



**MHS-3225A Dual-channel DDS Signal Generator 25MHz Sine wave 200MSa/s  
DDS signal source frequency meter TTL output**

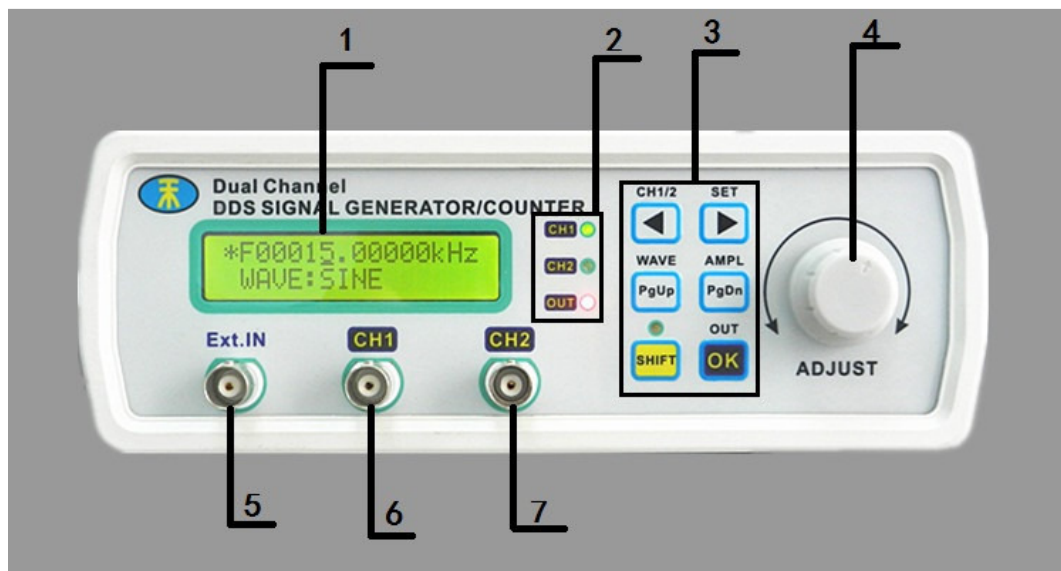
MHS-3200A DDS signal generator is Minghe Electronics launched in 2016 a cost-effective multi-purpose signal generator product, instrument uses large scale integrated circuits and high-speed FPGA MCU microprocessor, the internal circuit to take surface mount technology has greatly enhanced the instrument's noise immunity and service life. Display interface using LC1602 LCD display is divided into two lines, the top line shows the current frequency, the following line displays additional parameters or function variable. This instrument signal generation, waveform scanning, as well as the use of parameter measurement has great advantages, is an electronic engineer, electronic laboratories, production lines and teaching, research and the ideal test, measurement equipment.

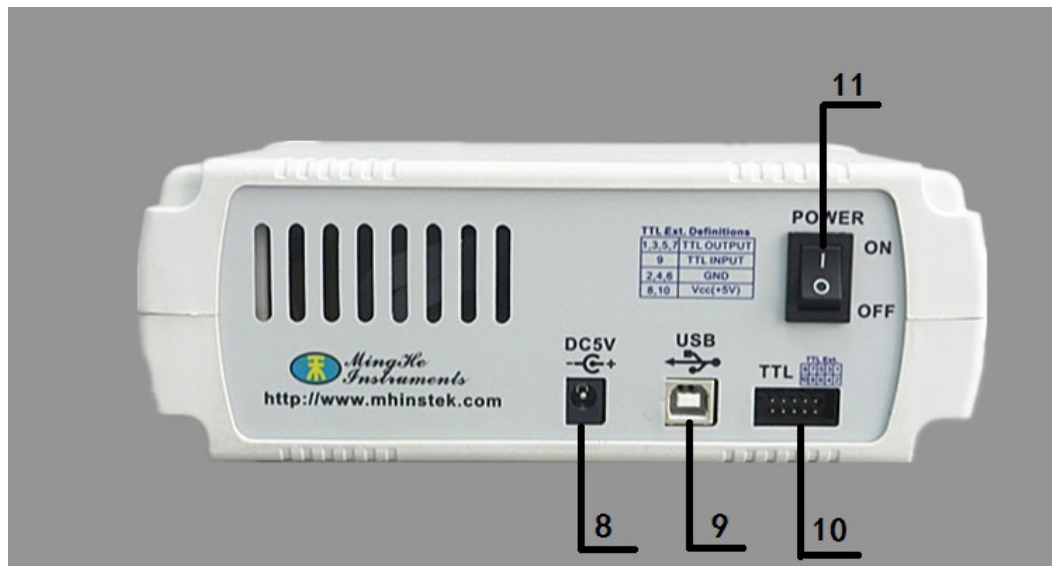
It is worth mentioning that we have two channels are completely independent, the maximum frequency can reach 25MHZ.

MHS-3200A instrument model of the last two digits 00 indicate limits (MHz) frequency sine wave instrument on the model.

Example: MHS-3200A (6MHz), 6MHz means the model sine wave output frequency up to 6MHz

| Project                             | MHS-3200A Series Selection Table  |              |              |              |
|-------------------------------------|---|--------------|--------------|--------------|
| Product Type                        | 6MHz  | 12MHz        | 20MHz        | 25MHz        |
| Sine wave output frequency          | 0.01Hz-6MHz   | 0.01Hz-12MHz | 0.01Hz-20MHz | 0.01Hz-25MHz |
| Square wave output frequency        | 0.01Hz-6MHz   | 0.01Hz-6MHz  | 0.01Hz-6MHz  | 0.01Hz-6MHz  |
| Triangular wave frequency           | 0.01Hz-6MHz   | 0.01Hz-6MHz  | 0.01Hz-6MHz  | 0.01Hz-6MHz  |
|                                     |   |              |              |              |
| Frequency meter measuring frequency | 0Hz-60MHz   | 0Hz-60MHz    | 0Hz-60MHz    | 0.01Hz-60MHz |
| PC control function                 | The series so models offer PC software and communication protocols for free!  |              |              |              |
| Tips                                | The difference between the three models is that different maximum sine wave frequency, is not listed indicators represent are the same! |              |              |              |





| Grade | Explanation             | Grade | Explanation            |
|-------|-------------------------|-------|------------------------|
| 1     | LCD1602                 | 7     | CH2 output interface   |
| 2     | Status Indicator        | 8     | DC5V power input       |
| 3     | Operation buttons       | 9     | USB communication      |
| 4     | Knob                    | 10    | TTL_I/O Input / Output |
| 5     | Ext. In input interface | 11    | Power switch           |
| 6     | CH1 output interface    |       |                        |

1, direct digital synthesis (DDS) technology, FPGA design, low power consumption;

2, dual output, can work in sync phase adjustable;

3, with up to 600 seconds of linear and logarithmic sweep sweep function;

4, with a sine wave, the basic function waveform triangle wave, square wave, sawtooth rise, falling sawtooth and variable duty cycle of the pulse wave,

5, with M0 ~ M9 total of 10 sets of parameters stored bits M0 boot automatically transferred out of data;

6, at 15MHz or less, the sharpest of up to 15Vp-p, more than 12MHz, the biggest reach 8Vp-p;

7, built sophisticated -20dB attenuator reach the minimum amplitude resolution 1mV;

8, with 120% ~ + 120% DC bias function;

9, pulse duty cycle adjust accurate to 0.1%;

10, with four variable phase difference of TTL output;

11, has a frequency measurement, period measurement, positive and negative pulse width measurement, duty cycle measurements and counting function;

12, four optional frequency measurement gate time, which strike a balance between speed and accuracy;

13, all parametric EQ calibration can be performed by internal procedures;

14, powerful communications features, completely open communications protocol, the secondary development becomes very simple;

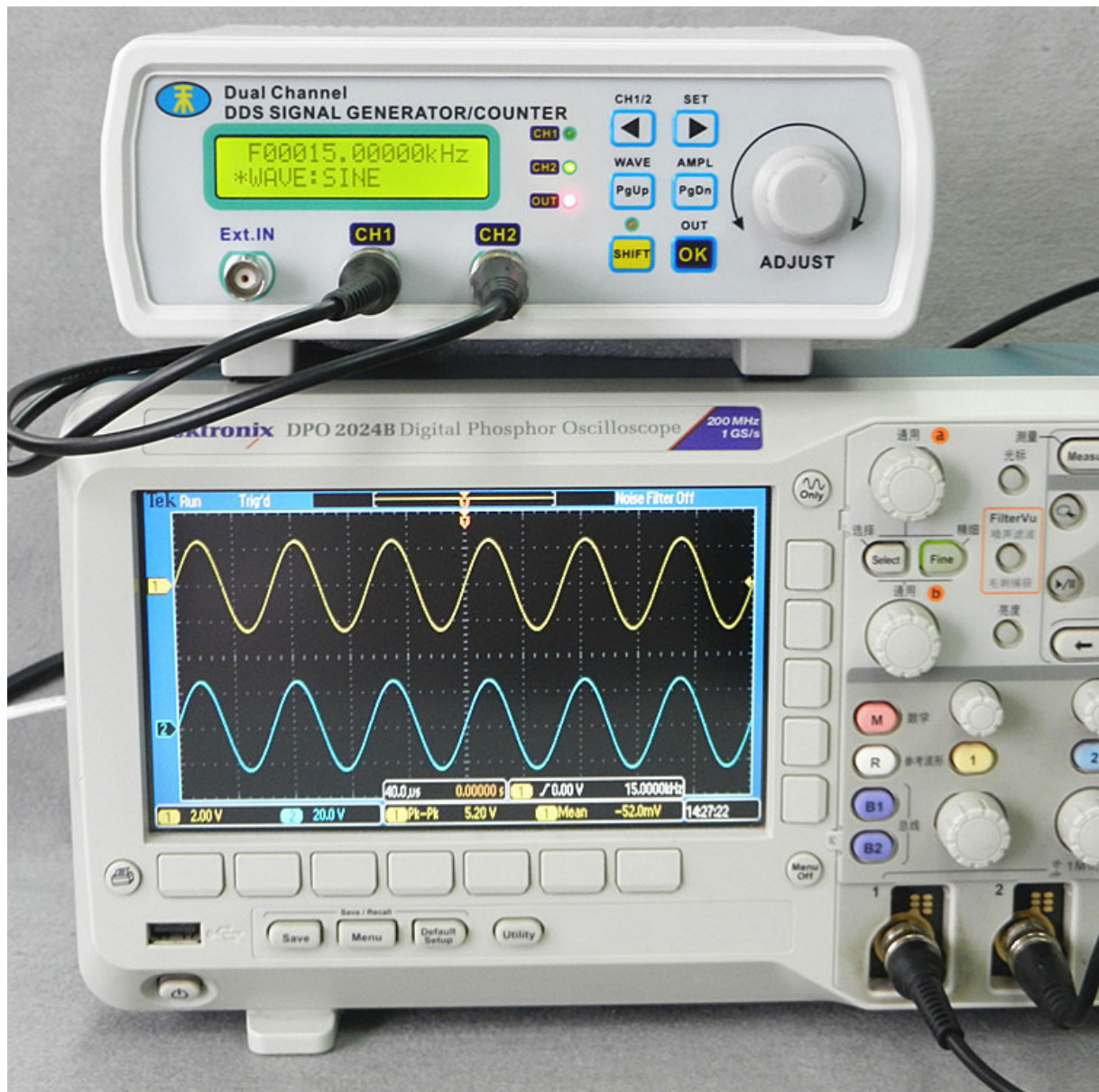
15, after the connection with the PC, the PC can be used to control the instrument,

