CoolPMS - SCADA

Marine PMS powered by

ComAp™
The heart of smart control

Press Ctrl+L
for Full Screen

Introduction

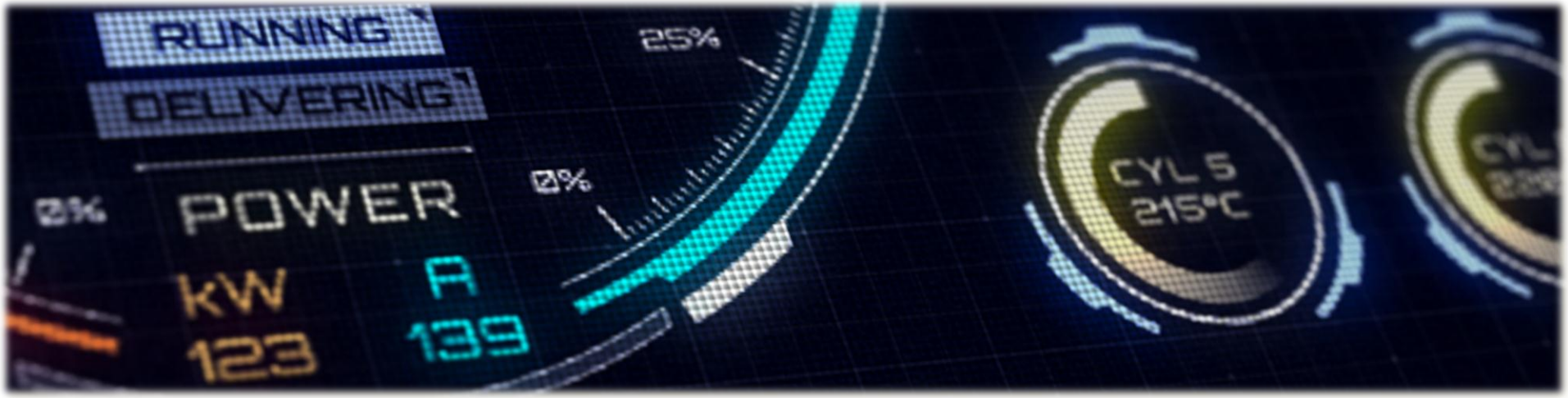
- CoolPMS™ is a 3rd party, lightweight and full scale version of SCADA system developed for InteliSys-NTC, InteliGen-NTC and InteliMains-NTC controllers manufactured by ComAp. For more information about their products visit www.comap.cz

- CoolPMS™ is a custom made SCADA for power management systems and digital AVR excitation units. Primary target are customers who want to implement top edge SCADA system into their projects, but have no capacity or resources to develop their own supervisory control and data acquisition system

- Marine CoolPMS™ is custom made SCADA for marine power plants and power management applications

Features

- Hassle-free, ready to use software for your application
- Engine control and monitoring up to 16 Gen-Sets
- Circuit breaker control and real time monitoring
- Graphics layout of the plant
- Real time historical Trends, Alarms, Events
- Reporting capabilities, export to PDF format
- Daily backup of historical trends
- Modbus RTU and Modbus TCP connectivity
- Statistical calculations of power, productivity, etc.
- Thin Client comm. up to 8 stations
- Password protected settings
- Screen resolution 1280 x 1024 for small 17” display
- Screen resolution 1920 x 1080 scalable up to 100” display or TV set
- OEM design for system integrators available
- Operating system Microsoft Windows 7 or Windows 7 Embedded

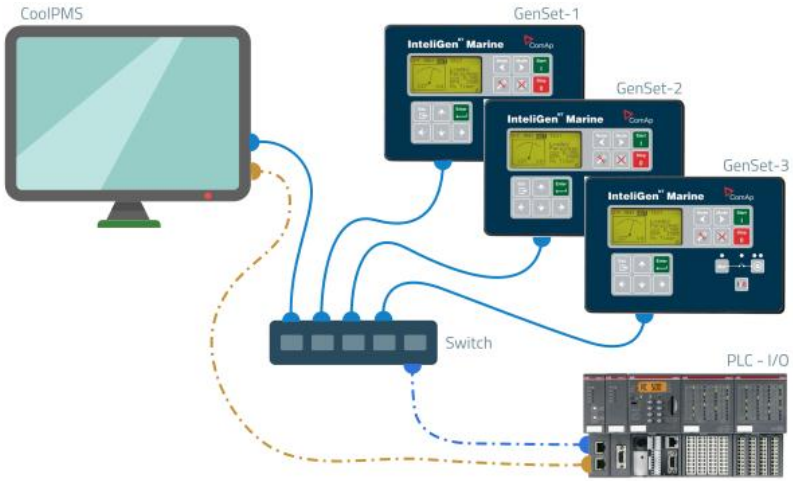


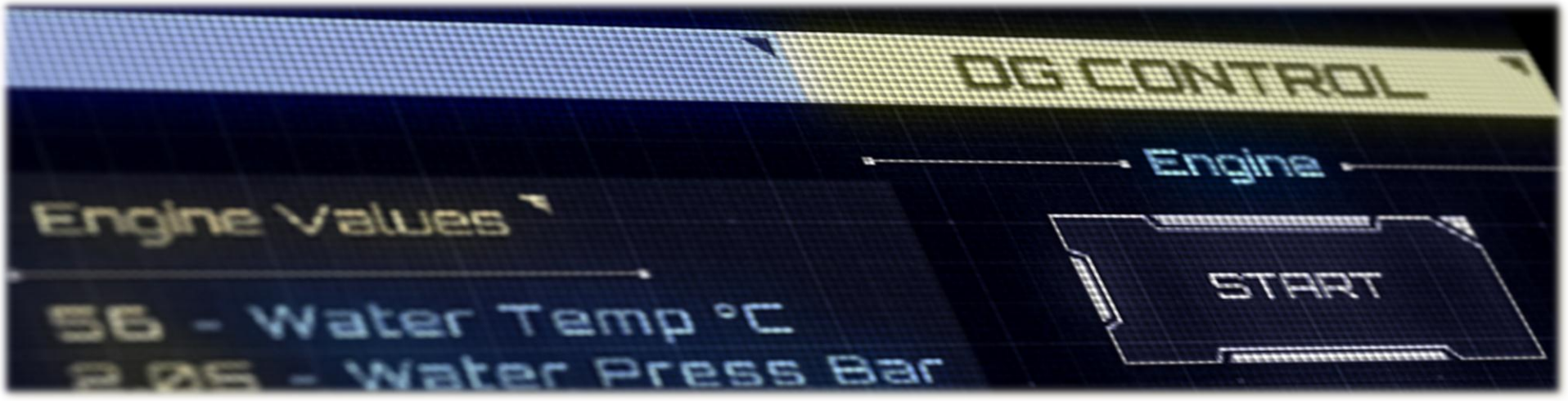
Connectivity

- Modbus TCP and Modbus RTU are available communication protocols and ComAp™ hardware can be connected to either of them. Usually Modbus TCP is providing main communication backbone due to speed advantage over Modbus RTU. Therefore Modbus RTU can be utilized for other data acquisition tasks if necessary

Example:

Three InteliSys-NTC nodes on Modbus TCP with one CoolPMS™ station. Additional PLC is optional.





