AVENTICS

Quick guide

Marex ECS basic

R419302106/01.2015, Replaces: 08.2014, EN

Rexroth Pneumatics

Marex ECS basic

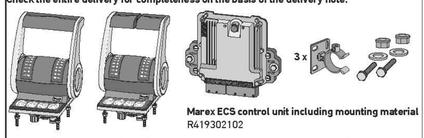
This quick guide provides instructions for mounting, commissioning, operating and troubleshooting a Marex Easy Control System basic for reversing gear applications. It applies only to the products named in the scope of delivery. This quick guide is addressed to assembly and service technicians and users.

In instructions which refer to the boat's direction of thrust, 'forward' is used as equivalent term for 'ahead' and 'reverse' for astern.

⚠
- ▶ Read the instruction manual of the boat and the assembly instructions of the delivered Marex ECS components before mounting the system.
- ▶ Use the products only in permissible areas as specified in the assembly instructions.
- ▶ Mount the products in the order described in this quick guide (chapters 1 to 9).

1 Scope of delivery

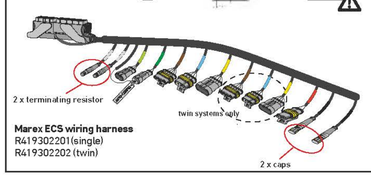
Check the entire delivery for completeness on the basis of the delivery note.



Marex ECS control unit including mounting material
R419302102

Marex ECS control head including mounting material and drilling template
R417002550 (single) or
R417002400 (twin)

Assembly instructions



Marex ECS wiring harness
R419302201 (single)
R419302202 (twin)

Marex ECS bus cable STATION/PROPULSION
labeled 'STATION', with additional label „PROPULSION'

Part no.	Length
R419801349	1 m
R419801350	5 m
R419801351	10 m
R419801352	15 m
R419801353	20 m
R419801354	30 m

Gender changer for connecting two bus cables

Part no.	Length
R419801362	0.15 m

Terminating resistor

Terminating resistor
Part no.
8941054274

Marex ECS control cable GEAR
forward/reverse

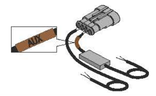
Part no.	Length	
R419801334	10 m	
R419801335	5 m	X
R419801336	10 m	X

X = with solenoid valve connector

Marex ECS control cable THROTTLE

Part no.	Length	
R419801320	10 m	4 to 20 mA
R419801321	20 m	4 to 20 mA
R419801322	10 m	0 to 5 (10) V
R419801323	20 m	0 to 5 (10) V
R419801324	10 m	PWM
R419801325	20 m	PWM

Marex ECS control cable AUX (START INTERLOCK)



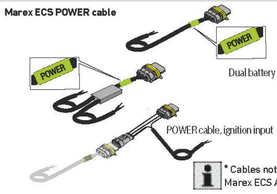
Part no.	Length	
R419801344	10 m	A
R419801345	10 m	B

A = start interlock contact, safety stop, high idle
B = start interlock contact

Marex ECS control cable ALARM (optional)
alarm and monitoring system interface

Part no.	Length
R419801319	10 m

Marex ECS POWER cable



Dual battery

POWER cable, ignition input

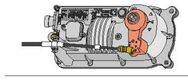
Part no.	Length
R419801567	5 m
R419801316 *	10 m

Part no.	Length
R419801568	5 m
R419801522 *	10 m

Part no.	Length
R419801547	20 m

* Cables not suitable for 12 V-version of Marex ECS Actuator.

Marex ECS actuator (optional)



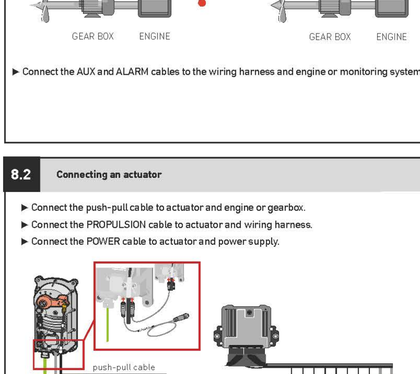
Part no.	Power supply
R417002102	12 V DC
R417002103	24 V DC

not shown:

Marex ECS push-pull cable (optional)
for the actuator, stroke 76 mm

Part no.	Length
3236994152	2 m
3236994162	3 m

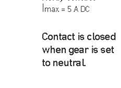
2 System overview



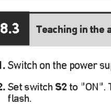
Number of control heads	Max total length of STATION cables	
	12 V	24 V
1	60 m	120 m
2	50 m	120 m
3	40 m	80 m
4	30 m	60 m

