



Gear Position Sensor Calibration Procedure ©

For MCS1000TBW Cruise Control Computer

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MOTORCYCLE CRUISE CONTROLS

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MCS1000C V5.57+

NOTE

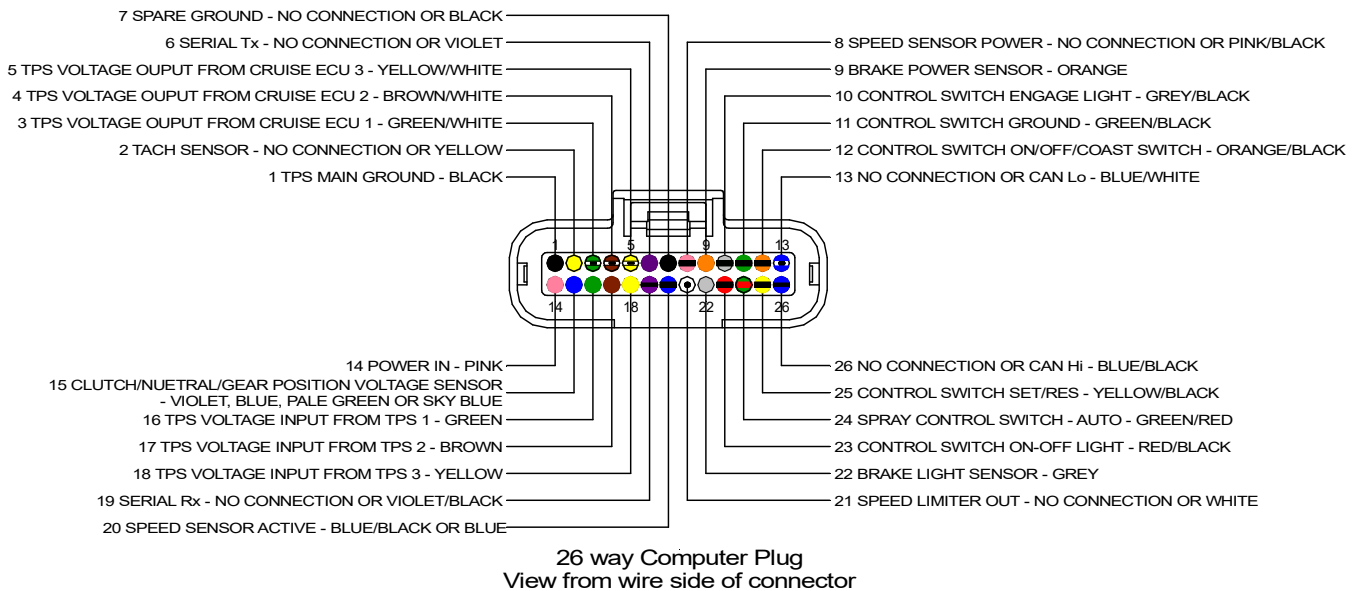
A new cruise control computer is now supplied in many of our cruise control kits. This unit has replaced our previous model computer.

The procedures in this manual to calibrate the voltage sensor input **ONLY** apply to the later MCS10000C TBW cruise control computer.

This procedure only applies to software versions from V5.57 up.

WARNING: - The wiring 'pin' positions on the new model are different to the old model and the units are **NOT** interchangeable without re-wiring the connector.

The neutral/gear position calibration procedure only applies to vehicles that a wire fitted into **Position 15** in the cruise control computer plug.



Gear Position Sensor Setup.

In most cases, the gear position sensor will already be calibrated from the factory. If the cruise control does not pass the neutral or gear position sensor test in Diagnostic Mode, or if the cruise control disengages occasionally and displays STOP CODE 8 (see Stop Codes on page 4 & 5 of the Troubleshooting Guide), this indicates that the gear position sensor needs to be calibrated to the vehicle.

Note: - The control switch has an indicator light at the right end, next to the ON-OFF button. This light has three colours, RED and GREEN and YELLOW. This is used to indicate the 'state' of the gear position sensor during the procedure.

There are also two lights, one red and one green, inside the cruise control computer, they are visible through the translucent plastic box, one each side near the connector end of the box. These are used to indicate what stage you are at in the calibration procedure.

The gear position sensor can be calibrated in any order of gear position. Usually the easiest way to do it is to either go from Park, Reverse, Neutral, Low, and lastly High ratio, or in the reverse direction starting with High ratio.

