



Bruker BioSpin

# PW5-30ul

Level Converter  
User Manual

Version 001

think forward

NMR Spectroscopy



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# 1 Safety

## 1.1 Disclaimer

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Please read the following information carefully. It provides important instructions on safety, usage and maintenance of the device.

The unit should only be used for its intended purpose as described in this manual. Use of the unit for any purpose other than that for which it is intended is taken only at the users own risk and invalidates any and all manufacturer warranties.

## 1.2 Safety Issues

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- Never use the device if it is damaged in any way.
- Use the device only for the intended purpose.
- Keep the device and cables away from heat, moisture, sharp edges, etc.
- Do not use the device outdoors.
- Always operate the device in a safe and dry place.
- The device should only be operated by qualified personnel.
- Service or maintenance work on the unit must be carried out by qualified personnel.
- The device may only be used with original manufacturer accessories.
- The ambient temperature is defined by BRUKER (refer to the Avance site planning manual).



## 2 General

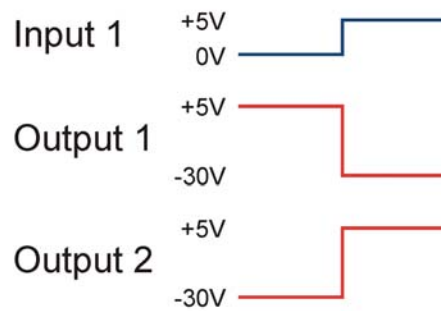
### 2.1 Functional Description

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The Level Switch PW5-30-ul is a standalone unit used in microimaging for the control of quadrature probes and for selection of sandwich coils. The level switch converts an input TTL signal into an output level of -30V (TTL input high) or +5V (TTL input low). The unit has two independent channels and can be operated in three modes:

- One-input mode: Input 1 controls the output 1 and inverted output 2.
- Two-input mode: Input 1 controls the output 1, input 2 controls the output 2.
- Manual mode: Each output level can be set manually on +5V or -30V.

#### One-Input Mode:



#### Two-Input Mode:

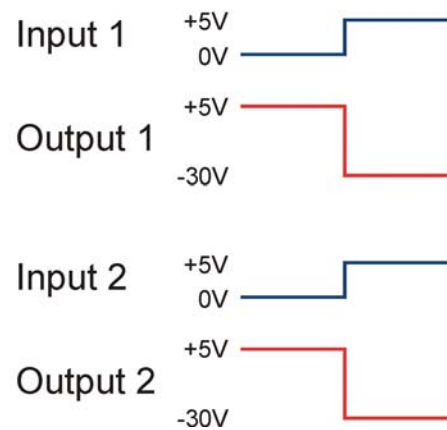


Figure 2.1: Comparison of Input Modes

### 2.2 Shipping List

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The PW5-30-ul is delivered with the following components:

- External DC power supply unit.
- Line cord.





# 3 Installation

## 3.1 Placing and Wiring the Level Switch

Please read this chapter carefully and adhere to the information provided. Failure to do so may result in the unit not operating correctly.

Place the PW5-30-ul and the external power supply unit as far as possible from a magnet. To wire the unit refer to the figure below.

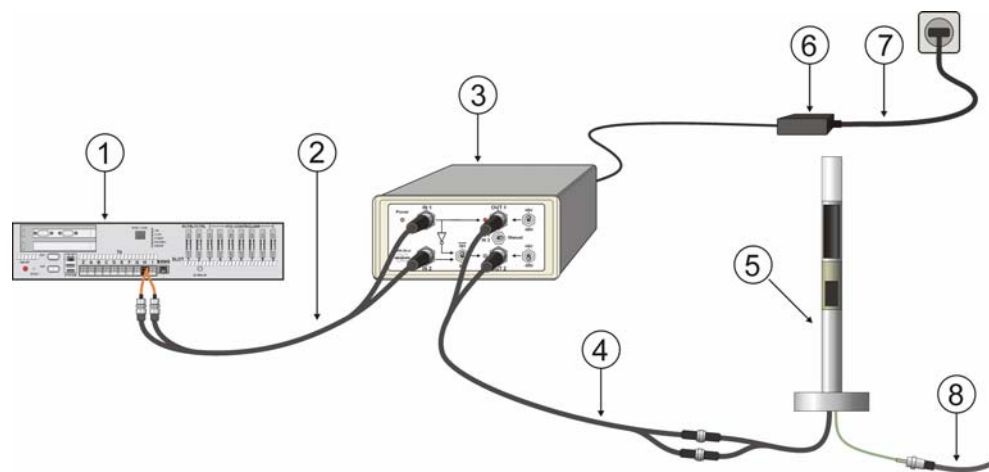


Figure 3.1: Level Switch Cabling Diagram

- [1] AVIII / IPSO T2, outputs H5 and H6
- [2] Cable 2x BNC, 9m, HZ1253
- [3] PW5-30-ul Unit, H116846
- [4] Cable 2x TWIN BNC, 5m, HZ3202
- [5] Probe
- [6] External power supply: Connect the DC power jack into the DC input on the rear side of the PW5-30-ul.
- [7] Line cord: Connect to the external power supply and a wall socket.
- [8] Cable to HPPR



