

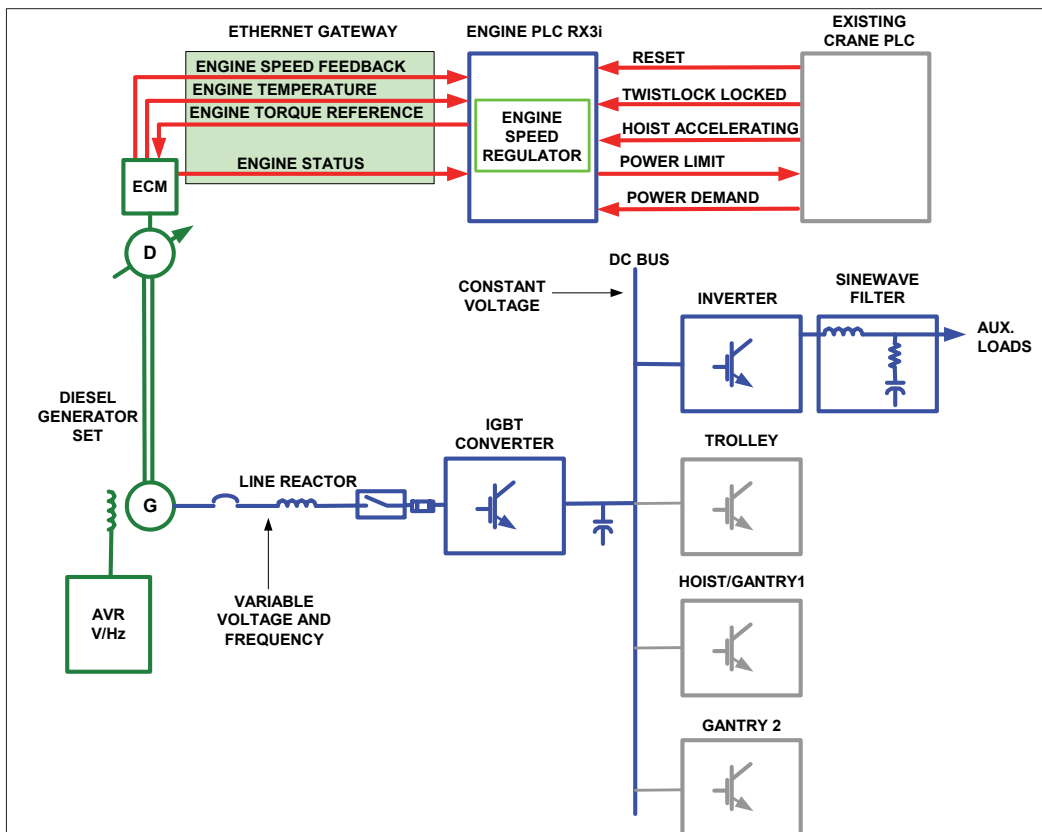
Energy Saving System for Rubber Tire Gantry Cranes

The **MaxFuelSaver™** RTG energy saving system is installed on Rubber Tire Gantry cranes in a number of ports. The system uses a special diesel engine speed regulator, which interfaces with the existing diesel generator control module and optimizes engine speed at every load. The regulator also interfaces with the crane controller, which controls the high-efficiency variable frequency drives connected to the main crane motors.



Control System

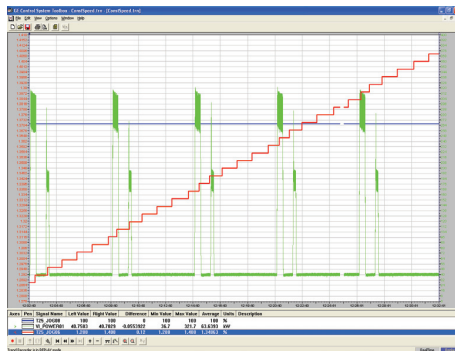
The system uses a standard TMEIC TMdrive-10e2 converter supplying DC power to the constant voltage bus for the crane drives and a standard TMdrive-10e2 inverter configured as a regenerative power supply to auxiliary loads such as the brakes, pumps, air conditioning, etc. It should be noted the system does not reduce the acceleration time of the hoist.



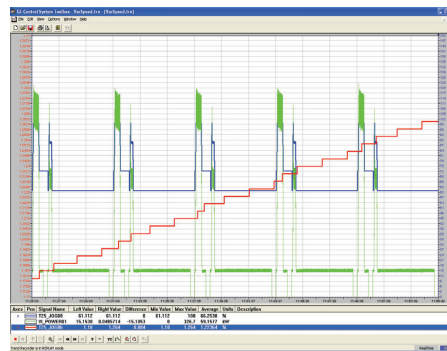
MaxFuelSaver™ System

Energy Savings

Tests on a **MaxFuelSaver™** fuel-efficient control on two large rubber tire gantry cranes at the Chinese port of Yantai have yielded impressive energy savings. The tests, conducted on a Tier 3 (low NOx emission) diesel powered crane over two months, compared an older RTG and the new **MaxFuelSaver™** RTG, showed diesel fuel savings of 24% – 42%, depending on operating conditions. As a result, this system generates tens of thousands of \$ per year in fuel cost savings for each RTG.



RTG before retrofit



RTG after retrofit with MaxFuelSaver™

— Engine speed
— Fuel consumption (accumulated)
— Power demand

Main System Benefits

- Reduced crane fuel consumption by optimizing engine speed at every load
- Extended diesel engine life
- Reduced engine emissions
- Reduced audible noise
- Reduced engine maintenance cost

An option to include batteries for regenerative energy storage yields even higher savings.

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