
Clarity Control

Kontron


LC UNI profile

ENG

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1	Profile specification	4
2	Requirements	4
3	Profile setup	4
4	Kontron pump profiles	7
4.1	Kontron 420	7
4.1.1	Hardware and Software Requirements	7
4.1.2	LC Control Specifics and Limitations	8
4.1.3	Kontron 420 Profile description	8
4.2	Kontron 420 Multiport	15
4.2.1	Hardware and Software Requirements	16
4.2.2	Kontron 420_Multiport_AB profile description	16
4.3	Kontron 422	23
4.3.1	Kontron 422 Profile description	23
4.4	Kontron 32x	24
4.4.1	Kontron 32x Profile description	24

1 Profile specification

Kontron LC UNI profile presents features for controlling the Kontron 420, 420 with Multiport, 422 and 32x pumps.

2 Requirements

- Clarity Installation CD ROM with LC Control module (p/n A24).
- Free serial port in the PC in case of 420 pump with Multiport, several free serial ports (according to the number of high pressure gradient pumps connected) in case of 420, 422 and 32x pumps.

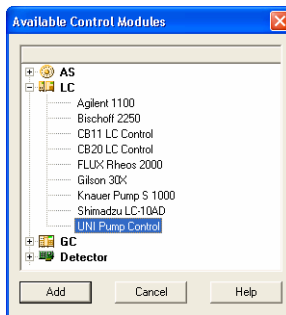
Note: *Modern computers usually have only 1 (if any) serial (COM) port installed. To use more devices requiring the port, the **MultiCOM** adapter (p/n MC01) is available.*

- Serial cross DB9F-DIN5M cable (p/n SK09) in case of 420, 422 or 32x pumps. 420 pump with Multiport uses the original cables.

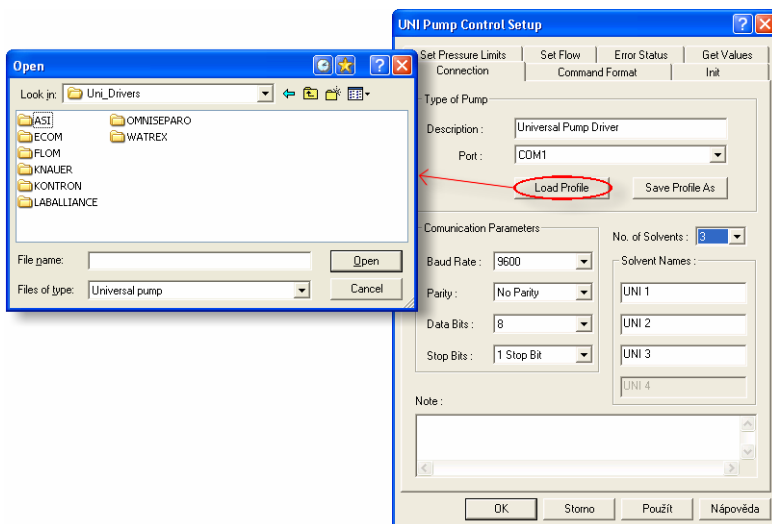
Note: *Cables are not part of **Clarity** Control Module. It is strongly recommended to order required cables together with the Control Module.*

3 Profile setup

- Invoke the **System Configuration** dialog accessible from the **Clarity** window using the **System – Configuration** command.
- Press the **Add** button to invoke the **Available Control Modules** dialog.



- Select the **Uni Pump Driver** and press the **Add** button.
- The **Setup - Connection** dialog will appear.



- Use the **Load Profile** button to load the corresponding configuration for your LC pump.

Note: Profile is stored in *.UNI file. You will find profile file for your LC Pump in the C:\CLARITY\UTILS\UNI_DRIVERS\YOURPUMP folder.

- Select the number of controlled solvents in the **No. of Solvents** field.
- Fill in the communication parameters and solvent names.

Caution! The values from **Com Port** and **Baud Rate** fields are not stored in the profile. These values must be set according to the actual configuration. Using an incorrect **Baud Rate** may cause the program to hang-up during opening the Clarity **Instrument** window.

