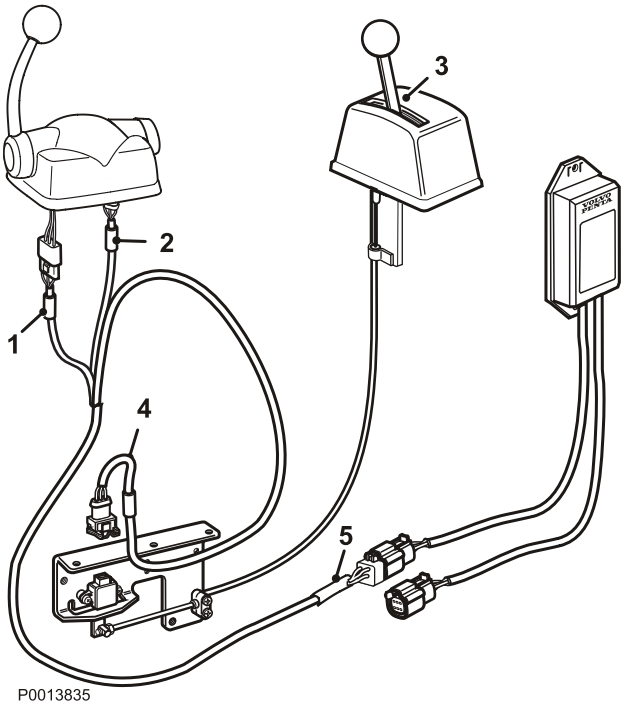
## Mechanical lever for electrically controlled trolling

In order to use the trolling function with a mechanical control, an adapter is required; (refer to *Adapter for mechanical controls page 78*).

**NOTICE!** No extension cables may be connected to the control cables.



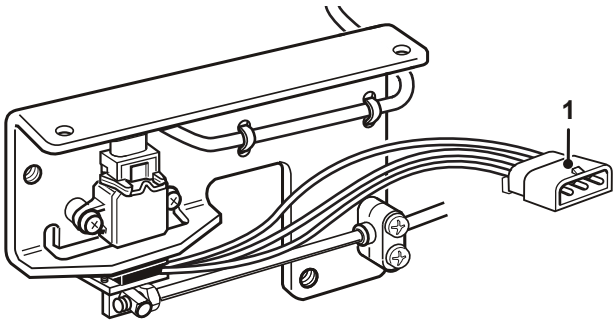

1 Connect the cable marked THROTTLE POT (29 to the electronic control for throttle and gear shift.

2 Connect NEUTRAL SWITCH (1) to the throttle and gear shift lever.

3 Connect the cable marked GEAR POT (4) to the potentiometer.

4 Connect the cable (5) to the A-CAN adapter.

5 The other connection on the A-CAN adapter proceeds to X7 on the HCU via an adapter cable; refer to *Connection Analoge Controls page 76*.



P0005985

## Adapter for mechanical controls

An adapter for mechanical controls allows such controls to be used in combination with an engine fitted with an EVC system and an electrically or mechanically operated reverse gear. The adapter converts the mechanical push-pull movement to an electrical signal.

A neutral switch (1) is connected to the adapter lever.

The adapter is also required for the trolling function when a mechanical relay is used.

### Installation

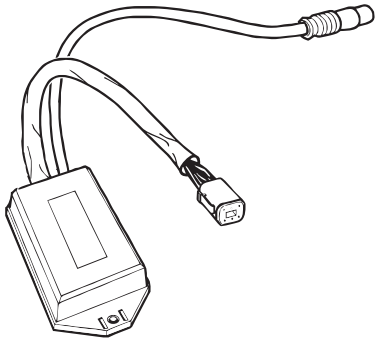
1 The adapter must be installed in a location that is as dry and accessible as possible.

2 Install the adapter as close to the control as possible in order to reduce the force needed to move the control lever.

3 If it is necessary to install the adapter a long way from the helm station there are 5 m (16 ft.) and 9 m (29 ft.) extension cables available.

