

FEATURES:

- Super-universal CSA
- Simple inclusion and use
- Any input polarity
- Select output polarity
- Internal or external feedback
- Ability DC offset output signal
- High stability & low noise
- Hermetically metal case
- Low cost & small size
- Demo boards availability



CSA FOR:

- Photomultiplier tube
- Photon Counters
- Neutron detectors
- Spectrometric or counting systems

Table 1 - ABSOLUTE MAXIMUM RATINGS

Name	Value
Supply voltage, Vs	± 16 V
Input Voltage	±Vs
DC offset voltage	±Vs

Table 2 - SPECIFICATIONS

Name	Min.	Recommended/ Set-point	Max.
Supply voltage, Vs	±5 V		±15 V
Internal Feedback, Cf		330 pF	
Internal Feedback, Rf		150 kΩ	
Unity Gain Bandwidth		26 MHz	
Current consumption (without load)			15 mA
Weight, grams			7

Table 3 - PIN CONFIGURATION

Pin #	Identification	Assignment
1	INV_IN	Not invert the input signal
2	NINV_IN	Invert the input signal
3	PA1_OUT	Polarity selection/Feedback input B
4	FB_B_OUT	Internal Feedback output B
5	FB_A_OUT	Internal Feedback output A
6	FB_A_INPUT	Feedback input A
7	OFFSET_INP	Offset Voltage input or connect to GND
9	-Vss	Negative power supply
10	+Vcc	Positive supply voltage
11	INPUT ⁽¹⁾	Input
13	OUT	Signal output
8,12,14, 15	GND	GND

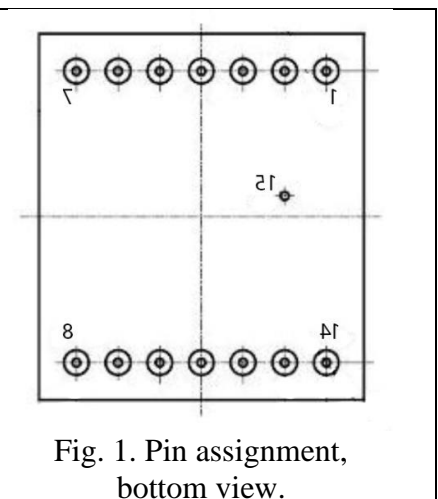


Fig. 1. Pin assignment, bottom view.

(1) If use the PMT with a positive power supply, MANDATORY use high voltage DC blocking capacitor, see Fig. 4.

FUNCTIONAL AND CONNECTION

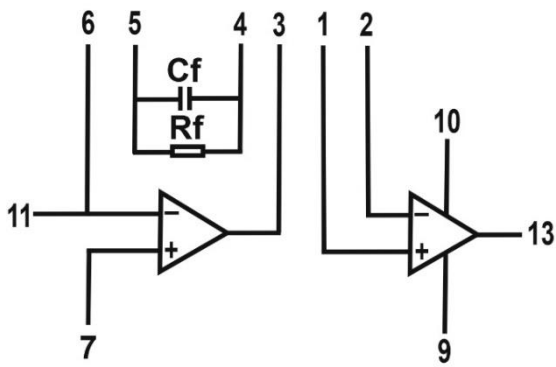


Fig.2. Functional diagram with pin numbers.

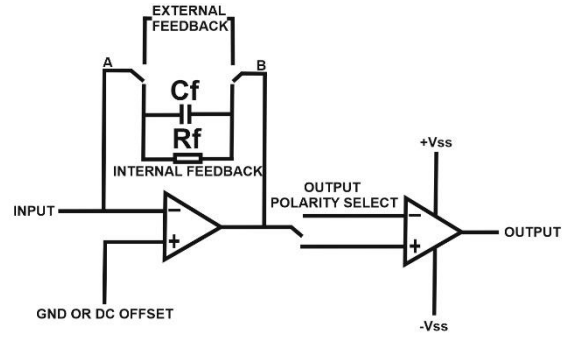


Fig.3. Connection diagram.

