T-BOX: all in one solution

The protocols available on the Naviop T-Box

Thanks to our experience on protocols and our partnerships with the main building companies, we are able to provide our customers with a wide tested and verified library of protocols.

Each single communication port can be configured irrespective of the other ones, simply downloading and installing on it the whole software package of the protocol in use. It means that on the same port it is possible to manage the different versions and updates of the protocol used on the given port and different protocols in a simple and fast way. This because the T-Box is already set for these modifications. Thanks to this innovative solution the T-Box can be considered a real Plug & Play product, with no need of specialized technical assistance.

As system integrator, we make daily maintenance on protocols which are, for this reason, always updated.

The T-Box protocols: what size do you take?

For each protocol Naviop offers the possibility to choose among different sizes. According to each customer's need it will be possible to download the SMALL, MEDIUM and LARGE version, making the system fully scalable in terms of functionalities and flexible in terms of costs.

NAVIOP MARINE AUTOMATION

T-BOX: all in one solution

P-NA04

Naviop offers a wide range of products that can be used stand-alone, to make limited checks or show small size boats' datas, or can be included within wider configurations for complete control and monitoring systems.

Please contact our official dealer for your Country to choose the most suitable configuration for your project.

List of protocols available on the Naviop T-Box:

CONVERTER ASEA AC30 - *S*

SMALL - 52 data

- Status communication errors
- Converter frequency
- Converter voltage (line to line)
- Converter voltage (line to neutral)
- Converter current
- Converter power
- Converter load
- Converter percentage of rated power usage
- Converter total power
- Converter total load
- Converter total percentage of rated power usage
- Shore frequency
- Shore voltage (line to line)
- Shore voltage (line to neutral)
- Shore current
- Shore power
- Shore load
- Shore percentage of rated power usage
- System status
- Status word
- Control word
- Failure code
- Converter input contactor status
- Converter output contactor status
- Tiebreaker state status
- Shore power on command
- Shore power off command
- Converter power on command
- Converter power off command

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MEDIUM - 64 data

- Status Communication errors
- Converter frequency
- Converter voltage (line to line)
- Converter voltage (line to neutral)
- Converter current
- Converter power
- Converter load
- Converter percentage of rated power usage
- Converter total power
- Converter total load
- Converter total percentage of rated power usage
- Shore frequency
- Shore voltage (line to line)
- Shore voltage (line to neutral)
- Shore current
- Shore power
- Shore load
- Shore percentage of rated power usage
- System status
- Status word
- Control word
- Failure code
- Converter input contactor status
- Converter output contactor status
- Tiebreaker state status
- Shore power on command
- Shore power off command
- Converter power on command
- Converter power off command
- Select Gen1 transfer
- Select Gen2 transfer
- Select Gen3 transfer
- Select Gen4 transfer
- Gen1 breaker state
- Gen2 breaker state
- Gen3 breaker state
- Gen4 breaker state
- Gen 1 status
- Gen 2 status
- Transfer status
- Transfer request

T-BOX: all in one solution

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AUTRONICA - *S*

SMALL – Max 32 Detectors (3 variables)

- Connection Status (modbus errors)
- Detectors Status (alarm – PreAlarm – Fault - Isolated)
- Status register - Faults

MEDIUM – Max 32 Detectors (4 variables)

- Connection Status (modbus errors)
- Detectors Status (alarm – PreAlarm – Fault - Isolated)
- Status register - Faults
- Loop status

CANTALUPI DIMMER - *S*

SMALL – Max 16 dimmer – 2 data

- Status Communication errors with dimmers
- Status/Control of the three channels (RGB) values for each dimmers

MEDIUM – Max 16 dimmer – 4 data

- Status Communication errors with dimmers
- Status/Control of the three channels (RGB) values for each dimmers
- Status power supply tension
- Status temperatures