# Interface

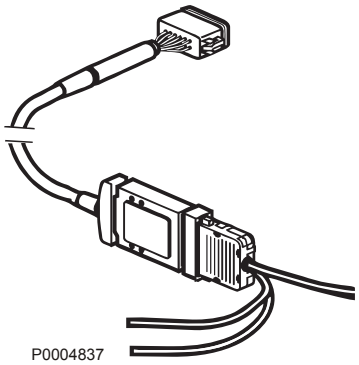
## Auto pilot interface



P0004839

Interface for autopilots that support electronic steering; refer to the manufacturers instructions about how to connect equipment to the EVC system.

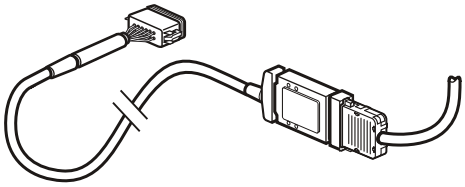
## Interface 4–20 mA



P0004837

**Input data interface 4–20 mA**

Input data interface for aftermarket control systems with support for 4–20 mA. No calibration necessary. The interface functions with both 12 V and 24 V installations.

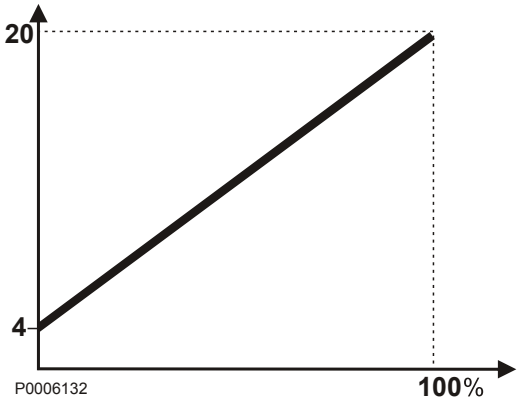


P0004838

**Output data interface 4–20 mA**

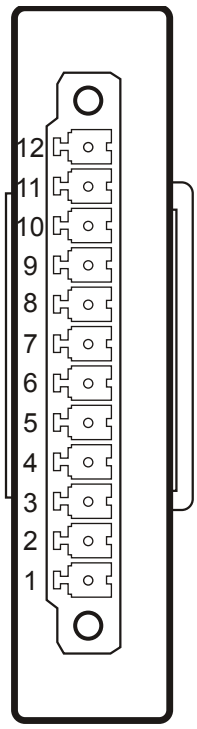
Output data interface for aftermarket control systems with support for 4–20 mA. No calibration necessary.

The interface allows Volvo Penta customers to select controls from suppliers other than Volvo Penta, to control throttle, gear shift and trolling on Volvo Penta EVC engines.
The interface functions with both 12 V and 24 V installations.




**NOTICE!** The interface works at different speeds/baud rates, depending on whether it is used as an input or output interface

**NOTICE!** AB Volvo Penta has developed and tested the entire EVC system and its components. However, components supplied from manufacturers other than Volvo Penta, or components incorrectly installed, may cause the system to work incorrectly. In such cases, Volvo Penta does not accept any liability.




Pin 12: – Negative

Pin 11: no connection

Pin 10: Closed: output signal (7-8)

Pin 9: Open: input signal (1-6)

Pin 8: – Trolling output 4–20 mA (200–600 ohm)

Pin 7: + Trolling output 4–20 mA (200–600 ohm)

Pin 6: – Trolling 4–20 mA (200 ohm)

Pin 5: + Trolling 4–20 mA (200 ohm)