Historical Data

- CoolPMS™ is logging and storing alarms, events and data trends for service, troubleshooting, maintenance or statistical purposes

Data Trends

- Up to five signals from each controller can be logged in historical Trend chart. Usually generator Power (kW) and Current (A) are commonly used among others. Sampling rate for historical Trend data is adjustable by user in three steps:1000ms, 500ms, 250ms.Total data trend storage capacity for sampling rate 1s / 24h is currently set to 1 day. Each sample has its own Timestamp. There is possibility to automatically save daily trend data to separate files or take a snapshot of actual trend for evaluation. History logger can store historical data up to few years

Active Events

- Important actions of controller and user actions on the Station are stored in Event logger. This feature allows troubleshooting of potential problems or tracking events

Active Alarms

- Each controller can generate up to 250 different alarm or warning messages. All messages are logged, highlighted and stored by CoolPMS™ to internal database. Alarm processing block can hold up to 100000 alarm messages and is configurable. Every message has two Timestamps. One is showing Alarm occurrence and second Alarm acknowledgement by operator. Alarm list can be exported into separate PDF or Excel file in necessary

Statistical calculations

- CoolPMS™ allows calculating of statistical data for production or maintenance purposes. This feature is project dependent and usually will be done upon specific request

  - Generated power by whole plant on Daily / Weekly / Yearly basis
  - Generated power of each Gen-Set on given basis
  - Consumption of each load segment on given basis
  - Calculating of fuel consumption of given engine or whole plant
  - And much more…

Hardware and screen resolution

- There are two versions of CoolPMS™ system. One is to fit ComAp™ InteliVision17 Touch screen PC or any other PC with screen resolution 1280 x 1024. Second version is supporting full HD resolution 1920 x 1080. This version is scalable up to 100” screens if necessary
- Part of CoolPMS™ package is Barebone industrial PC supporting both resolutions. If customer will choose this option, small industrial PC with preinstalled software will be delivered. Size of the monitor will be decided by user in project specification
- Industrial PC has HDMI output. Therefore all modern Smart TV set can be used as display device. This option is cheaper alternative to big PC monitors which are way too expensive for this task

Demo Application / Marine Example

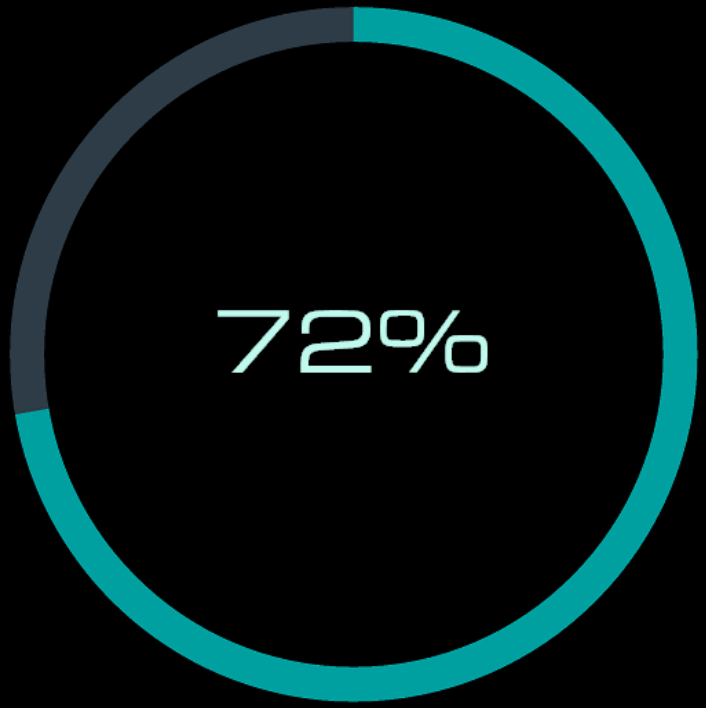
- Every Marine CoolPMS™ application is considered as unique as configuration and functionality is solely dependent on project architecture
- Layout of every application will consists of standard and special screens and will be dependent on customer's specification
- Specific unique design and topology can be developed for system integrators

Following images shows one example of interface and its features. Interface is designed in monochromatic, 'one color' version. Nevertheless, more advanced graphics versions of CoolPMS™ does exists and are offered to customers too.

Size of the layout is optimized for touch (finger) control

CoolPMS™ Demo Application

Optimized for InteliVision 17Touch
Screen resolution 1280x1024



Loading, please wait a moment...