CONNECTION TO PMT

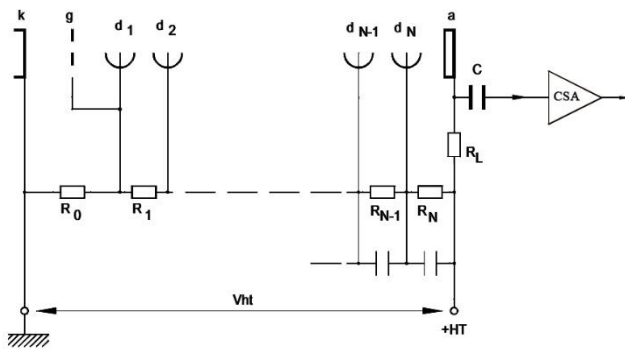


Fig.4. u-CSA & PMT with **positive** power supply connection diagram.

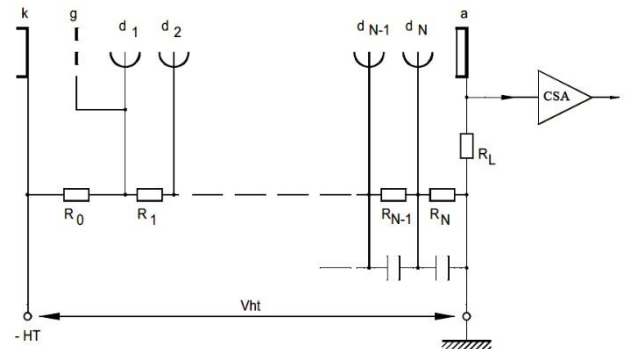


Fig.5. u-CSA & PMT with **negative** power supply connection diagram.

PMT u-CSA EVM

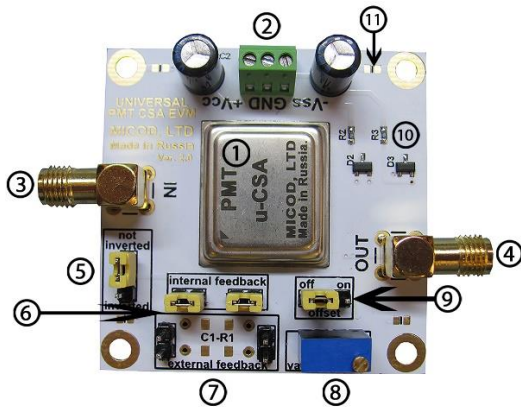


Fig. 6. EVM board.

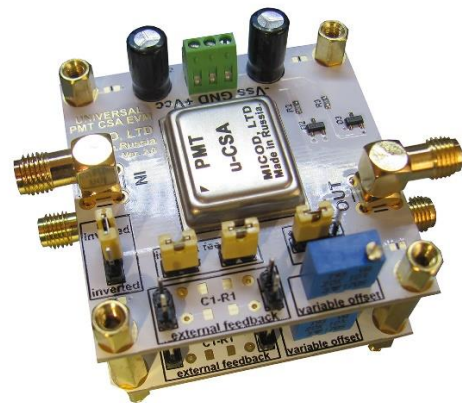


Fig. 7. Multichannel installation.

- 1 Universal CSA (u-CSA);
- 2 Power supply connector (+Vcc, GND, -Vcc);
- 3 Input signal (SMA connector);
- 4 Output signal (SMA connector);
- 5 Output polarity selector;
- 6 Internal feedback selector;
- 7 External feedback selector & external feedback C1-R1;
- 8 DC offset precision potentiometer;
- 9 DC offset signal selector;
- 10 Shunt voltage reference for offset circuit;
- 11 Connect the screw hole to GND (separately for each hole – 4pc).