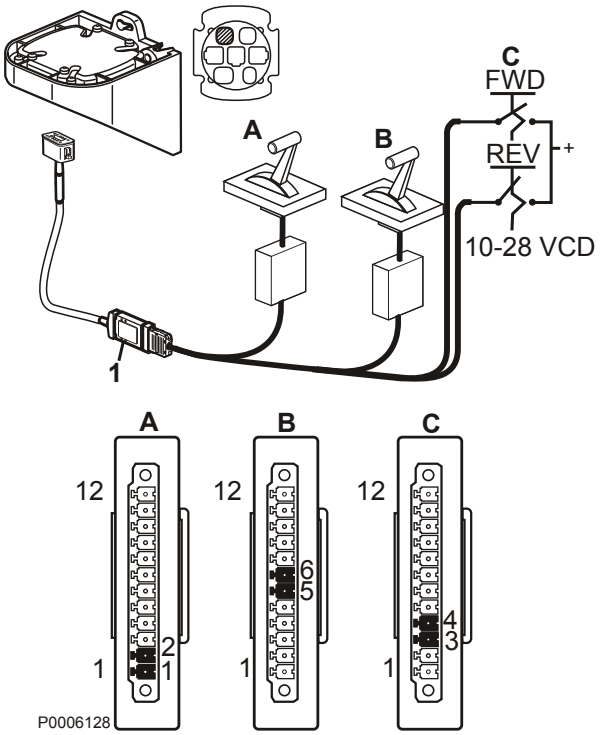
Pin 4: BACK 10–28 VDC = connection / OPEN: Neutral switch

Pin 3: FORWARD 10–28 VDC = connection / OPEN: Neutral switch

Pin 2: – Throttle 4–20 mA (200 ohm)

Pin 1: + Throttle 4–20 mA (200 ohm)

**NOTICE!** If a manual/mechanical emergency gear is installed in the reverse gear, a neutral switch must also be installed for the “Deactivate drive” function. (Open in the neutral position).




1 Interface

A Throttle control

B Trolling control

C Reverse gear

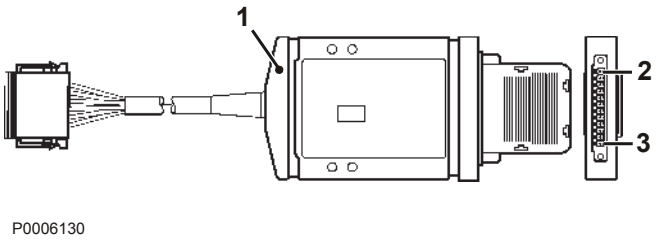
## Interface, input

For aftermarket systems that support 4–20 mA; no calibration required.
The following functions are available:

- Throttle control
- Trolling function
- Gear shift/reverse gear

**NOTICE!** The trolling and reverse gear functions need not be connected if only throttle control is required.

**NOTICE!** The specified input signal levels are required for the interface to work correctly.




1 Interface

2 Pin 12

3 Pin 1

**Installation sequence**

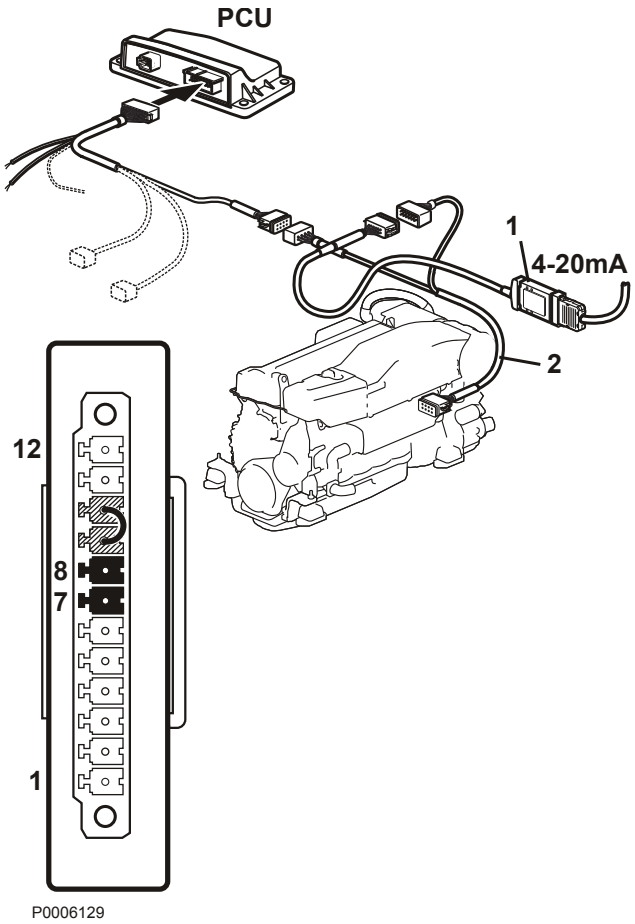
1 Connect the control harness to the interface screw terminal (1).

