USER'S MANUAL
Control Touch Panel Astraada HMI AS45TFT0403

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Introduction

Version 1.0 of the program supports two models of flowmeters: PEM-500, PEM-1000. It is compatible since software version 3.0.1005. In previous versions of the flowmeter, it is possible to use the panel, but only the screen display function will be available, without the ability to control the screen using buttons.

Changing Modbus communication parameters

According to the factory settings, panel communication is carried out at 115200 bps, NOPA_2s. To change settings that cannot be entered in the target program, press and hold the upper left corner of the screen while turning on the device to go directly to the panel settings. The System Loader screen will be displayed. After pressing the Run button, you will be taken to Panel Setup. Changing the Modbus RTU transmission parameters will be possible after selecting the Link1 button. Confirm the changes by pressing the OK button and press the Run button to go to the main program.

Main screen

The panel can be operated using four grey buttons controlling the flowmeter and five green buttons controlling the modes of device monitoring.

Illustration 1: Main panel view

The green field of the LCD screen is responsible for displaying the content of the monitored devices' display. There are five messages on it:

- "Set nodes pooling rate" – information message about switching to the settings screen of the multi-channel polling mode, described later in the manual.
- "Set node address" – information message about switching to the settings screen of the polling mode of one channel, corresponding to the specific button, described later in the manual.
- "Address not configured" – information message about an attempt to use a button without a node address connected.
- "Blocked!!!" – information message about the remote flowmeter's screen control buttons being blocked. The blockage occurs in multi-channel reading mode.
- "No response!!!" – information message about the lack of response from the queried node address.

Grey buttons

They function as a remote control of the flowmeter screen:

⬆ PL - - UP – moves menu items and selections up,

⬇ PS - - DOWN – moves menu items and selections down,

↵ PP - - OK – confirms the selection of the indicated item or by long pressing on the main screen goes to the tab: login → menu,

Hm HM - - HOME – returns to the main screen – on PEM-1000 flowmeters it corresponds to the LP+PP buttons.

Green buttons

These buttons have two functions:

- press – start device monitoring mode,
- press and hold – go to button settings.

There are two types of mentioned buttons:

NODE buttons
Press: activating the single device polling mode, which works by displaying the LCD content of one device for the entire duration of the mode. There are four buttons of this type, each of which can be assigned to a different node address. The node number is assigned to the button number visible on the component.

Press and hold: holding the button for about 4 seconds and then releasing it will trigger the button settings. Here you can connect the node address to the button, specifying the device model automatically or manually. The option is available after logging in to the administrator level.

NODES SCAN button
Press: activating the multi-device polling mode, which works by displaying the LCD content of one device for a time specified by the administrator and then moving to the next device. Steps through all items with addresses attached. Empty items – buttons without an address attached – are skipped.

Press and hold: holding the button for about 4 seconds and then releasing it will trigger the button settings. Here you can enter the scanning time. The option is available after logging in to the administrator level.

Appearance: **Appearance:**

NODE buttons setting screen:

Illustration 2: View of node address setting screen

Each settings screen is labeled. The NODE button settings screen is titled "Set node address".

 Field to enter the node address – before logging in to the administrator level, the field will be locked – the lock icon will appear and changing the value will not be possible. Clicking the field from a sub-admin level will open the login keyboard. After entering the appropriate password, you will be transferred to the administrator level and the address value entry field will be unlocked. Entering the wrong password results in remaining on the login keyboard. After clicking on the unlocked address entry field, a keyboard for entering the address will appear. You must provide a value from the range 1-255, entering a value of 0 results in the key being included in the group of keys not connected to node addresses. The address must be different from the addresses of other programmed buttons. An incorrectly entered address will trigger a warning message:

- "Address already exist" – error of entering the same address as in another, already programmed button;
- "Wrong address node!!!" – error of entering an address outside the range 1-255;
- "Address not configured!" – a message informing that no address has been assigned to the button. The same message will be displayed on the home screen if an unprogrammed button is pressed.

Once the address has been successfully assigned, the following message will be displayed "address configured :)".
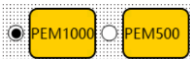
 Selecting the device model – to enable the device to be controlled using remote buttons, a selection of the connected device model has been implemented. Manual model selection is possible before assigning a node address to the key. If the address to be connected is the address of the PEM-500 flowmeter, click on the field with the inscription PEM500. Similarly for the PEM-1000 model. The program will automatically recognize the model after entering its address. Once the model is automatically recognized, it will not be possible to change it manually.

