

December 2020

CHP Control Upgrade

MAN 2842LE Biogas Installation





Introduction

On a farm on the island Nordstrand in Germany a MAN V12 engine running on biogas provides heat for some 100 homes in the vicinity and feeds electric power to the grid. Following an upgrade of the spark plugs to increase ignition power, Turner ECS has upgraded the control system and delivered new ATEX certified coils to accomplish efficient and durable ignition and control capable of being remotely monitored and fine-tuned.

System Upgrade

The existing Woodward E3 Lean Burn Trim System has been replaced by the E6 based on Woodward's latest LECM hardware platform. The new system is capable of delivering more power for ignition as well as facilitating multi-strike ignition for more efficient engine starts. Control over ignition duration and timing increases the lifespan of the spark plugs and decreases methane-slip.

WOODWARD HARDWARE



F-Series Throttle Valve Positioner



L-Series Trim Valve Positioner



LECM Coils



E6 Lean Burn Trim System



EASYGEN 3500XT Genset Control

Complete CHP Control

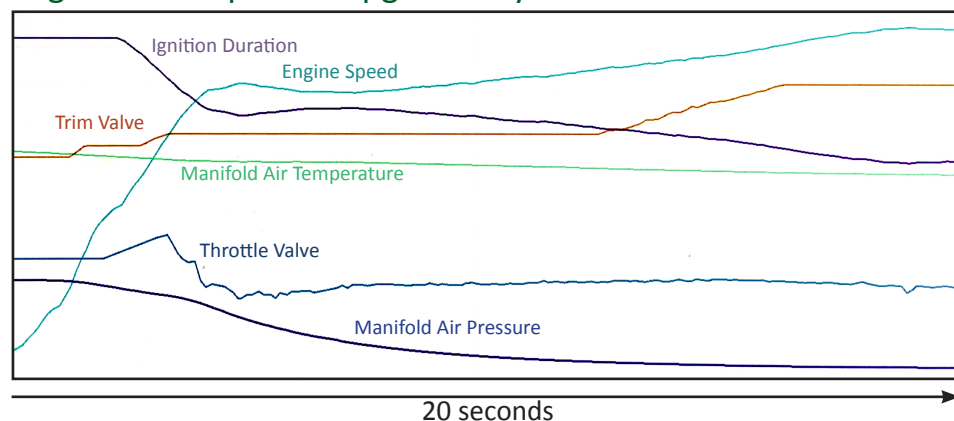
The powerful EASYGEN-3500XT genset controller is installed in conjunction with the E6 Lean Burn Trim System allowing for complete CHP package control with the following functionality:

- Start/stop
- Gas engine and generator protection
- Speed and load control
- Voltage and power factor control
- Synchronization
- Air/fuel ratio control
- Ignition control
- Cooling fan control

Trim & Throttle Valve Positioning

Woodward's maintenance free and accurate F-Series and L-Series actuators are used for controlling the throttle and trim valves. The throttle valve being responsible for the power output of the engine and the trim valve being responsible for the air/gas mixture. Both actuators are equipped with shutdown and alarm contacts as well as position feedback and are controlled by the E6.

Engine Start-Up With Upgraded System



Remote Access

Using a gateway the CHP installation can be monitored easily from a remote location by connecting over a secure cloud using a normal Internet connection. Parameters can be viewed and adjusted using Woodward's free-of-charge Toolkit program.

RETROFIT PROJECT

IMPROVEMENTS

- Increased power for ignition (up to 750 mJ)
- Improved engine starts due to multi-strike ignition
- Increased spark plug life due to duration control
- Decreased methane-slip due to precise air/fuel control
- ATEX approval

ADVANCED CHP CONTROL

- Up to 20 cylinders
- Flexible cam wheel
- 20 knock sensors
- Up to 24 thermocouples
- E6 on-engine mounting
- Real-time combustion diagnostics and control

REMOTE ACCESS

- Remote Monitoring
- Remote Fine-Tuning

FACT SHEET

Engine: MAN 2842LE V12
Generator: ACG 0275-4-400
Customer: Local Farmer
Location: Nordstrand
Country: Germany

Turner Range of Services

LSTK Projects, Retrofits & Upgrades
Turner ECS delivers reliable retrofit solutions for a wide range of prime movers and other applications. This includes lump sum turnkey projects on turbines and compressors.

Genuine Parts & Service Exchange
Turner ECS has the largest stock of parts, service exchange governors and electronics in Europe and can provide a fast turnaround service.

Product Training
Turner ECS can provide official Woodward product training covering both theoretical and practical training on a wide range of Woodward products.

Electronic Repair & Mechanical Governor Overhaul Service
Turner ECS provides a comprehensive overhaul and repair service for electronic, mechanical and hydraulic governors.

World Wide Field Service
Turner ECS field service engineers and technicians provide comprehensive solutions for commissioning and on-site repair.

Service Contracts
Turner ECS provides long term service contracts to support users with Woodward governors and/or control products and electronic control systems.

ROTATING EQUIPMENT CONTROL SOLUTIONS DELIVERED ACROSS EUROPE & THE MIDDLE EAST

Turner ECS is an official Woodward Channel Partner with offices located in:

- The Netherlands
- England
- Germany
- Italy
- Abu Dhabi
- Qatar
- Saudi Arabia

Turner ECS also operates and manages an extensive network of official agents throughout Europe & the Middle East

CONTACT INFORMATION

Turner Engine Control Solutions B.V.
Dirk Storklaan 76
2132 PX Hoofddorp
The Netherlands

Mail: sales@turner-ecs.com
Tel: +31 (0) 23 566 23 00
Fax: +31 (0) 23 564 27 27
Web: www.turner-ecs.com

