program it himself or after delivery, he can do so with an EPROM programming device.

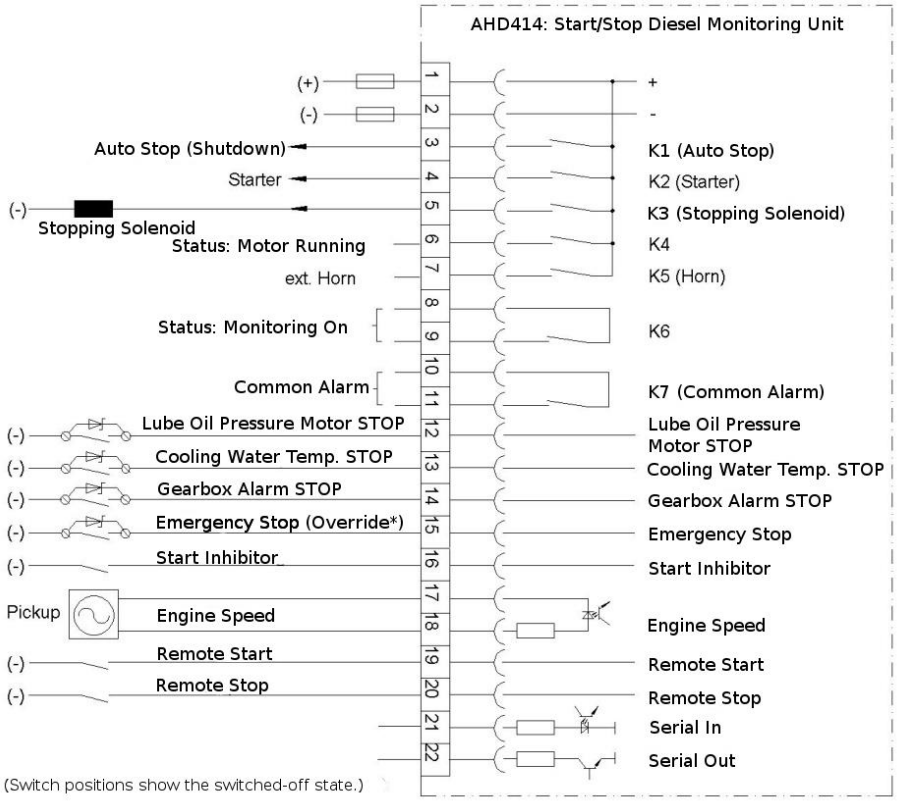
The following essential functions are configurable:

- Pre-glow function
- Number and duration of start attempts
- Engine frequency during ignition speed or overspeed
- Operation type: Solenoid or operation solenoids
- Stop time
- Delay times
- Inputs as quiescent (NC) or operation current (NO)
- Wire break monitoring of inputs
- Inputs as indicator or alarm
- Operation dependent alarm suppression (e.g. pressure)
- Channels 7,8, 9 can be used as operation switches, e.g. to release pressure alarms
- Other special functions (refer to device configuration/configuration tables)

View and Measurements



Connection Diagram



*) This diagram shows a typical configuration. The measuring points designations shown here can vary, depending on the function. For example, the input “Terminal 15” is often used for the override function.

Technical Data

General Data	
Dimensions, W x H x D	144 x 144 x 53 mm
Panel Cutout	138 x 138 mm
Weight	Ca. 0.5 kg
Assembly Type, Housing	
	Panel installation housing, aluminum front with printed film
Environmental Data	
Operating Temperature	-10°C…~+55°C
Storage Temperature	-30°C…~+85°C
Protection Class	IP 20 IP 54 frontside with front cap
Electrical Data	
Power Supply	24 V DC (+30% / -25%)
Current Consumption	Max. 200 mA (24 V DC)
Inputs	
8 Digital Inputs	• 3 x binary input Capture of command and control signals • 4 x binary input with wire break monitoring capture of stop criteria • 1 x Pickup input Capture of engine speed

Outputs	
7 Relay Contacts	• 2 x relay contact, switched positive (K2: Starter; K3: Solenoid/Operating Solenoid), DC – 10 continuous current, DC 20 A starting current • 3 x relay contact, switched plus (K1, K4, K5) DC - 2 A continuous current • 2 x relay contact, potential free (K6, K7) DC - 2 A continuous current
Operation Elements	
4 Shortstroke Buttons	Start, stop, reset, and test
Indicator Lights	
12 LEDs	• 1 x engine operation display • 9 x alarm/status • 2 x relay status K1, K2
Interfaces	
Serial	1 x TTY (optocoupler) remote control
Approvals	
Classification Societies	-