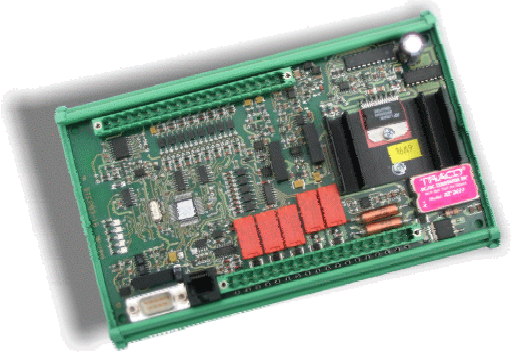
WOODWARD

Product Specification
37174A



ST 3

Air-Fuel-Ratio Control Stoichiometric and Lean Burn

APPLICATIONS

The ST 3 is designed to control the air-fuel-ratio of lean-burn and stoichiometric combustion engines in combination with the BOSCH LSU4.2 lambda sensor (BOSCH P/N 0 258 007 xxx). The sensor may be connected directly to the ST 3 without any additional processor units.

The lambda value (0.7 to 2.2) may be controlled to a fixed set-point or as a configurable function of the analog or CAN input per the configured parameter, in case the lambda changes with the engine output. These two options may be selected via a discrete input.

The ST 3 offers the possibility to select between a bipolar stepper motor control for the actuator or a current/voltage output for the actuator. A stepper motor usually drives variable gas mixers. The analog output is an option that works well with Woodward ITB valves.

It is also possible to perform probe monitoring in lean burn operations, if the ST 3 receives its set point from a master control such as the GCP-30. The ST 3 sends configuration screens, values and range restrictions to the master control for display. Some of the parameters may be set via the CAN bus from the master control unit. Additionally, the discrete inputs for the start/stop position and the lambda set point may be set via the CAN bus.

The ST 3 is configured via a PC using a direct configuration cable (DPC P/N 5417-557) and the PC software tool LeoPC1.

DESCRIPTION

The ST 3 lambda controllers are designed for controlling the air-fuel-ration of lean-burn and stoichiometric engines.
It is intended for the use with the BOSCH LSU4.2 lambda probe.
No additional control units are required.

Features

- 5 relay outputs
- Analog output 0/4 to 20 mA or 0 to 10 V
- 8 discrete control inputs
- Discrete control output for external probe heating
- Raise/lower discrete inputs for manual start value specification
- Min/max discrete input for stepper motor limit switch
- Analog input for set point and/or start value specification
- 2 different parameter sets for selection
- PC configurable via DPC
- CAN bus

Part Number P/N

- 8442-1005

- Compatible with BOSCH LSU4.2 lambda probe
- Analog actuator output 0 to 20 mA or 0 to 10 V
- 2 different control parameter sets selectable via DI
- Lambda value controlled to a set point or as a function of the analog input
- Probe monitoring in lean burn operation
- PC configurable via DPC cable
- CAN bus interface
- CE approved

SPECIFICATIONS

Power supply .....18 to 30 Vdc
Power consumption .....max. 4 W
Ambient temperature .....-20 to 70 °C
Ambient humidity ..... 95 %, non-condensing

Discrete inputs..... isolated
Input range.....4 to 32 Vac/dc
Input resistance ..... approx. 6.7 kOhm

Relay outputs..... isolated
Version..... Form "A" make contact (NO)
Load.....max. 2 A at 24 Vdc
Maximum switching capacity (DC) ..... 45 W

Analog outputs..... isolated
Output range..... 0/4 to 20 mA / 0 to 10 V

Stepper motor outputs.....isolated
Maximum current..... 2.0 A (24 Vdc)

