



## ECD-200BT ELECTRONIC CABLE DRIVE

The Dakota Digital ECD-200BT is designed operate a cable-driven speedometer from a transmission or ECM electric speed signal or from an OBDII port connection. The supplied cable threads on to one end of the ECD-200 and the wiring harness exits on the other end. Do not use the vehicle's original speedometer cable. The module is fully sealed and can be mounted under the dash or in the engine compartment. The module should not be mounted under the vehicle due to the danger of road debris causing damage. The unit is fully adjustable from the comfort of your driver's seat. Setup can also be completed by using the Dakota Digital Accessory app available for IOS or Android devices.

### Included components



Cable drive unit



OBDII Adapter  
Harness - 130063



GM Thread On Cable  
5/8" - 130048-36  
ECD-200BT-1

Included w/ Model #:



GM Clip On Cable  
130049-36  
ECD-200BT-2



Ford Clip On Cable  
130050-36  
ECD-200BT-5



Switch Assembly  
(Included with all ECD-200BT models)

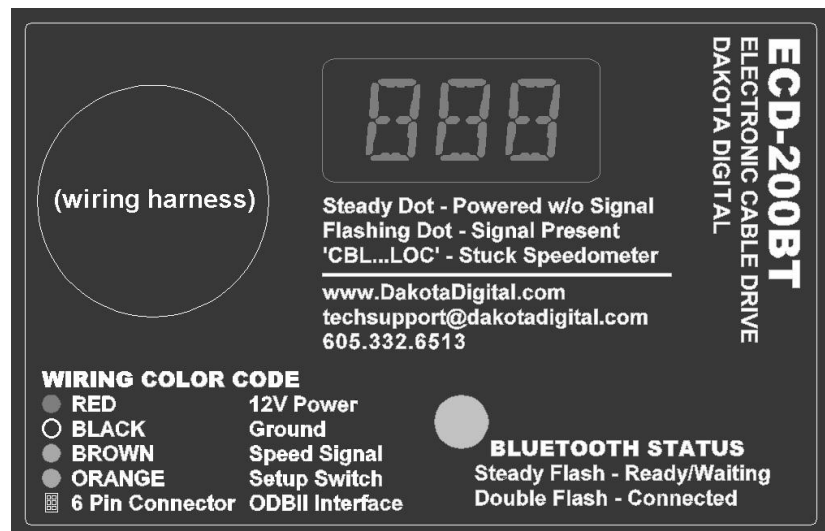
## **Speedometer cable installation**

Connect the 7/8" threaded end of the cable to the ECD-200BT unit, the other end connects to the back of your speedometer. When routing the cable from the ECD to your speedometer ensure to avoid tight bends which could cause excessive wear or binding.

## **ECD Display Panel**

The digital readout on the end of the ECD-200BT offers more setup options and helps to indicate what setup function is being accessed in addition to the speedometer needle feedback for certain calibration functions.

While you don't need to see the ECD unit during day-to-day operation, LED readout is useful during initial setup and for diagnostics.



## **ECD-200 wiring connections:**

RED – 12V power with key on.

BLACK – Ground.

BROWN – Vehicle speed signal.

ORANGE – Input for setup switch. (ground to activate)

6-pin connector – OBDII adapter cable.

## **VSS Wiring**

For 2-wire transmission speed sensors that are not connected to anything else, the polarity of the wires does not matter. Connect one wire to the BROWN wire on the ECD-200 and the other to the same ground point as the BLACK wire on the ECD-200. Twisting the ground and signal wires around each other provides an additional level of interference protection. The speed signal wire should not be routed alongside tach, ignition, or other high current or high voltage wires.

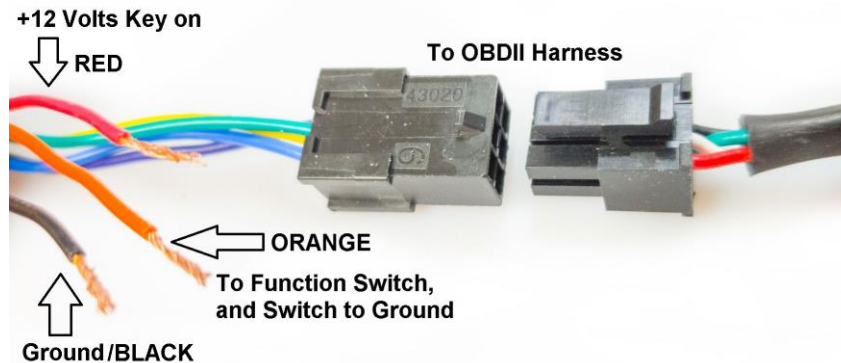
For vehicles which have an output vehicle speed signal from a transmission controller or ECM, connect the VSS wire to the BROWN wire on the ECD-200. Consult a vehicle service manual or wiring diagram to determine wire color and location. Do NOT tap into a VSS High between the transmission and ECM or TCM, as this will cause problems reading the signal.

