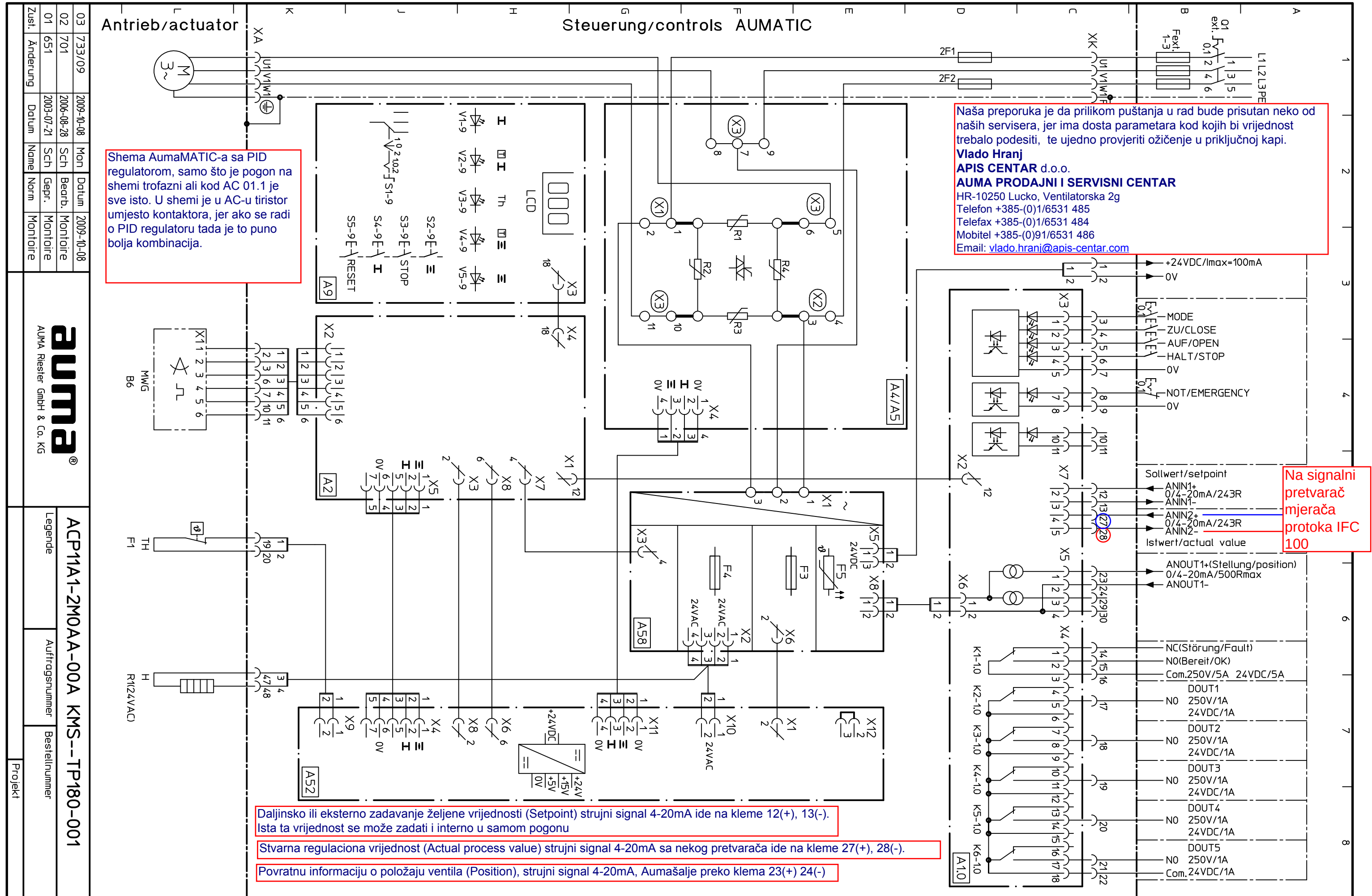


TIPSKA TVORNIČKA ŠEMA DJELOVANJA I VEZIVANJA - ULTRAZVUČNI MJERAČ PROTOKA

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Micronics U3000/4000

Ultrasonic Flowmeter



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Menus and the menu selection keys

Note: As a security measure, once the instrument has been set-up for the first time a password is required to gain subsequent access to the operating menus.