Crossed out circle symbols will then appear on the buttons.
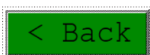
 Back button – clicking the < *Back* button redirects you back to the main screen.
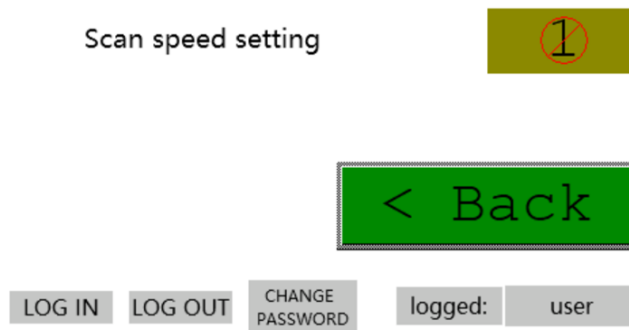
NODES SCAN button setting screen:

Scan speed setting

< Back

LOG IN   LOG OUT   CHANGE PASSWORD   logged: user

Illustration 3: View of the device scan time settings screen

The NODES SCAN button settings screen is titled "Scan speed setting".

Time value entry field – entry of the polling time value of one address in the monitoring mode for all devices. Before logging in to the administrator level, the field will be locked – the lock icon will appear and entering the value will not be possible. Clicking the field from a sub-admin level will open the login keyboard. After entering the appropriate password, you will be transferred to the administrator level and the time value entry field will be unlocked. Entering the wrong password results in remaining on the login keyboard. After clicking on the unlocked field, a keyboard for entering the time value will appear. Enter a value from 1 to 99, which corresponds to the duration in seconds. Entering a value of 0 will convert it to 1. Entering a value outside the range will display a message *Error!* on keyboard screen.
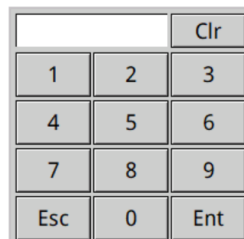
Back button – clicking the *< Back* button redirects you back to the main screen.

The view of the keyboard for entering values into input fields:
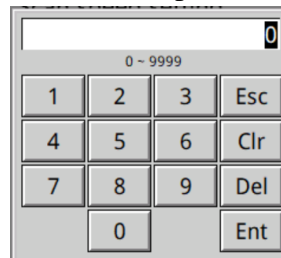
The view of the login keyboard:

Security and logging

Illustration 4: The appearance of the login footer

In order to protect the possibility of changing the panel's operating parameters, individual fields have been protected with an administrator password. The default administrator password is "1111". The user level is not password protected. The following fields are protected:

- field of "node address" value –*address setup* screen
- field of "time scan" value –*time setup* screen
- field of selecting the device model – *address setup* screen

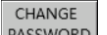This means that changes to these fields can only be made after logging in to the administrator level. Blocked components are marked with a crossed out circle, e.g. .

Access is granted automatically, immediately after logging in to the appropriate level. Then the image of the crossed out circle disappears from the component: .

As part of the functionality, a footer was created that appears on each settings screen. There are four elements on it:

 LOG IN button – after pressing it, the login keyboard will appear on the screen, where you must enter your password. Depending on whether the administrator or developer password is entered, the user will be logged in to the corresponding level.

 LOG OUT button – after pressing it, the login level will be changed to user level, all fields inaccessible from this level will be blocked.

 CHANGE PASSWORD button – after pressing it, a table of passwords available from the currently logged in level will appear on the screen. The user has access to passwords of lower levels and his own. Preview and editing are possible. You can change your password by clicking on the password you want to change. The password change keyboard will then appear, where you can enter a new PIN. The password must contain at least 4 digits!
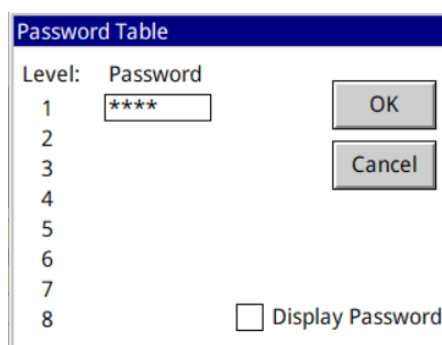

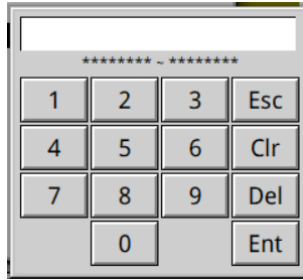*Illustration 5: Table of passwords*

Illustration 6: Password change keyboard

The entered password must be confirmed by the enter button, after which the password confirmation screen will be displayed. Please re-enter the new password and press the OK button with a green mark.
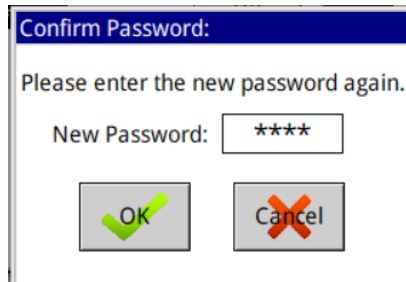

Illustration 7: New password confirmation screen

From now on, the newly set password will apply.

 Login status – a field displaying the level at which the user is currently logged in. The following messages are displayed in the field: user, admin for logging in respectively at the user and administrator levels.

History of revisions

Revision No.	Document revision	Description of changes
-	01.A.001	First version of the document.