Three wire VSS sensors found in many Chrysler products can share the VSS signal wire with the ECD-200BT, as they are powered sensors.

## OBDII wiring

When using the OBDII adapter harness, the Red power wire, Black ground wire and Orange switch wire are still required. The OBDII harness will supply speed data to the six pin plug on the ECD-200BT harness.

Since the OBDII data is fairly consistent, only a minor calibration adjustment will be needed in some cases. Please see page eight for the setup steps required.



## Setup menu overview

**\*To simplify the setup procedure, please download out IOS or Android app 'Dakota Digital Accessory'\***

Setup is entered by holding the supplied function switch while turning the key on. Tap the switch to change selections, hold to enter a sub-menu or save an option.

Going through the first four menus will also move the speedometer needle if one has limited access to the LED panel on the ECD module.

Main Menu	Sub Menu 1	Sub Menu 2	Description
SEt - -			Displayed until switch (orange wire) is released
rEU			Reverse the cable rotation direction
Ata			Auto-calibrate speed by driving one mile
Adj	dn		Adjust the speedometer slower
	UP		Adjust the speedometer faster
SEt	4		Preset speed input to 4000 ppm signal
	8		Preset speed input to 8000 ppm signal
	16		Preset speed input to 16000 ppm signal
	64		Preset speed input to 64000 ppm signal
	128		Preset speed input to 128000 ppm signal
	rSt		Return the ECD-200 to factory default state
CRl			Adjust speed calibration from 75% - 125%
PLS			Show speed input speed calibration value
In	bUS		Select the OBDII port input for the speedometer
		bAc	Return to previous menu
		5 1/62/F 1/F2/Fd	Select OBDII channel. Only required if there's a bus conflict.
	5 19		Select the brown speed signal input for the speedometer
UEr			Display the software version on the display
BLU			Bluetooth ID value (tap to show full ID)
	SEt		Allow changes using the Bluetooth app only while the ECD-200 is in setup mode
	ALL		Allow changes using the Bluetooth app anytime the key is on
don			Exit setup

## **Speedometer calibration with a speed signal wire:**

**\*To simplify the setup procedure, please download the IOS or Android app ‘Dakota Digital Accessory’\***

To operate the setup procedure, the orange wire needs to touch ground.

The orange wire can be wired to one side of the enclosed push button switch, and the other side of the switch goes to any ground. The switch should be mounted in the car, with easy driver access.

The display on the ECD-200 will indicate the setup mode, and the ECD-200 will also move the speedometer needle to different positions during the setup, without having to see the control unit.

The four setup mode indicators are:

- 10 MPH for cable reverse - LED:  $rEU$
- 30 MPH for AutoCal - LED:  $Alt0$
- 20 MPH for Adjust - LED:  $Adj$
- 45 for Preset - LED:  $SEt$

The speedometer needle will go to zero for menu options that require the display on the ECD-200 for selection.

The needle position may not point exactly on the stated speedometer number, but will be close.

### **Entering setup:**

- Press and hold the switch, then start the engine for speed calibration.
- The speedometer needle will move up to about 15 MPH (24 km/h) and the ECD-200 display will show  $SEt$  and then ‘- -’.
- Release the switch, after the engine is running.
- The needle should move up to about 10 MPH (16 km/h) for cable reverse.
- You may tap the switch to move the needle to: 20 for Adjust, 30 for Autocal, 45 for Preset, or 0. When the needle moves to 0 the ECD-200 LED will continue through setup menu options.