The U3000/U4000 menus are arranged hierarchically with the MAIN MENU being at the top level. Menu navigation is achieved by three keys located on the right hand side of the keypad which are used to scroll UP and DOWN a menu list and SELECT a menu item. When scrolling through a menu an arrow-shaped cursor moves up and down the left hand side of the screen to indicate the active menu choice which can then be selected by pressing the ENTER (SELECT) key.

Some menus have more options than can be shown on the screen at the same time, in which case the overflowed choices can be brought into view by continuing to scroll DOWN past the bottom visible item. Menus generally 'loop around' if you scroll beyond the first or last items.

If you select Exit on any menu it usually takes you back one level in the menu hierarchy, but in some cases it may go directly to the 'Flow Reading' screen.

Some screens require you to move the cursor left and right along the display as well as up and down. This is achieved using keys 5 (scroll LEFT) and 6 (scroll RIGHT).

Dual function numerical keypad

The block of keys shown in the centre of the keypad in [Figure 1.4](#) are dual function keys. They can be used to enter straight-forward numerical data, select the displayed flow units or provide quick access to frequently required control menus.

1.4.3 Power supply

Mains supply

As standard, the instrument is designed to work with a mains supply of 86-236V and 50/60Hz. A 500mA mains supply fuse is located adjacent to the mains power connection (see [Figure 2.3](#)).

24V Supply

An alternative 24V a.c./d.c. power supply module is available as a factory (distributor) fitted option. This supply is protected by a resettable solid-state fuse located on the U3000/U4000 motherboard. If this fuse opens it can be reset by isolating the 24V supply.

Power failure

The instrument will automatically power-up and become operational when the input power is applied. In the event of a power failure the instrument's configuration parameters are stored in non-volatile memory, which then allows the instrument to return to normal operation immediately power is restored.

On the U4000 a real time clock (RTC) records the date/time of any power disruptions and time-stamps any such occurrence in the output log. All data logging ceases while power is unavailable.

1.4.4 Expansion modules (U4000 only)

The U4000 motherboard contains a standard plug-in communications module which provides RS232 and USB functions. An expansion slot is available which can be used to extend the functionality of the U4000 to include a Heat Meter or a range of process control interface options through a plug-in expansion module.

Details of available plug-in modules and other optional equipment are given in Chapter 7.

2. Fix a screw into the wall at the required point to align with the mounting keyhole on the back of the enclosure.
3. Attach the enclosure to the wall using the keyhole screw mounting.
4. Align the enclosure then mark out the positions for the two remaining screw fixings through the slots near the bottom corners of the enclosure. Then remove the enclosure, and drill (and plug) the fixing points.
5. Clear the site of any dust/debris then mount the enclosure on the wall.