- Press the **OK** button.

Note: Advanced users may create a new profile or customize existing one. Detailed description can be found in the **Universal Pump Control Module** manual

- Switch to the desired instrument tab in the right part of the **System Configuration** dialog.

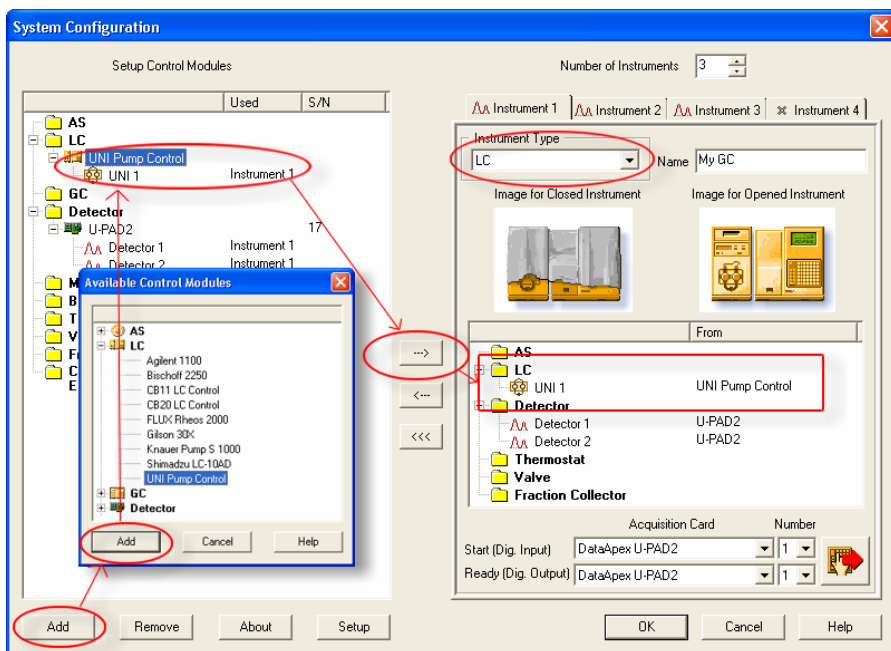


Fig. 1. System Configuration

- Drag and drop the **UNI Pump Driver** from the **Setup Control Modules** in the left to the instrument on the right.

Caution! All defined solvents must be assigned on the same instrument.

4 Kontron pump profiles

- **Kontron** pump models **420** can be controlled by the Kontron_420.uni UNI control driver. Separate Com port is needed for each pump in high pressure gradient.
- Alternatively, the Kontron RS232 **MultiPort** controller can be used with Kontron_420_Multiport_AB.uni UNI control driver for binary gradient using a single Com port on the PC
- Kontron pump model **422** can be controlled by the Kontron_422.uni UNI control driver.
- Kontron pump model **322** can be controlled by the Kontron_322.uni UNI control driver.

4.1 Kontron 420

This profile can be used with **Kontron** pump model **420**.

The user must observe the pressure and flow limits according to the pump and head type, sending values outside the valid range will cause communication or pump error.

Communication parameters

Baud rate	4800
Parity	Even
Data bits	7
Stop Bits	1 Stop bit

4.1.1 Hardware and Software Requirements

Communication cable:

The communication cable is **Sub D 9 pin** receptacle connector (Canon female) on computer side to **DIN 5 plug** connector on pump side, connected according to the following table.

Wiring of the cable:

Kontron 420	9F
2 Ground	5 Ground
4 RTS	8 CTS
3 RXD	3 TXD
5 TXD	2 RXD

4.1.2 LC Control Specifics and Limitations

- Any errors in communication are reported in **Clarity** as a "*Pump communication error*".

