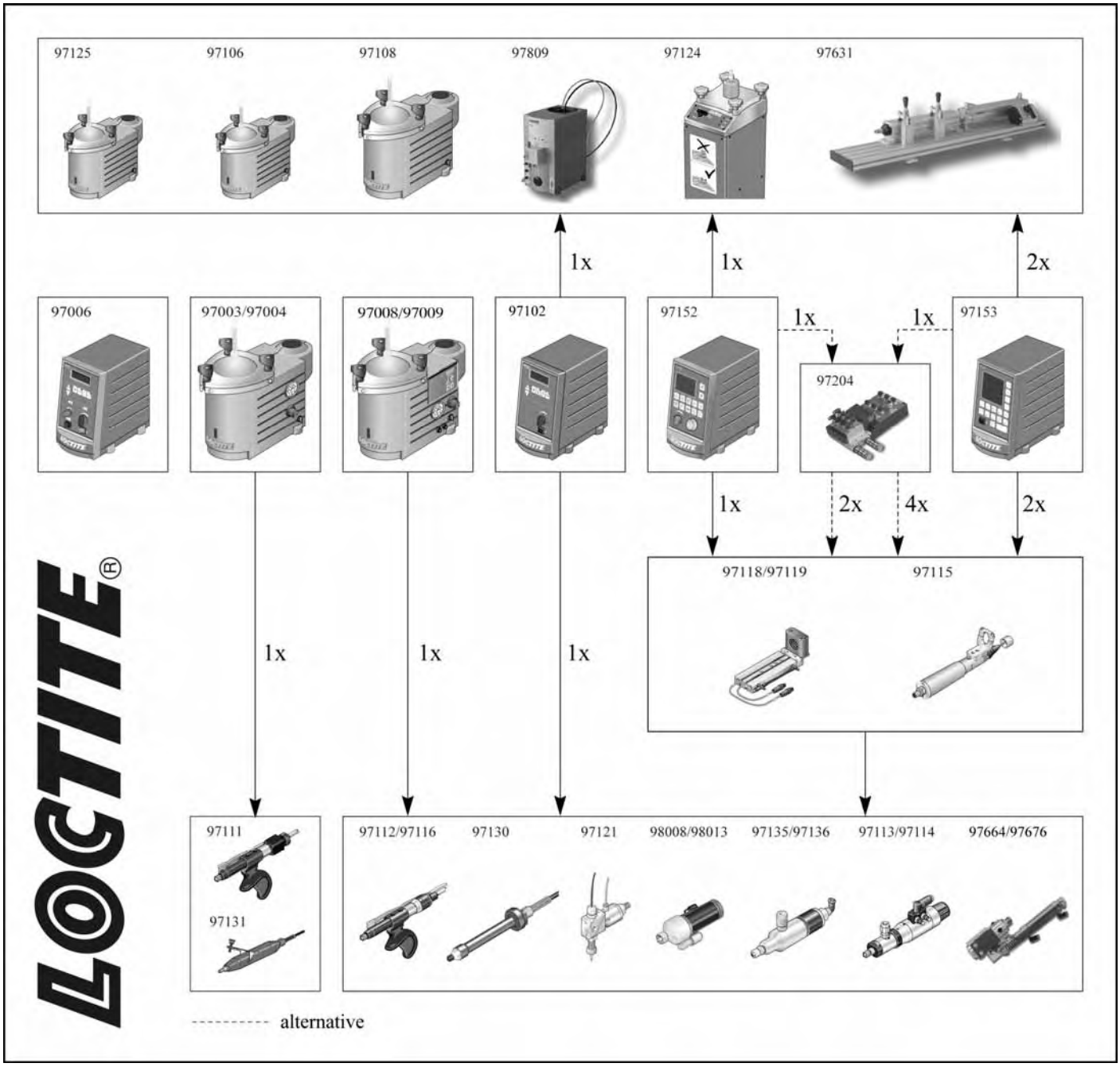
LOCTITE®

Operating Manual
Bedienungsanleitung

Universal-Steuergerät
Dual Channel Controller
97152

Henkel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97112/97116
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97113/97114
97664/97676
LOCTITE®
alternative

Contents

Contents

Contents

1 Please observe the following

Before installing the system: For safe and successful operation of the unit, read these instructions completely. If instructions are not observed, the manufacturer can assume no liability.

Be sure to keep the manual close at hand for further reference.

1.1 Emphasized sections

Danger!
Danger is the signal word used to indicate an imminently hazardous situation that, if not avoided, will result in death or severe injury.

