

Distributed Processing Units

The design of the AutoChief® C20 is based on the use of Distributed Processing Units, installed directly in the junction boxes on the main engine. All signals to and from the engine are transmitted on dual redundant CAN lines (bus on engine).

All non-essential sensors can be shared with the K-Chief 500 / K-Chief 600 alarm and monitoring system, requiring only one interface to the main engine. This principle drastically reduces the installation and cabling cost.

Main features:

- Dual/redundant field bus (CAN)
- Signal interfacing to sensors and actuators
- Alarm detection and process control
- Time stamping of alarms and events
- Direct mounting on engine is possible
- Design focused on EMC compatibility



Distributed Processing Units

Digital Governor System

The Digital Governor System is both a stand-alone and a fully integrated part of the AutoChief® C20 family.

Main features:

- Speed order inputs from all control positions
- Automatic fuel limiter functions according to main engine builders specifications (scavenge air, torque limiter etc.)
- Manual fuel and RPM limiter adjustable from the control panel (chief limiter)
- Redundant speed measuring system using inductive speed pick-ups
- Limiters can be cancelled from each control position
- Self-check functions



SEFA 160 / 800



RPMU

Note!

AutoChief® C20 is a registered trademark of Kongsberg Maritime AS in Norway and in other countries.
This datasheet is subject to change without prior notice.

Engine Safety System

The Engine Safety System is both a stand-alone and a fully integrated part of the AutoChief® C20 family.

Main features:

- Separate overspeed detection system
- Automatic shutdown of main engine, both cancellable and non-cancellable, stops the engine by activating solenoid valves. The sensors may be analogue or digital
- Four dedicated shutdown inputs with backup and double power supply
- Separate emergency stop system with full loopfail detection and redundant power supply
- Automatic slowdowns, both cancellable and non-cancellable, reduces engine speed to a safe level if technical problems on the main engine
- Engine RPM detection system with two independent systems, including automatic change over
- RPM indicators on redundant CAN network.
- All sensors and valves are monitored for cable failure
- Settings may be altered and values may be inspected on any control panel
- Redundant power supply

Type approved by

Designed in accordance with the requirements of: DNV, LRS, BV, GL, RINA, NK, ABS, KR, RMR, CCS

AutoChief® C20 Propulsion control system



KONGSBERG

Simple installation
Reliable operation
Easy to use



Experience

We developed the first remote control system for low speed propulsion plants, the AutoChief I, back in 1967. By march 2011 we have delivered approximately 7,000 remote control systems, including more than 3,000 AutoChief®C20, to vessels all over the world. AutoChief® has become a trademark for safe and efficient propulsion control. The new AutoChief® C20 is based on knowledge gained through more than 40 years of working with the main engine manufacturers. The technology used builds on the highly successful DataChief® C20/K-Chief 500 marine automation system.

Key features

The main components of the AutoChief® C20 are:

- Control Panel
- Engine Telegraph Unit
- Engine Safety System
- Digital Governor System
- Manoeuvring Recorder
- Distributed Processing Units

Few moving parts ensure that little maintenance is required. Modular design makes it easy to meet individual customer's requirements.

Remote control system

AutoChief® C20 uses reliable, ruggedized single board Distributed Processing Units, which can be positioned where it is most

convenient, considerably reducing cabling cost. The use of distributed processing units and a dual, redundant CAN field bus ensure reliable operation and bumpless control transfer. The system is event-based to allow immediate transfer of data. A powerful configuration tool allows quick and accurate adaptation to various engines, so no software customization is required. The system is suitable for 2 stroke engines, delivered by MAN B&W and Wartsila, for both fixed and controllable pitch propeller. Also suitable for refit of old Remote Control Systems, and customer configured mediumspeed configuration.





The AutoChief®
Control Panel

AutoChief Control Panel

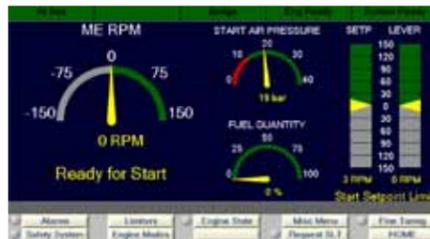
The AutoChief®C20 Control Panel and Engine Telegraph is designed for ease of operation, and can be installed into any standard console.

The system is easy to use, providing the information you need only when you need it. An advanced, yet simple to use multifunction controller gives access to all system functions.

A colour display presents key information graphically for simple operator action. Main variables such as RPM, pitch, start air and scavenging air pressure, engine state etc. are displayed. Several levels of control are available to distinguish between user groups.

The system can operate stand-alone, integrated with our K-Chief 500 / K-Chief 600 marine automation system, or K-Thrust. In systems with shaft generators the Power Management System can communicate with the AutoChief® C20 system for smooth operation. Open architecture allow seamless integration with other manufacturer's equipment.