| Project      |                                  | Parameters  |  |
|--------------|----------------------------------|---|--|
| Key Features | Frequency Range                  | Sine wave   | Normal mode: MHS-3200-06M: 0Hz~6MHz;<br>MHS-3200-12M: 0Hz~12MHz;<br>MHS-3200-20M: 0Hz~20MHz;<br>MHS-3200-25M: 0Hz~25MHz. |
|              |                                  | Square wave   | 0Hz~6MHz   |
|              |                                  | Triangle wave   | 0Hz~6MHz   |
|              |                                  | Sawtooth  | 0Hz~6MHz   |
|              |                                  |   |  |
|              |                                  | TTL digital signal wave   | 0Hz~6MHz   |
|              | Output modulation                | Frequency sweep   |  |
|              | Waveform types                   | Sine, square, triangle, sawtooth lift, CMOS digital signal waves, |  |
|              | Waveform Length                  | 1024 points   |  |
|              | Sampling rate                    | 200MSa/s  |  |
|              | Waveform amplitude resolution    | 8bits   |  |
|              | The minimum frequency resolution | 10mHz   |  |
|              | Frequency error                  | $\pm 5 \times 10^{-5}$  |  |
|              | Frequency stability              | $\pm 1 \times 10^{-5}$  |  |
|              | Amplitude range (peak to peak)   | 15mVp-p~15Vp-p(12MHz or less)<br>15mVp-p~8Vp-p(12MHz and above)   |  |
|              | Output Impedance                 | 50 $\Omega$ $\pm$ 10%   |  |
|              | Amplitude resolution             | 1mVp-p (-20dB attenuation)<br>10mVp-p (no attenuation)            |  |
|              | Amplitude stability              | $\pm$ 0.5% (5 HOURS PER)  |  |
|              | Amplitude error                  | $\pm$ 1%+10mV (Frequency1KHz, 15 Vp-p)                            |  |
|              | Offset Range                     | -120% ~ + 120% (the bias voltage and signal amplitude ratio)      |  |
|              | Bias Resolution                  | 1%  |  |
|              | Phase range                      | 0~359°  |  |
|              | Phase resolution                 | 1°  |  |
| Sine wave    | Harmonic arrived System          | 40dBc(<1MHz) , 35dBc (1MHz~20MHz)                                 |  |

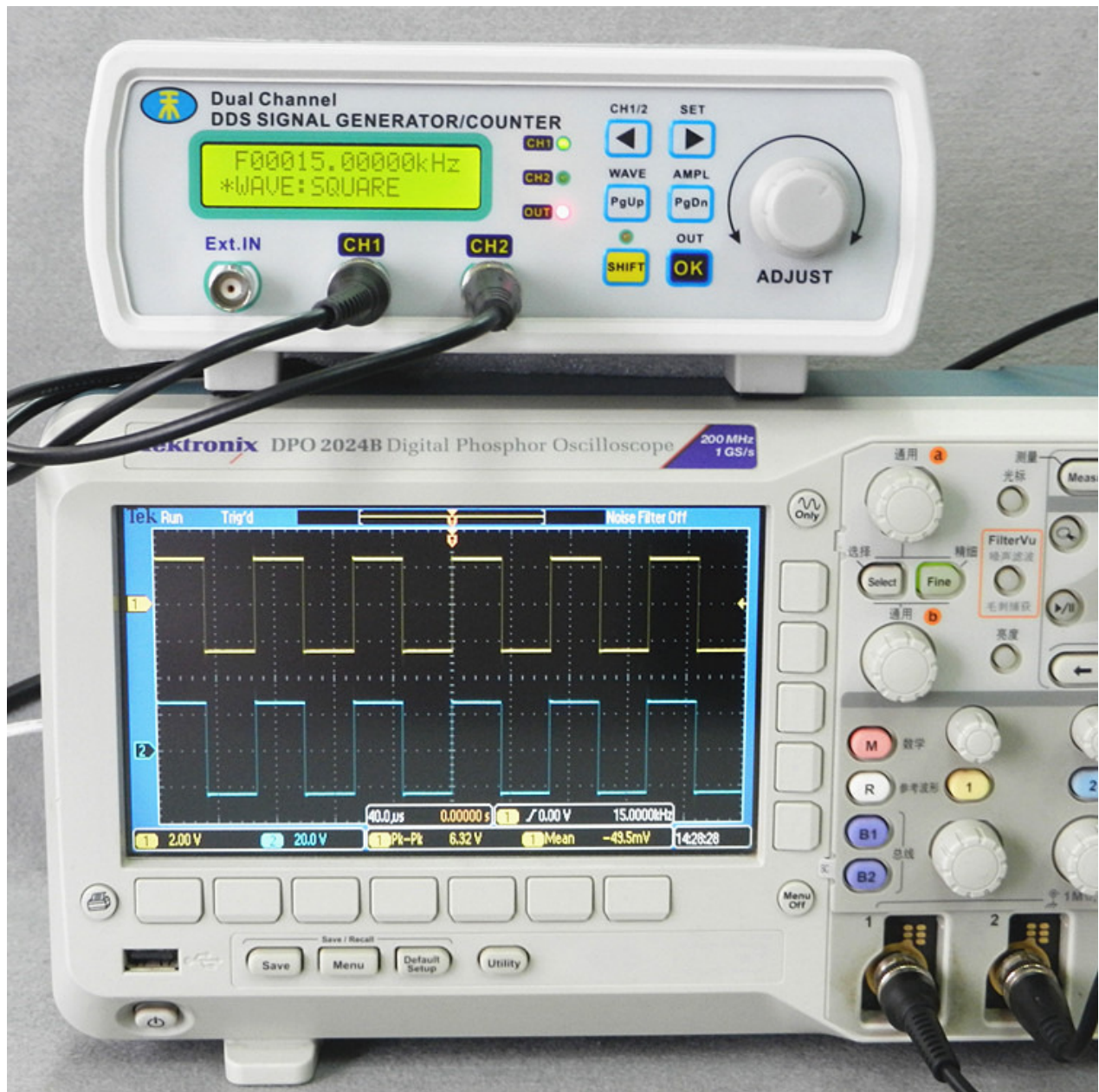
|                    |                                    |   |
|--------------------|------------------------------------|---|
|                    | <b>Distortion</b>                  | <0.8%(20Hz~20KHz)   |
| <b>Square wave</b> | <b>Lifting along time</b>          | ≤20ns   |
|                    | <b>Overshoot</b>                   | ≤10%  |
|                    | <b>Duty cycle adjustment range</b> | 0%~99.9%  |
| <b>TTL</b>         | <b>Lifting along time</b>          | ≤20ns   |
|                    | <b>LOW</b>                         | <0.3V   |
|                    | <b>High</b>                        | 1V~7.5V   |
|                    |                                    |   |
|                    |                                    |   |
| <b>Scan</b>        | <b>Scan Mode</b>                   | Linear sweep, log sweep   |
|                    | <b>Scan time</b>                   | 1S—500S   |
|                    | <b>Scan range</b>                  | It is determined by the sweep parameter settings  |
|                    | <b>Frequency range</b>             | GATE-TIME=10S      0.1HZ - 60MHZ<br>GATE-TIME=1S        1HZ - 60MHZ<br>GATE-TIME=0.1S      10HZ - 60MHZ<br>GATE-TIME=0.01S    100HZ - 60MHZ |
|                    | <b>Input voltage range</b>         | 0.5Vp-p~20Vp-p  |
|                    |                                    |   |
|                    |                                    |   |
|                    |                                    |   |
| <b>Square wave</b> | <b>Lifting along time</b>          | ≤20ns   |
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|                    | <b>Input voltage range</b>         | 0.5Vp-p~20Vp-p  |

|                              |  |  |
|------------------------------|--|--|
| <b>External measurements</b> | <b>Counting range</b>                                | 0~4294967295   |
|                              | <b>Counting</b>                                      | Manually   |
|                              | <b>Positive and negative pulse width measurement</b> | 10ns resolution, the maximum measurable 10s                  |
|                              | <b>Periodic measurements</b>                         | 20ns resolution, the maximum measurable 20s                  |
|                              | <b>Duty Cycle Measurement</b>                        | 0.1% resolution, measuring range from 0.1% to 99.9%          |
|                              | <b>Source Selection</b>                              | 1.Ext. IN input (AC signal), 2.TTL_IN input (digital signal) |
| <b>Memory</b>                | <b>Quantity</b>                                      | 10   |
|                              | <b>Location</b>                                      | M0~M9  |
| <b>Interface</b>             | <b>Interface</b>                                     | Using USB to serial interfaces                               |
|                              | <b>Communication rate</b>                            | 57600bps   |
|                              | <b>Protocol</b>                                      | Using the command line, the agreement public                 |
| <b>Power supply</b>          | <b>DC</b>  | DC 5V power supply   |
| <b>Size</b>                  | <b>Length × width × height</b>                       | 180×190×71mm   |
| <b>Weight</b>                | <b>Single</b>  | 546g   |

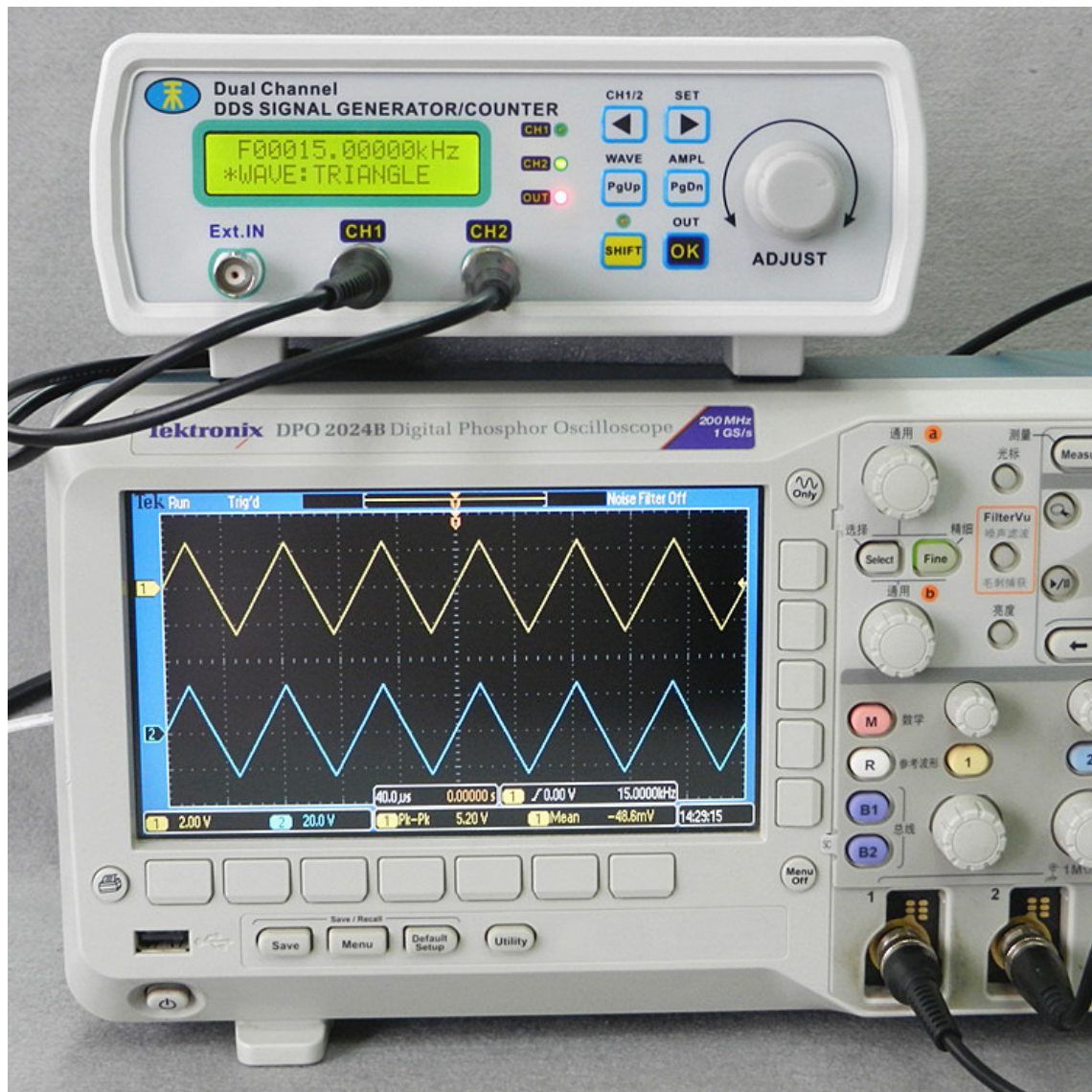
Dual simultaneous output 15KHz, peak value 5Vp-p sine wave