PMT u-CSA&SA EVM

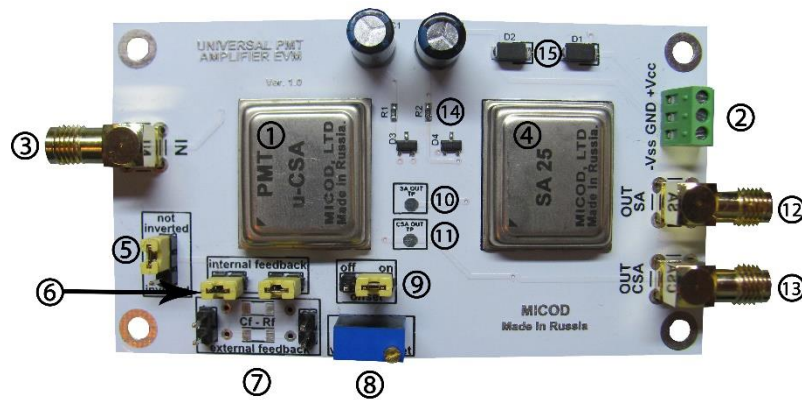


Fig. 8. EVM board.

- 1 Universal CSA (u-CSA);
- 2 Power supply connector (+Vcc, GND, -Vcc), **MAX VOLTAGE: ±5V**;
- 3 Input signal (SMA connector);
- 4 Shaper Amplifier;
- 5 Output u-CSA signal polarity selector;
- 6 Internal feedback selector;
- 7 External feedback selector & external feedback Cf-Rf;
- 8 DC offset precision potentiometer;
- 9 DC offset signal selector;
- 10 Test point - signal output from Shaper Amplifier;
- 11 Test point - signal output from u-CSA;
- 12 Output signal from Shaper Amplifier (SMA connector);
- 13 Output signal from u-CSA (SMA connector);
- 14 Shunt voltage reference for offset circuit;
- 15 Protective TVS diodes;

SETUP INSTRUCTION

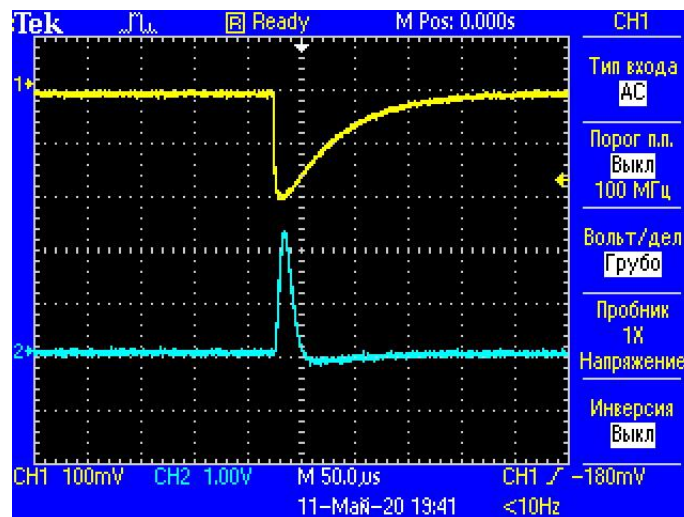


Fig. 9. Output signals

(Yellow line - signal from u-CSA, Blue line - signal from Shaper Amplifier)

- 1 After switching on, use Polarity selector (5) and set a negative pulse from u-CSA (see Fig. 9);
- 2 Set DC offset signal selection (9) to ON;
- 3 Use DC offset precision potentiometer (8) and set bias voltage to +2-2.5V;
- 4 Select External feedback (7) and pick up empirically feedback Cf-Rf which there is no saturation of the Shaper Amplifier (For example: Cf=4.7nF, Rf= 10kOhm)

DIMENSIONS AND DESIGNATIONS

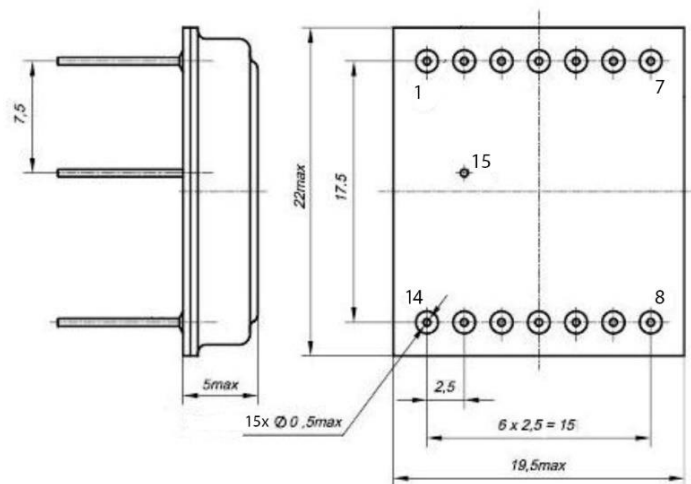


Fig. 10. 153.15-2 case drawing.