Readings MUST be taken for every position. The sensor can read up to 7 different gear positions and each position can be assigned to allow or disallow cruise operation. Positions not used can be disabled, for example if the vehicle has 5 possible gear selection positions, the first 5 positions will be set to allow or disallow cruise operation, the last two positions will be disabled.

The calibration procedure has four stages:

Stage 1 = Enable or Disable the voltage sensor.

Stage 2 = Select the sensing mode ('High', 'Low' or 'Gear Position Sensing').

The next stage only occurs if 'Gear Position Sensing' is selected.

Stage 3 = Turn the 'pull up' on or off. In most cases this will be turned off.

Stage 4 = Calibrate the voltage for each gear position and assign 'Allow', 'Disallow' or 'Disable'.

Stage 5 = Test operation of each position.

Stage 6 = Finish.

Performing the calibration

(NOTE: - There is a dot point sheet at the end of this manual showing this procedure)

Make sure you can see the cruise control switch, AND the cruise control computer (you may need an assistant for this).

- Chock the vehicle's wheels to ensure it will not roll away and make sure it is in Neutral or Park.

NOTE: - Because the park brake on many of these vehicles is linked to the normal brake system and often operates the brake light switches, the park brake often cannot be used.

- Turn the ignition switch OFF
- Make sure that the engine kill switch is ON (engine RUN position).
- Press and hold all three buttons, SET, RES and ON-OFF buttons. **Don't apply the brakes; make sure the part brake is released.**
- Turn ON the ignition switch – the engine can be started or not. **HOLD THE BUTTONS until you see the switch indicator light come on. The light should come on yellow.** After the light comes on release the

buttons.

- Check that the indicator light on the switch is yellow (solid on, not flashing) and that both the red and green computer lights are on (solid on, not flashing). **If these lights are not on, or are flashing, turn the ignition off and return to the start.**
- The cruise control is now in gear position sensor calibration mode..
- Apply and release the brakes. Both lights on the computer should flash once every few seconds (stage 1 – enable/disable voltage sensor). The light on the switch may be green or red (red for Voltage Sensor OFF, green for Voltage Sensor ON).
- Press and release the RES button, the light on the switch should be red (Sensor OFF). This will reset the gear position sensor readings.
- Press and release the SET button, the light on the switch should be green (Sensor ON).
- Apply and release the brakes. Both lights on the computer should flash twice every few seconds (stage 2 – select sensor mode). The light on the switch will usually be green, but may be red, green or yellow (red for high sensing, yellow for low sensing, green for gear position sensing).
- Press and release the ON-OFF button, the light on the switch should be green (Gear Position Sensing).
- Apply and release the brakes. Both lights on the computer should flash three times every few seconds (stage 3 – pull-up select mode). The light on the switch may be red or green (red for pull-up off, green for pull-up on).
- Press and release the RES button, the light on the switch should be red (Pull-Up OFF).
- Apply and release the brakes. The **red** light on the computer should flash four times every few seconds (stage 4 – calibration mode). The **green** light on the computer should flash once every few seconds (Gear Position 1). The light on the switch should be red (disabled).
- Select the first gear position (usually Park). You don't want the cruise to engage in Park, so press RES for disallow, the light on the switch will be yellow for disallow.
- Apply and release the brakes. The **red** light on the computer should flash four times every few seconds (stage 4 – calibration mode). The **green** light on the computer should flash twice every few seconds (Gear Position 2). The light on the switch should be red (disabled).
- Select the second gear position (usually Reverse). You want the cruise to engage in Reverse, so press SET for allow, the light on the switch will be green for allow. NOTE: - If you don't want the cruise to work in reverse, Press RES, the light on the switch will be yellow for disallow.
- Apply and release the brakes. The **red** light on the computer should flash four times every few seconds (stage 4 – calibration mode). The **green** light on the computer should flash three times every few seconds (Gear Position 3). The light on the switch should be red (disabled).
- Select the third gear position (usually Neutral). You don't want the cruise to engage in Neutral, so press RES for disallow, the light on the switch will be yellow for disallow.
- Apply and release the brakes. The **red** light on the computer should flash four times every few seconds (stage 4 – calibration mode). The **green** light on the computer should flash four times every few seconds

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(Gear Position 4). The light on the switch should be red (disabled).