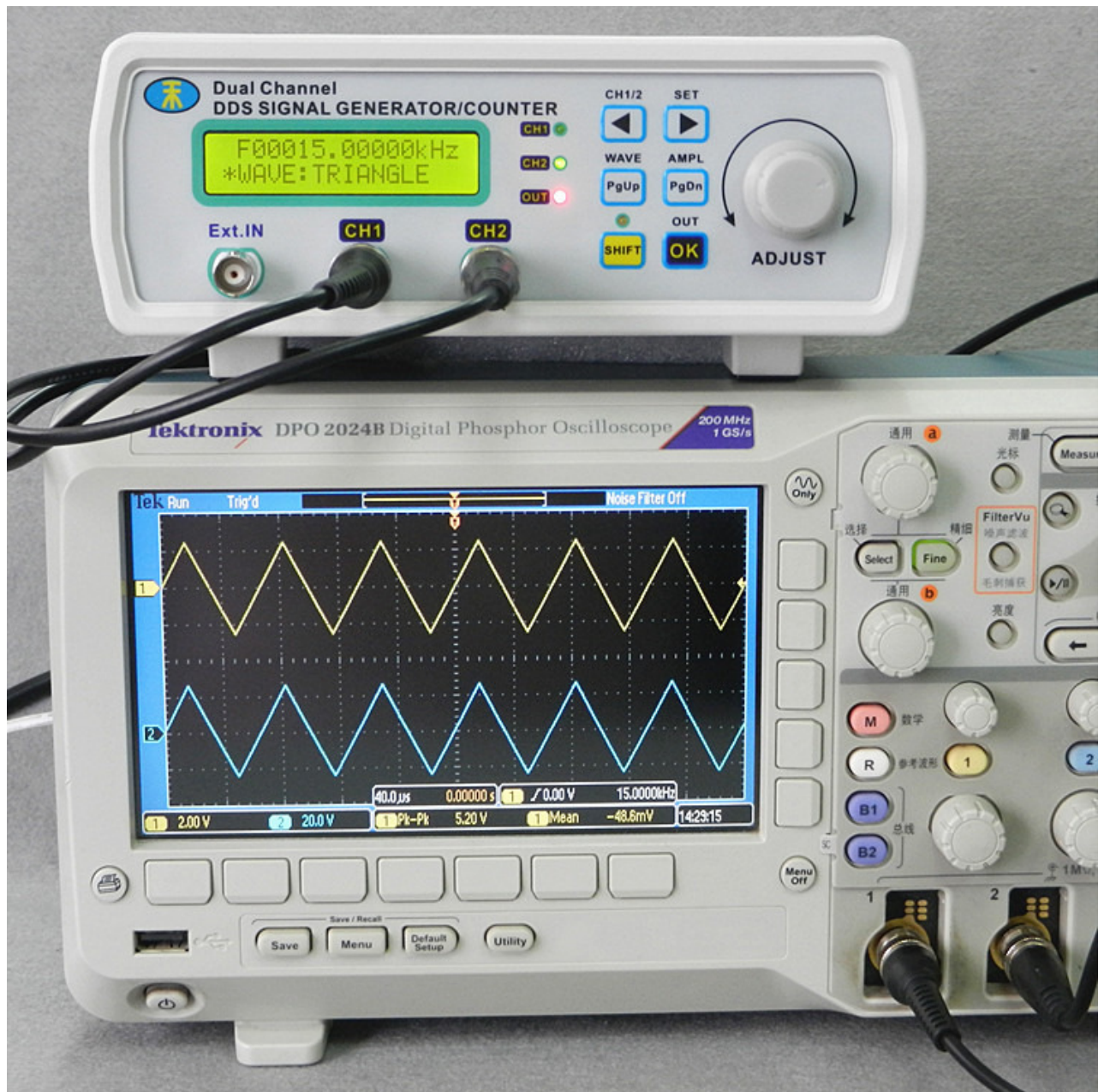
Dual simultaneous output 15KHz, peak to peak square wave 5Vp-p



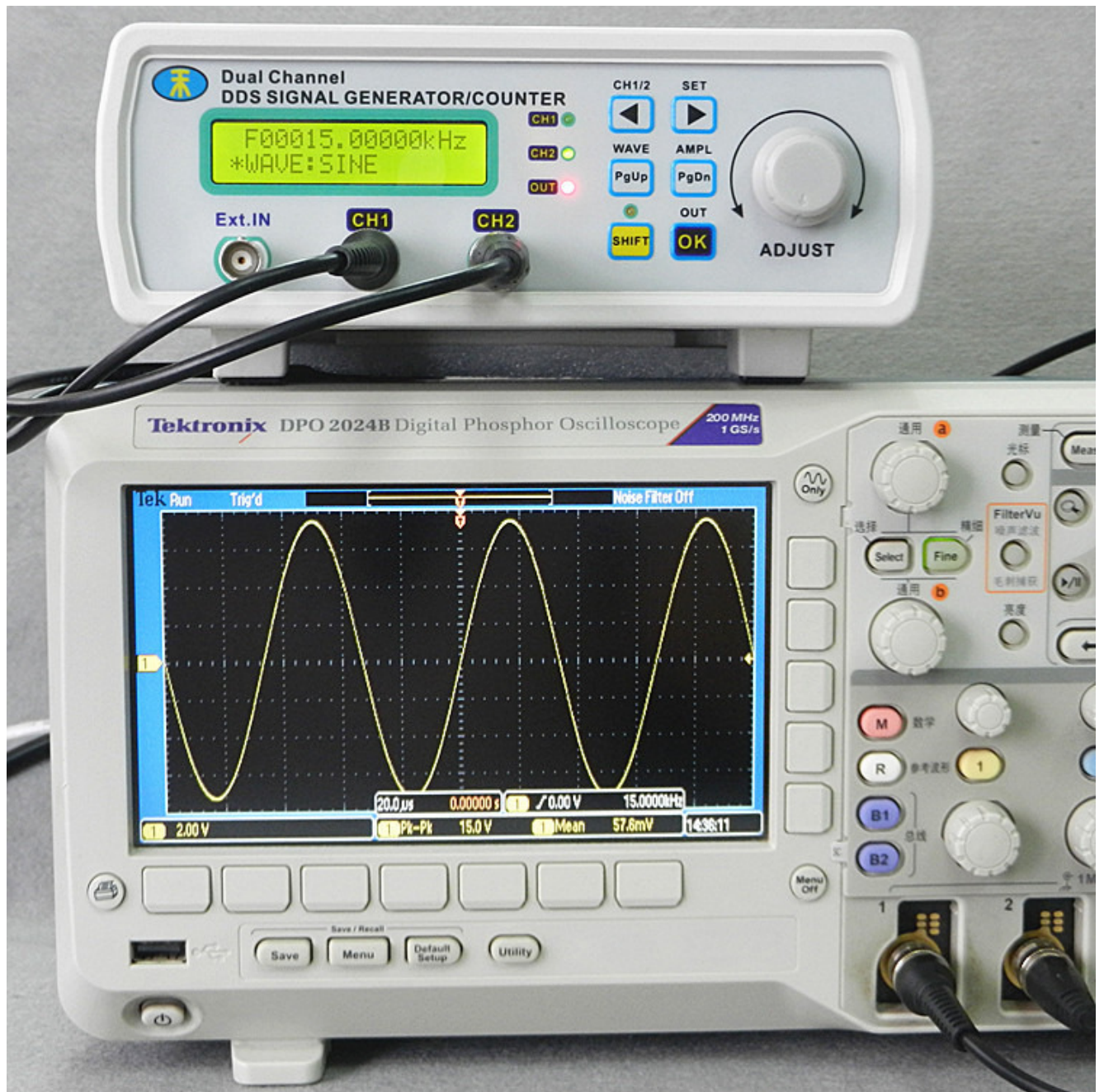
Dual simultaneous output 15KHz, peak value of the triangular wave 5Vp-p



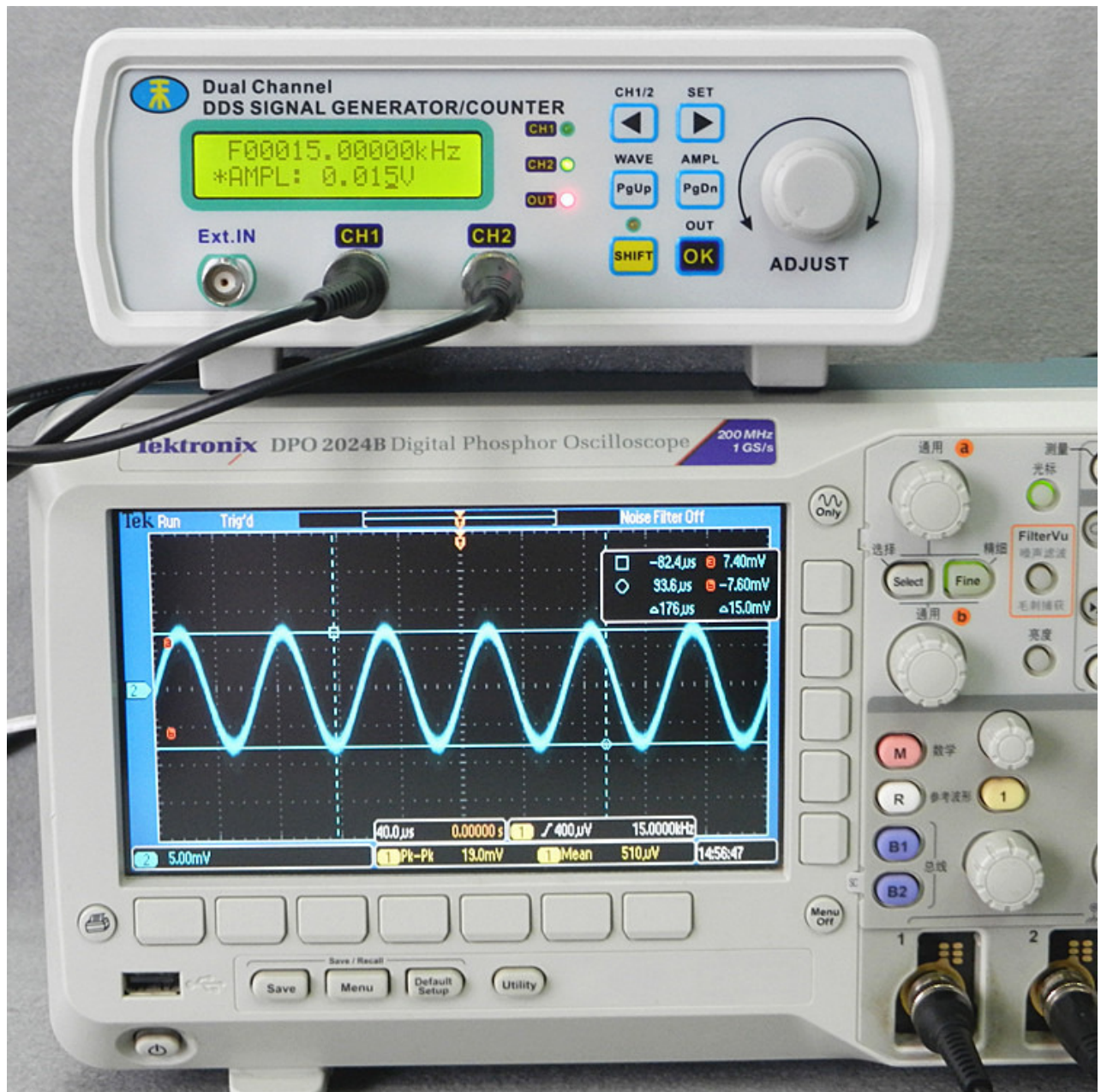
CH2 channel output 15KHz peak value 15Vp-p sine wave