### **Reverse (10 MPH) – LED: $rEU$**

- Needle should be pointing to 10 MPH (16 km/h).
- If the needle is not moving up, press and hold the switch four seconds to reverse direction
- Tap the switch to move to AutoCal, once the needle is at 10 MPH

### **AutoCal (30 MPH): - LED: $Alt0$**

- Needle should be pointing to 30 MPH (48 km/h).
- Press, and hold, the switch until the needle drops to 0 MPH.
- Release the switch.
- The needle will move up to about 10 MPH (16 km/h) – LED: “- 0 -”
- Begin driving a marked mile.
- The needle will move up to about 30 MPH while it is receiving a speed signal, and will drop to about 10 MPH when no signal is present.
  - The LED will start at “00. 0” and count up with pulses. “08. 0” = 8,000 pulse per mile
- Press and hold switch as you “cross finish line”, or stop at the end of the mile, until the speed drops to 0 MPH.
- Release the switch and the unit will begin normal operation.
  - The LED will change to a “- :”, with the “:” alternating during operation
- *If the sender type is set to “bLS” the LED will display “bLS Err” and the needle will not move*

### **Adjust (20 MPH): - LED: "Adj"**

- Needle should be pointing to 20 MPH (32 km/h).
- Press and hold the switch until the needle drops to 0 MPH. Then release the switch.
- The needle will move to 15 select to decrease your speed or 25 to increase your speed.
- Tap the switch to change the selection, press and hold the switch until the needle moves to zero. LED: "- -"
- Release the switch and the needle will now operate normally as you drive.
- Drive at a constant speed, follow another vehicle, use a GPS, or use some other method to verify your actual speed.
- Holding the switch for one second will change the speed by about 1 MPH in the direction selected. Press and hold the switch to change the speed reading more quickly.
- If you go past your desired speed, you will have to go back through setup and choose the other direction, to make a fine adjustment.
- When no changes have been made for 10 seconds, the new calibration will be saved.
- If the input is set to "BUS", the needle will not move and the LED will display "- -"

### **Preset (45 MPH): - LED: "Set"**

- The LED readout will also display along with the needle movements.
- Needle should be pointing to 45 MPH (72 km/h).
- Press and hold the switch until the needle drops to 0 MPH – LED: "- -"
- Release the switch.
- The following pulse per mile (PPM) presets are available:
  - 10 MPH = 4000 ppm      LED: 4
  - 20 MPH = 8000 ppm      LED: 8
  - 30 MPH = 16000 ppm      LED: 16
  - 40 MPH = 64000 ppm      LED: 64
  - 50 MPH = 128000 ppm      LED: 128
  - 0 MPH = factory preset      LED: 156
- Press and release the switch to change the selection press and hold to save.
- Saving will drop the needle to zero, and show "- -" in the LED display
- Tap switch until "dOn" is displayed, then hold the switch or turn the key off to exit setup.

## Dedicated Menu Displays

The following displays in the LED panel will **not** have a corresponding speedometer needle movement. These are in sequence after the *SEt* option.

The VSS calibration adjustment is from 75% to 125% of the current calibration value, or +/- 25%.

### **Calibration menu adjust (0 MPH): - LED: *CL***

- If making a calibration percentage adjustment while using a VSS input (not OBDII), an adjusted speed will reset the calibrated speed as the new 100% reference point.
- Tap the switch until "*CL*" is shown, then press and hold the switch to select it.
- Release the switch. The display will show either "*UP*" (make the speedometer faster) or "*dn*" (make the speedometer slower).
- Tap the switch until the desired direction is shown, then press and hold the switch to select it.
- The display will show "*100*". Tap the switch to change the percentage value
- Press and hold the switch to save it.
- Tap switch until "*don*" and hold the switch. or turn the key off to exit setup.

### **Pulses menu display: - LED: *PL5***

- Shows the current pulse rate the ECD is set to drive the speedometer.
- This does not indicate the input VSS.
- When pressing and releasing the switch to get to *PL5*, hold the switch until "- -"
- A number will appear, *08.0* = 8,000 PPM, *08.2* = 8,200 PPM

### **Input source menu**

The ECD-200BT can read a regular electronic vehicle speed signal (VSS) from a dedicated speed sensor or from a VSS output of an engine computer or transmission computer. It can also read OBDII speed in 1996 and newer GM and Ford vehicles, and 2003 and newer Chrysler/Jeep vehicles. It will not be able to read CAN speed from aftermarket ECMs like Holley or FAST, or non US standard protocols.