3 Preparing the mounting

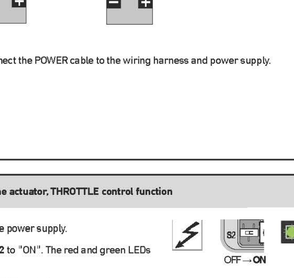
▶ Note the following requirements:
- The control head has to be mounted lever-up in a panel (permissible thickness of the panel: 2 mm to 20 mm). Provide enough space so that the lever's movement range is not obstructed.



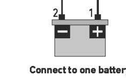
- The control head has to be mounted in the direction of travel of the boat.



▶ Prepare a panel cut-out for the control head corresponding to the drilling template (Ø 68 – 85 mm).



Drilling template for panel cut-out



▶ Remove the protection caps from the STATION connectors of the control head. Keep the protection caps!

▶ Remove the terminating resistors from the wiring harness and keep them until finishing the mounting (see 4).

▶ Re-label the STATION cables using the 'PROPULSION' labels when connecting the actuators.

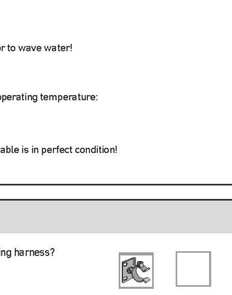
4 Mounting one control head

▶ Feed a STATION cable through the cut-out and connect it to one of the STATION connectors of the control head.

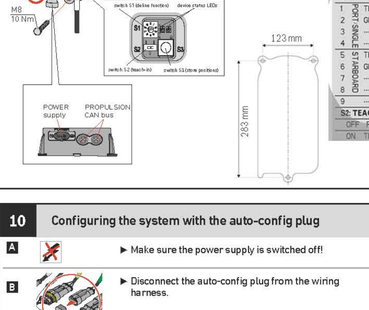
▶ Fit a **terminating resistor** to the other STATION connector. If you mount additional control heads, connect another STATION cable instead.

▶ Insert the control head correctly positioned into the panel cut-out.

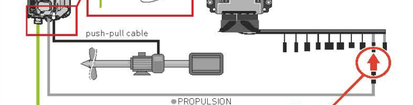
▶ Screw it to the panel with the supplied washers and fastening nuts.
Mind the maximum tightening torque of 2 Nm!



Mounting additional control heads



5 Mounting the control unit



⚠ **Do not mount the control unit directly on the engine!**

Do not step on the unit!

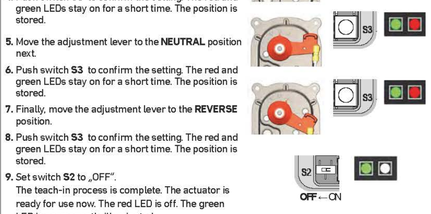
+70°C +25°C Permissible operating temperature: –25 °C to 78 °C !

Hot surface! Do not touch during operation!

Avoid exposure to splash water!

⚠ Do not remove the fastening elements

6 Mounting the wiring harness



7 Connecting the cables

⚠ **Make sure the power supply is switched off before connecting the cables.**

⚠ **Cover all unused connectors with protective caps!**

7.1 STATION

▶ Connect the free end of the STATION cable to the wiring harness. The other end is already plugged in the control head (see 4).

▶ Fit terminating resistors to unused STATION connectors.

7.2 GEAR + THROTTLE

▶ Make sure the THROTTLE cable matches the type of your engine (4 to 20 mA, 0 to 5 V or PWM). Then connect the GEAR and THROTTLE cables to the wiring harness, engine and gearbox.

Pin assignment GEAR cable

Pin assignment THROTTLE cable

A pull-up resistor must be connected before measuring the output signal (open drain output).

7.3 AUX + ALARM

▶ Connect the AUX and ALARM cables to the wiring harness and engine or monitoring system.

Pin assignment ALARM + AUX cables

Contact is closed when gear is set to neutral.

Function is activated when input is set, external contact closed, see 14.5 for information.

Output is set when Marex ECS has not detected any failures.

7.4 POWER

▶ Connect the POWER cable to the wiring harness and power supply.