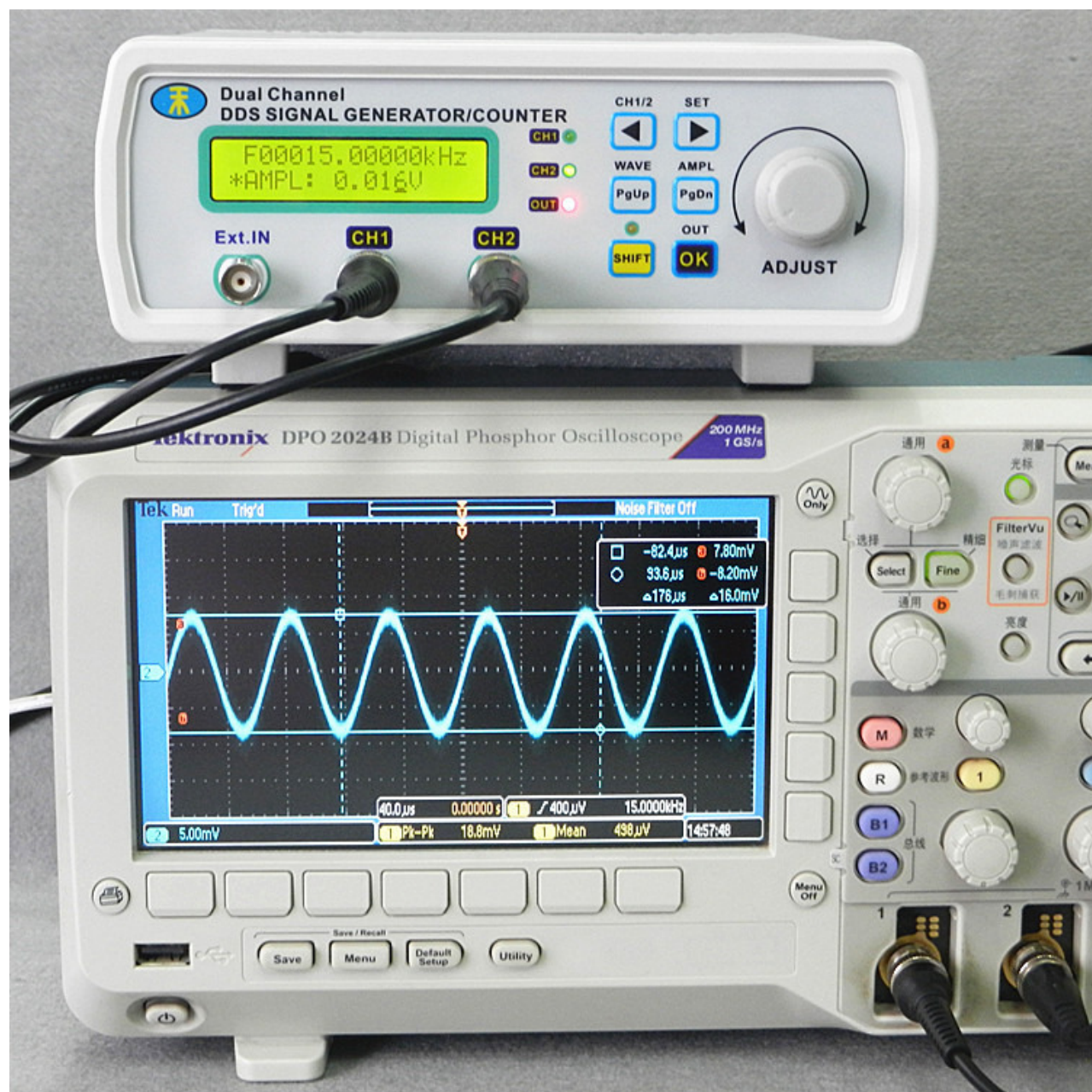
CH2 channel output 15KHz peak value 0.015Vp-p (ie 15mv) sine wave

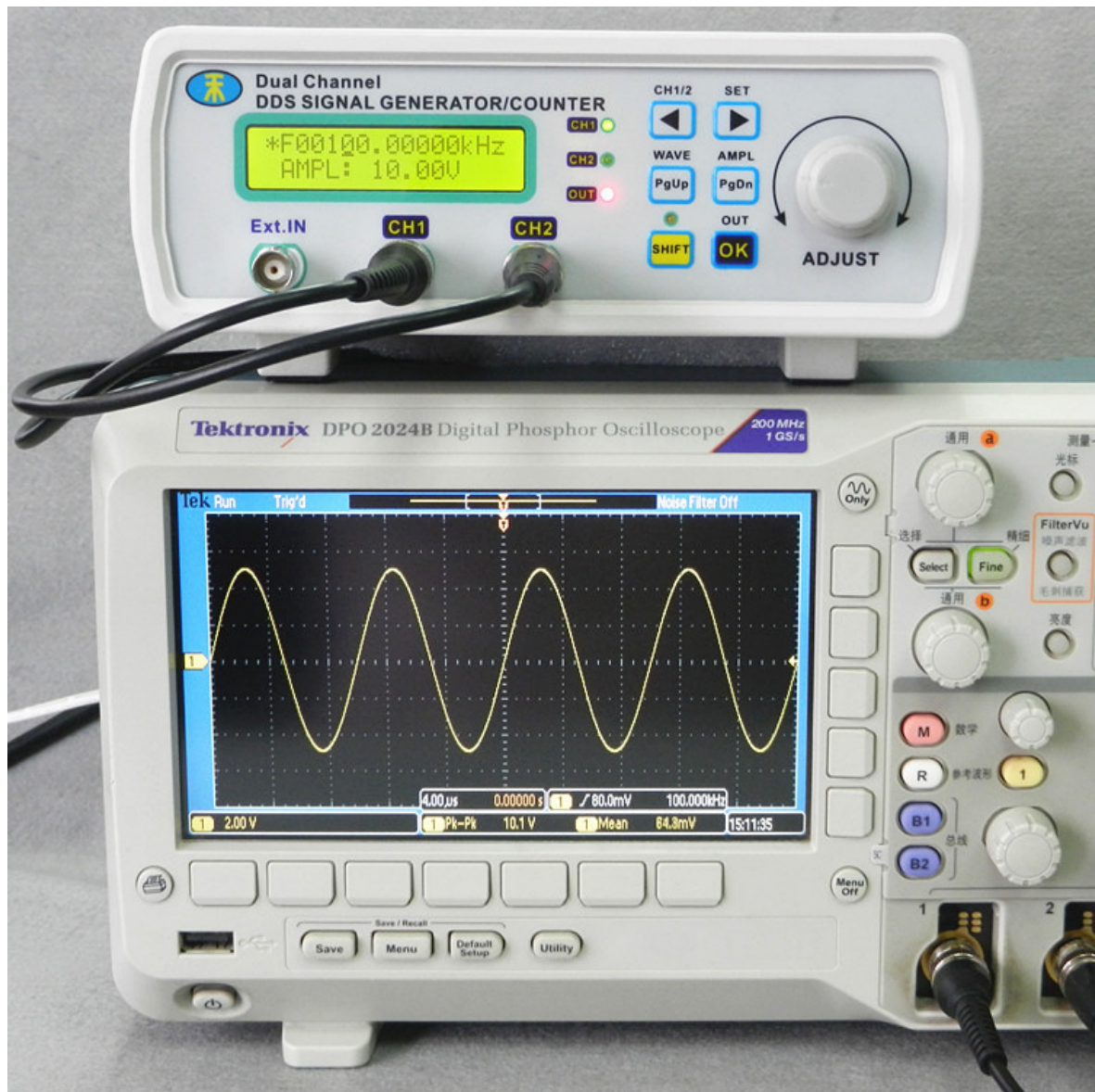


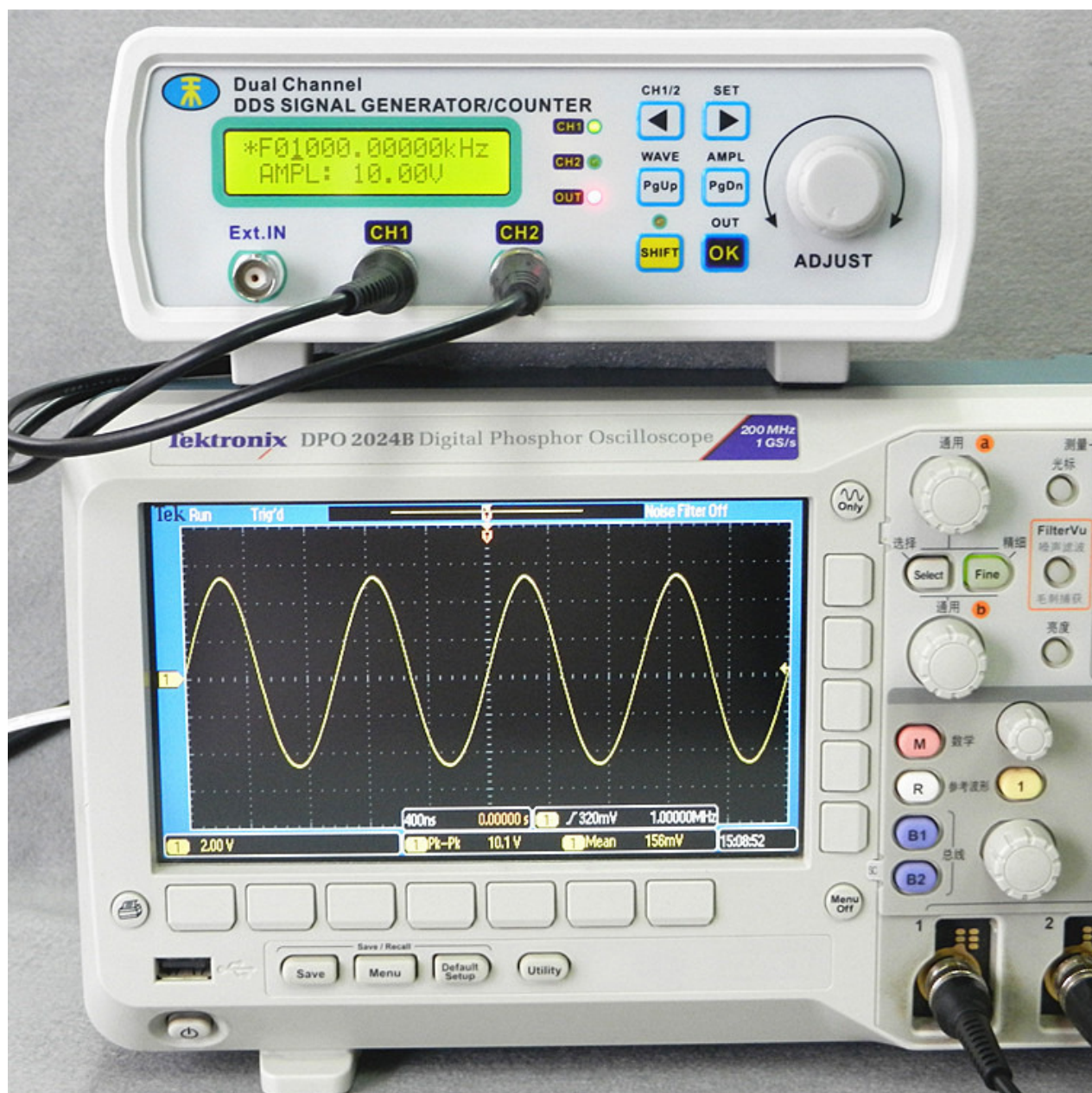
CH2 channel output 15KHz peak value 0.016Vp-p (ie 16mv) sine wave, step value can be done 1mv, quite accurate!