Caution! *This message will be invoked also when the pump does not accept the sent values – please check the pressure limits in the **Gradient Options** dialog and flowrates in the **Method Setup - LC Control** dialog.*

- Exceeded pressure limit will be reported in **Clarity** as "*Pump Error*". The communication can be restored without closing the instrument

4.1.3 Kontron 420 Profile description

The UNI pump control module pages are described here for documentation of the state, see the Clarity UNI pump manual, chapter 4.4 for reference

4.1.3.1 Connection

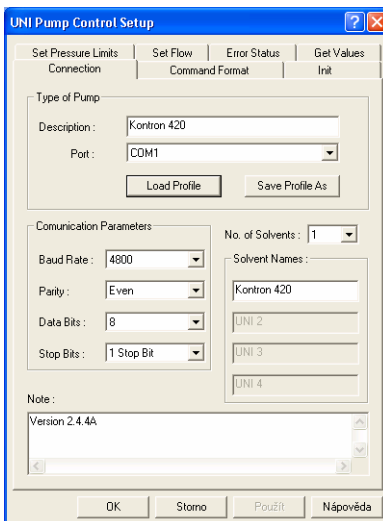


Fig. 2. *Uni Pump Control Setup - Connection*

4.1.3.2 Command format

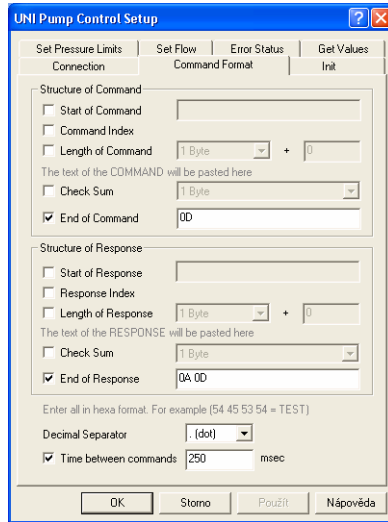


Fig. 3. Uni Pump Control Setup – Command Format

Those settings should ensure the <CR> are used to recognize end of each command and <LF><CR> end of each response.

4.1.3.3 Init

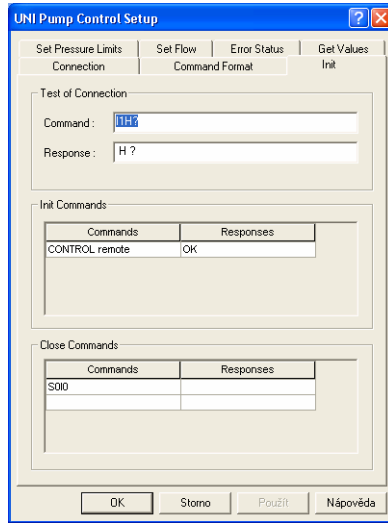


Fig. 4. Uni Pump Control Setup - Init

The pump is set to the Remote mode as pump 1 (A) by the I1 command, the H? request is used to verify the communication.

For pumps B, C, D the I2, I3, I4 commands can be used eventually

The Close commands set the Stop (S0) and Manual mode (I0).

4.1.3.4 Set pressure limits

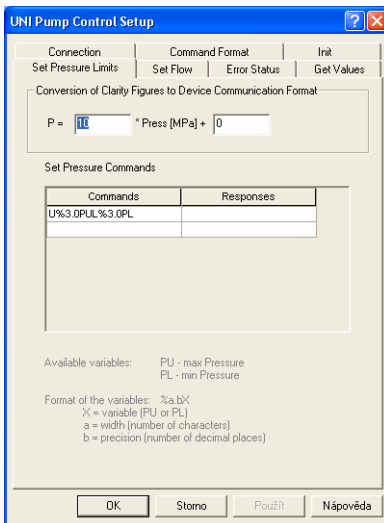


Fig. 5. Uni Pump Control Setup – Set Pressure Limits

The set pressure commands are send at each actualization of the method. MPa are used as units internally, thus the conversion factors must be set.