# 4 Operation

## 4.1 Overview of the PW5-30-ul

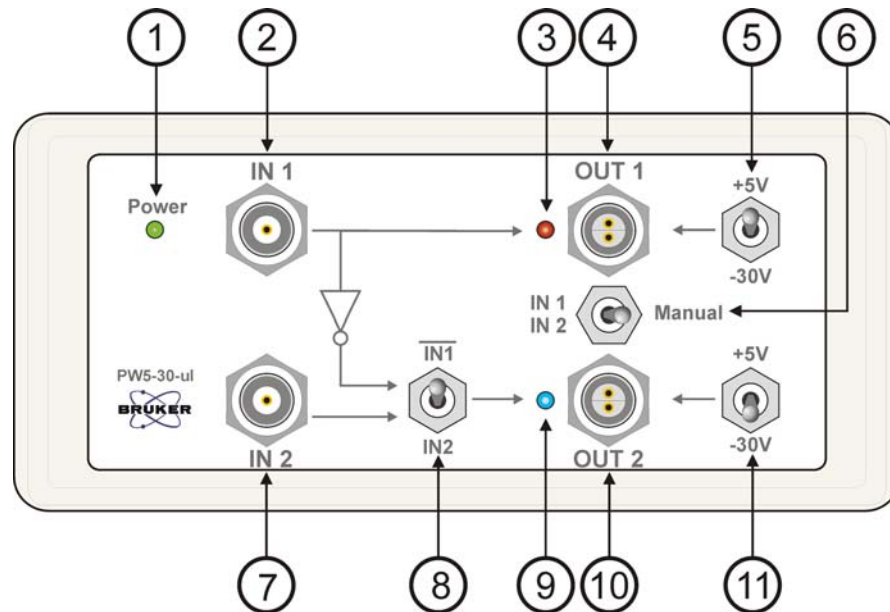


Figure 4.1: PW5-30-ul Front Panel Overview

- [1] Power Indicator: Green illuminated - the unit is ON  
Red illuminated - power supply failed  
Off - no power supply
- [2] Channel 1: TTL input (BNC)
- [3] Channel 1: Output Level Indicator: Red illuminated: +5V  
Blue illuminated: -30V  
Off: Output in high impedance
- [4] Channel 1: Output (Twin BNC)
- [5] Channel 1: Output Level Switch for Manual Mode
- [6] Manual Mode Switch
- [7] Channel 2: TTL input (BNC)
- [8] Input Mode Switch: One-input mode or Two-input Mode
- [9] Channel 2: Output Level Indicator: Red illuminated: +5V  
Blue illuminated: -30V  
Off: Output in high impedance
- [10] Channel 2: Output (Twin BNC)
- [11] Channel 2: Output Level Switch for Manual Mode

## 4.2 Operating Instructions

### 4.2.1 Power ON the Unit

The PW5-30-ul has no power switch and therefore is always on when the DC-power cable is connected. To switch the unit off you must disconnect the DC or mains cable.

When the unit is on, the green power indicator (1) will illuminate.

### 4.2.2 One-Input Mode

In the One-Input mode, Input 1 controls the Output 1 and 2 as follows:

- Input 1 TTL Low: Output 1 is +5V and Output 2 is -30V.
- Input 1 TTL High: Output 1 is -30V and Output 2 is +5V.

Input 2 has no influence on either outputs.