- Select the fourth gear position (usually Low ratio). You want the cruise to engage in Low, so press SET for allow, the light on the switch will be green for allow.
- Apply and release the brakes. The **red** light on the computer should flash four times every few seconds (stage 4 – calibration mode). The **green** light on the computer should flash five times every few seconds (Gear Position 5). The light on the switch should be red (disabled).
- Select the fifth gear position (usually High ratio). You want the cruise to engage in High, so press SET for allow, the light on the switch will be green for allow.
- Apply and release the brakes. The **red** light on the computer should flash four times every few seconds (stage 4 – calibration mode). The **green** light on the computer should flash six times every few seconds (Gear Position 6). The light on the switch should be red (disabled).
- In most cases, there will not be a sixth gear position, if that is the case, this position is disabled. Press the ON-OFF button for disable, the light on the switch will be red for disabled. If you do have a sixth gear positions, press SET to Allow or RES to Disallow this gear position.
- Apply and release the brakes. The **red** light on the computer should flash four times every few seconds (stage 4 – calibration mode). The **green** light on the computer should flash seven times every few seconds (Gear Position 7). The light on the switch should be red (disabled).
- In most cases, there will not be a seventh gear position, if that is the case, this position is disabled. Press the ON-OFF button for disable, the light on the switch will be red for disabled. If you do have a seventh gear positions, press SET to Allow or RES to Disallow this gear position.
- Apply and release the brakes. The **red** light on the computer should flash five times every few seconds (stage 5 – test calibration mode). The **green** light on the computer will flash various numbers of times, ignore it. The light on the switch should show yellow for gears that are disallowed (Park and Neutral) and green for gears that are allowed (High, Low and Reverse). It may flash red or turn off briefly during gear changes if the voltage goes out of range.
- Apply and release the brakes. The red and green lights on the computer should come on solid (no flashes) and the light on the switch should be yellow solid (no flashes), this is the end of the procedure. Turn the ignition switch off.
- Test drive the vehicle to see if it works as it should in all gear positions.

Gear Position Sensor Setup procedure for most Polaris ATVs & UTVs.

Gear Position Sensor Setup.

- Enter GPS Calibration mode (SET, RES and ON-OFF held, turn ignition ON, wait for light to come on yellow, release buttons). Computer red and green lights on.
- Apply and release the brake. Computer red and green lights flash 1 time every few seconds.
- Press SET to enable (green light on switch), press RES to disable (red light on switch). If RES pressed, turn ignition off to exit mode.
- If SET pressed, Apply and release the brake. Computer red and green lights flash 2 times every few seconds.
- Press ON-OFF for custom calibration (gear position sensing). Green light on control switch.
- Apply and release the brake. Computer red and green lights flash 3 times every few seconds.
- Press RES for Pull-Up off. Red light on control switch.
- Apply and release the brake. Computer red light flash 4 times every few seconds. Computer green light flash 1 time every few seconds.
- Select first gear position (Park). Press RES (disallow), yellow light on switch.
- Apply and release the brake. Computer red light flash 4 times every few seconds. Computer green light flash 2 times every few seconds.
- Select second gear position (Reverse). Press SET (allow), green light on switch.
- Apply and release the brake. Computer red light flash 4 times every few seconds. Computer green light flash 3 times every few seconds.
- Select third gear position (Neutral). Press RES (disallow), yellow light on switch.
- Apply and release the brake. Computer red light flash 4 times every few seconds. Computer green light flash 4 times every few seconds.
- Select fourth gear position (Low). Press SET (allow), green light on switch.
- Apply and release the brake. Computer red light flash 4 times every few seconds. Computer green light flash 5 times every few seconds.
- Select fifth gear position (Hi). Press SET (allow), green light on switch.
- Apply and release the brake. Computer red light flash 4 times every few seconds. Computer green light flash 6 times every few seconds.
- Press ON-OFF (disable), red light on switch.
- Apply and release the brake. Computer red light flash 4 times every few seconds. Computer green light flash 7 times every few seconds.
- Press ON-OFF (disable), red light on switch.
- Apply and release the brake. Computer red light flash 5 times every few seconds. Ignore Computer green light flashes. Try all gear positions, observe switch light. Yellow light for disallow cruise in Park and Neutral, green light for allow cruise (Reverse, High and Low gears).
- Apply and release the brake. Computer red and green lights on (not flashing). Switch light on yellow (not flashing).
- Turn ignition off.