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T-BOX: all in one solution

P-NA04

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CONDARIA - *S*

SMALL – Max 32 Fancoils – No Chiller Organizer – 8 data

- Status Communication errors with fancoils
- Status/Control On/Off fancoil
- Status/Control warm or cold fancoil
- Status/Control electric heating fancoil
- Status/Control unit of measurement fancoil
- Status temperature fancoil
- Status/Control desired temperature fancoil
- Status/Control fan speed fancoil

MEDIUM – Max 32 Fancoils – 1 Chiller Organizer – 25 data

- Status Communication errors with fancoils
- Status/Control On/Off fancoil
- Status/Control warm or cold fancoil
- Status/Control electric heating fancoil
- Status/Control unit of measurement fancoil
- Status temperature fancoil
- Status/Control desired temperature fancoil
- Status/Control fan speed fancoil
- Status Communication errors with chiller
- Status/Control On/Off chiller
- Status/Control warm or cold chiller
- Status/Control unit of measurement chiller
- Status gas temperature 1 chiller
- Status gas temperature 2 chiller
- Status water temperature 1 chiller
- Status water temperatures 2 chiller
- Status compressor 1 chiller
- Status compressor 2 chiller
- Status compressor Status compressor 3 chiller
- Status compressor 4 chiller
- Status air recirculation pumps 1 chiller
- Status air recirculation pumps 2 chiller
- Status salt water pumps 1 chiller
- Status salt water pumps 2 chiller
- Status alarms chiller

T-BOX: all in one solution

P-NA04

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LARGE – Max 32 Fancoils – 2 Chiller Organizer – 44 data

- Status Communication errors with fancoils
- Status/Control On/Off fancoil
- Status/Control warm or cold fancoil
- Status/Control electric heating fancoil
- Status/Control unit of measurement fancoil
- Status temperature fancoil
- Status/Control desired temperature fancoil
- Status/Control fan speed fancoil

Chiller 1:

- Status Communication errors with fancoils
- Status/Control On/Off fancoil
- Status/Control warm or cold fancoil
- Status/Control unit of measurement fancoilr
- Status gas temperature 1 chiller
- Status gas temperature 2 chiller
- Status water temperature 1 chiller
- Status water temperatures 2 chiller
- Status compressor 1 chiller
- Status compressor 2 chiller
- Status compressor 3 chiller
- Status compressor 4 chiller
- Status air recirculation pumps 1 chiller
- Status air recirculation pumps 2 chiller
- Status salt water pumps 1 chiller
- Status salt water pumps 2 chiller
- Status alarms chiller

Chiller 2:

- Status Communication errors with fancoils
- Status/Control On/Off fancoil
- Status/Control warm or cold fancoil
- Status/Control unit of measurement fancoilr
- Status gas temperature 1 chiller
- Status gas temperature 2 chiller
- Status water temperature 1 chiller
- Status water temperatures 2 chiller
- Status compressor 1 chiller

to continue...

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T-BOX: all in one solution

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Please contact our official dealer for your Country to choose the most suitable configuration for your project.

- Status compressor 2 chiller
- Status compressor 3 chiller
- Status compressor 4 chiller
- Status air recirculation pumps 1 chiller
- Status air recirculation pumps 2 chiller
- Status salt water pumps 1 chiller
- Status salt water pumps 2 chiller
- Status alarms chiller

CUMMINS QSB5.9 - *C*

SMALL – 7 data

- Status Communication errors
- Engine speed
- Engine oil pressure
- ECU Supply voltage
- Total engine hours
- Fuel rate
- Engine Coolant Temperature

MEDIUM – 18 data

- Status Communication errors
- Engine speed
- Engine oil pressure
- ECU Supply voltage
- Total engine hours
- Fuel rate
- Engine Coolant Temperature
- Actual Torque
- Boost pressure
- Barometric pressure
- Trip fuel
- Total fuel used
- Turbo charger inlet temperature
- Intake manifold temperature
- Trip average fuel rate
- Percent load at current speed
- Accelerator pedal position
- Water in fuel indicator

T-BOX: all in one solution

P-NA04

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Please contact our official dealer for your Country to choose the most suitable configuration for your project.