Examples of display from the
AutoChief®C20 Control Panel



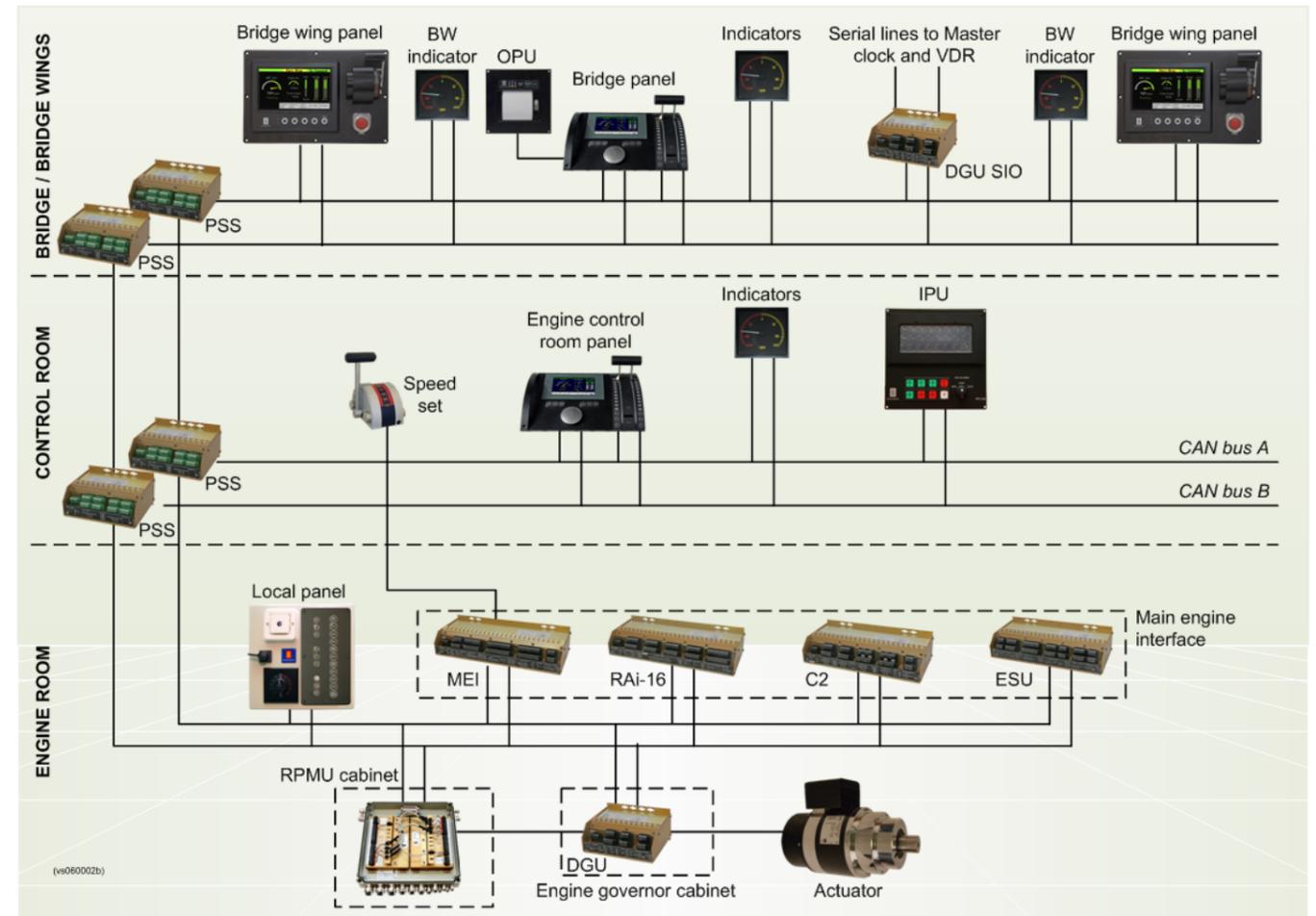
- Indications**
- Main engine mimic display
 - Current main engine state
 - Start blocks
 - Shutdown/Slowdown
 - Alarm indications and pop-ups
 - Analogue RPM/Pitch and setpoint
 - Analogue start air pressure
 - Control position
 - Wrong way
 - Blowers running

- Operation**
- Engine/Propulsion modes
 - Bumpless control transfer
 - Cancel shutdown/slowdown
 - Alarm acknowledge/sound off
 - Changing of engine parameters
 - Night dimming and daylight setting



Telegraph handle

Push-Button
Telegraph



Engine Telegraph Unit

A lever type Engine Telegraph is used on the bridge, and in the engine control room. In the engine room a Push-Button Telegraph is used.

Telegraph positions

- Ahead: Dead slow, slow, half, full, navigation full
- Stop
- Astern: Dead slow, slow, half, full, emergency astern

Sub telegraph modes

- Finished with engine (FWE)
- Stand-by
- At sea

Available control locations

- Bridge
- Engine control room (ECR)
- Local
- Optional, other locations

Manoeuvring Recorder

The Manoeuvring Recorder (or Order Printer Unit, OPU) is designed to continuously log specific events related to the propulsion plant and commands from the bridge, and provide a paper printout.

- Engine-telegraph Command
- Propulsion-system Modes
- Propulsion-system States
- Control Location and Transfer
- Alarms



Bridge Wing Unit

The Bridge Wing Panel BWU09 is designed for use with AutoChief®C20 remote control systems.



The TFT technology gives good visibility in night and daylight. The illuminated Lever has 11 telegraph positions with well defined notch in each position. Emergency Stop Switch is independent of panel and connected directly to Main Engine Safety System.

Communication with the rest of AutoChief C20 is by CAN bus.