ABOUT

CoolSCADA™

The elegant interface for automation

Power Management System
DEMO : MARINE Application

Powered by

ComAp™
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Design by TOREZ

[c] 2018 by CoolPMS


INFO
ABOUT
LOG-IN
NETWORK
ALARM
EVENT
TREND
SETTING
ZOOM
PRINT
DG1
DG4
DG2
DG3
EMG
07/
17:04
SYSTEM LOGIN
Logged-In
1
2
3
4
5
6
7
8
9
ENT
LOCK
0
CLR
DG1
DG2
DG3
DG4
EMG
PLANT
SINGLE LINE
PMS POWER
METERS
ENGINES
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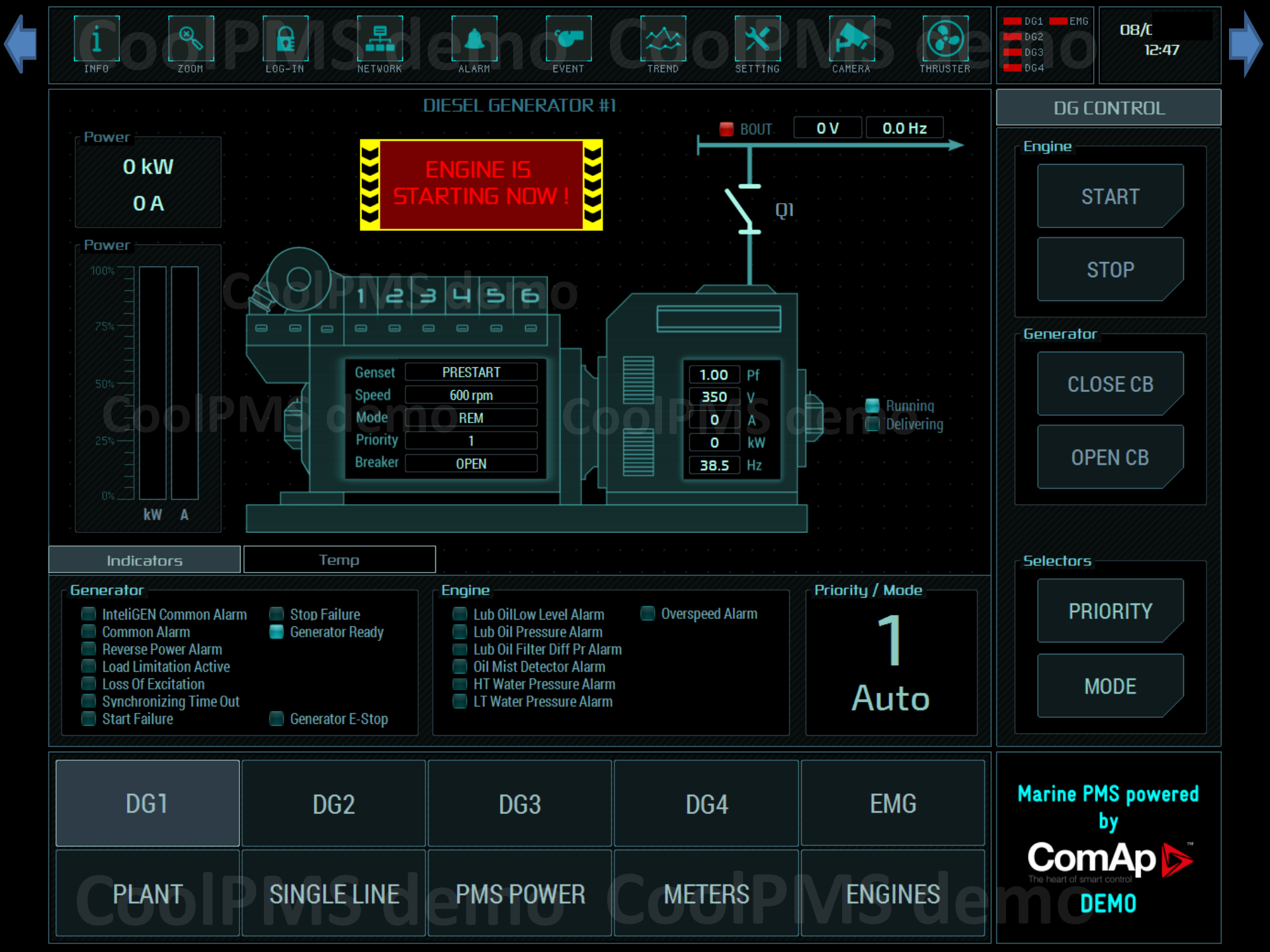
DEMO


INFO
ZOOM
LOG-IN
NETWORK
ALARM
EVENT
TREND
SETTING
CAMERA
THRUSTER
DG1
DG2
DG3
DG4
EMG
08/0
12:47
DIESEL GENERATOR #1
Power
0 kW
0 A
ENGINE IS STARTING NOW !
BOUT
0 V
0.0 Hz
Q1
Power
100%
75%
50%
25%
0%
kW
A
1 2 3 4 5 6
Genset PRESTART
Speed 600 rpm
Mode REM
Priority 1
Breaker OPEN
1.00 Pf
350 V
0 A
0 kW
38.5 Hz
Running
Delivering
DG CONTROL
Engine
START
STOP
Generator
CLOSE CB
OPEN CB
Selectors
PRIORITY
MODE
Indicators
Temp
Generator
InteliGEN Common Alarm
Common Alarm
Reverse Power Alarm
Load Limitation Active
Loss Of Excitation
Synchronizing Time Out
Start Failure
Stop Failure
Generator Ready
Generator E-Stop
Engine
Lub OilLow Level Alarm
Lub Oil Pressure Alarm
Lub Oil Filter Diff Pr Alarm
Oil Mist Detector Alarm
HT Water Pressure Alarm
LT Water Pressure Alarm
Overspeed Alarm
Priority / Mode
1
Auto
DG1
DG2
DG3
DG4
EMG
PLANT
SINGLE LINE
PMS POWER
METERS
ENGINES
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DEMO
CoolPMS demo

DIESEL GENERATOR #2

Power
124 kW
139 A

Power
100% 75% 50% 25% 0%
kW A

440 V 49.9 Hz
Q2 BT1

1 2 3 4 5 6

Genset	LOADED
Speed	1801 rpm
Mode	REM
Priority	3
Breaker	CLOSED

0.85	Pf
440	V
140	A
122	kW
50.1	Hz

Running
Delivering

Indicators | Temp

Generator
- InteliGEN Common Alarm
- Common Alarm
- Reverse Power Alarm
- Load Limitation Active
- Loss Of Excitation
- Synchronizing Time Out
- Start Failure
- Stop Failure
- Generator Ready
- Generator E-Stop

Engine
- Lub OilLow Level Alarm
- Lub Oil Pressure Alarm
- Lub Oil Filter Diff Pr Alarm
- Oil Mist Detector Alarm
- HT Water Pressure Alarm
- LT Water Pressure Alarm
- Overspeed Alarm