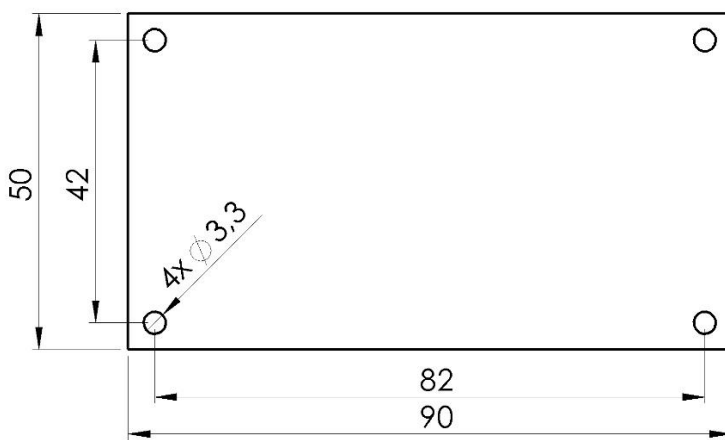


Fig. 11. PMT u-CSA&SA EVM board dimensions.

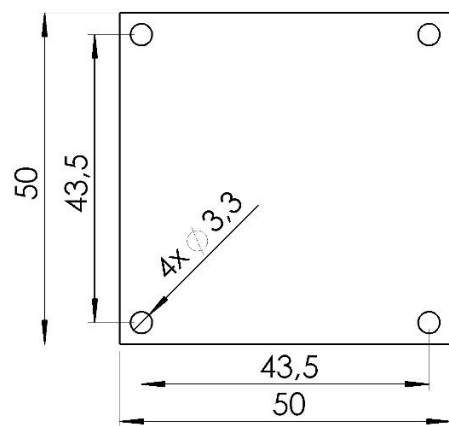


Fig. 12. PMT u-CSA EVM board dimensions.

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CHANGES AND PREVIOUS VERSIONS

Version until 10.2019

PMT u-CSA EVM

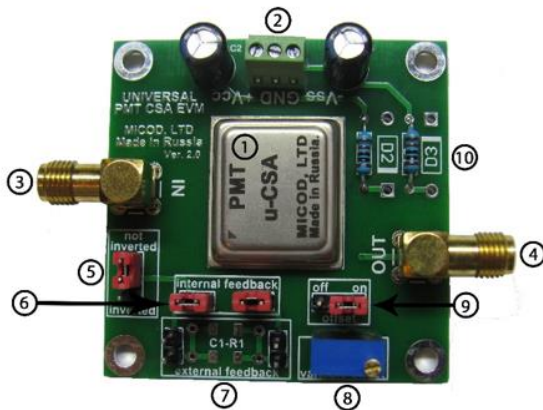


Fig. 6. EVM board.

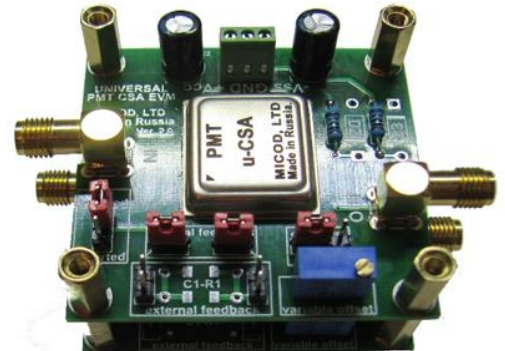


Fig. 7. Multichannel installation.

- 1 Universal CSA;
- 2 Power supply connector (+Vcc, GND, -Vcc);
- 3 Input (SMA connector);
- 4 Output signal (SMA connector);
- 5 Output polarity selection;
- 6 Internal Feedback selection;
- 7 External Feedback selection;
- 8 DC offset precision potentiometer;
- 9 DC offset output signal switch;
- 10 Zener diode DC offset precision potentiometer stabilization circuit (optional).