2 Install the strain relief supplied.

3 Connect the interface to the HCU via an adapter cable.

4 Secure the interface in a suitable place, using a tie wrap or screw.

5 Carry out system auto-configuration; refer to *Auto Configuration, Initial Start, Singel Installation page 105*.




P0006129

## Interface output

**NOTICE!** The illustration shows a D9 engine; on other engines the PCU is engine mounted.

For aftermarket systems that support 4–20 mA; no calibration required.
– Trolling function

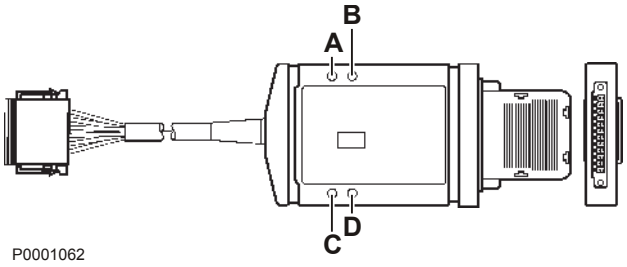
### Installation sequence

1 Connect the Y connector (2) between the PCU and the engine, as illustrated.

2 Change the interface baud rate by connecting a jumper between Pins 9 and 10 on the terminal block, as illustrated.

3 Connect the interface to the 12-pole connector on the Y connector, as illustrated.

4 Secure the interface in a suitable place, using a tie wrap or screw.




## LED signals

**Throttle diode (A)**

| | |
|---|---|
| Constant light | Input signal is valid, i.e. between 4.0–20.0 mA |
| Flashes (10 Hz) | Input signal is < 3.95 mA or > 20.05 mA |
| Extinguished | Other cases |

**Trolling control diode (B):**
**NOTICE!** Also applies to the interface output

| | |
|---|---|
| Constant light | Input signal is valid, i.e. between 4.0–20.0 mA |
| Flashes (10 Hz) | Input signal is < 3.95 mA or > 20.05 mA |
| Extinguished | Other cases |