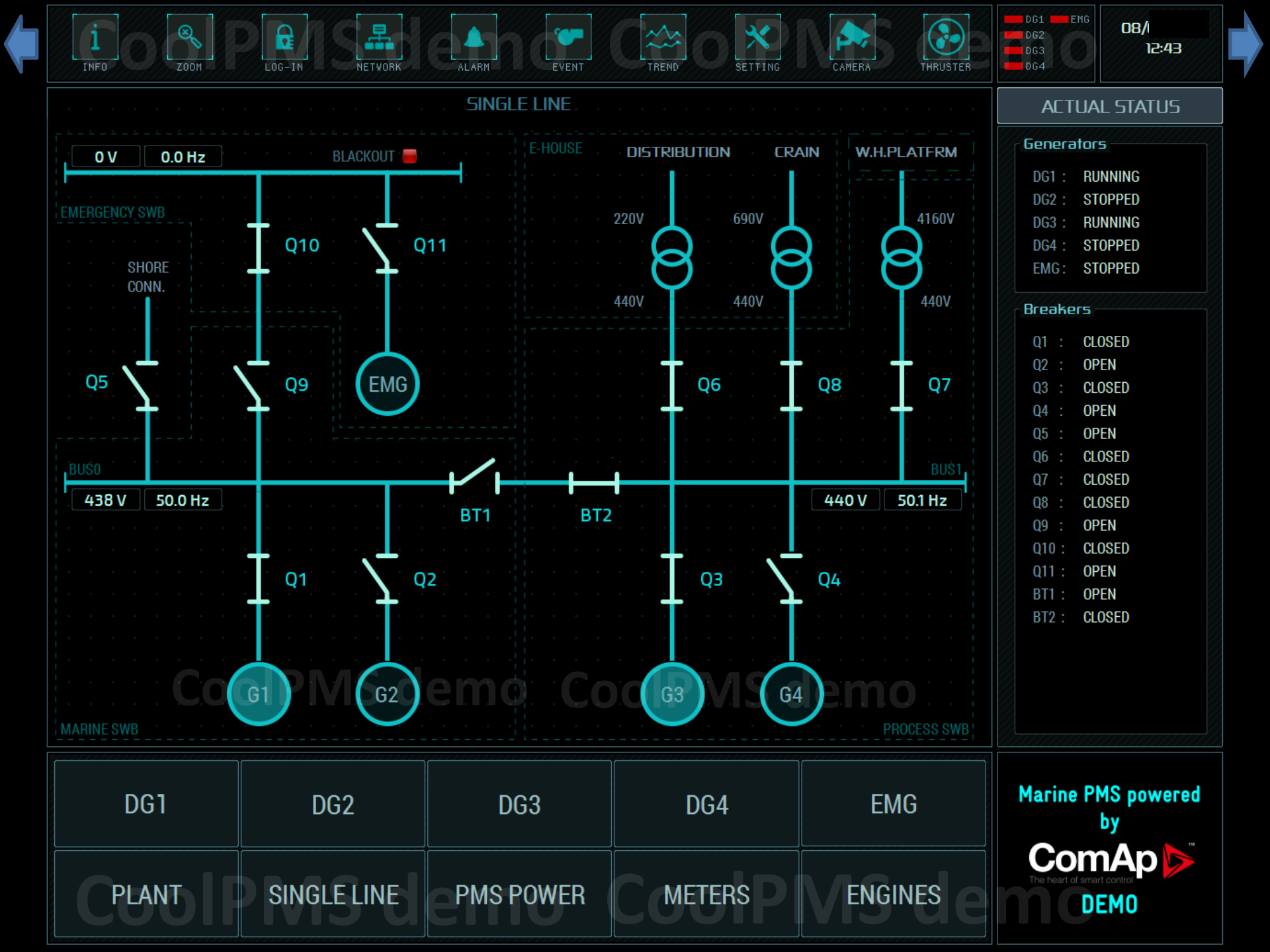
Priority / Mode
3
Auto

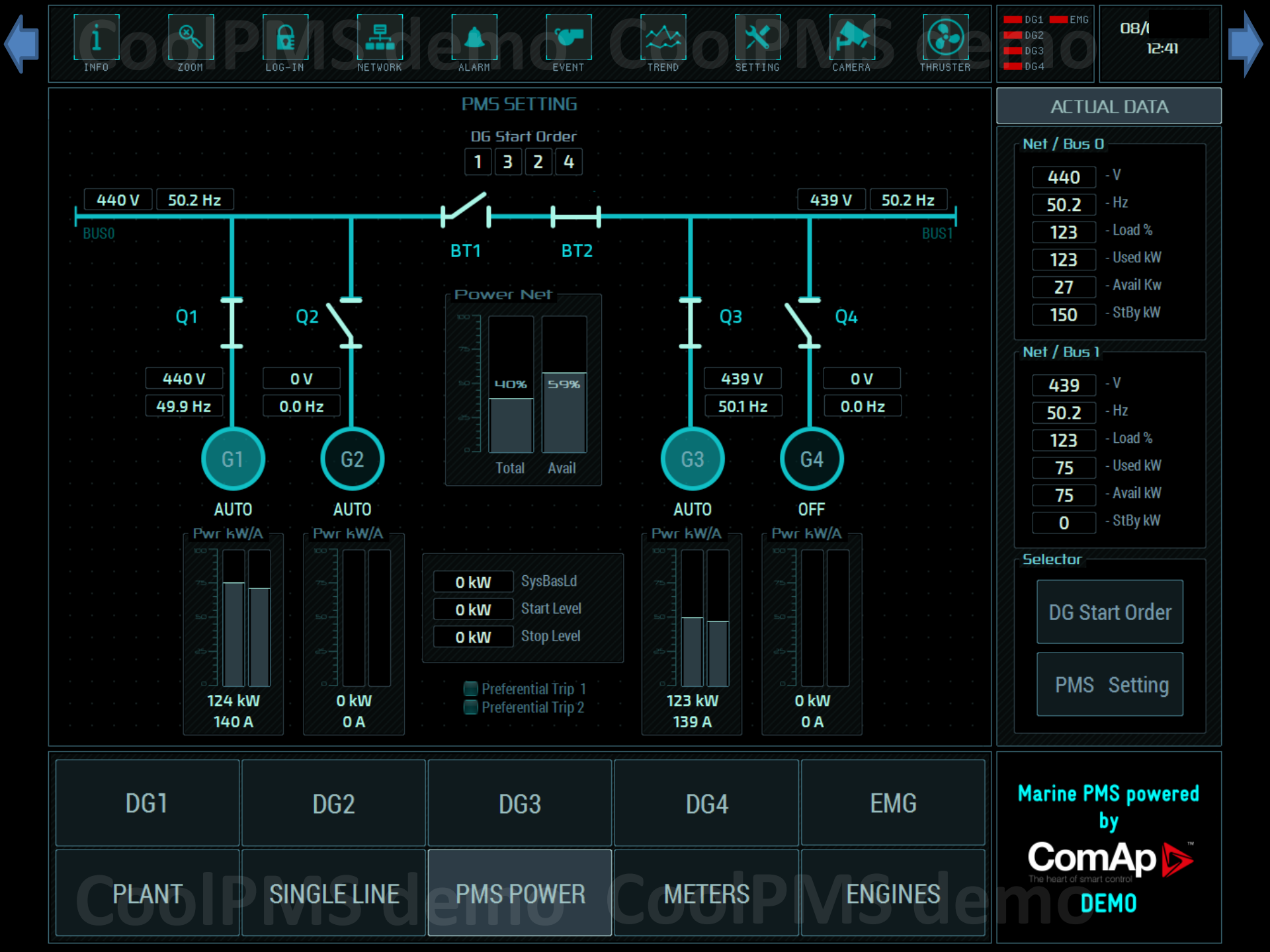
DG CONTROL
BT CONTROL

Engine
START
STOP

Generator
CLOSE CB
OPEN CB

Selectors
PRIORITY
MODE




INFO
ZOOM
LOG-IN
NETWORK
ALARM
EVENT
TREND
SETTING
CAMERA
THRUSTER
DG1
DG2
DG3
DG4
EMG
08/
12:41
PMS SETTING
DG Start Order
1 3 2 4
440 V
50.2 Hz
439 V
50.2 Hz
BUS0
BUS1
BT1
BT2
Power Net
40%
59%
Total
Avail
Q1
Q2
Q3
Q4
440 V
49.9 Hz
0 V
0.0 Hz
439 V
50.1 Hz
0 V
0.0 Hz
G1
G2
G3
G4
AUTO
AUTO
AUTO
OFF
Pwr kW/A
Pwr kW/A
Pwr kW/A
Pwr kW/A
124 kW
140 A
0 kW
0 A
123 kW
139 A
0 kW
0 A
0 kW SysBasLd
0 kW Start Level
0 kW Stop Level
Preferential Trip 1
Preferential Trip 2
ACTUAL DATA
Net / Bus 0
440 - V
50.2 - Hz
123 - Load %