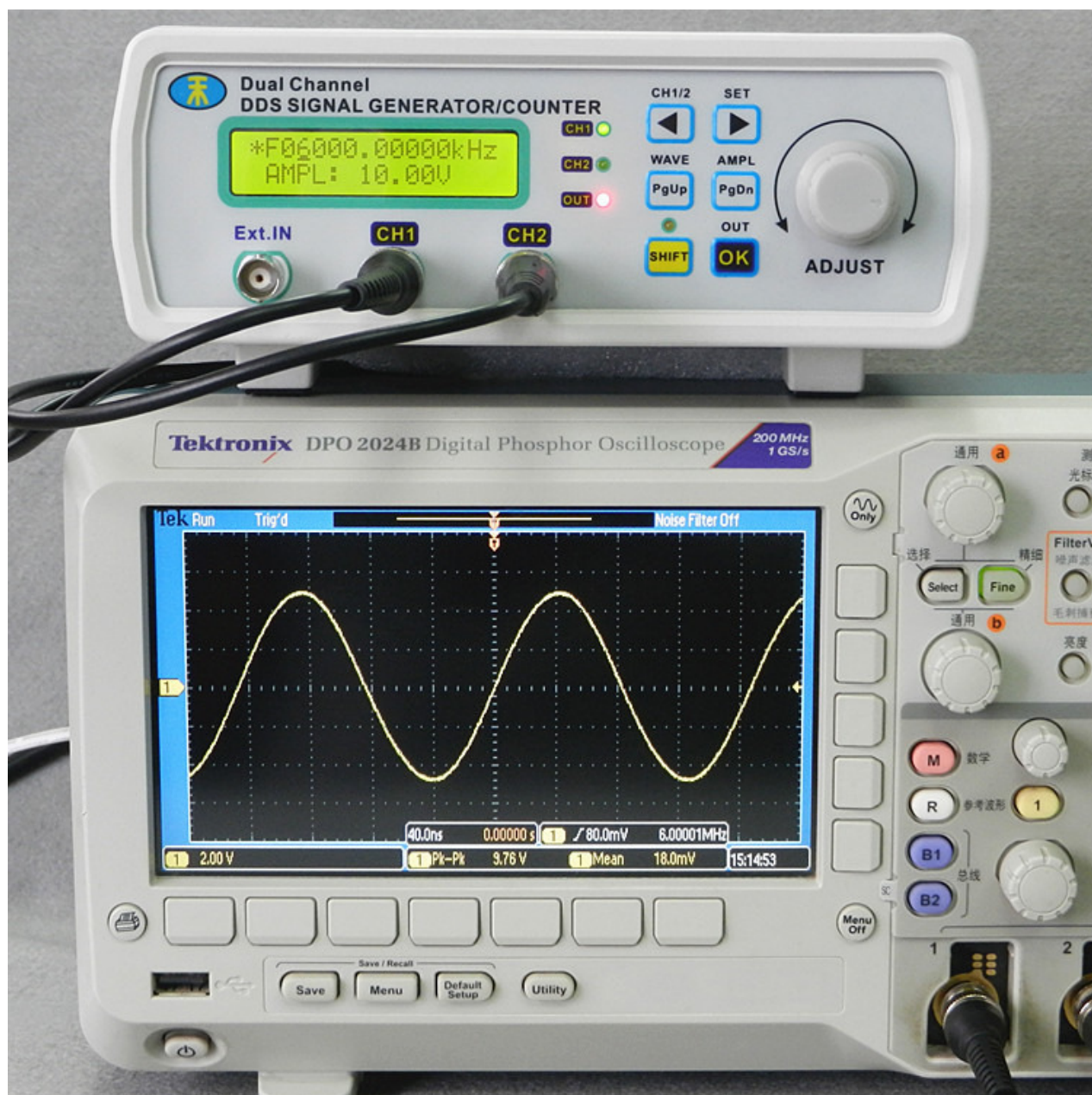


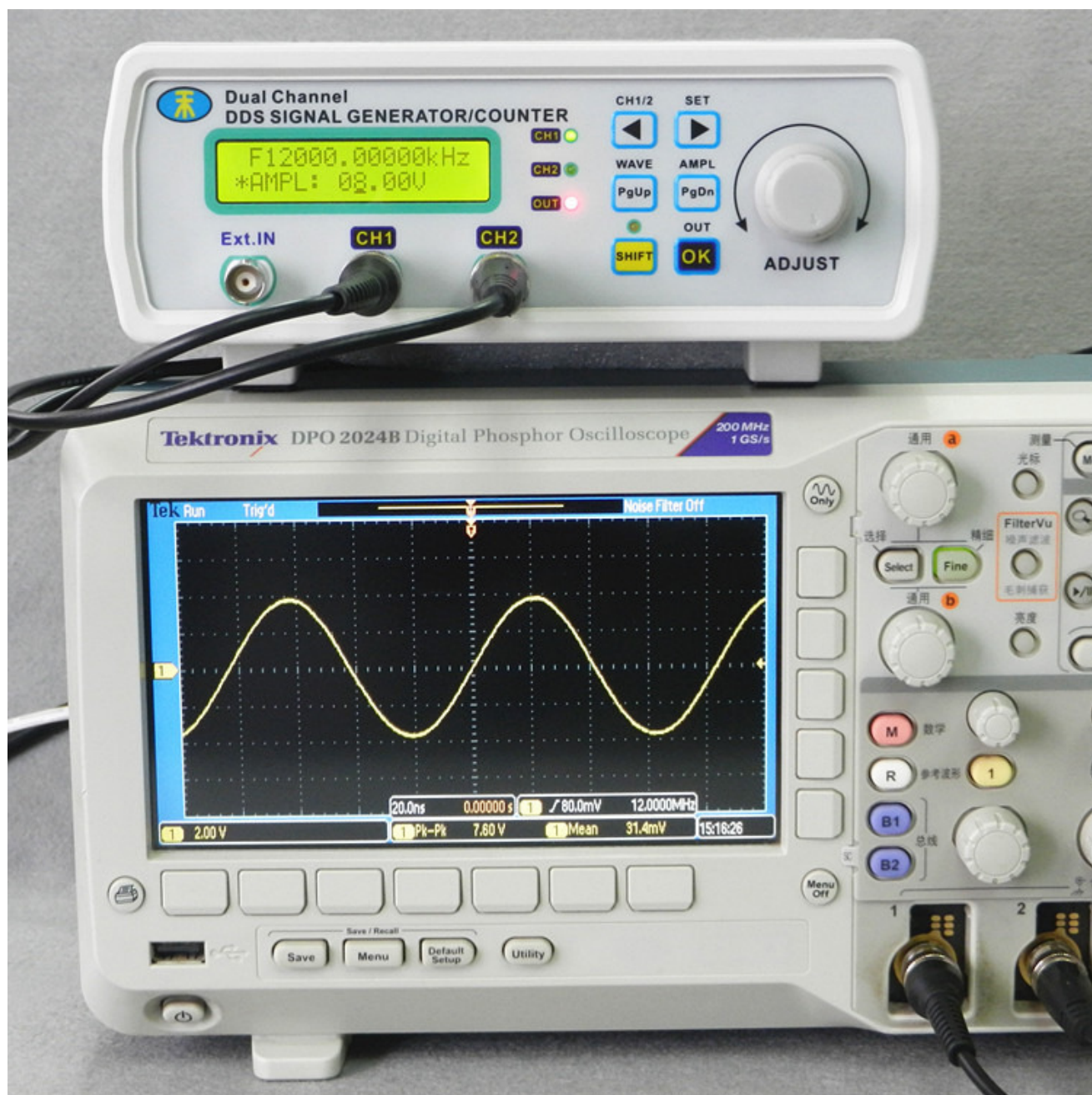
CH2 channel output 15KHz peak value 0.018Vp-p (ie 18mv) sine wave