LARGE – 189 data

- Status Communication errors
- Engine speed
- Engine oil pressure
- ECU Supply voltage
- Total engine hours
- Fuel rate
- Engine Coolant Temperature
- Actual Torque
- Boost pressure
- Barometric pressure
- Trip fuel
- Total fuel used
- Turbo charger inlet temperature
- Intake manifold temperature
- Trip average fuel rate
- Percent load at current speed
- Accelerator pedal position
- Water in fuel indicator
- 117 Engine alarms

DEIF - *S*

SMALL – 31 data

- Status Communication errors
- Generator Voltage (line to line)
- Generator Voltage (line to neutral)
- Generator frequency
- Generator current
- Generator CosPhi
- Generator active power
- Generator reactive power
- Generator running time
- BusBar voltage
- BusBar frequency
- Generator active energy counter
- Generator reactive energy counter
- Control online/offline generator
- Alarms (11)

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MARINE AUTOMATION

T-BOX: all in one solution

P-NA04

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Please contact our official dealer for your Country to choose the most suitable configuration for your project.

QUICK DIMMER - *S*

SMALL – Max 16 dimmer – 2 data

- Status Communication error with dimmers
- Status/Control of the three channels (RGBW) values for each dimmers

YACHTICA DIMMER - *S*

SMALL – Max 16 dimmer – 17 data

- Status Communication error with dimmers
- Status/Control dimming percentage (4 channels)
- Status on/off (4 channels)
- Status digital inputs (8 buttons)

ELTEK - *S*

SMALL – Max 32 Detectors (3 variables)

- Connection Status (modbus errors)
- Detectors Status (alarm – PreAlarm – Fault - Isolated)
- Status register - Faults

GAVAZZI UDM35 - *S*

SMALL – (2 variables)

- Connection Status (modbus errors)
- Voltage / Current Value

The variables are strictly dependent on the battery charger model.

T-BOX: all in one solution

P-NA04

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Please contact our official dealer for your Country to choose the most suitable configuration for your project.

GAVAZZI WM12/14 - *S*

SMALL – Single Phase Reading (6 variables)

- Connection Status (modbus errors)
- Voltage
- Current
- Power
- Frequency
- Cos Phi

MEDIUM – Three Phase Reading (12 variables)

- Connection Status (modbus errors)
- Voltage L1
- Voltage L2
- Voltage L3
- Current L1
- Current L2
- Current L3
- Power L1
- Power L2
- Power L3
- Frequency
- Cos Phi

LARGE – Three Phase Reading (22 variables)

- Connection Status (modbus errors)
- Voltage L1
- Voltage L2
- Voltage L3
- Voltage L1L2
- Voltage L2L3
- Voltage L3L1
- Voltage Sum
- Current L1
- Current L2
- Current L3

to continue...

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T-BOX: all in one solution

P-NA04

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Please contact our official dealer for your Country to choose the most suitable configuration for your project.

- Current Max
- Current N
- Power L1
- Power L2
- Power L3
- Power Sum
- Frequency
- Cos Phi1
- Cos Phi2
- Cos Phi3
- Cos Phi Total

HUMPHREE - *S*

SMALL (7 variables)

- Connection Fault
- Trim Angle Status
- List Angle Status
- Atos Status
- Rcs Status
- Mixing Status
- Ics Status

MEDIUM (9 variables incl. commands)

- Connection Fault
- Trim Angle Status
- List Angle Status
- Atos Status and activation command
- Rcs Status and activation command
- Mixing Status and activation command
- Ics Status and activation command
- Trim Command
- List Command

T-BOX: all in one solution

P-NA04

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Please contact our official dealer for your Country to choose the most suitable configuration for your project.