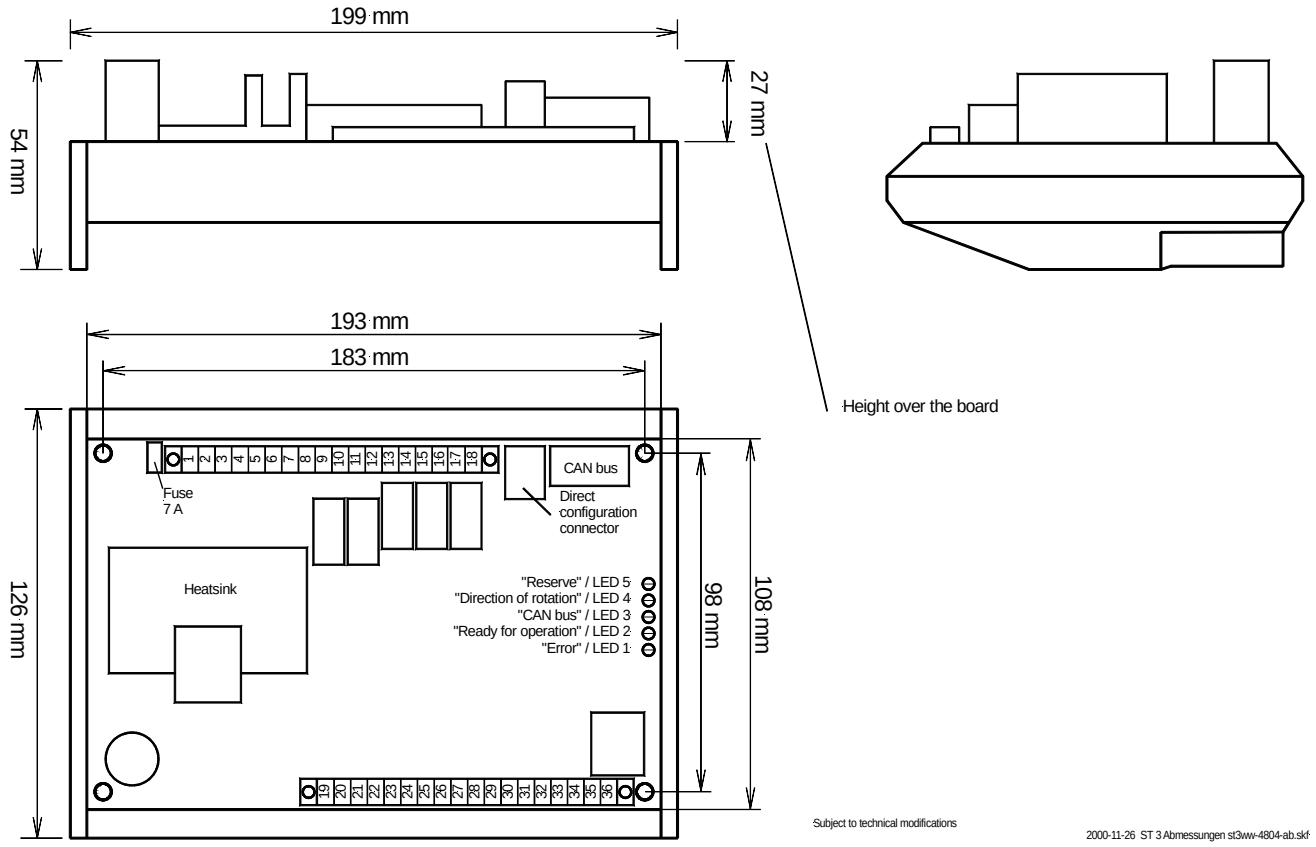
Housing.....extrusion profile Um 108
DIN-rail mount/C-profile

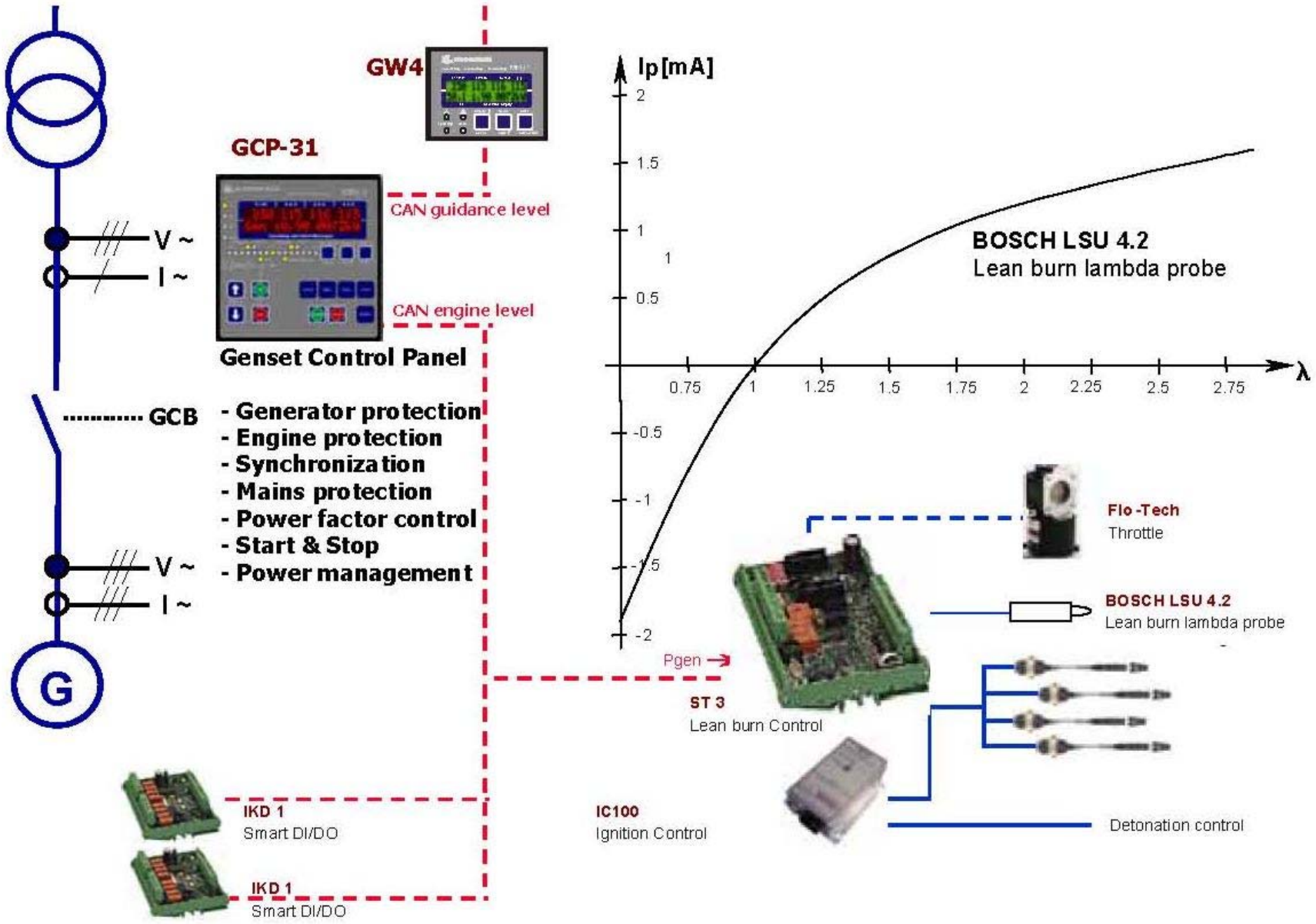
Dimensions.....
DIN rail mounting..... 184 × 130 × 58 mm