4.1.3.5 Set Flow

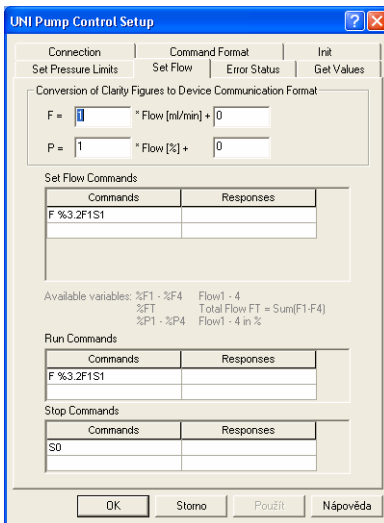


Fig. 6. Uni Pump Control Setup – Set Flow

Use the %F1 variable for isocratic pumps planned to be used in high pressure gradient. The Run command may not be necessary, the flow will be sent at each change of state.

4.1.3.6 Get Values

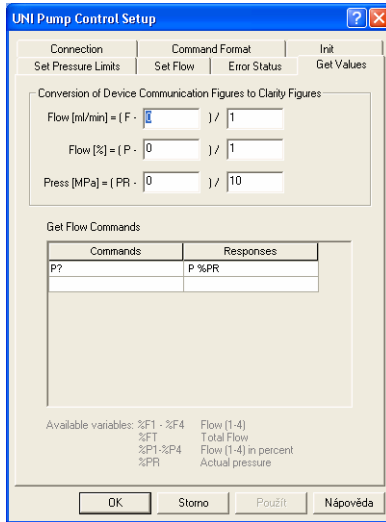


Fig. 7. Uni Pump Control Setup – Get Values

Only pressure can be read from the pump, there is no command for reading the Flow. The send values will be displayed in the LC Monitor.

4.1.3.7 Error Status

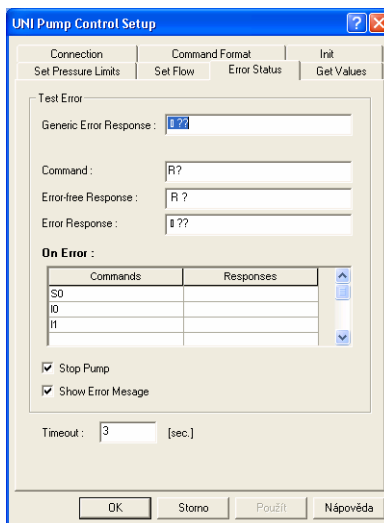


Fig. 8. Uni Pump Control Setup – Error Status

The High pressure limit error is detected (<NAK> 22). It will stop all pumps on the instrument. The On Error commands should reset the pump error state.

Note: *The <NAK> character (15 hexa) could not be entered directly, must be copied and pasted from another program.*

4.2 Kontron 420 Multiport

This profile can be used with **Kontron** pumps model **420** with the **Kontron RS232 Multiport**.

The user must observe the pressure and flow limits according to the pump and head type, sending values outside the valid range will cause communication or pump error.

Communication parameters

Baud rate	4800
Parity	Even
Data bits	7
Stop Bits	1 Stop bit

4.2.1 Hardware and Software Requirements

Communication cable:

The original controller and pump cables should be used in this case

4.2.2 Kontron 420_Multiport_AB profile description

The UNI pump control module pages are described here for documentation of the state, see the Clarity UNI pump manual, chapter 4.4 for reference.

With the Multiport controller, the commands are preceded by the #n/ identifier, where the n is the port number (1-12) to which is the respective device connected. The profile is for binary gradient with pumps connected to ports 11 and 12. It may be amended for ternary or quaternary gradient eventually.