Wiring

Control unit	12 V DC	24 V DC
Imax	8 A	6 A
Fuse	16 A	10 A

Actuator	12 V DC	24 V DC
Imax	10 A	8 A
Fuse	30 A	16 A

Connect to one battery

Connect to two batteries (recommended for twin controls)

⚠ Make sure that each power cable is electrically protected by circuit breakers! Consider your local regulations, e. g. ABYC.

8 Mounting and connecting an actuator (optional)

⚠ **Be careful not to trap hand or fingers when handling moving parts of the actuator!**

▶ Before mounting, be aware that the **length of the push-pull cable** determines the **distance** of the actuator from the engine!

▶ Read the actuator's documentation before mounting the actuator!

▶ Make sure that the system is powered off before connecting the cables!

▶ Do not expose the actuator to wave water!

+70°C +25°C ▶ Observe the permissible operating temperature: –25 °C to 78 °C !

▶ Make sure the push-pull cable is in perfect condition!

8.1 Mounting an actuator

⚠ **Make sure to set the actuator's function (see below) before starting the auto-configuration of Marex ECS (10).**

▶ Mount the actuator using the delivered mounting material.

▶ **Ground** the actuator at the grounding point 'GND'.

▶ Set **switch S1** to define the function of the actuator:

8.2 Connecting an actuator

▶ Connect the push-pull cable to actuator and engine or gearbox.

▶ Connect the PROPULSION cable to actuator and wiring harness.

▶ Connect the POWER cable to actuator and power supply.

The maximum length of the power cable for system with 12-V actuators is **5 m**.

8.3 Teaching in the actuator, GEAR control function

1. Switch on the power supply.
2. Set switch **S2** to "ON". The red and green LEDs flash.

For the GEAR control:

3. Move the **adjustment lever** of the actuator manually to the **FORWARD** position.
4. Push switch **S3** to confirm the setting. The red and green LEDs stay on for a short time. The position is stored.
5. Move the adjustment lever to the **NEUTRAL** position next.
6. Push switch **S3** to confirm the setting. The red and green LEDs stay on for a short time. The position is stored.
7. Finally, move the adjustment lever to the **REVERSE** position.
8. Push switch **S3** to confirm the setting. The red and green LEDs stay on for a short time. The position is stored.
9. Set switch **S2** to „OFF".
The teach-in process is complete. The actuator is ready for use now. The red LED is off. The green LED is permanently illuminated.

Teaching in the actuator, THROTTLE control function

1. Switch on the power supply.
2. Set switch **S2** to "ON". The red and green LEDs flash.

For the THROTTLE control:

3. Move the **adjustment lever** of the actuator manually to the **MINRPM** position.
4. Push switch **S3** to confirm the setting. The red and green LEDs stay on for a short time. The position is stored.
5. Move the adjustment lever to the **MAXRPM** position next.
6. Push switch **S3** to confirm the setting. The red and green LEDs stay on for a short time. The position is stored.
7. Set switch **S2** to „OFF".
The teach-in process is complete. The actuator is ready for use now. The red LED is off. The green LED is permanently illuminated.

9 Checklist: Is everything correctly connected?

- ▶ Check whether everything is correctly connected. ☑
- ▶ Check the complete STATION cabling: Is the control head connected correctly to the wiring harness? Check also the connection of additional control heads if installed. ☐
- ▶ Check the complete PROPULSION cabling: Is the actuator connected correctly to the wiring harness? Check also the connection of additional actuators if installed. ☐
- ▶ Did you fix terminating resistors to open ends? ☐
- ▶ Did you protect the sockets that you do not need with protective caps? ☐
- ▶ Did you attach the 'PROPULSION' labels on the PROPULSION cables? ☐
- ▶ Did you use the clamps to fix the wiring harness? ☐
- ▶ Did you connect a THROTTLE cable suitable for your engine (PWM, 4 – 20 mA, 0 – 5 V)? ☐
- ▶ Did you use the appropriate AUX cable for your system? Not every connector provides every feature (refer to 1, scope of delivery and the delivery note). ☐
- ▶ Are the connectors firmly attached? Did you connect the power supply? Did you provide an electrical protection for the connector cables? ☐
- ▶ If an actuator has been installed: Did you ground the actuator? ☐

10 Configuring the system with the auto-config plug

A ▶ Make sure the power supply is switched off!

B ▶ Disconnect the auto-config plug from the wiring harness.

C ▶ Switch on the power supply:
- The device status LEDs flash alternately red and green on all components.
- The auto-config is running. The process may take a few minutes.