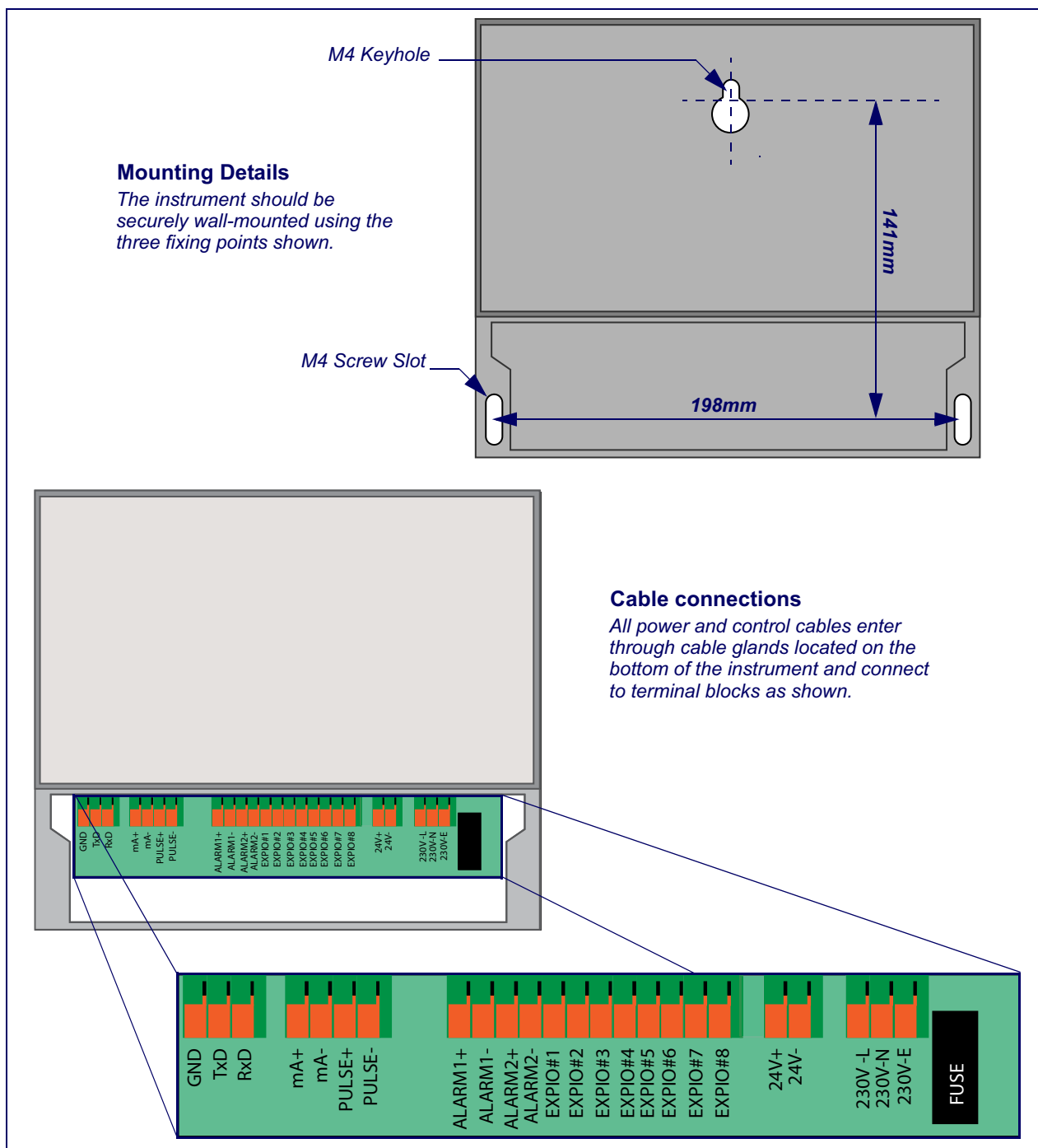


Figure 2.1 U3000/U4000 Mounting and connection details

+ -

2.2.3 Connecting the instrument

All cables enter the instrument through the (4) cable glands provided and are connected to terminal blocks which are located behind a safety cover. The terminal blocks use a spring-loaded securing mechanism which is opened by lifting the orange tab situated on the top of the terminal connection.

Control & monitoring cables

Depending on the fitted options, any of the following control and monitoring cables may be required:

- **Current output** – a 4-20mA, 0-16mA, or 0-20mA monitoring signal is output at terminal mA+ and mA- . (mA+ is the current output terminal and mA- is the return terminal).
- **Pulse output** – an opto-isolated pulse output is available at terminals PULSE+ and PULSE- (PULSE+ is the pulse output terminal and PULSE- is the return terminal).
- **Alarm Outputs** – two programmable, multifunction alarm outputs are available using MOSFET, SPNO relays. The relays are rated at 48V/500mA continuous load, and are connected to terminals ALARM1+, ALARM1-, ALARM2+ and ALARM2- respectively.
- **RS232 Interface (U4000 only)** – an RS232 interface is provided to allow logged data to be downloaded to a PC or RS232 compatible printer. The interface is connected to terminal TxD (data transmitted from the U4000) RxD (data received by the U4000) and GND (signal ground).
- **Expansion ports (U4000 only)** – terminals EXP10#1 to EXP10#8 are used for I/O connections to a number of optional expansion boards that may be fitted to the U4000 expansion slot. Details of the available options are provided in Chapter 7.

1. Remove the terminal block cover.
2. Route the control and monitoring cables through the two smaller cable glands.
3. Cut the wires to length, strip back the insulation by approximately 10mm and connect them into the required terminals as described above and identified in [Figure 2.1](#).
4. On completion, tighten the cable glands to ensure the cables are held securely.

USB Connection (U4000 only)



Figure 2.2 U4000 USB Connection

A Mini-USB connector is available at the left-hand side of the enclosure to which the USB cable (provided) can be attached, as shown in [Figure 2.2](#). The free end of the USB cable can be plugged directly into any PC USB port.