4.2.2.1 Connection

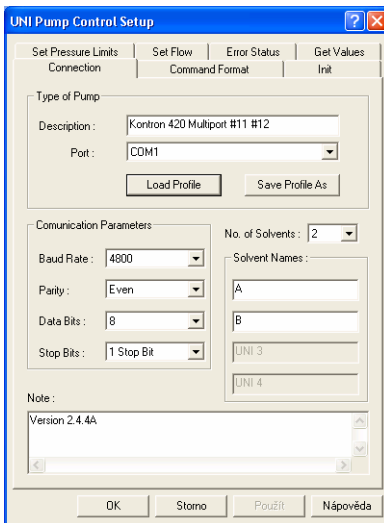


Fig. 9. Uni Pump Control Setup - Connection

4.2.2.2 Command format

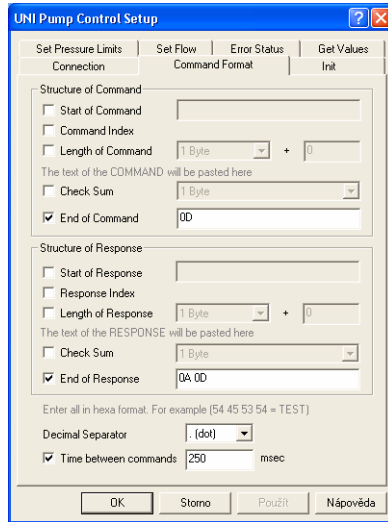


Fig. 10. Uni Pump Control Setup – Command Format

Those settings should ensure the <CR> are used to recognize end of each command and <LF><CR> end of each response.

4.2.2.3 Init

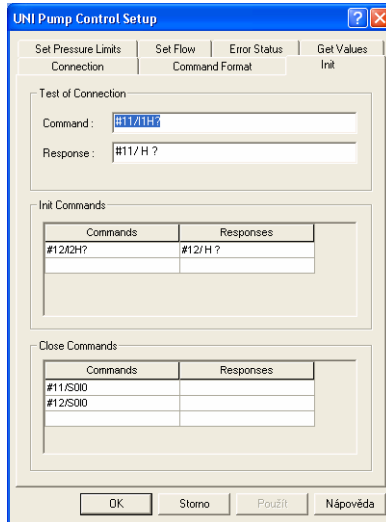


Fig. 11. Uni Pump Control Setup – Multiport - Init

The pump is set to the Remote mode as pump 1 by the I1 command, the H? request is used to verify the communication.

The second pump is initialized by the Init Commands.

The Close commands set the Stop (S0) and Manual mode (I0) for each pump.

4.2.2.4 Set pressure limits

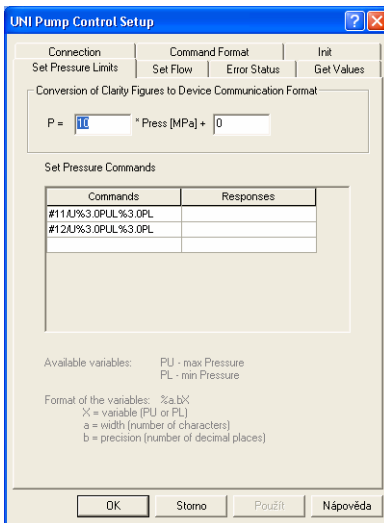


Fig. 12. UNI Pump Control Setup – Set Pressure Limits

The set pressure commands are sent at each actualization of the method. MPa are used as units internally, thus the conversion factors must be set. The command is sent to each pump.

4.2.2.5 Set Flow

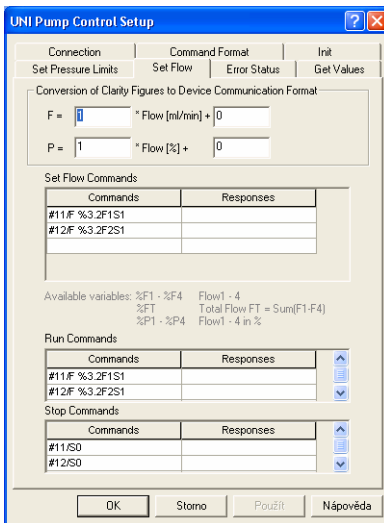


Fig. 13. UNI Pump Control Setup – Set Flow

The commands are sent for each pump.