D
- When the LEDs flash green on **all** components, the auto-config is finished.

E ▶ Reconnect the auto-config plug to the wiring harness. The configuration is complete. The device status LEDs are indicating the devices' state again.

Repeat the auto-config if the process is interrupted or red LEDs flash or light up permanently!

11 Setting up Marex ECS: Connecting to the network

⚠ Always set the control head lever(s) in NEUTRAL position, before changing the system setup.

⚠ Do not change settings while the boat is in motion!

You can comfortably set up Marex ECS with your mobile device e.g. a smartphone or tablet computer. Start by switching on the WLAN of the control head:

- ▶ Push the ALARM key for at least 5 seconds. As soon as you hear a short buzzer signal, the WLAN is on.
- ▶ Connect your mobile device to the Marex ECS MarexLink network.
- ▶ You are prompted to enter a password.
- ▶ Enter "marexecs". Your mobile device confirms that the network connection has been successfully set up.

If not used, the WLAN will switch off after 10 minutes.

12

Connecting your mobile device to MarexLink

- ▶ Scan the following QR code with your mobile device: The log-in page will appear.
- ▶ Alternatively, open the web browser and enter the following IP address in its address bar: http://192.168.10.1:8080

MarexLink opens. The web browser is used to establish a connection between the control head and your mobile device. Internet connection is not required.

⚠ The web browser must be HTML5-compatible.

You can read data and messages immediately.

If you wish to change settings you have to log in as admin.

Setting up Marex ECS in MarexLink:

- ▶ To change settings, log in at the active control head.
- ▶ In the password field, enter the control unit's serial number (SN) which is printed on the product label of the control unit.
- ▶ Take down the serial number in the space provided in chapter 16.

Basic setup

The following basic settings are adjustable. Those are examples, your Marex ECS may exceed the basic functions.

THROTTLE:
- MIN RPM: minimum engine rpm, default = 0.5 V
- MAX RPM: maximum engine rpm, default = 4.5 V
- HIGH IDLE: increases MIN RPM when activated, see 14.5, default = MIN RPM

GEAR:
- Throttle delay (time before engine acceleration) after clutch in, default = 1 s
- Clutch-off-delay (time before clutch disengagement), default = 0 s

For further information on the settings, use the „help"-buttons in the menus of MarexLink.

Logging out of MarexLink and switching the WLAN off

- ▶ Touch the „logout"-button when you have finished the adjustments. After 10 min of inactivity, the WLAN will switch off automatically. You can also switch it off manually by pressing the ALARM-key on the control head again for more than 5 secs until you hear a long buzzer sound.

13 Testing the system

⚠ Make sure the boat is in a safe condition and the control head lever(s) is(are) in NEUTRAL position, before starting a system test.

Switch off the power supply and set the lever(s) of every installed control head in neutral position.
Switch on the power supply and check if all control heads are ready for operation:
Does the device status LED light up green?
Is a buzzer tone audible?
If yes:
Push the COMMAND-key twice to transfer the command to the control head. Transfer the command to all other control heads if available.
If not:
Check all STATION cables to the control unit and repeat the auto-config (10). Then repeat this test.

2 x

- ▶ Make sure you have successfully transferred the command to the control head (see 14), then push the lever(s) of the control head to the FORWARD detent.
- ▶ Check if the signals are correctly transmitted over the GEAR cable to the gearbox: Measure if a correct signal is received at the gearbox when moving the control head lever(s).
- ▶ Measure the voltage of the GEAR cable:
  - Is the voltage correct?
- ▶ Check if the engine speed adjusts in accordance with the lever position – i. e. are signals correctly transmitted over the THROTTLE cable?
- ▶ Measure the signal transmitted via the THROTTLE cable:
  - Is it within the range required for your system (4 to 20 mA, 0 to 5 V, PWM)?

Yes, the signal transmission works fine:
- ▶ Repeat the procedure with the lever(s) in the REVERSE detent.

If not:
- ▶ Make sure that you use suitable cables for your system, reconnect and rewire all connections and repeat the auto-config.

⚠ With twin engines, perform separate tests for port and starboard to ensure that THROTTLE, GEAR and AUX cables have not been swapped.

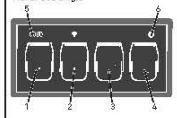
⚠ Pay special attention to the GEAR cable and the signals for FORWARD and REVERSE.