123 - Used kW
27 - Avail Kw
150 - StBy kW
Net / Bus 1
439 - V
50.2 - Hz
123 - Load %
75 - Used kW
75 - Avail kW
0 - StBy kW
Selector
DG Start Order
PMS Setting
DG1
DG2
DG3
DG4
EMG
PLANT
SINGLE LINE
PMS POWER
METERS
ENGINES
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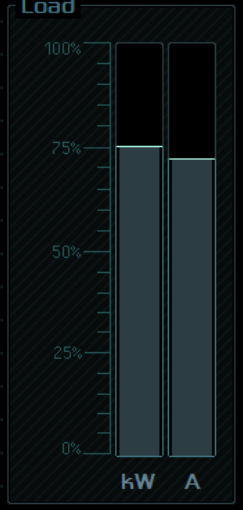
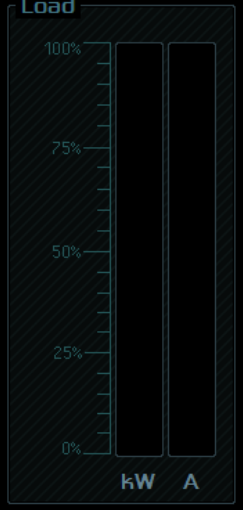
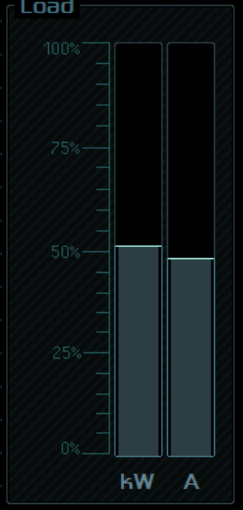
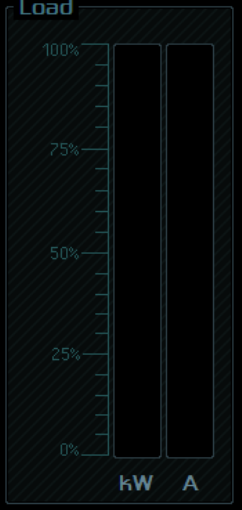
DEMO

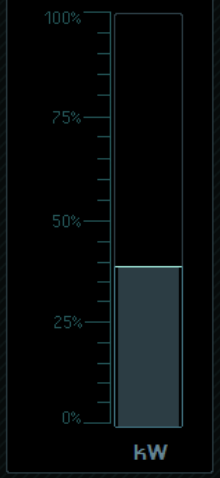
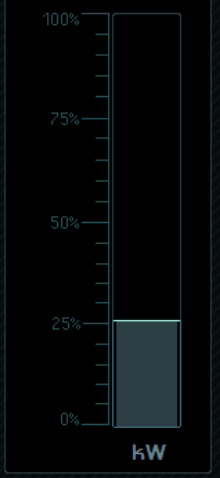
POWER PLANT

	DG1	DG2	DG3	DG4
	124 - kW	0 - kW	124 - kW	0 - kW
	138 - A	0 - A	140 - A	0 - A
	0.86 - PF	0 - PF	0.85 - PF	0 - PF
Priority/Mode	1 AUTO	3 AUTO	2 AUTO	4 OFF
Load				
	Running	Running	Running	Running