4.2.2.6 Get Values

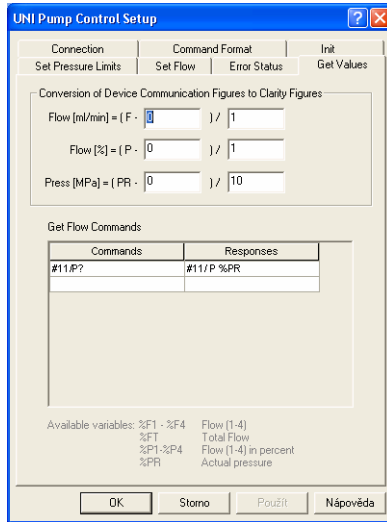


Fig. 14. Uni Pump Control Setup – Get Values

Only pressure can be read from the pump, there is no command for Flow. The send values will be displayed in the LC Monitor . The pressure is monitored on first pump only.

4.2.2.7 Error Status

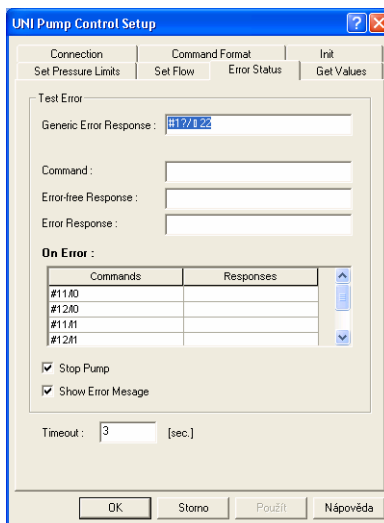


Fig. 15. Uni Pump Control Setup – Error Status

The High pressure limit error is detected (<NAK> 22). It will stop all pumps on the instrument. The On Error commands should reset the pump error state.

Note: *The <NAK> character (15 hexa) could not be entered directly, must be copied and pasted from another program.*

4.3 Kontron 422

4.3.1 Kontron 422 Profile description

The model 422 commands are essentially the same as for model 420. The significant differences are that the **Time** between comands must be set to min *200 msec* and **Flow rate** is send with *4* digits instead of *3*.

4.4 Kontron 32x

4.4.1 Kontron 32x Profile description

The UNI pump control module pages are described here for documentation of the state, see the Clarity UNI pump manual, chapter 4.4 for reference. The 32x profile has not yet been tested.

4.4.1.1 Connection

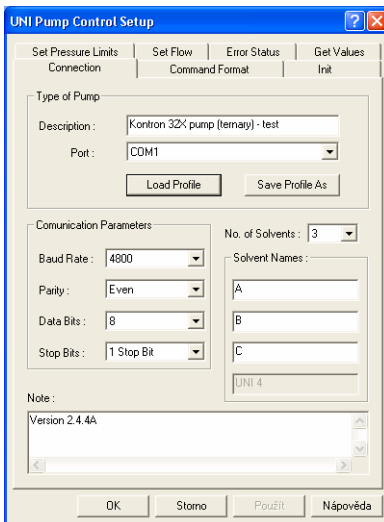


Fig. 16. *Uni Pump Control Setup – Connection*

4.4.1.2 Command format

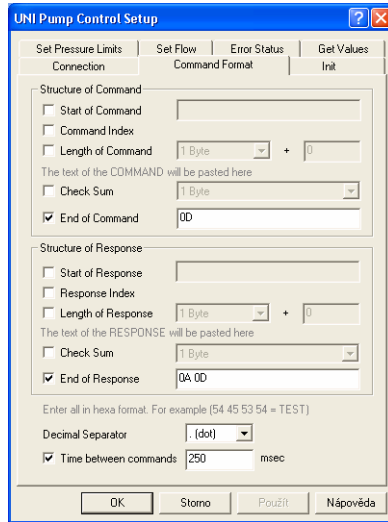


Fig. 17. UNI Pump Control Setup – Command Format

Those settings should ensure the <CR> are used to recognize end of each command and <LF><CR> end of each response.