LARGE (14 variables incl. commands)

- Connection Fault
- Trim Angle Status
- List Angle Status
- Atos Status and activation command
- Rcs Status and activation command
- Mixing Status and activation command
- Ics Status and activation command
- Trim Command
- List Command
- Servo 1 Position
- Servo 2 Position
- Servo 3 Position
- Servo 4 Position
- Speed Over Ground value

HYUNDAI S250S - *C*

SMALL – 5 data

- Status communication errors
- Engine speed
- Engine Coolant Temperature
- Engine Battery Voltage
- Total Engine Hours

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T-BOX: all in one solution

P-NA04

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IME - *S*

LARGE – Three Phase Reading (22 variables)

- Connection Status (modbus errors)
- Voltage L1
- Voltage L2
- Voltage L3
- Voltage L1L2
- Voltage L2L3
- Voltage L3L1
- Current L1
- Current L2
- Current L3
- Current Max
- Neutral Current
- Active Power
- Reactive Power
- Sign of Active Power
- Sign of Reactive Power
- Positive Active Energy
- Negative Active Energy
- Negative Reactive Energy
- Power Factor
- Sector of Power
- Frequency

KOHLER - *C*

SMALL (5 variables)

- J1939Fault: Connection Fault
- EngineOilPress: Engine Oil Pressure
- EngineCoolantT: Engine Coolant Temperature
- BattVoltage: Battery Voltage (depending on Generator model)
- BattVoltageSwitch: Battery Switching Voltage (depending on Generator model)

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MARINE AUTOMATION

T-BOX: all in one solution

P-NA04

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MEDIUM (11 variables)

- J1939Fault: Connection Fault
- EngineOilPress: Engine Oil Pressure
- EngineCoolantT: Engine Coolant Temperature
- BattVoltage: Battery Voltage (depending on Generator model)
- BattVoltageSwtch: Battery Switching Voltage (depending on Generator model)
- AltVoltage: Alternator Voltage
- TotalEngineHour: Total Engine Hours
- FuelTemperature: Fuel Temperature
- EngineCoolantLeve: Engine Coolant Level
- EngineSpeed: Generator Engine Speed
- EnginePreHeating: Engine Pre hating Status

LARGE (21 variables)

- J1939Fault: Connection Fault
- EngineOilPress: Engine Oil Pressure
- EngineCoolantT: Engine Coolant Temperature
- BattVoltage: Battery Voltage (depending on Generator model)
- BattVoltageSwtch: Battery Switching Voltage (depending on Generator model)
- AltVoltage: Alternator Voltage
- TotalEngineHours: Total Engine Hours
- FuelTemperature: Fuel Temperature
- EngineCoolantLevel: Engine Coolant Level
- EngineSpeed: Generator Engine Speed
- EnginePreHeating: Engine Preheating Status
- EngineOilLevel: Engine Oil Level
- NetBattCurrent: Net Battery Current
- FuelRate: Fuel Consumption Rate
- EngineOilT: Engine Oil Temperature
- AltCurrent: Alternator Output Current
- AvgVoltLL: Average Output Voltage LL
- AvgVoltLN: Average Output Voltage LN
- AvgFreq: Average Output Voltage Frequency
- AvgCurr: Average Output Current

to continue...

T-BOX: all in one solution

P-NA04

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Please contact our official dealer for your Country to choose the most suitable configuration for your project.

- Fault Array: Faults No Signal From CANBus
  No Fault Codes
  Low Fuel Warning
  Low Oil Pressure
  Over Crank
  Over Speed
  Low Coolant Level
  Loss Of Coolant
  Auxiliary Input
  High Engine Temperature
  Over Voltage
  Under Voltage
  Over Frequency
  Under Frequency
  Low Battery Voltage
  High Battery Voltage

The variables depend on Generator model

MAN 1800V8 - *C*

SMALL – 7 data

- Status communication errors
- Engine speed
- Engine oil pressure
- ECU Supply voltage
- Total engine hours
- Fuel rate
- Engine Coolant Temperature

MEDIUM – 29 data

- Status communication errors
- Engine speed
- Engine oil pressure
- ECU Supply voltage
- Total engine hours
- Fuel rate
- Engine Coolant Temperature
- Actual Torque
- Boost pressure

to continue...

