3B SCIENTIFIC® PHYSICS

MiniDIN8-BT Adapter Cable   1021688

Instruction manual
05/18 UD

1 MiniDin8 plug (input)
2 BT plugs (output)

1. Safety instructions

The MiniDIN8-to-BT adapter cable is intended for connecting a light barrier (1000563) or a laser reflection sensor (1001034) to VinciLab (1021477) or €Lab (1021478). Only these models of light barrier or laser reflection sensor are to be connected to the input. The output is then connected to one of the four analog inputs of the VinciLab module or either of the two analog inputs of €Lab.

Safety is guaranteed as long as the adapter cable is used properly as stipulated. It cannot be assured, however, if the cable is handled incorrectly or carelessly.

- Use the cable in dry rooms only.

- Do not connect any items other than the light barrier (1000563) and laser reflection sensor (1001034) via the MiniDIN8 plug.

- The BT plugs must not be connected to any equipment other than the VinciLab or €Lab modules.

2. Description

The connecting cable makes it possible to transfer the signals detected by the light barrier or the laser reflex sensor to the VinciLab data logger or the €Lab lab interface and to be analysed by the Coach software. Sensor configuration is carried out manually. In particular, the laser reflection sensor needs to be configured as if it were a light barrier since their principles of operation are similar.

3. Technical data

Input:	MiniDIN8 plug
Output:	BT plugs
Length:	150 cm approx.
Weight:	40 g approx.

4. Operation

Required apparatus

1	MiniDIN8-BT Adapter Cable	1021688
1	Light Barrier	1000563
or		
1	Laser Reflection Sensor	1001034
1	VinciLab	1021477
or		
1	€Lab	1021478
1	Coach 7, Single User License 5 Years	1021518
or		
1	Coach 7, School Site License 5 Years	1021522
or		
1	Coach 7, University License 5 Years	1021524

General instructions

The laser reflection sensor is configured in the Coach software as if it were a light barrier due to the similar measurement principle they employ.

Scattered light and unwanted reflections from objects in the surroundings can adversely affect operation of the laser reflection sensor.

- Ideally you should work in a darkened room and use the reflecting foil supplied with the equipment.

Power for the infra-red light source in the light barrier or for the laser of the laser reflection sensor is supplied via the adapter from the VinciLab or a computer connected to the VinciLab or €Lab modules.

- When using VinciLab with batteries, disconnect the laser reflection sensor from the VinciLab module while it is not in use. Alternatively, if possible, the VinciLab module can be connected to the power via its mains adapter.
- When using VinciLab or €Lab with a laptop/notebook or tablet PC, do not run the computer from its battery but plug it into the mains.

VinciLab as stand-alone equipment

- Insert the MiniDIN8 plug of the adapter cable into the MiniDIN8 socket of the light barrier or laser reflection sensor and plug the cable's BT plugs into analog input A1 on the back of the VinciLab module.
- Start VinciLab by means of the on-off button on the front of the module, then start the Coach software by touching the icon on the screen.

- Touch the icon in the menu bar.

The user interface for a new activity will then appear on the display.

- Touch the icon and then straight away touch the blue tick which appears to the right of it. Select "Sensor Settings" from the menu which opens.

The sensor settings for A1 will display "Sensor: None".

- Touch the "None" part of the entry. A list will appear ("Select a sensor") showing all the available sensors. Scroll down the list and highlight the entry "Photogate (0662i) (CMA) (0...1000) by touching it. Then touch the icon in the menu bar at the top right. In the "Sensor Settings" window which then appears, select "Use as: Analog sensor". The range will be changed automatically to "0 ... 5 V (User)". Click the "Set to zero" button (holding the reflecting foil in front of the laser reflection sensor if that is what you are configuring) and confirm all the settings by touching the icon at the top right.
- "A1: Photogate, 0...5 V" and "0.00 V" will now be shown on the display.