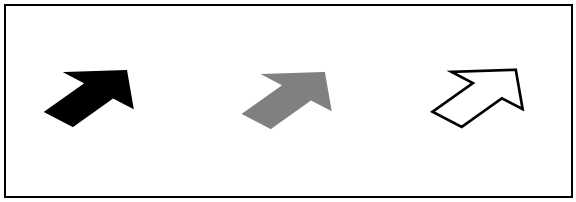
Caution!
Caution is the signal word used to indicate a potentially hazardous situation which, if not avoided, could result in moderate or minor injury.

Note!
Gives recommendations for better handling of the unit during operation or setup as well as during maintenance or service.

The numbers printed in bold in the text refer to the corresponding item numbers in the illustration on pages **10 – 16**

• The point emphasizes an instruction step.
– The dash emphasizes a list.
On-screen displays are shown in *italics*.
Keyboard key names are shown in ***bold italics***.

Instruction steps in the illustrations are indicated with arrows.



1.2 Items supplied

– Dual Channel Controller 97152, Order no. 1275665
– Pneumatic hose, 2 m
– Power cord
– Operating Manual

Note!
As a result of technical development, the illustrations and descriptions in this operating manual may deviate in detail from the actual unit delivered.

1.3 Safety instructions

Please refer to the relevant Technical Data Sheet for the Loctite® adhesive to be processed. Download from www.equipment-loctite.com or request the Technical Data Sheet and the Safety Data Sheet (acc. to EU Directive 91/155/EU). Contact:

Henkel AG & Co. KGaA
+49 89 92 68 11 67 for the English language version of data sheets;
089-92 68 11 22 for the German language version of data sheets.

INSTRUCTIONS given in these data sheets must be followed scrupulously at all times!

1 Please observe the following

While under warranty, the unit may be repaired by an authorized Henkel service representative only.

Danger!
The manufacturer cannot be held responsible for damage or injury of any kind because of misuse or improper application or because of failure to observe safety instructions or warnings.

It is the responsibility of the user to ensure that all devices actuated by the controller are positioned in a safe manner.

Do not remove, by-pass or disable any safety device! This can result in damage to the unit and is therefore prohibited!

Always wear goggles when working with compressed air!

Disconnect power supply before opening the housing!

Check the power cord and the unit before each use. Damage to the power cord or the housing can result in contact with live electrical parts.
Replace a damaged power cord immediately.

1.4 Field of application (Intended Use)

The Dual Channel Controller **97152** is a versatile multi-functional controller for actuating 1 – 2 dispensing valves as well as appropriate peripheral equipment such as reservoir, advancing slides, rotor sprays, on-line flow monitors, etc.

The processes and the data for all channels are displayed clearly and concisely. Settings can be made intuitively via the keyboard and the user interface.

For easier adjustment of the on-line flow monitor, the measured values are graphically displayed.

The amount of product dispensed is controlled by the amount of pressure in the reservoir and the length of time the dispensing valve remains open, unless a volumetric dispensing system is used.

The controller can be integrated into fully automated assembly line operations by means of the integrated PLC interface. Therefore the primary controller is liberated from additional, time-critical tasks related to dispensing control and monitoring. It is possible to query data records via a PC interface for documentation, maintenance or quality assurance.

The controller is equipped with an integrated pneumatic solenoid valve module. Connecting an external module is also an option.

2 Description

2.1 Theory of operation

The Loctite® Dual Channel Controller **97152** utilizes the latest microprocessor technology to create a user-friendly control system for workstations in manufacturing environments.

The controller is made up of a micro-controller core, a user interface keypad and graphic LCD display.

A solenoid valve module and a precision pressure regulator are integrated into the unit; an external solenoid valve module may be connected as an additional option.

Multipole interfaces allow easy connection to peripheral devices (valves, reservoirs, dispense and flow monitors or PLC).

The keypad allows the user to easily change dispense time, pressure, and mode of operation settings. All adjustments and the system status overview are displayed on the screen.

The program of controller 97153 provides various selection directories for controlling peripheral units to implement a multi-functional dispensing system. For activation of the required peripheral units, the relevant settings of system and channel menus are activated one after the other on the digital display. Any peripheral unit that is not required must be deactivated (Off).

The system controls only the activated peripheral units, even if additional deactivated units are installed. This allows different component combinations to be selected from among the dispensing system components connected, as appropriate for the specific dispensing task.

Up to 4 different dispense applications with different dispense parameters can be set and stored. These applications, as stored for a maximum of 4 different parts, can be actuated via the keyboard or through the primary controller. No adjustments to product pressure in the reservoir can then be made, or must be made manually.