T-BOX: all in one solution

P-NA04

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- Barometric pressure
- Fuel Delivery pressure
- Fuel temperature
- Engine oil level
- Engine coolant pressure
- Engine air in pressure
- Engine oil temperature
- Exhaust gas temperature
- Turbocharger1 inlet temperature
- Turbocharger2 inlet temperature
- Engine intake manifold1 temperature
- ECU Temperature
- Accelerator pedal position
- Desired operator speed
- Transmission pressure
- Transmission oil temperature
- ECU error codes
- Water in fuel alarms

LARGE – 195 data

- Status communication error
- Engine speed
- Engine oil pressure
- ECU Supply voltage
- Total engine hours
- Fuel rate
- Engine Coolant Temperature
- Actual Torque
- Boost pressure
- Barometric pressure
- Fuel Delivery pressure
- Fuel temperature
- Engine oil level
- Engine coolant pressure
- Engine air in pressure
- Engine oil temperature
- Exhaust gas temperature
- Turbocharger1 inlet temperature
- Turbocharger2 inlet temperature
- Engine intake manifold1 temperature
- ECU Temperature

to continue...

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MARINE AUTOMATION

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P-NA04

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- Accelerator pedal position
- Desired operator speed
- Transmission pressure
- Transmission oil temperature
- ECU error codes
- Water in fuel alarms
- Red Alarms (38)
- Yellow Alarms (37)
- Event Message (23)
- Missing Data (34)
- Sensor Defect (34)

MARINEAIR - *C*

SMALL – Massimo 32 fancoils – 6 data

- Status communication error with fancoils
- Status/Control On/Off fancoil
- Status/Control functioning mode fancoil
- Status temperature fancoil
- Status/Control desired temperature fancoil
- Status/control fan speed fancoil

MASTERVOLT - *S*

The variables are strictly dependent on the battery charger model

SMALL – (4 variables)

- Connection Status (modbus errors)
- Charger Status
- Battery Voltage
- Charge Current

T-BOX: all in one solution

P-NA04

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MEDIUM – (9 variables)

- Connection Status (modbus errors)
- Charger Status
- Battery Voltage
- Battery Voltage 2
- Battery Voltage 3
- Charge Current
- Battery Temperature
- Charger Temperature
- Total Run Time

MTU - *C*

SMALL – 7 data

- Status communication error
- Engine speed
- Engine oil pressure
- ECU Supply voltage
- Total engine hours
- Fuel rate
- Engine Coolant Temperature

MEDIUM – 28 data

- Status communication error
- Engine speed
- Engine oil pressure
- ECU Supply voltage
- Total engine hours
- Fuel rate
- Engine Coolant Temperature
- Actual Torque
- Boost pressure
- Barometric pressure
- Trip fuel
- Total fuel used Turbo charger inlet temperature

to continue ...

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MARINE AUTOMATION

T-BOX: all in one solution

P-NA04

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Please contact our official dealer for your Country to choose the most suitable configuration for your project.

- Intake manifold temperature
- Trip average fuel rate
- Percent load at current speed
- Accelerator pedal position
- Water in fuel indicator
- Injection pressure
- Exhaust gas temperature
- Fuel temperature
- ECU temperature
- Clutch pressure
- Transmission oil temperature
- Clutch state
- ECU error codes

LARGE – 203 data

- Status communication error
- Engine speed
- Engine oil pressure
- ECU Supply voltage
- Total engine hours
- Fuel rate
- Engine Coolant Temperature
- Actual Torque
- Boost pressure
- Barometric pressure
- Trip fuel
- Total fuel used
- Turbo charger inlet temperature
- Intake manifold temperature
- Trip average fuel rate
- Percent load at current speed
- Accelerator pedal position
- Water in fuel indicator
- Injection pressure
- Exhaust gas temperature
- Fuel temperature
- ECU temperature
- Clutch pressure
- Transmission oil temperature

to continue...