Plant total active power

248 kW

278 A

Bus / Net 0	Bus / Net 1
124 kW	124 kW
	

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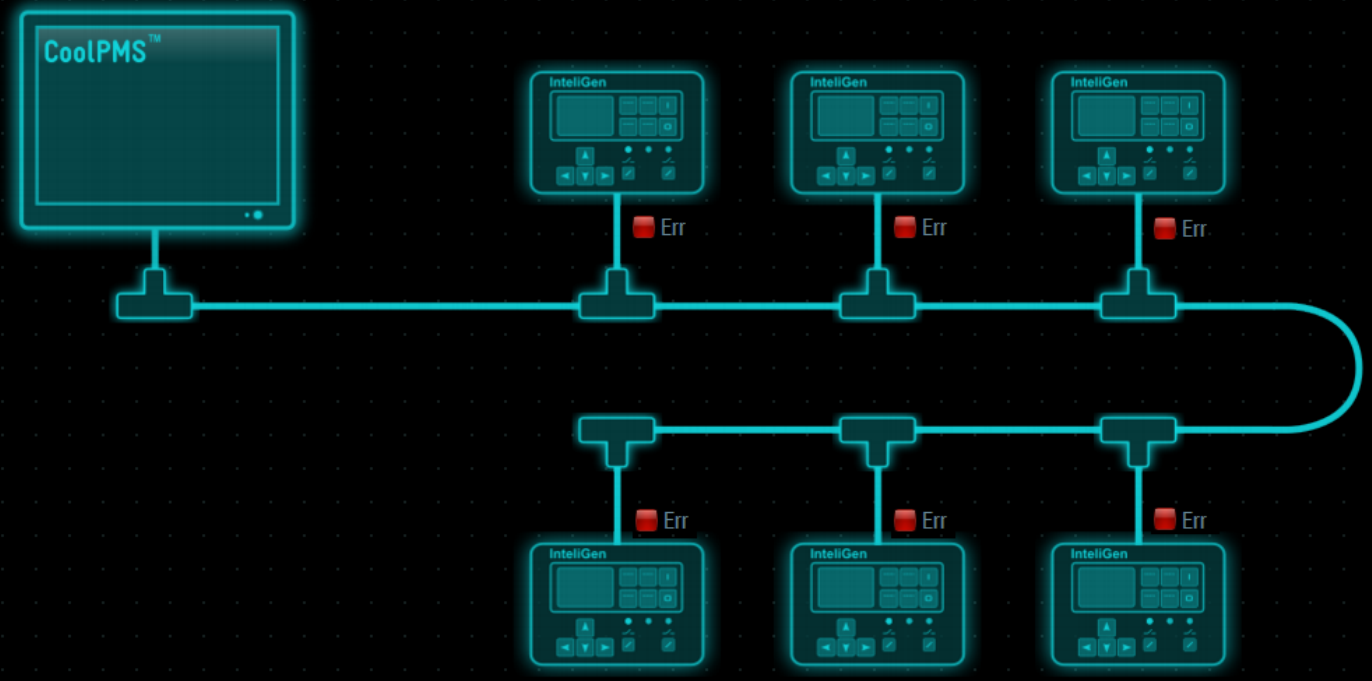
DEMO

NETWORK



GENSET INFO

BUS TIE INFO

Node 1
Applic : ndef
Temp : 0°C
Status : STOP

Node 2
Applic : ndef
Temp : 0°C
Status : STOP

Node 3
Applic : ndef
Temp : 0°C
Status : STOP

Node 4
Applic : ndef
Temp : 0°C
Status : STOP

Node 5
Applic : ndef
Temp : 0°C
Status : STOP

DG1 DG2 DG3 DG4 EMG

PLANT SINGLE LINE PMS POWER METERS ENGINES

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INFO ABOUT LOG-IN NETWORK ALARM EVENT TREND SETTING ZOOM PRINT

DG1 DG4 DG2 DG3 EMG

07/ 17:02

TRENDS

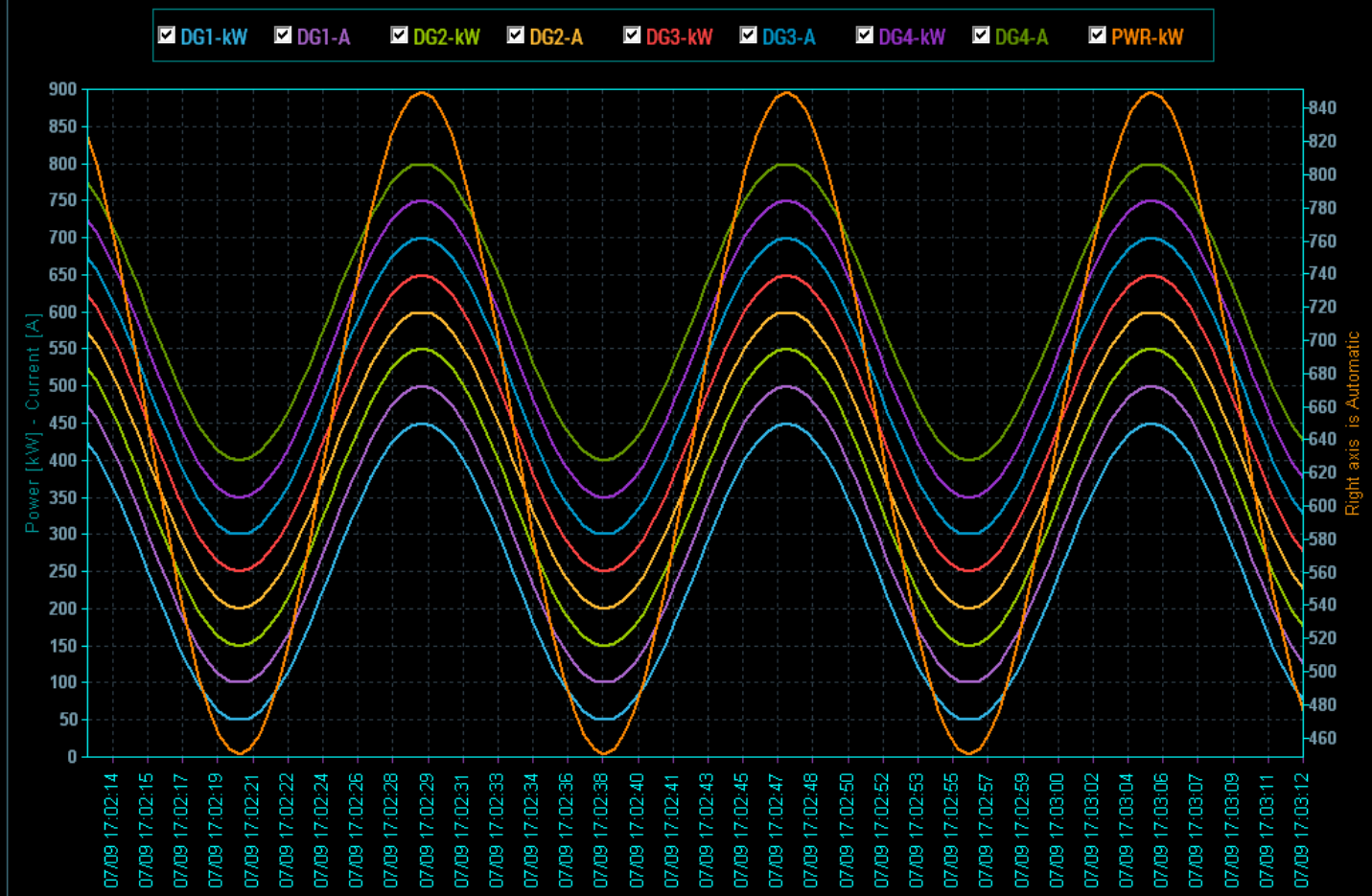

CHART CONTROL

Zoom

Zoom : 1 min
Scroll : Auto

Zoom IN

Zoom OUT

Scroll

Automatic

Move Right

Move Left

Capture

Now !