Connection.....
Screw/plug terminal.....1.5 mm² or 2.5 mm²
Weight ..... approx. 300 g

Protection system .....IP 00
Disturbance test (CE).....tested according to applicable EN guidelines

DIMENSIONS




GW4
GCP-31
CAN guidance level
CAN engine level
V ~
I ~
Genset Control Panel
..... GCB
- Generator protection
- Engine protection
- Synchronization
- Mains protection
- Power factor control
- Start & Stop
- Power management
V ~
I ~
G
Ip[mA]
2
1.5
1
0.5
-0.5
-1
-1.5
-2
0.75
1
1.25
1.5
1.75
2
2.25
2.5
2.75
λ
BOSCH LSU 4.2
Lean burn lambda probe
Flo-Tech
Throttle
BOSCH LSU 4.2
Lean burn lambda probe
Pgen
ST 3
Lean burn Control
IC100
Ignition Control
Detonation control
IKD 1
Smart DI/DO
IKD 1
Smart DI/DO

WOODWARD

Woodward
PO Box 1519
Fort Collins CO, USA
80522-1519
1000 East Drake Road
Fort Collins CO 80525
Ph: +1 (970) 482-5811
Fax: +1 (970) 498-3058

Distributors & Service
Woodward has an international network of distributors and service facilities. For your nearest representative, call the Fort Collins plant or see the Worldwide Directory on our website.

Corporate Headquarters
Rockford IL, USA
Ph: +1 (815) 877-7441

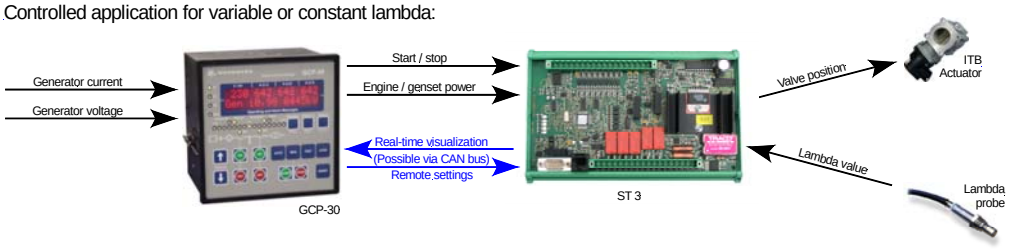
www.woodward.com

For more information contact:

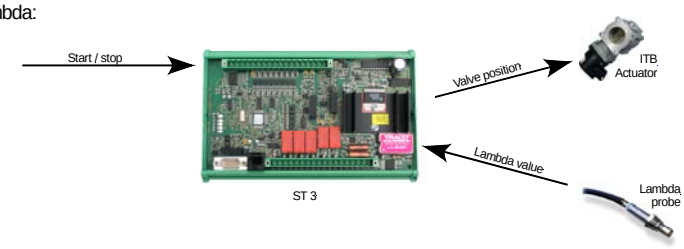
37174A - 05/7/S

CONTROLLED / STAND-ALONE APPLICATION

Controlled application for variable or constant lambda:



Stand-alone application for constant lambda:



WIRING DIAGRAM