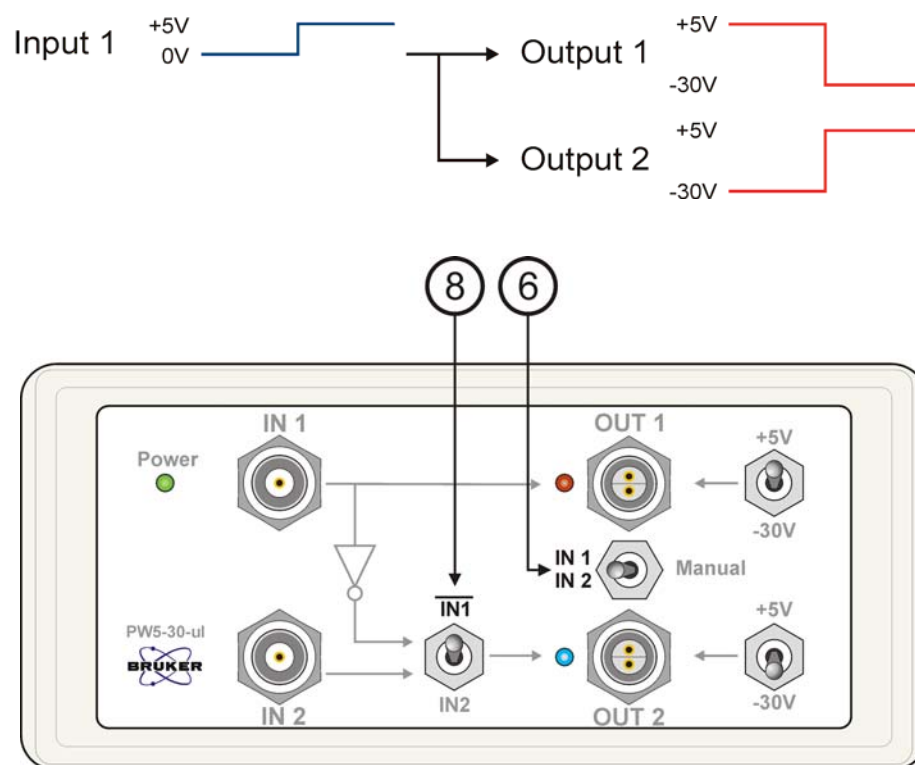


Figure 4.2: Location of Manual Mode and Input Mode Switches for One Input Mode

Set the switches as follows:

- Manual mode switch (6) to IN1 / IN2
- Input mode switch (8) to  $\overline{\text{IN1}}$

### 4.2.3 Two-Input Mode

In the Two-Input mode each input controls its corresponding output as follows:

- Input 1 TTL Low: Output 1 is +5V.
- Input 1 TTL High: Output 1 is -30V.
- Input 2 TTL Low: Output 2 is +5V.
- Input 2 TTL High: Output 2 is -30V.

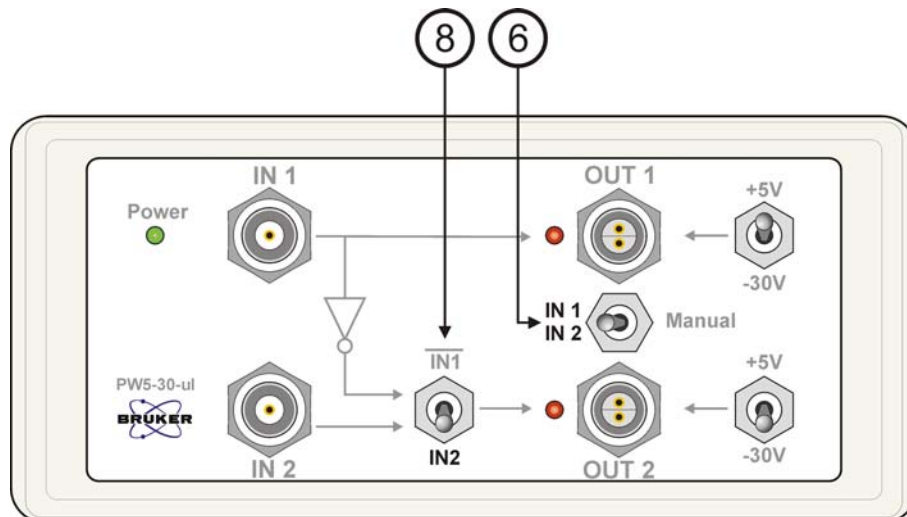
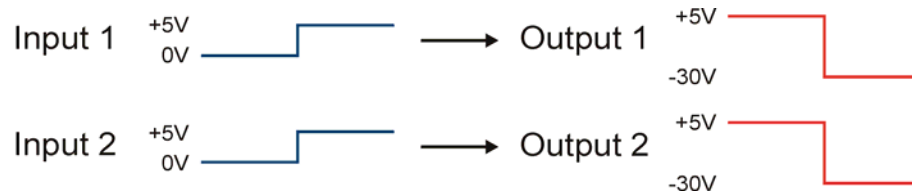


Figure 4.3: Location of Manual Mode and Input Mode Switches for Two Input Mode

Set the switches as follows:

- Manual mode switch (6) to IN1 / IN2
- Input mode switch (8) to IN2

## 4.2.4 Manual Mode

In manual mode each output level can be set manually with the switches (5) and (11) on +5V or -30V independently on input TTL signals.