NAVIOP MARINE AUTOMATION

T-BOX: all in one solution

P-NA04

Naviop offers a wide range of products that can be used stand-alone, to make limited checks or show small size boats' datas, or can be included within wider configurations for complete control and monitoring systems.

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- Clutch state
- ECU error codes
- Red Alarms (37)
- Yellow Alarms (71)
- Event Message (23)
- Missing Data (22)
- Sensor Defect (22)

ONAN - *C*

The variables depend on Generator model

SMALL (5 variables)

- J1939Fault : Connection Fault
- EngineOilPress : Engine Oil Pressure
- EngineCoolantT : Engine Coolant Temperature
- BattVoltageSwtch : Battery Voltage
- Status Array: Generator Status Array

MEDIUM (9 variables)

- J1939Fault : Connection Fault
- EngineOilPress : Engine Oil Pressure
- EngineCoolantT : Engine Coolant Temperature
- BattVoltageSwtch : Battery Voltage
- Status Array: Generator Status Array
- AvgVoltLN : Average Output Voltage LN
- TotalEngineHours : Total Engine Hours
- FuelTemperature : Fuel Temperature
- EngineSpeed : Generator Engine Speed

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MARINE AUTOMATION

T-BOX: all in one solution

P-NA04

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Please contact our official dealer for your Country to choose the most suitable configuration for your project.

LARGE (12 variables)

- J1939Fault : Connection Fault
- EngineOilPress : Engine Oil Pressure
- EngineCoolantT : Engine Coolant Temperature
- BattVoltageSwtch : Battery Voltage
- Status Array: Generator Status Array
- AvgVoltLN : Average Output Voltage LN
- TotalEngineHours : Total Engine Hours
- FuelTemperature : Fuel Temperature
- EngineSpeed : Generator Engine Speed
- FuelRate : Fuel Consumption Rate
- AvgFreq : Average Output Voltage Frequency
- FaultArray : Faults Low Oil Pressure
  Over Crank
  Over Speed
  Low Coolant Level
  High Engine Temperature
  Over Voltage
  Under Voltage
  Over Frequency
  Under Frequency
  Low Battery Voltage
  High Battery Voltage
  J1939Fault
  Faulty Oil Press Sender
  Faulty Eng Temp Sender
  Starting Fault
  Speed Sense Lost
  Genset Overload
  High Exhaust Temp

SPEICH - *C*

SMALL – 8 data

- Status communication error
- Status Engines on/off
- Status/control functioning mode (7 modes)

NAVIOP
MARINE AUTOMATION

T-BOX: all in one solution

P-NA04

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Please contact our official dealer for your Country to choose the most suitable configuration for your project.

TOSHIBA - *S*

SMALL – Max 6 Inverters (3 variables)

- Connection status (modbus error)
- Inverter Frequency
- Status and Commands: Direction
- Status and Commands: Start/Stop

MEDIUM – Max 6 Inverters (5 variables)

- Connection status (modbus error)
- Inverter Frequency
- Status and Commands: Direction
- Status and Commands: Start/Stop
- Faults
- In command – remote status

VECO CLIMMA - *S*

SMALL – Max 32 fancoils – 7 data

- Status communication error with fancoils
- Status/Control On/Off fancoil
- Status/Control functioning mode fancoil
- Status/Control measurement unit fancoil
- Status temperature fancoil
- Status/Control desired temperature fancoil
- Status/control fan speed fancoil

WEBASTO - *C*

SMALL – Fancoils – No Chiller – 4 data for each unit

- Status/Control desired temperature
- Status/Control fan speed

T-BOX: all in one solution

P-NA04

Naviop offers a wide range of products that can be used stand-alone, to make limited checks or show small size boats' datas, or can be included within wider configurations for complete control and monitoring systems.