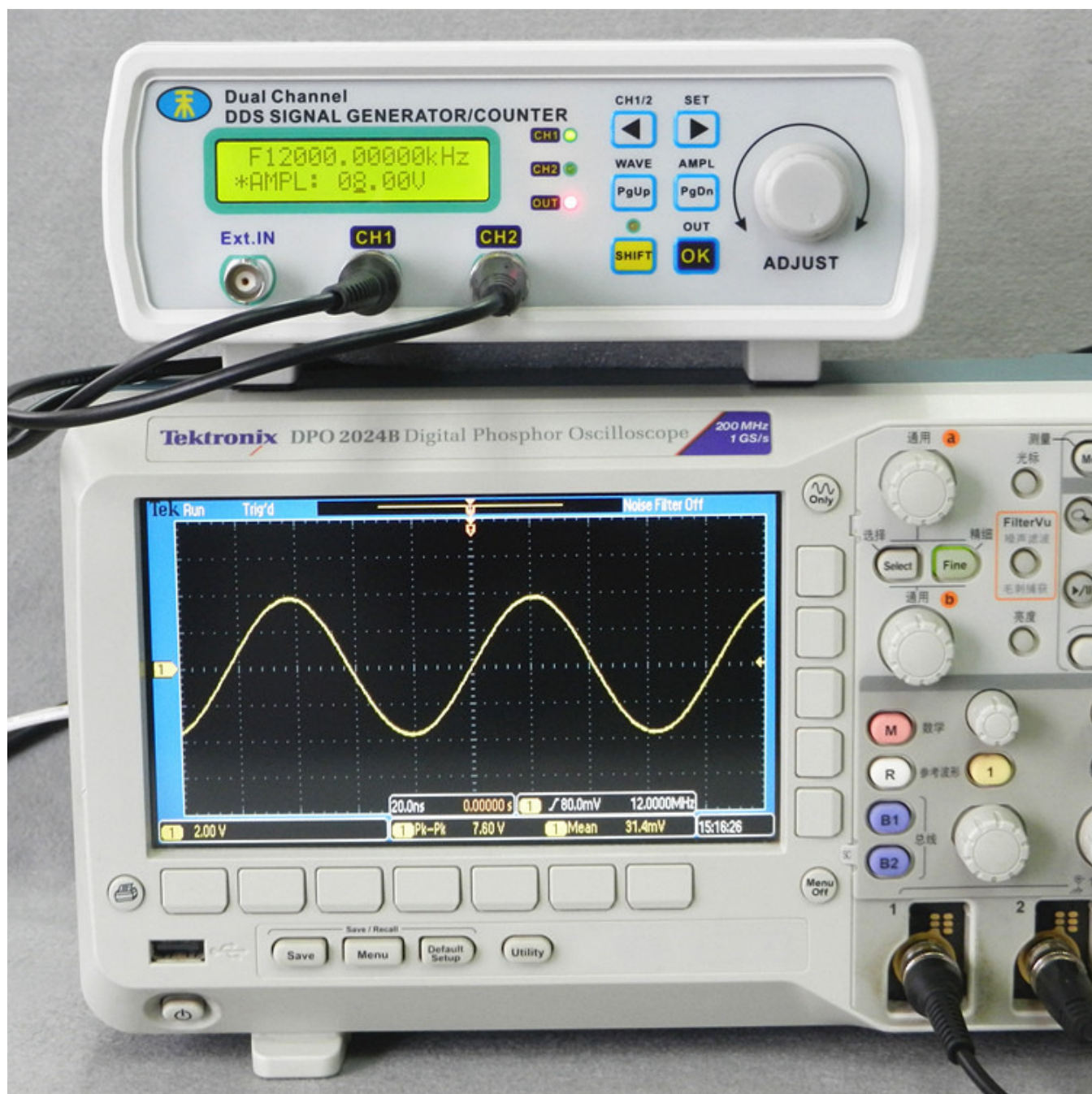


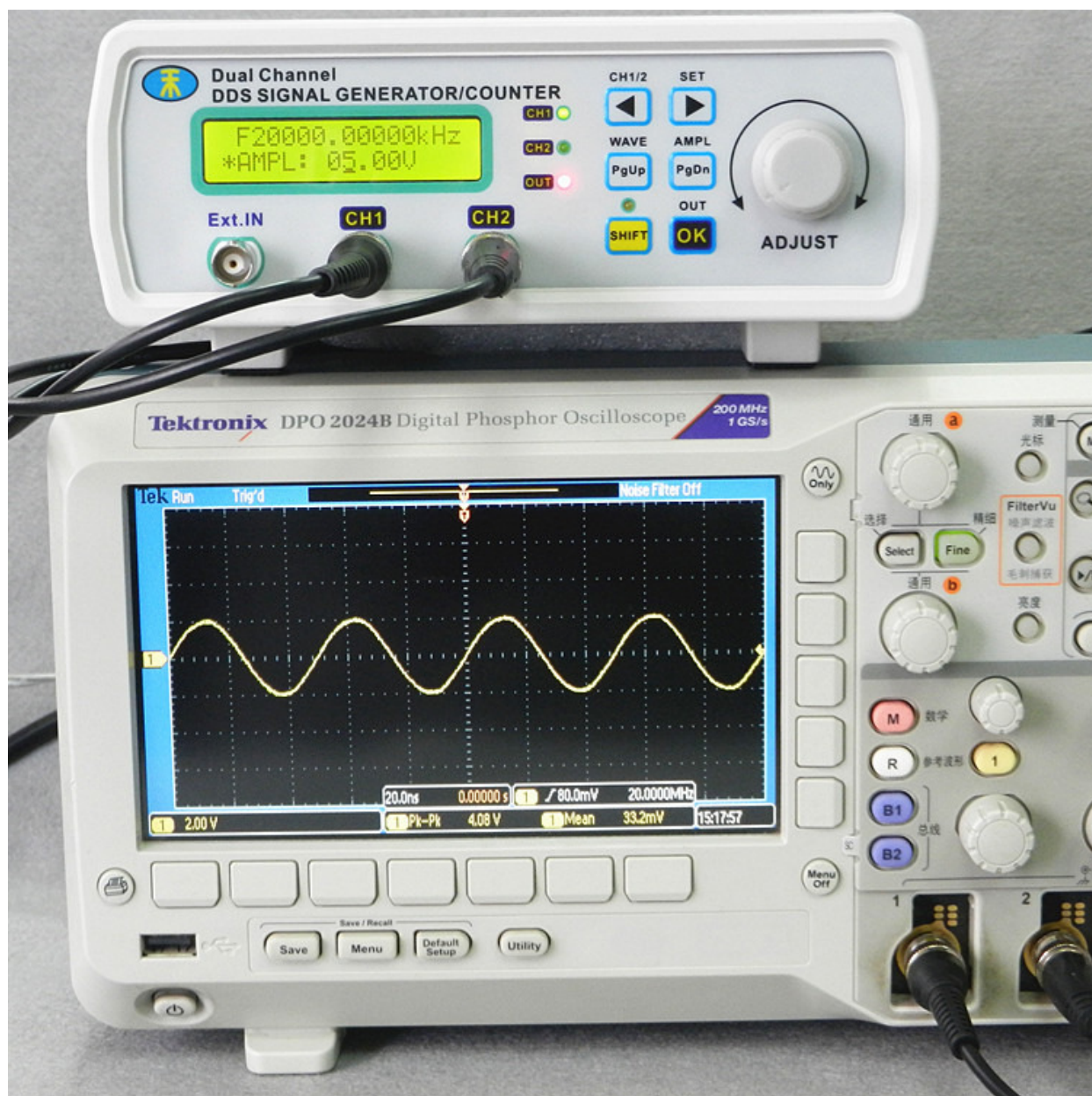


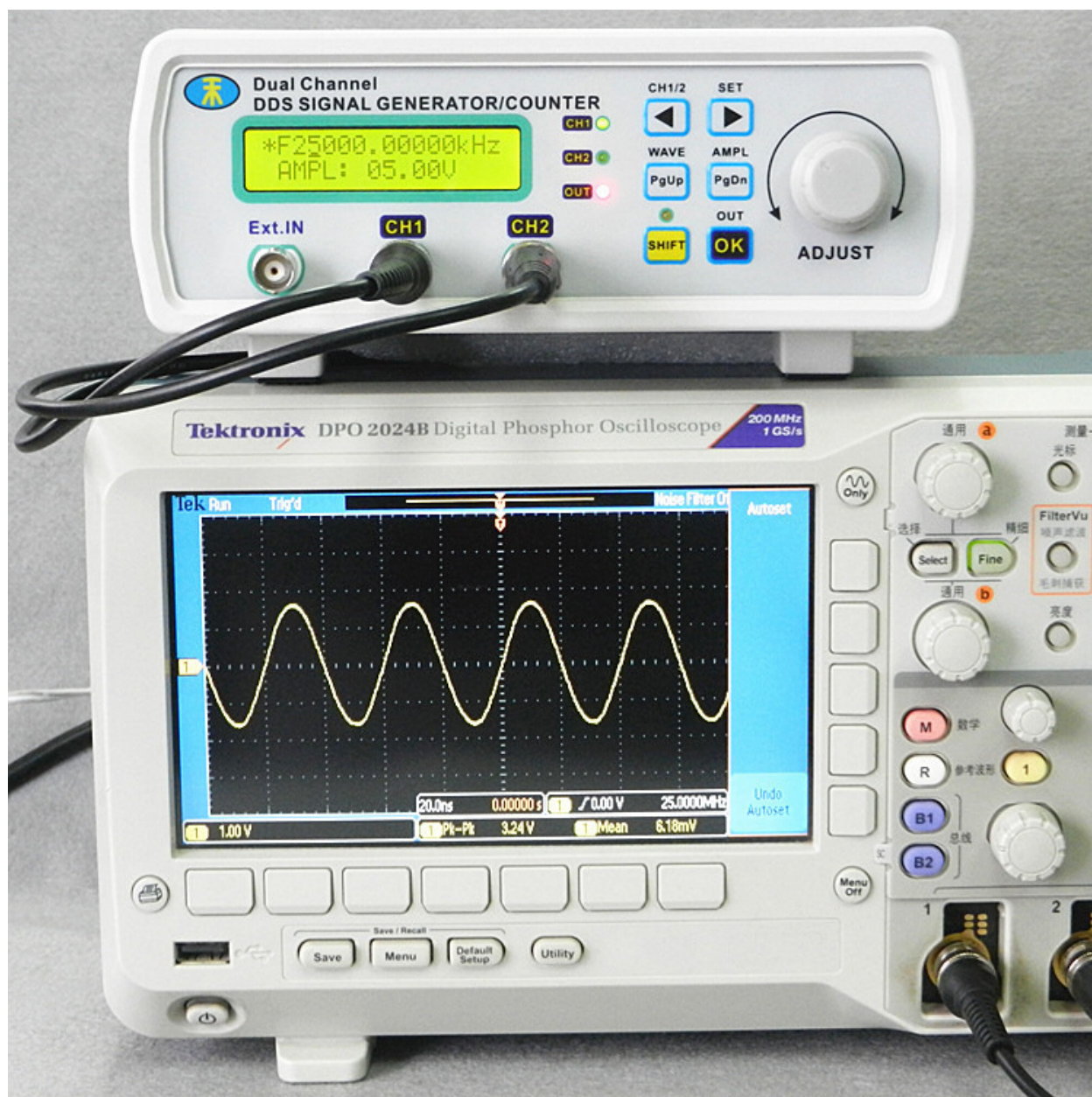


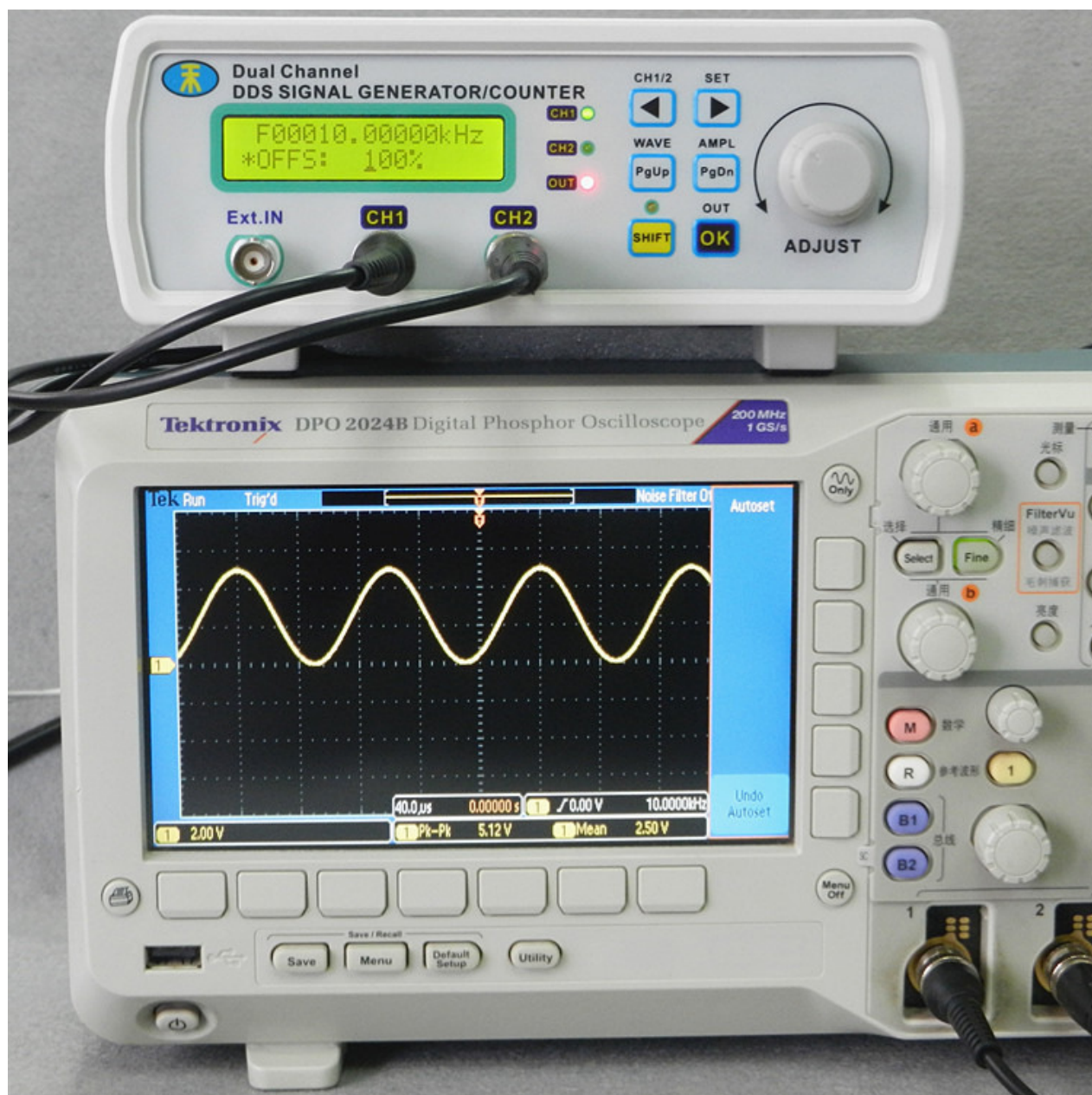