### **Input menu display: - LED: *ln***

- Press and hold the switch, then turn key on
- Tap switch until *ln* is displayed. Hold switch until "- -" is displayed
- *5 19* = speed input signal will be from a VSS source
  - Press and hold the switch until "- -" to save and exit to main menu
- *bUS* = speed input signal will be from a OBDII source
  - When *bUS* is selected by holding the switch until "- -" appears two options appear
  - *bAC* – saves and exits back to main menu
  - *Id* – a submenu of five OBDII channels to pick from, if the ECD conflicts with a scanner
    - *5 1 \ 52 \ F 1 \ F2 \ Fd*
      - *Fd* setting is only to be used for **Ford Performance control packs (FPCP)**. Only select this option if you have a FPCP and the speed is not functioning.
  - Tap the switch to change the ID value
  - Press and hold the switch to save until "- -" and exit to the main menu

### **Version menu display: - LED: *UE-***

- This will display the current software code of eth ECD-200BT
- Tap the switch until *UE-* is displayed and hold until “- -” is displayed
- The display will show the first half of the software code, pressing and releasing the button will show the second half of the code
- Example = *E21* then *-01*
- Pressing and holding the switch will exit to the main menu
  - Tapping the switch will generate a LED test pattern
  - Press and hold the switch to save until “- -” and exit to the main menu

### **Bluetooth menu display: - LED: *BLU***

Two options are available for the Dakota Digital Accessory app: accessing the Bluetooth setup all the time or only when the ECD-200BT has manually entered setup. “*ALL*” indicates the Bluetooth connectivity will be active anytime the key is on, allowing speedometer adjustments to be made while driving, while “*SET*” allows changes when the ECD unit is in setup mode only.

- Press and release the switch until *BLU* is displayed and hold until “- -” is displayed
- Bluetooth ID will display for the app. Example “-35” - *tap switch* - “A7-”. Hold to continue
- Tap the switch to select between the following options
  - *ALL* = Bluetooth is available all the time. App changes can be made in real time driving.
  - *SET* = Bluetooth setup option are only available to the app when the ECD-200BT has been placed in setup mode with the function switch.
- Press and hold to save either option.
- The app has a “Safe Mode” that basically sets the Bluetooth to setup mode only.
- To clear Safe Mode, enter the Bluetooth menu, select *ALL*, then press and hold until “- -” to save.

## Speedometer calibration with an OBDII connection:

**\*To simplify the setup procedure, please download out IOS or Android app 'Dakota Digital Accessory'\***

The speedometer signal from the ECM is normally calibrated to be accurate.

If there have been changes to the gearing or tire size then the reading can be adjusted from 75% to 125%.

If the speedometer reading from the ECM is farther off than this, the ECM should be programmed to correct the speed, or the signal feeding the ECM should be corrected.

### **Input source menu**

The ECD-200BT can read a regular electronic vehicle speed signal (VSS) from a dedicated speed sensor or from a VSS output of an engine computer or transmission computer. It can also read OBDII speed in 1996 and newer GM and Ford vehicles, and 2003 and newer Chrysler/Jeep vehicles.

The ECD-200BT will not be able to read CAN speed from aftermarket ECMs like Holley or FAST, or non US standard protocols.

### **Input menu display: - LED: *ln***

- Press and release switch until *ln* is displayed. Hold switch until "- -" is displayed
- *5 19* = speed input signal will be from a VSS source
  - Press and hold the switch until "- -" to save and exit to main menu
- *bUS* = speed input signal will be from a OBDII source
  - When *bUS* is selected by holding the switch until "- -" appears two options appear
  - *bAC* – saves and exits back to main menu
  - *Id* – a submenu of five OBDII channels to pick from, if the ECD conflicts with a scanner
    - *5 1 \ 5 2 \ F 1 \ F 2 \ F d*
      - *Fd* setting is only to be used for **Ford Performance control packs (FPCP)**. Only select this option if you have a FPCP and the speed is not functioning.
  - Tap the switch to change ID values
  - Press and hold the switch to save until "- -" and exit to the main menu

### **Calibration menu adjust (0 MPH): - LED: *CAL***

- Press and release the switch until "*CAL*" is shown, then press and hold the switch to select it
- Release the switch. The display will show either "*UP*" (make the speedometer faster) or "*dn*" (make the speedometer slower).
- Tap the switch until the desired direction is shown, then press and hold the switch to select it
- The display will show the *100*. Tap the switch to change the calibration value
- Press and hold the switch to save the calibration value
- Tap the switch until "*don*", or turn the key off to exit setup
- The Dakota Digital Accessory app makes this adjustment very easy



## **Diagnostics**

During normal operation, the display will show “ 0 ” when the vehicle is not moving and “ - : ” with flashing dots when the vehicle is moving.