DG1 DG2 DG3 DG4 EMG

PLANT SINGLE LINE PMS POWER METERS ENGINES

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INFO
ABOUT
LOG-IN
NETWORK
ALARM
EVENT
TREND
SETTING
ZOOM
PRINT
DG1
DG4
DG2
DG3
EMG
07/
17:02
TABLE HELP
ALARM LIST
TABLE CONTROL
Icons
- New Alarm
- Ack Pending Alarm
- Ack Gone Alarm
Msg. Counter
47
Report
Horn Ack
Ack
Alarm Ack
Ack
Src Message TimeON TimeACK St Id
DG1 BIN 02 active alarm /02 20:35:35 08:50:09 2
DG1 BIN 04 active alarm /02 20:36:07 08:50:09 4
DG1 BIN 06 active alarm /03 12:43:30 00:05:33 6
BT1 BusL V L1-N active alarm /18 16:59:19 18:19:03 442
BT1 BusL V L2-N active alarm /18 16:59:19 18:19:03 443
BT1 BusL V L3-N active alarm /18 16:59:19 18:19:03 444
BT1 BusL Freq active alarm /18 16:59:19 18:19:03 448
EMG Dongle Incomp active alarm : Config /18 17:12:39 18:19:03 76
BT1 BusR V L3-N active alarm /18 17:33:47 18:19:03 465
BT1 BusR Freq active alarm /18 17:33:47 18:19:03 469
DG1 Modbus TCP comm. Node 01 Error /11 22:46:23 12:42:41 901
DG1 Modbus TCP comm. Node 01 Error /12 12:22:02 12:42:41 901
DG1 Modbus TCP comm. Node 01 Error /12 12:24:35 12:42:41 901
DG1 Modbus TCP comm. Node 01 Error /12 12:26:02 12:42:41 901
DG1 Modbus TCP comm. Node 01 Error /12 12:28:22 12:42:41 901
DG1 Modbus TCP comm. Node 01 Error /12 12:31:31 12:42:41 901
DG1 Modbus TCP comm. Node 01 Error /12 12:38:03 12:42:41 901
BT1 BL L3 under active alarm : BUS /18 17:44:33 18:19:03 429
BT1 BusL Frq under active alarm : BUS /18 17:44:33 18:19:03 439
BT1 BusL V L1-N active alarm /18 17:44:33 18:19:03 442
BT1 BusL V L2-N active alarm /18 17:44:33 18:19:03 443
BT1 BusL V L3-N active alarm /18 17:44:33 18:19:03 444
BT1 BusL Freq active alarm /18 17:44:33 18:19:03 448
BT1 BR L1 under active alarm : BUS /18 17:44:33 18:19:03 449
BT1 BR L2 under active alarm : BUS /18 17:44:33 18:19:03 450
BT1 BR L3 under active alarm : BUS /18 17:44:33 18:19:03 451
Show
All
New
Ack
Gone
Sorting
Time
Source
Status
Message
DG1
DG2
DG3
DG4
EMG
PLANT
SINGLE LINE
PMS POWER
METERS
ENGINES
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DEMO


INFO
ABOUT
LOG-IN
NETWORK
ALARM
EVENT
TREND
SETTING
ZOOM
PRINT
DG1
DG4
DG2
DG3
EMG
07/
17:05
METERING
Gen-Set DG1
0 - V
0 - A
0 - kW
0.0 - Hz
0.00 - PF
0 - kVA
0 - kVar
0 - Vunbal [%]
0 - Iunbal [%]
0 - V - L1-N
0 - V - L2-N
0 - V - L3-N
0 - A - L1
0 - A - L2
0 - A - L3
Gen-Set DG2
0 - V
0 - A
0 - kW
0.0 - Hz
0.00 - PF
0 - kVA
0 - kVar
0 - Vunbal [%]
0 - Iunbal [%]
0 - V - L1-N
0 - V - L2-N
0 - V - L3-N
0 - A - L1
0 - A - L2
0 - A - L3
Gen-Set DG3
0 - V
0 - A
0 - kW
0.0 - Hz
0.00 - PF
0 - kVA
0 - kVar
0 - Vunbal [%]
0 - Iunbal [%]
0 - V - L1-N
0 - V - L2-N
0 - V - L3-N
0 - A - L1
0 - A - L2
0 - A - L3
Gen-Set DG4
0 - V
0 - A
0 - kW
0.0 - Hz
0.00 - PF
0 - kVA
0 - kVar
0 - Vunbal [%]
0 - Iunbal [%]
0 - V - L1-N
0 - V - L2-N
0 - V - L3-N
0 - A - L1
0 - A - L2
0 - A - L3
kWh Counter - DG1
Reset
kWh Counter - DG2
Reset
kWh Counter - DG3
Reset
kWh Counter - DG4
Reset
COUNTERS
Gen-Set DG1
kWh : 0
kVAh : ---
RUNh : 0
Gen-Set DG2
kWh : 0
kVAh : ---
RUNh : 0
Gen-Set DG3
kWh : 0
kVAh : ---
RUNh : 0
Gen-Set DG4
kWh : 0
kVAh : ---
RUNh : 0
DG1
DG2
DG3
DG4
EMG
PLANT
SINGLE LINE
PMS POWER
METERS
ENGINES
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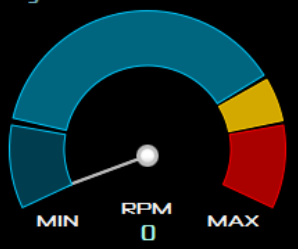
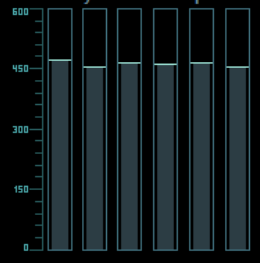
DEMO

DIESEL ENGINES

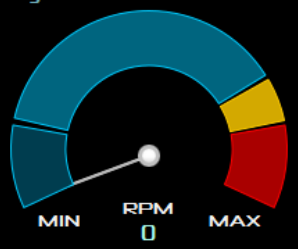
Engine 1



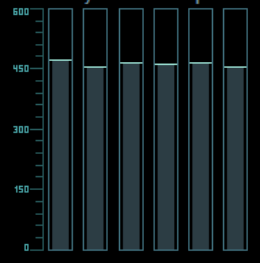
Cylinders Temp.