- ▶ If your system includes actuators, verify the correct positioning of the adjusting lever. If the positions are not correct, repeat the teach-in process (8).
- ▶ The system test is finished.

14 Operating Marex ECS

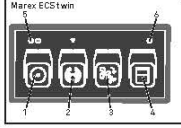
14.1 Keypad

Marex ECS single

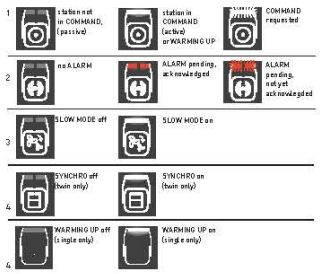


1 COMMAND key with COMMAND LED
2 ALARM key with ALARM LED
3 SLOW MODE key with SLOW MODE LED
4 WARMING UP key with WARMING UP LED (single only) SYNCHRO key with SYNCHRO LED (twin only)
5 Device status LED
6 Brightness sensor

Marex ECS twin

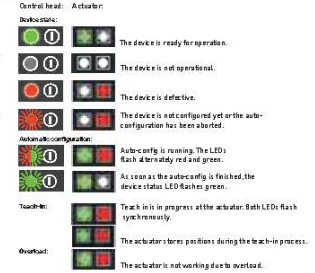


14.2 States of key indicators



1 station not in COMMAND, (passive) — station in COMMAND (active) or WARMING UP — COMMAND requested
2 no ALARM — ALARM pending, acknowledged — ALARM pending, not yet acknowledged
3 SLOW MODE off — SLOW MODE on
4 SYNCHRO off (twin only) — SYNCHRO on (twin only)
4 WARMING UP off (single only) — WARMING UP on (single only)

14.3 States of the device status LEDs



Control head: Actuator:

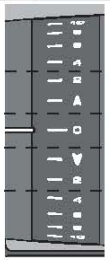
Device status:
- The device is ready for operation.
- The device is not operational.
- The device is defective.
- The device is not configured yet or the auto-configuration has been aborted.

Automatic configuration:
- Auto-config is running. The LEDs flash alternately red and green.
- As soon as the auto-config is finished, the device status LED flashes green.

Teach-in:
- Teach in is in progress at the actuator. Both LEDs flash synchronously.
- The actuator stores positions during the teach-in process.

Overfoot:
- The actuator is not working due to overfoot.

14.4 The scale of the control head



10 — 8 — 6 FORWARD — 4 — 2 FORWARD – SLOW — 0 NEUTRAL — 2 REVERSE – SLOW — 4 — 6 — 8 — 10 REVERSE

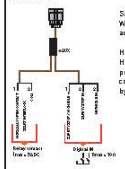
The illuminated scale of the control head guides you intuitively through the operation.

When a position on the scale flashes, it is recommended to move the lever to that position, e. g. during station transfer (see 14).

When all positions on the scale flash, the WARMING UP MODE is active.

14.5 Digital inputs

Marex ECS supports special functions which can be connected via the AUX cable (see also 7.3).



Safety stop (Dead Man Switch)
When the safety stop is activated, the engine rpm are automatically set to idle and the clutch is disengaged.

High idle
High idle provides a second idle speed for higher performance. If high idle is activated, the value which corresponds to idle speed (MIN RPM, see also 10) is replaced by the „HIGH IDLE" value.

14.6 Taking over the command

Requesting the command transfer

- ▶ Push the COMMAND key on the control head you want to activate. The COMMAND LED flashes white, accompanied by a buzzer sound.

1 x

If the COMMAND LED flashes slowly, accompanied by long buzzer sounds,
- ▶ set the lever(s) of the control head to the position which flashes on the scale.

If the COMMAND LED flashes quickly with short buzzer sounds,
- ▶ push the COMMAND key again. The control head is active.

1 x

⚠ You can always take over the command if the requesting lever is set in NEUTRAL position. Be aware that your boat may stop abruptly when moving at high speed!

14.7 ALARM – Acknowledging alarm signals

ALARM! The ALARM LED flashes red, accompanied by a steady buzzer sound.

1 x — ALARM!

- ▶ Push the ALARM key. The alarm is acknowledged. The buzzer is muted. When the ALARM LED permanently lights up red there is a pending alarm.

or:

- ▶ Push the ALARM key. The alarm is acknowledged. The buzzer is muted. The ALARM LED switches off.

There has been a temporary alarm.

▶ See 15 for details on troubleshooting.