If the switch is pressed during normal operation the display will show “ 5 19 ” if the speed input is from the brown wire and if the OBDII cable is used it will show the current bus data state. “ C ” for CAN, “ J ” for GM J1850, “ F ” for Ford J1850.

If the display keeps switching between “ 0 ” then “ 5 19 ” then it is searching for a VSS.

If the display keeps switching between “ 0 ” then “ C , J , and F ” then it is searching for a compatible ECM.

If the alternates between “ C b L ” and “ L 0 C ”, then the cable is stuck and not able to turn. Some stock speedometers may become very stiff at low temperatures (below freezing) and not allow the cable to turn. Make sure your stock speedometer is in good working condition.

## **Troubleshooting**

<b>Problem</b>	<b>Possible Cause</b>	<b>Solution</b>
Speedometer will not work; display is blank	No power to ECD-200	Check the power and ground wires on the ECD-200
Speedometer will not work; display shows “ - - ”	ECD-200 is in setup mode Orange wire is grounded	The orange wire should be disconnected for normal operation
Speedometer will not work; display alternates between “ C b L ” and “ L 0 C ”	ECD-200 cable is not turning	Check the cable for kinks and verify the speedometer turns freely
Speedometer will not work; display alternates “ 0 ” and “ 5 19 ”	No input signal	Test for 1-20 volts AC at the brown wire with the wheels spinning
Speedometer will not work; display alternates “ 0 ” and “ C ”, “ J ”, “ F ”	Wrong input signal type selected	Input type should be 5 19 when using the brown speed wire or bus when using the OBDII cable
	Grounding interference	Make sure both the speed sensor and ECD-200BT are grounded at the same ground location
Speedometer will not work; dots are flashing on display	Speedometer is not connected	Check speedometer cable connections at both ends
	Speedometer is damaged	Repair or replace speedometer
Speedometer will read when the vehicle is sitting still	Tach wire too close to speed signal wire	Route the speed signal and tachometer wires away from each other to avoid interference
	Ground interference	Make sure the speed sensor and ECD-200BT are grounded together
At the end of AutoCal, the speedometer needle goes to 45 MPH	Speed signal is too low or too high	Check speed sensor is operating correctly
	Distance driven is too short or too long	Make sure the distance driven is one mile

### **SERVICE AND REPAIR**

DAKOTA DIGITAL offers complete service and repair of its product line. In addition, technical support is available to help you work through any questions or problems you may be having installing one of our products. Please read through the Troubleshooting Guide. There, you will find the solution to most problems.

For additional support, please visit [www.dakotadigital.com](http://www.dakotadigital.com). A "Product Support" link will be found at the bottom of the home page.

**Should you ever need to send the unit back for repairs, please call our technical support line, (605) 332-6513, to request a Return Merchandise Authorization number.**

- Package the product in a good quality box along with plenty of packing material.
- Ship the product by a common carrier with tracking abilities.
- Be sure to include the RMA number on the package.
- Include a complete description of the problem, with RMA number, your full name and address (street address preferred), and a telephone number where you can be reached during the day.
- Any returns for warranty work must include a copy of the dated sales receipt from your place of purchase.
- Send no money. We will contact you for payment.


### **Dakota Digital Limited Lifetime Warranty**

DAKOTA DIGITAL warrants to the ORIGINAL PURCHASER of this product that should it, under normal use and condition, be proven defective in material or workmanship for the lifetime of the original vehicle it was installed in, such defect(s) will be repaired or replaced at Dakota Digital's option.

This warranty does not cover nor extend to damage to the vehicle's systems, and does not cover diagnosis, removal or reinstallation of the product. This Warranty does not apply to any product or part thereof which in the opinion of the Company has been damaged through alteration, improper installation, mishandling, misuse, neglect, or accident. Dakota Digital assumes no responsibility for loss of time, vehicle use, owner inconvenience nor related expenses.

Dakota Digital will cover the return standard freight once the product has been evaluated for warranty consideration, however the incoming transportation is to be covered by the owner.

This Warranty is in lieu of all other expressed warranties or liabilities. Any implied warranties, including any implied warranty of merchantability, shall be limited to the duration of this written warranty. No person or representative is authorized to assume, for Dakota Digital, any liability other than expressed herein in connection with the sale of this product.

 **WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)



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