Please contact our official dealer for your Country to choose the most suitable configuration for your project.

MEDIUM –Fancoils – No Chiller – 7 dati per ogni unità

- Status/Control desired temperature
- Status/Control fan speed
- Water temperature
- Room temperature
- Dehumidification Cycles

LARGE –Fancoils – Chiller – 11 data for each unit

- Status/Control desired temperature
- Status/Control fan speed
- Input water temperature
- Output water temperature
- Room temperature
- Dehumidification Cycles
- Status on/off compressors
- Functioning mode

Webasto protocol has been approved with its own chillers SW 4.24 version and SW 6.24 fan coil.

WHISPERPOWER - *S*

SMALL (3 variables + 1 command)

- Connection Fault
- Start-Stop Command
- Generator Status
- Battery Voltage

MEDIUM (11 variables + 1 command)

- Connection Fault
- Start-Stop Command
- Generator Status
- Battery Voltage
- AC Voltage
- Total Runtime Hours
- AC Frequency

to continue...

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MARINE AUTOMATION

T-BOX: all in one solution

P-NA04

Naviop offers a wide range of products that can be used stand-alone, to make limited checks or show small size boats' datas, or can be included within wider configurations for complete control and monitoring systems.

Please contact our official dealer for your Country to choose the most suitable configuration for your project.

- AC Current
- AC Power
- Cos Phi
- Time to Service
- Controller Temperature

LARGE (63 variables + 1 command)

- Connection Fault
- Start-Stop Command
- Generator Status
- Battery Voltage
- AC Voltage
- Total Runtime Hours
- AC Frequency
- AC Current
- AC Power
- Cos Phi
- Time to Service
- Controller Temperature
- Fuel Vdc
- Fuel Idc
- Glow Vdc
- Glow Idc
- Start Vdc
- Start Idc
- Charger Vdc
- Stop Vdc
- Stop Idc
- Oil Pressure Low number of Faults
- Alternator Temperature number of Faults
- Engine Temperature High number of Faults
- Water pressure number of Faults
- Start Failures number of Faults
- Good Starts number of Faults
- Communication Errors number of Faults
- High VAC number of Faults
- Low VAC number of Faults
- High IAC number of Faults
- Low IAC number of Faults

to continue...

NAVIOP™
MARINE AUTOMATION

T-BOX: all in one solution

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- Overload number of Faults
- Low Vdc Battery number of Faults
- Charger Failure number of Faults
- Charger Temperature number of Faults
- High Idc Fuel number of Faults
- High Idc Stop Fuel number of Faults
- High Idc Glow Fuel number of Faults
- High Idc Start Fuel number of Faults
- High Vdc Fuel number of Faults
- High Vdc Stop number of Faults
- High Vdc Glow number of Faults
- High Vdc Start number of Faults
- Low Vdc Fuel number of Faults
- Low Vdc Stop number of Faults
- Low Vdc Glow number of Faults
- Low Vdc Start number of Faults
- Total Runtime [d,h,m]
- Runtime P0 [d,h,m]
- Runtime P20 [d,h,m]
- Runtime P40 [d,h,m]
- Runtime P60 [d,h,m]
- Runtime P80 [d,h,m]
- Service Int1 time [d,h]
- Service Int2 time [d,h]
- Service Int3 time [d,h]
- Service Int4 time [d,h]
- Service Int5 time [d,h]
- Service Int6 time [d,h]
- Service Int7 time [d,h]
- Service Int8 time [d,h]
- Service Int9 time [d,h]
- Service Int10 time [d,h]

Notes:

Each P-NA04 unit is equipped with 4 CANbus ports, 3Serial ports and 1 Ethernet ports all configurable. Each protocol, according to its physical layer, can be connected to only one of the above mentioned ports.
Each protocol is marked by the following letters according to its physical layer:
S **–** Serial
C **–** Canbus
***E*-** Ethernet