14.8 SLOW MODE – Reducing the THROTTLE signal

50 % SLOW MODE reduces the maximum throttle signal to 50 %.

The control head must be active and in NEUTRAL position to switch SLOW MODE on and off.
- ▶ Make sure that the control head is active and in NEUTRAL position.

50 %
- ▶ Push the SLOW MODE-key. The SLOW MODE LED permanently lights up white. The THROTTLE signal is reduced.

1 x

100 %
- ▶ Push the SLOW MODE key again. The SLOW MODE LED switches off.

1 x

14.9 WARMING UP – Controlling the engine rpm without engaging the clutch

In the WARMING UP MODE, you can control the engine rpm without engaging the clutch.

The WARMING UP function is switched on via the COMMAND-key.

The control head must be active and in NEUTRAL position to switch WARMING UP on.
- ▶ Make sure that the control head is active and in NEUTRAL position.
- ▶ While pushing and holding the COMMAND key, carefully move the control head levers to the FORWARD position. The WARMING UP MODE is switched on. The control head scale flashes.

hold

- ▶ Set the control head levers in NEUTRAL position. The scale stops blinking. WARMING UP MODE is switched off.

⚠ Warning! If the gearbox clutches in anyway, immediately set the lever(s) in NEUTRAL position to prevent the boat from moving.

Alternatively, the WARMING UP-function can be switched on via the WARMING UP-key (single only).

The control head must be active and in NEUTRAL position to switch WARMING UP on.
- ▶ Make sure that the control head is active and in NEUTRAL position.
- ▶ Push the WARMING UP key. The WARMING UP LED lights up indicating the WARMING UP MODE is on. Move the control head lever to the FORWARD position.

1 x

- ▶ Set the control head lever in NEUTRAL position. The WARMING UP LED switches off. WARMING UP MODE is switched off.

14.10 SYNCHRO – Synchronizing twin engines

SYNCHRO allows to control both engines with the starboard lever.

PORT ENGINE — STBD ENGINE

The control head must be active and in NEUTRAL position to switch SYNCHRO on and off.
- ▶ Make sure that the control head is active and in the NEUTRAL position.
- ▶ Push the SYNCHRO key. The SYNCHRO LED permanently lights up white. The SYNCHRO MODE is active. You can control both engines by using the starboard lever.

1 x

- ▶ Push the SYNCHRO key again. The LED turns off. The SYNCHRO MODE is switched off.

1 x

15 Troubleshooting – what to do in case of alarms

WARNING
Hazard of a fatal accident or collision due to a system failure!

When ALARM LEDs flash red or light up red permanently, this indicates a device failure or malfunction which may result in a system failure or even unexpected reaction of the boat. You may no longer be able to control the main propulsion engine. To prevent a fatal accident or collision, immediately take the following measures when the ALARM LED flashes or lights up:
- ▶ First bring the boat into a safe state!
- ▶ Only then acknowledge the alarm and eliminate the cause of the fault (see 15.2).

If the active control head fails, Marex ECS automatically reduces the engine rpm to idle and disengages the clutch.

Take control or change the control station

2x

- ▶ If available, choose a control head of which the device status LED lights up green and push the COMMAND key twice in order to activate the control head (see 14.6).

If this is not possible, change to the local control of the propulsion system, if available.

15.1 Alarm signals and acknowledgment

If the ALARM LED of your control head flashes red accompanied by the buzzer:
- ▶ Bring the boat into a safe state!

1 x
- ▶ Acknowledge the ALARM by pushing the ALARM key. The buzzer is muted and the ALARM LED changes its state:

1 x

OR:
- ▶ If the ALARM LED permanently lights up red, you have to take troubleshooting measures immediately (15.2).
- ▶ Even if the ALARM LED turns off, you must check the function of system and components immediately!

Twin-engine systems provide one ALARM LED each for port and starboard. In case of alarm, only one may flash or light up permanently. Then the failure only concerns one of the propulsion systems and the other propulsion side is not affected.