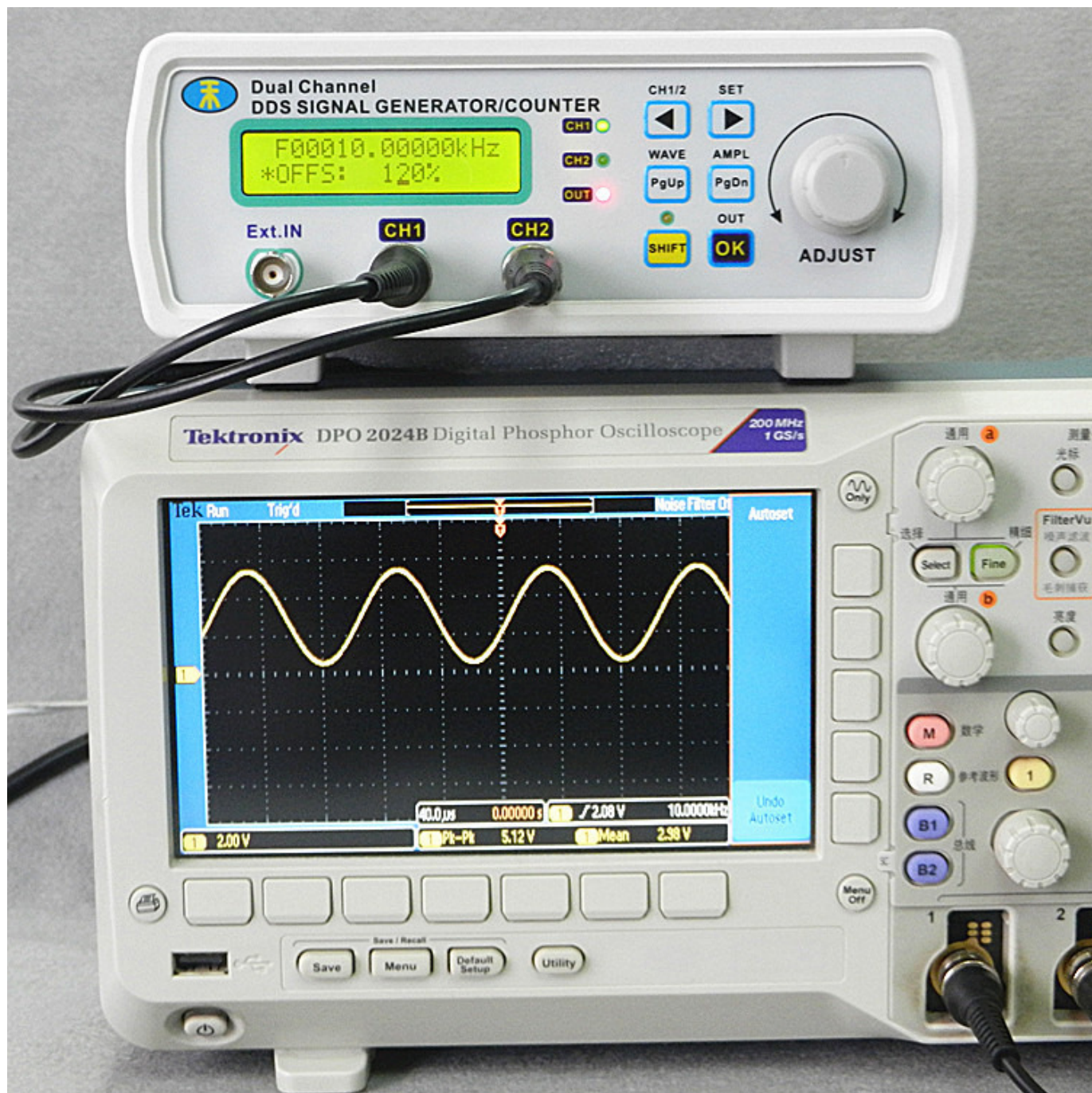


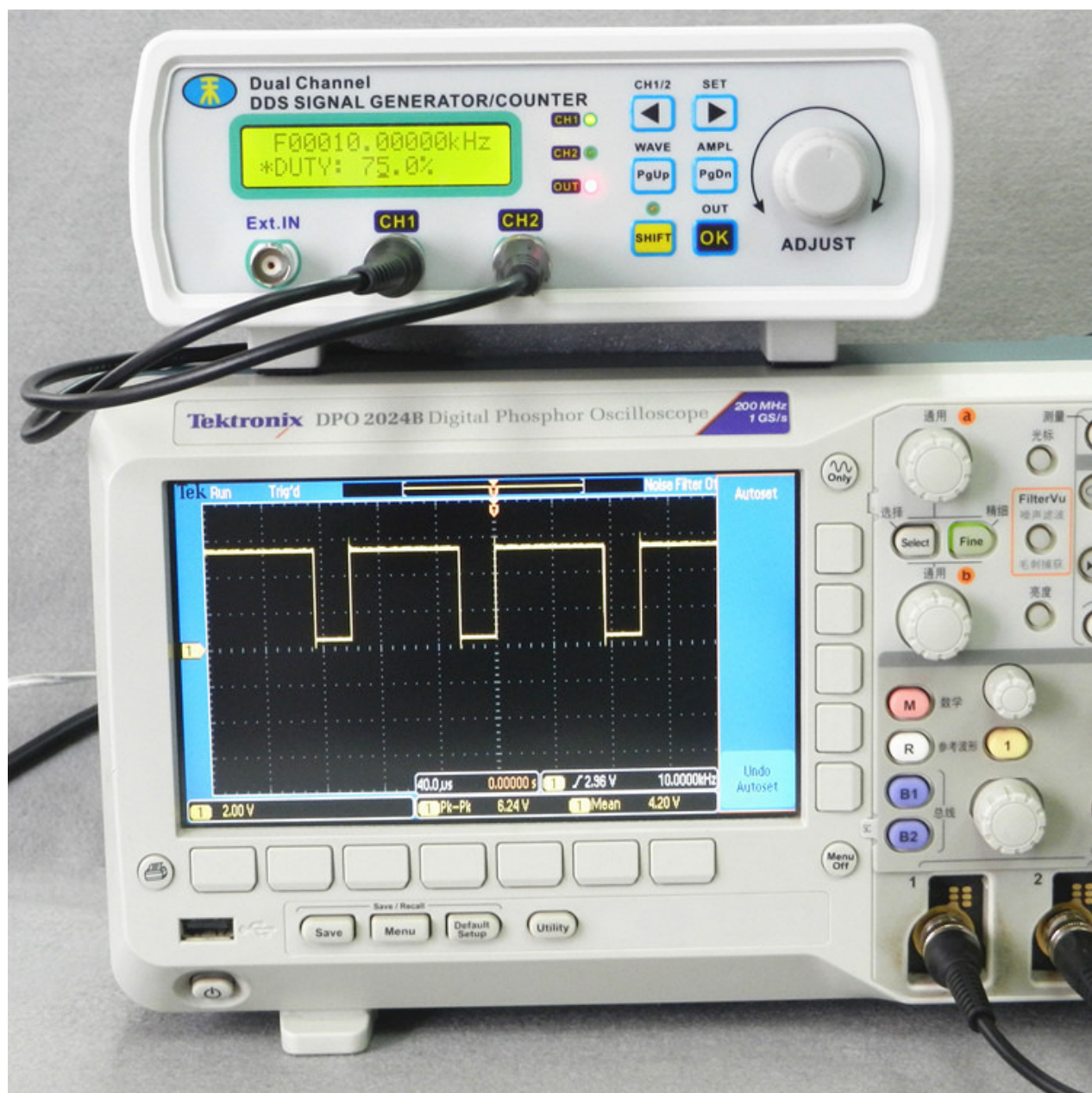


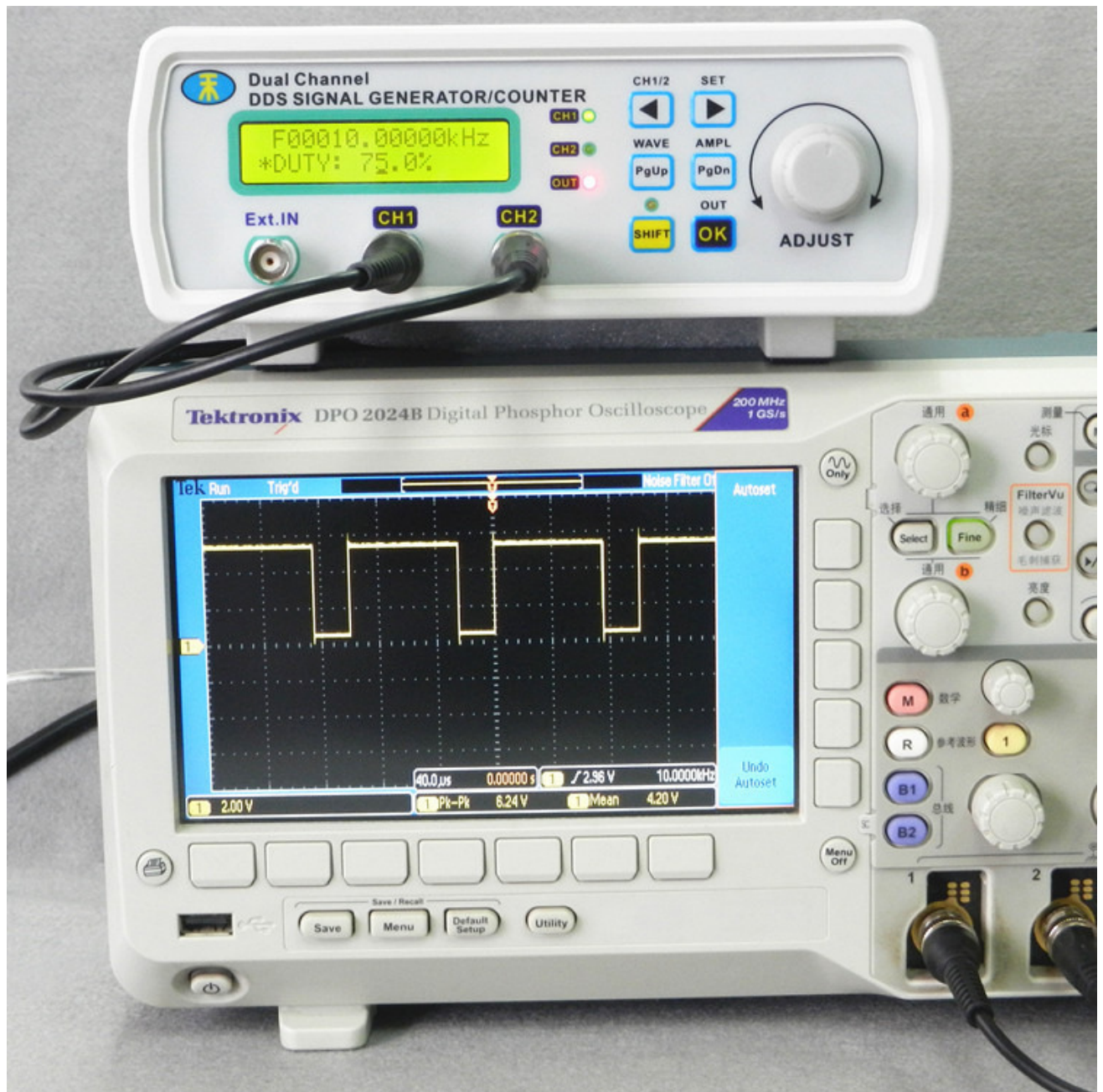