4.4.1.3 Init

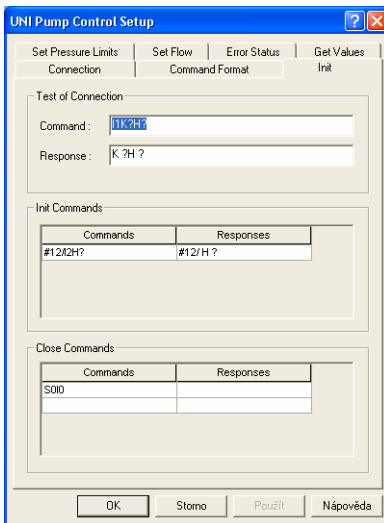


Fig. 18. UNI Pump Control Setup – Init

The pump is set to the Remote mode as pump 1 (A) by the I1 command, the K?H? request is used to verify the communication.

The Close commands set the Stop (S0) and Manual mode (I0).

4.4.1.4 Set pressure limits

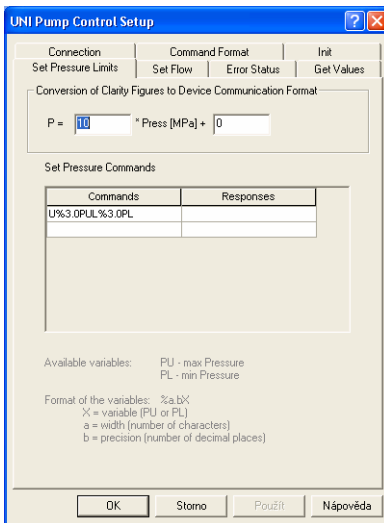


Fig. 19. UNI Pump Control Setup – Set Pressure Limits

The set pressure commands are send at each actualization of the method. MPa are used as units internally, thus the conversion factors must be set.

4.4.1.5 Set Flow

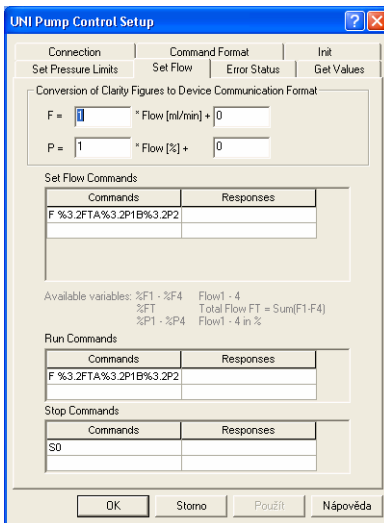


Fig. 20. UNI Pump Control Setup – Set Flow

4.4.1.6 Get Values

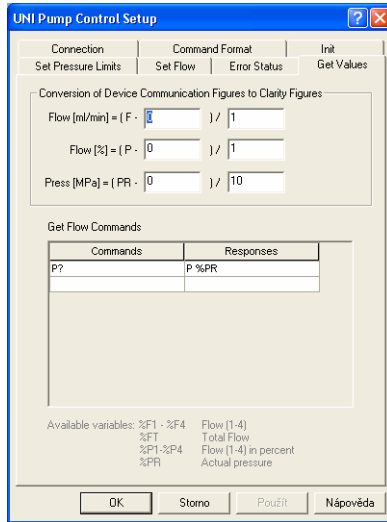


Fig. 21. UNI Pump Control Setup – Get Values

Only pressure can be read from the pump, there is no command for Flow. The send values will be displayed in the LC Monitor .

4.4.1.7 Error Status

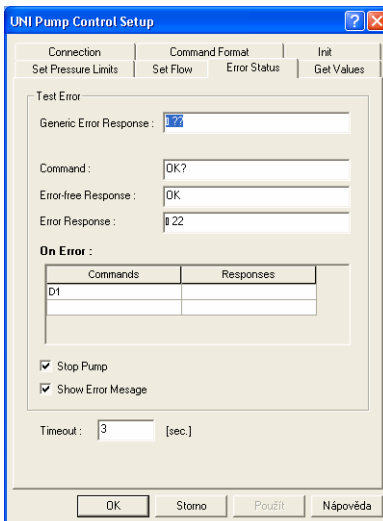


Fig. 22. UNI Pump Control Setup – Error Status

The High pressure limit error is detected (<NAK> 22). It will stop all pumps on the instrument. The D1 commands should reset the pump display error state.

Note: *The <NAK> character (15 hexa) could not be entered directly, must be copied and pasted from another program.*