15.2 Troubleshooting the control head

After acknowledging the alarm,
- ▶ check the LEDs on the control head(s) and carry out the corresponding steps as explained in the table below:

LED signal	Meaning	What to do
	This control head is defective.	▶ Replace the control head and repeat the auto-configuration (see 10). ▶ If available, check also the function of the other control heads by comparing the LED signals and referring to the instructions in this table. ▶ If available, check also the function of the optional actuator(s) as explained in 15.3.
	This control head works fine, but another system component is defective.	▶ If available, check the function of the other control heads, by comparing the LED signals and referring to the instructions in this table. ▶ If available, check the function of optional actuator(s) as explained in 15.3.
	The communication of the control head has failed or the power supply is beyond the admissible range.	Do you still have the comm and and cancontrol engine and gear? ▶ Check the on-board power supply as explained in 15.5. If not, ▶ check the STATION cables as explained in 15.4.
	Power supply failure.	▶ Check the powers upply as explained in 15.5.

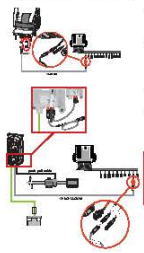
15.3 Troubleshooting the actuator

After checking the LEDs on the control head (15.2), it may be necessary to check the condition of the actuator(s). Two LEDs are provided under the transparent cover on the actuator to indicate its functional condition (8).
- ▶ Compare the LED signals on the actuator to the indications in the table below:

LED signal	Meaning	What to do
	This actuator is defective.	▶ Replace the actuator and repeat the auto-configuration and teach-in processes.
	This actuator works fine, but another actuator may be affected.	▶ Check the functions of all other actuator(s), if available. Refer to the instructions in this table.
	The actuator has stopped working due to overload.	▶ Check manually if the actuator's lever can move freely by pulling the push/pull cable. ▶ Eliminate the cause of the stiff movement. ▶ Dis- and reconnect the POWER cable and try again.
	Power supply failure or the power is beyond the admissible range or the communication between the actuator and the control unit is disturbed.	▶ Check the PROPULSION cable (15.4) and POWER supply (15.5).

15.4 Troubleshooting communication failures

- ▶ If the communication between the system components is disturbed, check the STATION and PROPULSION cables:



- ▶ Check if the STATION cable is properly connected between the control head and the control unit.
- ▶ Check if terminating resistors are correctly applied at control head and wiring harness. Attach them if necessary.
- ▶ Check if the PROPULSION cable is properly connected between actuator and control unit.
- ▶ Check if terminating resistors are correctly applied at actuator and wiring harness. Attach them if necessary.

If, after verifying the cabling and terminating resistors, you cannot identify the failure, refer to www.marex-shipcontrols.com for further information and support.

15.5 Troubleshooting power supply failures

In case of power supply failure
- ▶ check the voltage at battery and system components. Pay special attention to correct polarity and fuses. Make sure connectors are firmly attached and cables are intact.

- ▶ Measure the battery voltage to check if the power supplied is within the admissible range for the components:

Control unit	9 ... 31.2 V
Actuator 12 V DC	9 ... 15.6 V
Actuator 24 V DC	18 ... 31.2 V

- ▶ Check if appropriate, functioning fuses are installed:

	12 V DC	24 V DC
Control unit	10 A	10 A
Actuator	20 A	10 A

- ▶ Check if the POWER cable is correctly connected to the battery:

Power cable	
Wire No. 1	+
Wire No. 2	-

- ▶ Measure the voltage at the POWER connector to the wiring harness. Verify the correct polarity.

Pin assignment POWER connector	
Pin 1	+ battery
Pin 2	- battery
Pin 3	+ battery *

* If your system features a separate wire for ignition, make sure to switch on the ignition when testing the power supply.

- ▶ Measure the voltage at the POWER connector to the actuator. Verify the correct polarity.

Pin assignment POWER connector	
Pin 1	+ battery
Pin 2	- battery
Pin 3	not used

If, after verifying power cables, connectors and battery voltage, you cannot identify the failure, refer to www.marex-shipcontrols.com for further information and support.

15.6 Troubleshooting via MarexLink

You can also use MarexLink for error diagnosis and troubleshooting:

Pending error field

- ▶ Touch the „Messages"-button or pending error field for information.

16 Further information

MarexLink quick access:

or

http://192.168.10.1:8080

Write down here the control unit's serial number which is printed on its product label:

Serial No. of Marex ECS Control Unit:

AVENTICS

The data specified serve to describe the product.

No statements concerning a certain condition or suitability for a certain application can be derived from our information. The given information does not release the user from the obligation of own judgement and verification.

Our products are subject to a natural process of wear and aging.

An example configuration is depicted on the title page. The delivered product may thus vary from that in the illustration.

Translation of the original operating instructions.
The original operating instructions were created in the German language.

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Subject to modifications
Printed in Germany
R414502106

Rexroth