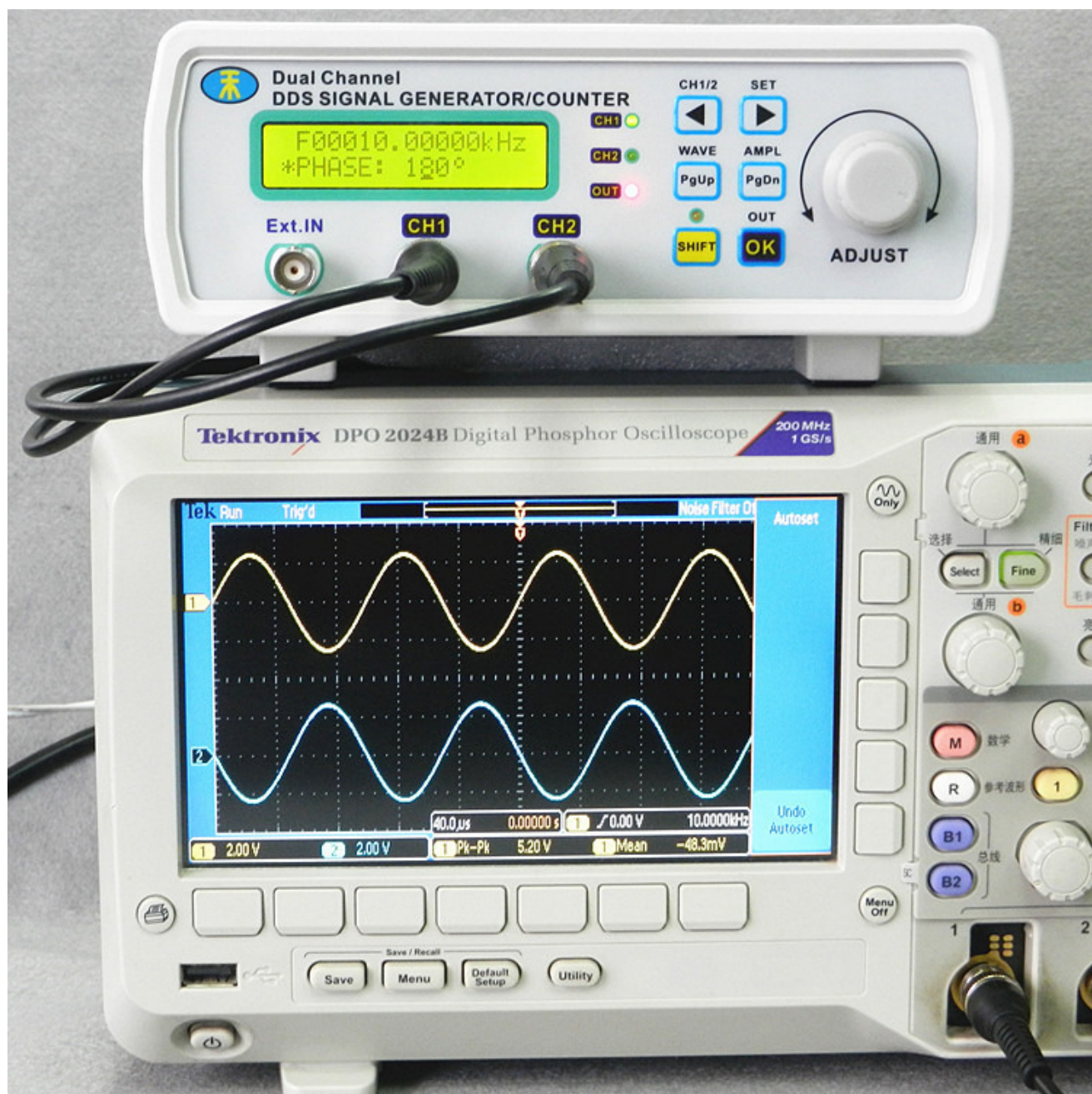




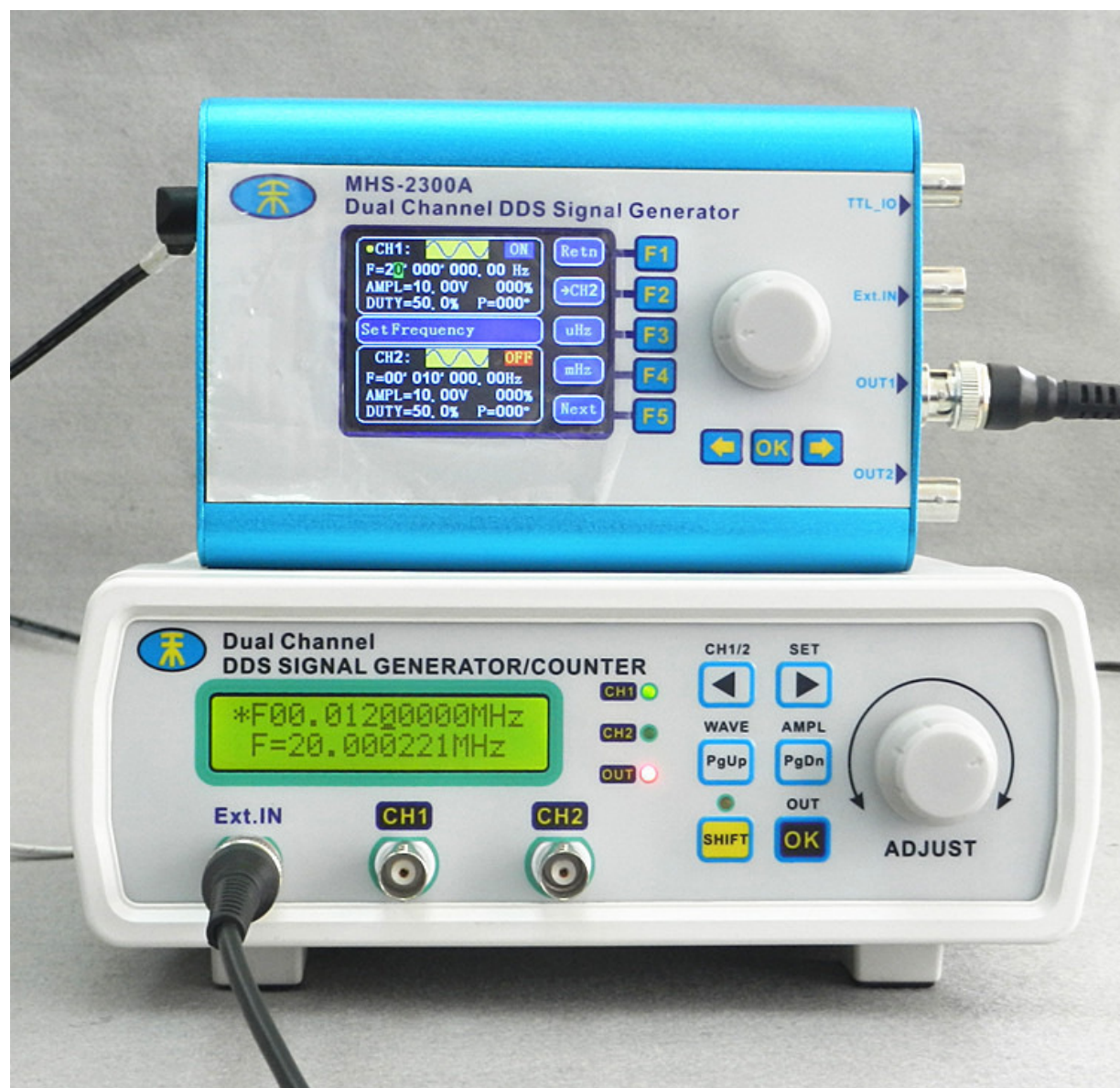










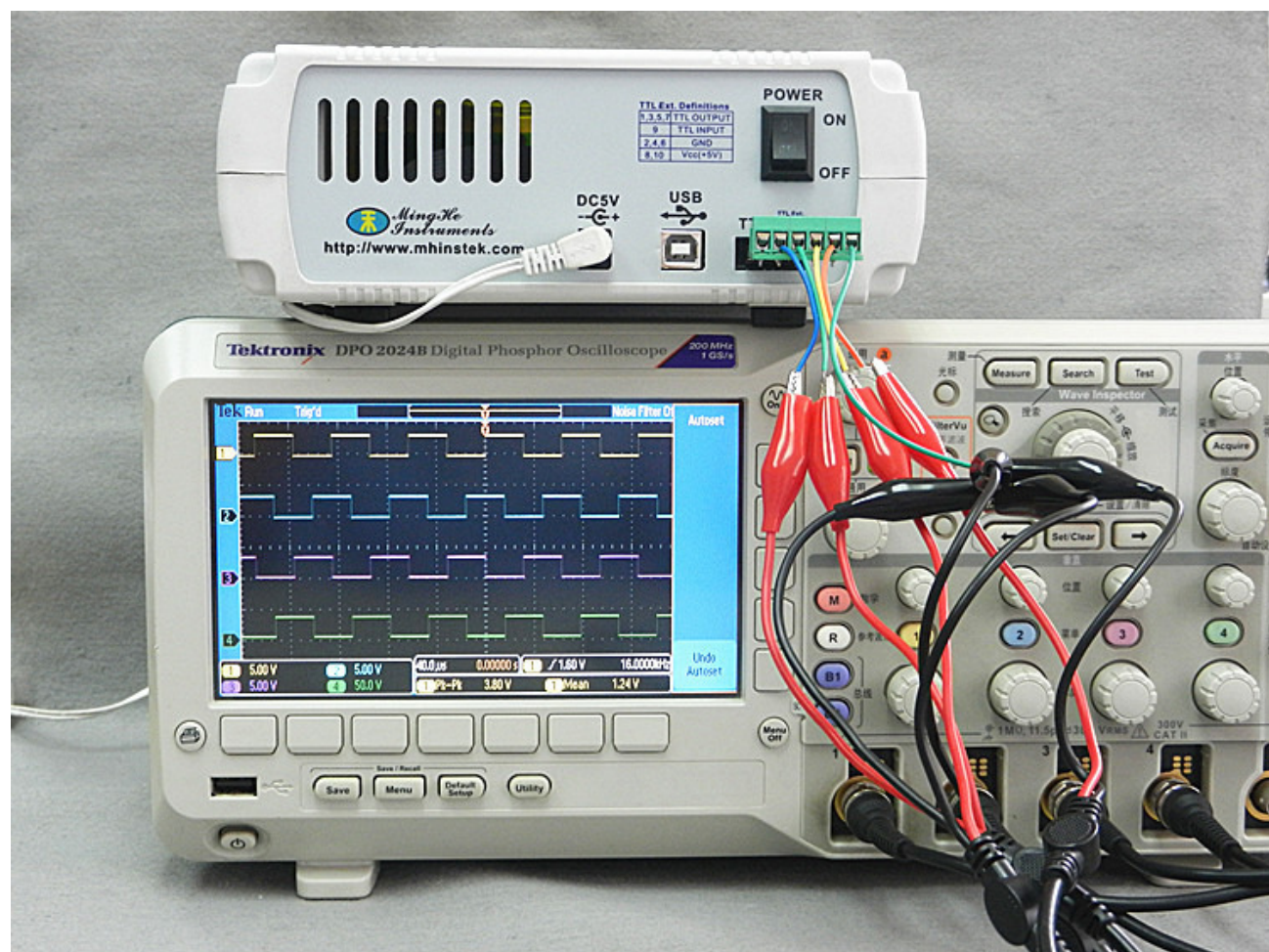
















# MHS-3200A 6MHz

