3B SCIENTIFIC® PHYSICS

...going one step further

Digital Input Box U11377

Instruction sheet

09/08 Hh

1. Safety instructions

- The digital input box must be connected solely to the "Digital Inputs" socket of a 3B NET*log*™ unit.

2. Equipment supplied

1 Digital input box

1 8-pin miniDIN connecting cable, length 600 mm

1 Instruction sheet for U11377

3. Description

The digital input box is used for distributing digital input channels A, B, C and D of a 3B NET*log*™ (U11300) unit to four 8-pin miniDIN input sockets.

It allows for digital output signals from up to four sensor boxes (e.g., photo gate U11365, laser reflection sensor U8533380, and Geiger-Müller box U11391) to be connected to the 3B NET*log*™ unit at the same time.

It is also possible to perform logical operations using digital inputs A and B via the 3B NET*lab*™ (U11310) software

4. Technical data

Input signals:	TTL level
Output signals:	TTL level
Connections:	8-pin miniDIN sockets

5. Operation

- Place the digital input box near the experiment. Example: an air track (e.g., U40400 or U40405).
- Position two photo gates (e.g., U11365) alongside the air track and connect them via their miniDIN cables to the input sockets A and B of the digital input box.
- Connect the digital input box via miniDIN cable to the 3B NET*log*™ unit.
- Configure the two digital inputs A and B to be linked using 3B NET*lab*™ (input mode for "Digital inputs A+B") and evaluate the results from the experimental data.

6. Applications

Measuring the position, velocity and acceleration of moving bodies using multiple photo gates.

7. Sample experiment

Measuring the velocity of a body on an air track

Apparatus needed:

1 3B NET*log*™	U11300
1 Digital input box	U11377
2 Photo gates	U11365
1 Air track, 1.6 m	U40405
1 Set of 4 velocity flags	U40426
1 Air flow generator (230 V, 50/60 Hz)	U15425-230
or	
1 Air flow generator (115 V, 50/60 Hz)	U15425-115
2 Stand base, 1 kg	U13265
2 Stand rods, 100 mm	U15000
2 Universal clamps	U13255

- Assemble stands by inserting stand rods into two bases and attach the two photo gates to them at the desired positions on the air track (Fig. 1).

Fig. 1: Measuring the velocity of a glider over a given distance on the air track

- On the 3B NET*log*™, select the digital input mode, and in the software of the 3B NET*lab*™ select the experiment template for measuring the velocity of a glider on the air track. The software contains all the necessary instructions for setting up the calculation.
- Carry out the experiment and evaluate the result.

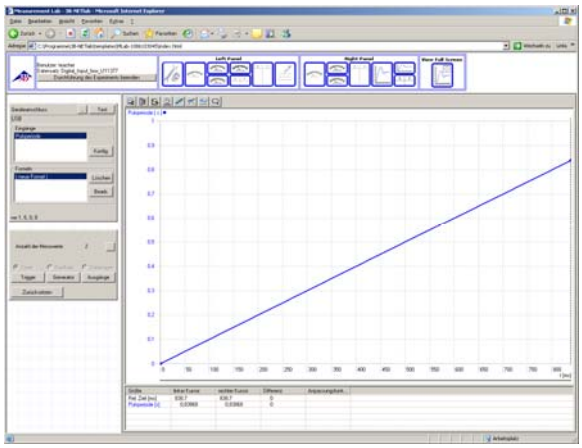

Fig. 2: Measurements of the time interval (number of timer pulses) for the rider to travel between two points on the air track