The situation where the light barrier is uninterrupted or the laser reflection sensor is detecting a reflection will be characterised by a voltage level of 0 V, whereas a broken beam or lack of reflection will be represented by the level 5 V (which in actual fact will be about 4.7 – 4.9 V).

VinciLab is now fully configured ready to carry out measurements with the help of the light barrier or laser reflection sensor.

Precise details of the procedure and evaluation of the associated experiments can be found in the corresponding experiment instructions or the operating manual for the equipment.

VinciLab or €Lab and Coach 7

- Install Coach 7 software on the computer you will be using for the measurement.
- Connect the VinciLab or €Lab module to the computer with the help of the relevant USB cable.

Insert the MiniDIN8 plug of the adapter cable into the MiniDIN8 socket of the light barrier or laser reflection sensor and plug the cable's BT plugs into analog input A1 on the back of the VinciLab module or input 1 of the €Lab module. VinciLab is started by pressing the on-off button on the front of it.

€Lab will immediately be ready to use as soon as the USB cable has been plugged in.

- Start Coach 7. Click the 🔑 button and select the "User level: Author" from the drop-down menu in the "Log-in" window which opens. Enter the password ("0000") for "Author key" and confirm it with OK.
- Click the ✳ button. The "Activity Options" window will open. Confirm the pre-selected settings, "Activity type: Measurement" and "Interface: VinciLab" or "Interface: EuroLab" by clicking OK.

The software will establish a connection to VinciLab or €Lab. A graphic representing the VinciLab or €Lab module will appear in the bottom left of the four windows. Any light barrier or laser reflection sensor connected will not be automatically detected.

- Click the pictogram for analog input A1 or 1. In the menu which then appears, select "Choose a sensor ...". A list will open showing all the available sensors. Scroll down the list and highlight the entry "Photogate (0662i) (CMA) (0...1000)" and confirm with OK.

The pictograms for analog input A1 or 1 will then be replaced by a pictogram for a light barrier.

- Click the light barrier pictogram. In the menu which then appears, select "Sensor Settings". In the window which then appears, select "Use as: Analog sensor". The range will be changed automatically to "0 ... 5 V (User)". Click the "Set to zero" button (holding the reflecting foil in front of the laser reflection sensor if that is what you are configuring) and close the window.

The situation where the light barrier is uninterrupted or the laser reflection sensor is detecting a reflection will be characterised by a voltage level of 0 V, whereas a broken beam or lack of reflection will be represented by the level 5 V (which in actual fact will be about 4.7 – 4.9 V).

- Click the 0.08 button, select "A1: Light barrier" from the menu which opens and click the (still empty) window at the top left.

"A1: Photogate" or "Channel 1: Photogate" will appear in the title bar and "V 0.00 V" will be shown on the display.

VinciLab or €Lab will now be fully configured ready to carry out measurements with the help of the light barrier or laser reflection sensor.

Precise details of the procedure and evaluation of the associated experiments can be found in the corresponding experiment instructions or the operating manual for the equipment.

Light barriers and laser reflection sensors used as single-bit digital sensors

Light barriers and laser reflection sensors can also be used as single-bit digital sensors.

- To configure them as such select "Use as: Digital sensor (1 bit)" in the sensor configuration. The range will automatically be changed to "Off ... On (User)". Do not change the pre-set values for "Conversion settings of Digital sens…" ("Threshold Value: 2.5 V" or "String for 0: Off" and "String for 1: On").

The situation where the light barrier is uninterrupted or the laser reflection sensor is detecting a reflection will be indicated by "0" on the graphic and "Off" on the display, whereas a broken beam or lack of reflection will be indicated by "1" and "On"

5. Storage and disposal

- Keep the adapter cable in a clean, dry and dust-free place.
- The packaging should be disposed of at local recycling points.
- Should you need to dispose of the equipment itself, never throw it away in normal domestic waste. If being used in private households it can be disposed of at the local public waste disposal authority.
- Comply with the applicable regulations for the disposal of electrical equipment.