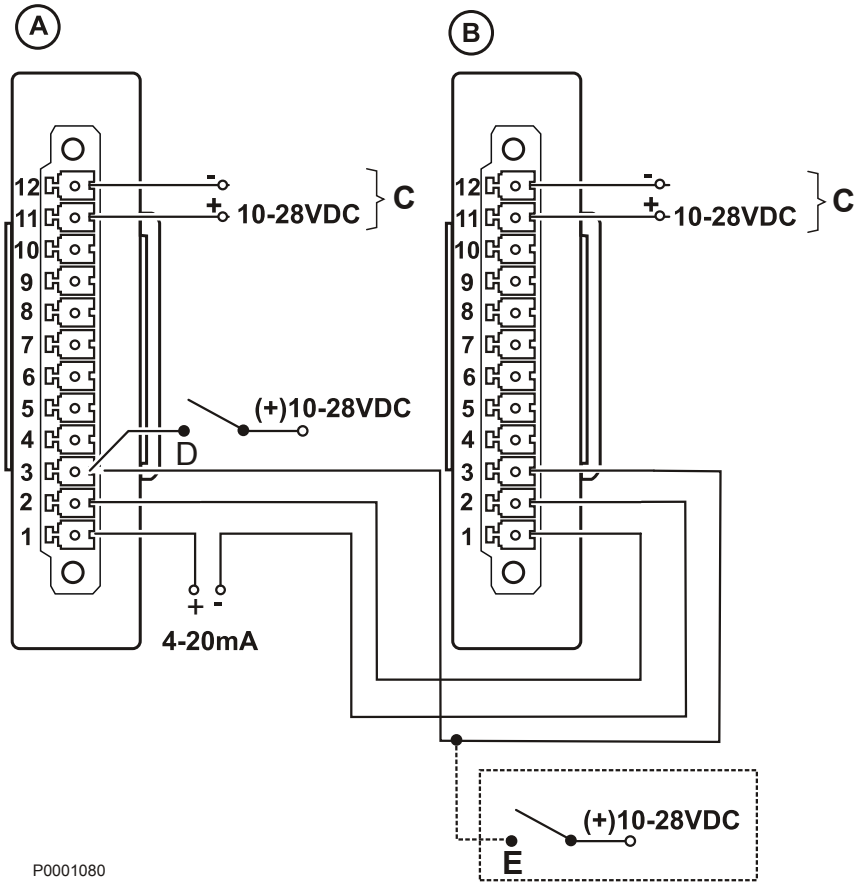
**Power supply diode (C):**

| | |
|---|---|
| Constant light | The unit has power supply |
| Flashes (1 Hz) | Communication on the CAN bus |
| Flashes (10 Hz) | No communication on the CAN bus |
| Extinguished | Other cases |

**Gear shift diode (D):**

| | |
|---|---|
| Constant light | Input signal for Reverse or Forward is > 6 V |
| Flashes (10 Hz) | Input signals for Reverse and Forward are > 6 V (simultaneously) |
| Extinguished | Other cases |

## Installation example, throttle control




A Main helm station

B Secondary helm station

C Battery supply from main switch

D Neutral switch

E If a manual/mechanical emergency gear is installed in the reverse gear, a neutral switch must also be installed for the “Deactivate drive” function. (Open in the neutral position).

### Main helm station

1 Connect Throttle IN to pin 1 (+) and pin 2 (–).

**IMPORTANT!**

The interface always requires current and a correct 4.0–20.0 mA throttle signal before the EVC system is started.

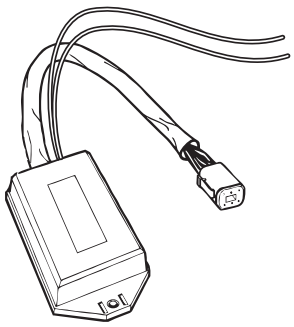
**NOTICE!** The EVC system also requires an input signal for the neutral switch for “deactivate drive” and “wide open throttle” (WOT).

If the drive's input signal (VDC) is not connected, engine rpm will be limited to “warm-up rpm only”.

### Secondary helm station

1 Connect the main helm station throttle signal (IN) in series with the throttle signal (IN) at the secondary helm station.

2 In other respects, the same requirements apply as for the main helm station.



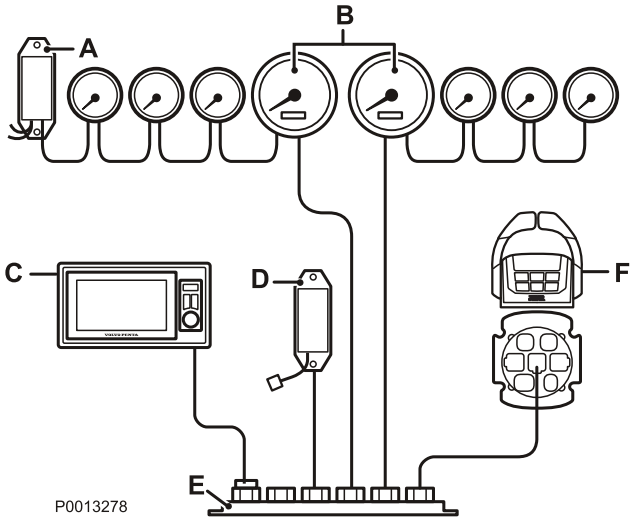
P0004840

## NMEA 0183 interface

Transfers information about boat speed from a GPS or equivalent; the information is shown in gauges, the 2.5" or 7" display.
An NMEA interface/multisensor must be installed to transfer the information to the EVC system.

