

# PTO Interface Option C

## MAN Asset+

**PTO Interface Option C is an extended interface between the engine control system (ECS) and the power management system (PMS) for plants with a large power take-off (PTO)/shaft generator capacity.**

### Improved governor stability and increased power take-off

A PTO connected to the electric grid will deliver constant power and introduce negative damping of the engine speed. For example, if a vessel encounters large waves, the speed through the water and the engine speed will drop, and the frequency drive will load the PTO with a higher torque to deliver the same electrical power. This torque increase exacerbates the drop in speed.

With PTO Interface Option C, the ECS uses the feed-forward information about the current PTO load to adjust engine governor gains and thereby, improve

engine speed stability and disturbance rejection. By using this feed-forward information, governor gains can be adjusted in advance in response to changes to the PTO load. As a result of the improved governor stability, the allowable ratio of PTO power compared to the rated engine power can be increased.

PTO Interface Option C is one of many MAN Asset+ solutions helping you to keep your equipment state-of-the-art, complying with environmental regulations, and advancing the decarbonization of your operations.



#### Improves governor stability

The feed-forward information about the current PTO load is used by the ECS to adjust engine governor gains and improve engine speed stability and disturbance rejection.



#### Automates load sharing

The extended interface helps ensure higher utilization rates of the PTO, thus reducing genset running hours.



#### Protects from engine overload

If power is supplied solely by the PTO, it reduces the risk of blackout without overloading of the engine.

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In standard interfaces between the engine and the power management system, the crew has to balance the load between PTO and gensets to avoid engine overload during conditions with increased hull resistance. PTO Interface Option C automates the load sharing.

PTO Interface Option C helps make your engine more ...

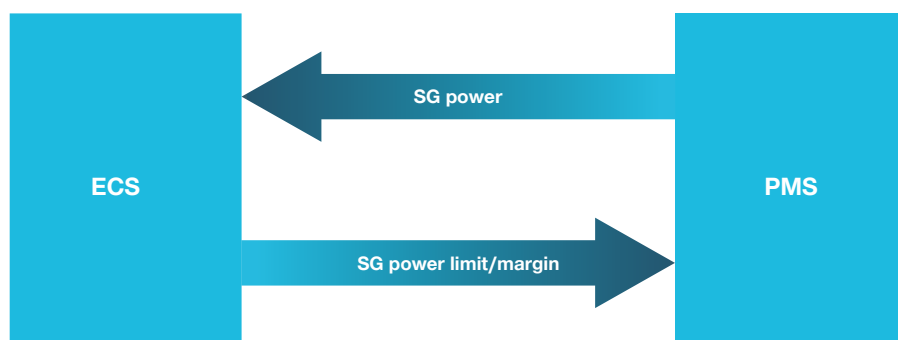


Available



Efficient

PTO Interface Option C adds two signals to the original interface



The ECS sends information to the PMS about the power margin to engine overload, thereby enabling the PMS to adjust the PTO load and avoid engine overload. The PMS returns information about the current PTO load to the ECS.

## Enhanced PTO interface

PTO Interface Option C sends signals to the PMS to automate load sharing between the main engine PTO and gensets. This extended interface ensures higher use rates of the PTO, thus reducing genset running hours. When power is supplied solely by the PTO, the risk of blackout is reduced without overloading of the engine.

PTO Interface Option C is available for all MAN B&W two-stroke engines with PTO. It is provided as standard for all ME-GA engines with PTO and available as an Asset+ solution for other engines with a PTO power to SMCR power threshold above certain levels.

## Application and ordering in design spec

PTO Interface option C is a feature in our MAN Asset+ programme, and it is therefore delivered as an additional selection to the standard engine design. Applying PTO Interface Option C requires a plant-specific PTO layout and design evaluation in consultation with MAN Energy Solutions.

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