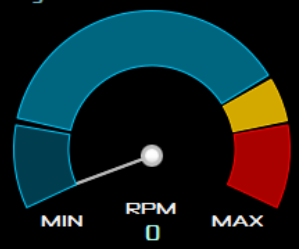
Engine 2



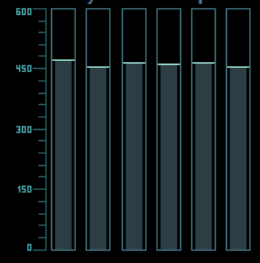
Cylinders Temp.



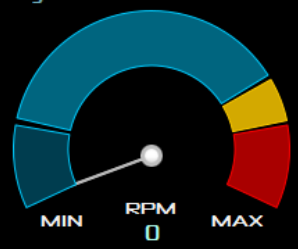
Engine 3



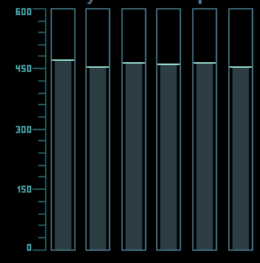
Cylinders Temp.



Engine 4



Cylinders Temp.



Indicators

Engine 1

- Remote Mode
- General Alarm
- Cooling W Temp OK
- Coolin W Pres. OK
- Lub Oil Level OK
- Lub Oil Pressure OK
- Engine E-Stop

Engine 2

- Remote Mode
- General Alarm
- Cooling W Temp OK
- Coolin W Pres. OK
- Lub Oil Level OK
- Lub Oil Pressure OK
- Engine E-Stop

Engine 3

- Remote Mode
- General Alarm
- Cooling W Temp OK
- Coolin W Pres. OK
- Lub Oil Level OK
- Lub Oil Pressure OK
- Engine E-Stop

Engine 4

- Remote Mode
- General Alarm
- Cooling W Temp OK
- Coolin W Pres. OK
- Lub Oil Level OK
- Lub Oil Pressure OK
- Engine E-Stop

ACTUAL DATA

Engine 1

INIT
DIAG-NONE

StartCnt : 0
Mode LOCAL
RunHrs : 0

Engine 2

INIT
DIAG-NONE

StartCnt : 0
Mode LOCAL
RunHrs : 0

Engine 3

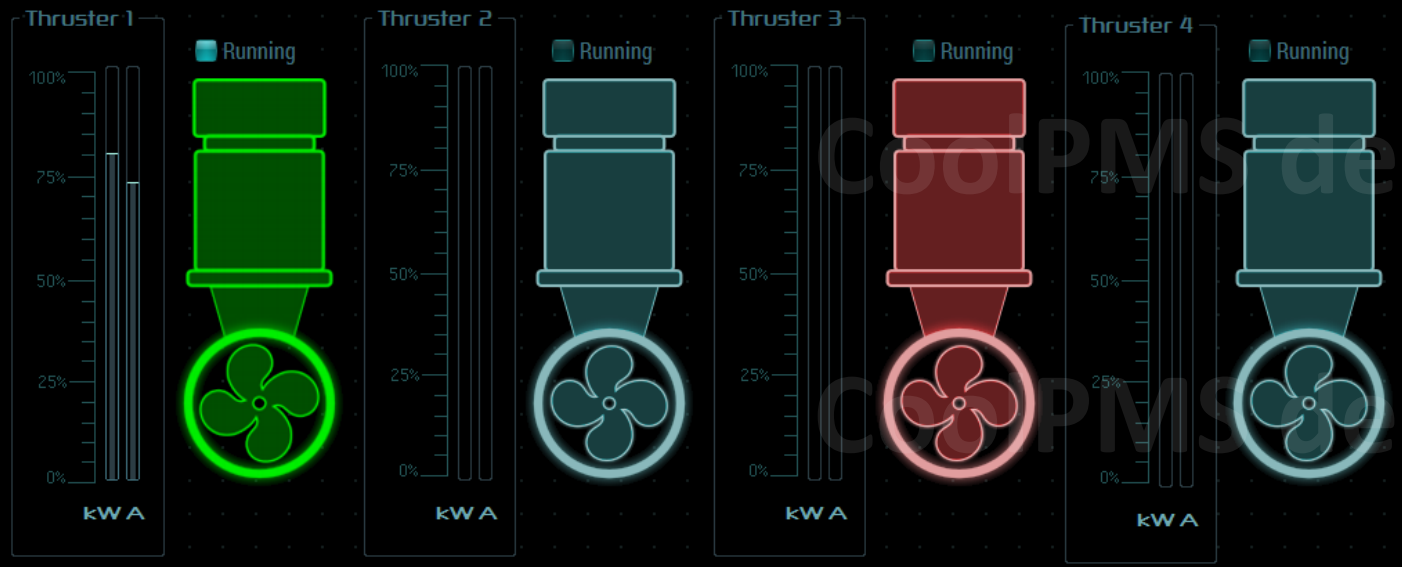
INIT
DIAG-NONE

StartCnt : 0
Mode LOCAL
RunHrs : 0

Engine 4

INIT
DIAG-NONE

StartCnt : 0
Mode LOCAL
RunHrs : 0



ACTUAL DATA

RUNNING
110 - kW
106 - A
560 - RPM

STOPPED
0 - kW
0 - A
0 - RPM

STOPPED
0 - kW
0 - A
0 - RPM

STOPPED
0 - kW
0 - A
0 - RPM

Indicators

Thruster 1	Thruster 2	Thruster 3	Thruster 4
Ready	Ready	Ready	Ready
Running	Running	Running	Running
Common Alarm	Common Alarm	Common Alarm	Common Alarm
System Fault	System Fault	System Fault	System Fault
Load Limitation Active	Load Limitation Active	Load Limitation Active	Load Limitation Active
Drive Overtemperature	Drive Overtemperature	Drive Overtemperature	Drive Overtemperature
Thruster E-Stop	Thruster E-Stop	Thruster E-Stop	Thruster E-Stop

DG1 DG2 DG3 DG4 EMG

PLANT SINGLE LINE PMS POWER METERS ENGINES

Marine PMS powered by ComAp
The heart of smart control
DEMO


Thank You !