**IMPORTANT!**

It is not permitted to install both an NMEA 0183 interface and an NMEA 2000 in the same boat.




P0013278

**NOTICE!** Only one NMEA interface per boat is possible.

**Connecting an NMEA interface**

A ADU

B EVC tachometer and other instruments

C 7" display

D NMEA Interface

E Multilink hub

F Control with HCU.

1 Connect the NMEA interface and the 7" screen to the multilink hub.

2 Connect the control to the multilink hub using a multilink cable.

If a speedometer is used it must be connected in the same way as all other gauges.

The NMEA unit LEDs flash at different frequencies to define different functions. Carry out and confirm connections in the following sequence.

**Constant light** – power supply available, but no NMEA connection. The NMEA unit may be incorrectly connected.

**3-pulse flash** – power supply and NMEA data connection established and confirmed.

**Flashing** – power supply and NMEA and CAN bus connection established and confirmed. The function is fault free.

## NMEA messages

### Ground speed

Data is collected from an NMEA 0183 unit and VTG message.

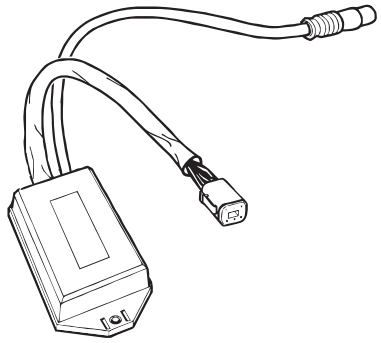
### Speed through water

Data is collected from an NMEA 0183 VHW message.

**NOTICE!** “Ground speed” has higher priority than “Speed through water”.
“Ground speed” is displayed when both parameters are available.

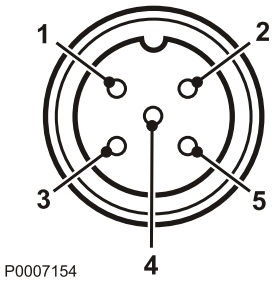
**NOTICE!** The “Speed” function must be activated in the 4" display.

## NMEA 2000 interface



P0004839

Transfers engine data to equipment compatible with an NMEA 2000 from another supplier. Information about boat speed from a GPS or equivalent is shown in gauges, the 2.5" or 7" display.
An NMEA interface/multisensor must be installed to enable speed information delivery to the EVC system.




P0007154

1 Not connected

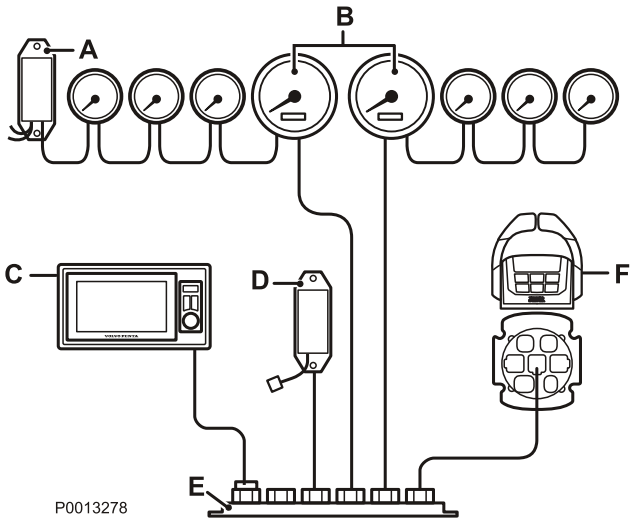
2 Red, supply +

3 Yellow, CAN high

4 Blue, CAN low

5 Black, supply –

**Installing and connecting an NMEA interface**




P0013278

A ADU

B EVC tachometer and other instruments

C 7" display

D NMEA Interface

E Multilink hub

F Control with HCU

1 Connect the NMEA interface and the 7" screen to a socket on the multilink hub.

2 Connect the control to the multilink hub using a multilink cable.

**NOTICE!** Only one NMEA interface per boat is possible.