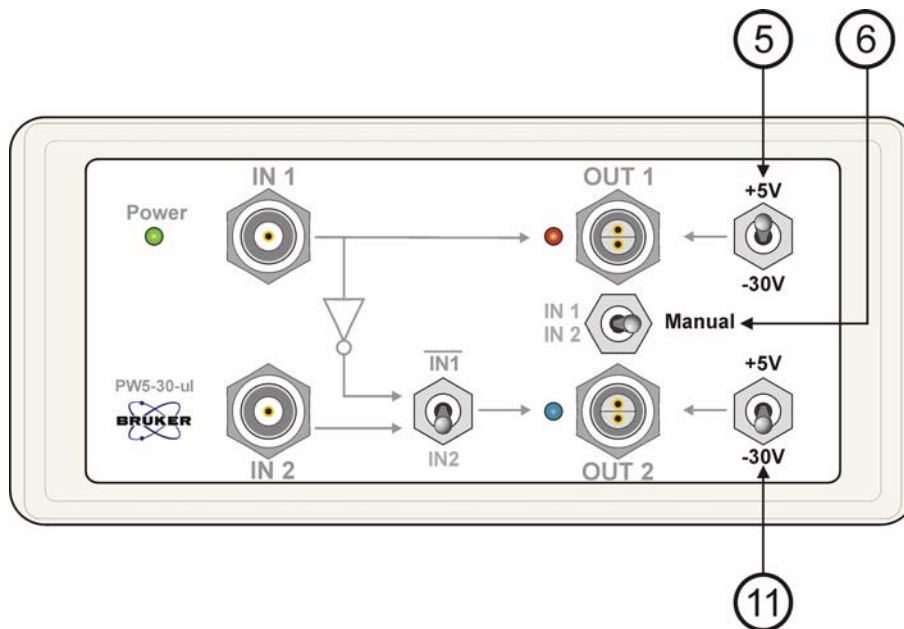


Figure 4.4: Location of Switches for Manual Mode

Set the switches as follows:

- Manual mode switch (6) to Manual
- Switches (5) and (11) in the desired position +5V or -30V

# 5 Product Data

## 5.1 Declaration of Conformity

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The product herewith complies with the requirements of the following EMC Directive 2004/108/EEC (previously 89/336/EEC) and the Low Voltage Directive 2006/ 95/EEC (previously 73/23/EEC).

The Declaration of Conformity concerned with this product has been signed and is available from Bruker. If you require a copy of the original please contact your nearest Bruker BioSpin representative.

## 5.2 Technical Data PW5-30-ul

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Input Voltage:	DC: 10 - 26V (center positive, Ø 2.1mm)
Input Frequency:	DC
Input Current:	Max. 1.2A Full Load
Power Consumption:	Max. 12W Full Load

Output Voltage (each channel): +5V / -30V

Output Current (both channels): max. 0.5A (at 5V) / 0.1A (at -30V)

Output Current (one channel): max. 1A (at 5V) / 0.2A (at -30V)

## 5.3 External Power Supply

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30 Watt Universal 3-Wire Input Adapter

Manufacturer:	Phihong
Model:	PSC30U-120
DC Output Voltage:	+12V
AC Input Voltage:	AC: 100 - 240V
AC Input Frequency:	47 - 63Hz

## 5.4 Physical Data

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Dimensions:	200 x 155 x 80 mm
Weight:	1 kg

## 5.5 Operating Environment

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Altitude:	max. 2000m
Temperature:	5 - 40°C
Air Humidity:	Maximum 80% for temperatures up to 31°C, linearly decreasing to 50% humidity at 40°C.
Storage:	5 - 40°C

## 5.6 Care and Maintenance

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The unit should be treated with care:

- Protect the unit from moisture and humidity.
- Do not store the unit in dusty, dirty areas.
- Do not store the unit in hot areas. High temperatures can shorten the life of electronic devices.
- Do not drop, knock or shake the unit. Rough handling can damage components inside the device.

## 5.7 Cleaning

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Clean the device according to the following instructions.

1. Unplug the power cable and signal cables.
2. Wipe the case with a dry or damp cloth. **Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the device.**
3. Let the device completely dry before you plug in the power cord.



# 6 Contact

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