For statistic process control, the data provided by the on-line flow monitor can be transmitted from each channel via a standard serial interface.

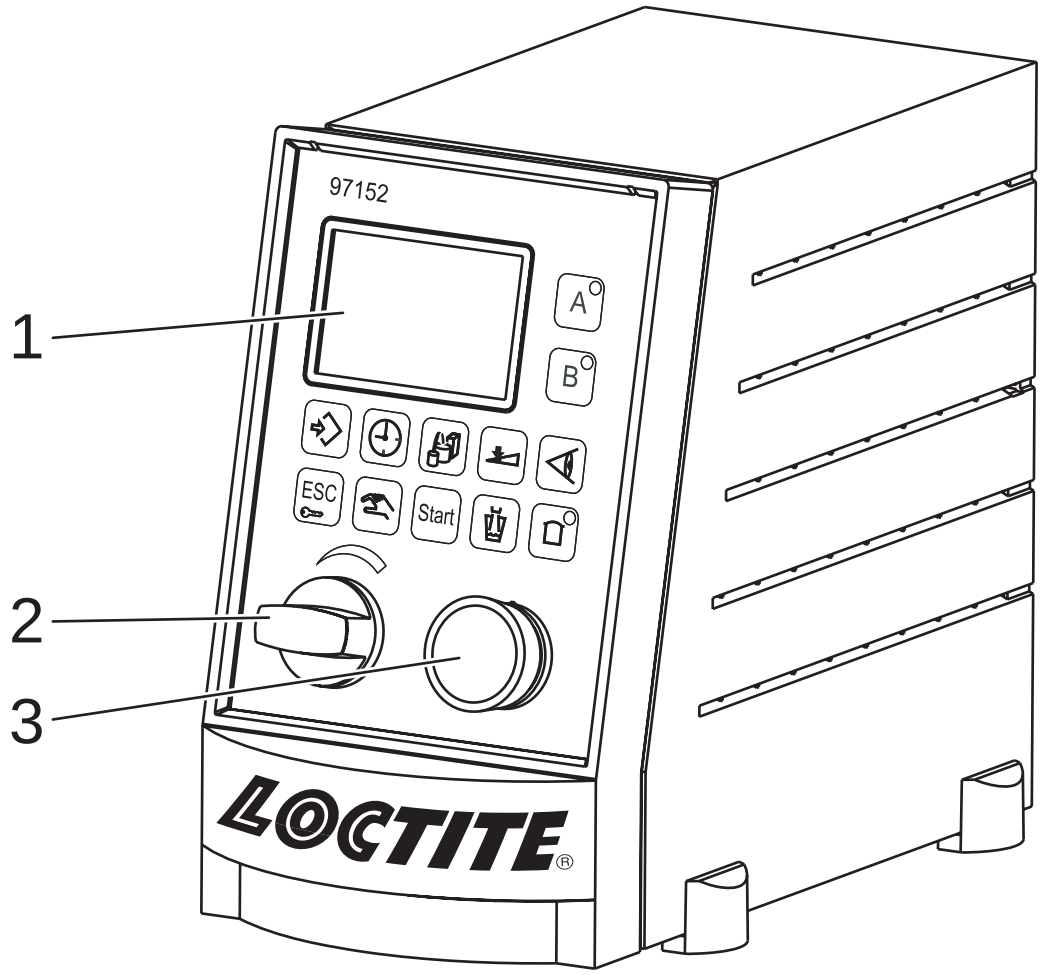
Optional peripherals are:
– 1 DC servo motor (mainly for dispensing pumps),
– 1 external solenoid valve module 97204,
– up to 2 dispense valves
– up to 2 advancing slides with a pair of end position switches each
– up to 2 electric rotosprays,
– a product reservoir with low level and empty sensors,
– 2 external sensors for on-part detection of product,
– 2 preamplifiers for on-line flow monitoring.

For operation in line manufacturing or other automated workplace environments, the following messages can be analyzed by a higher ranking controller:
– the **Ready** signal,
– the **Refill** and **Empty** signals from the product reservoir
– as well as all other **Fault** signals as a collective signal.

The individual steps of the automatic dispense cycle can be controlled via the MANUAL OPERATION menu.

Caution!
All adjustment and setup operations in the PERIPHERALS main menu and in the MANUAL OPERATION menu must be performed by trained and authorized personnel only!

2.2 Displays, operating elements and connections



1 Display

Displays all information required for setup, status, etc., see section 2.3

2 Precision pressure regulator

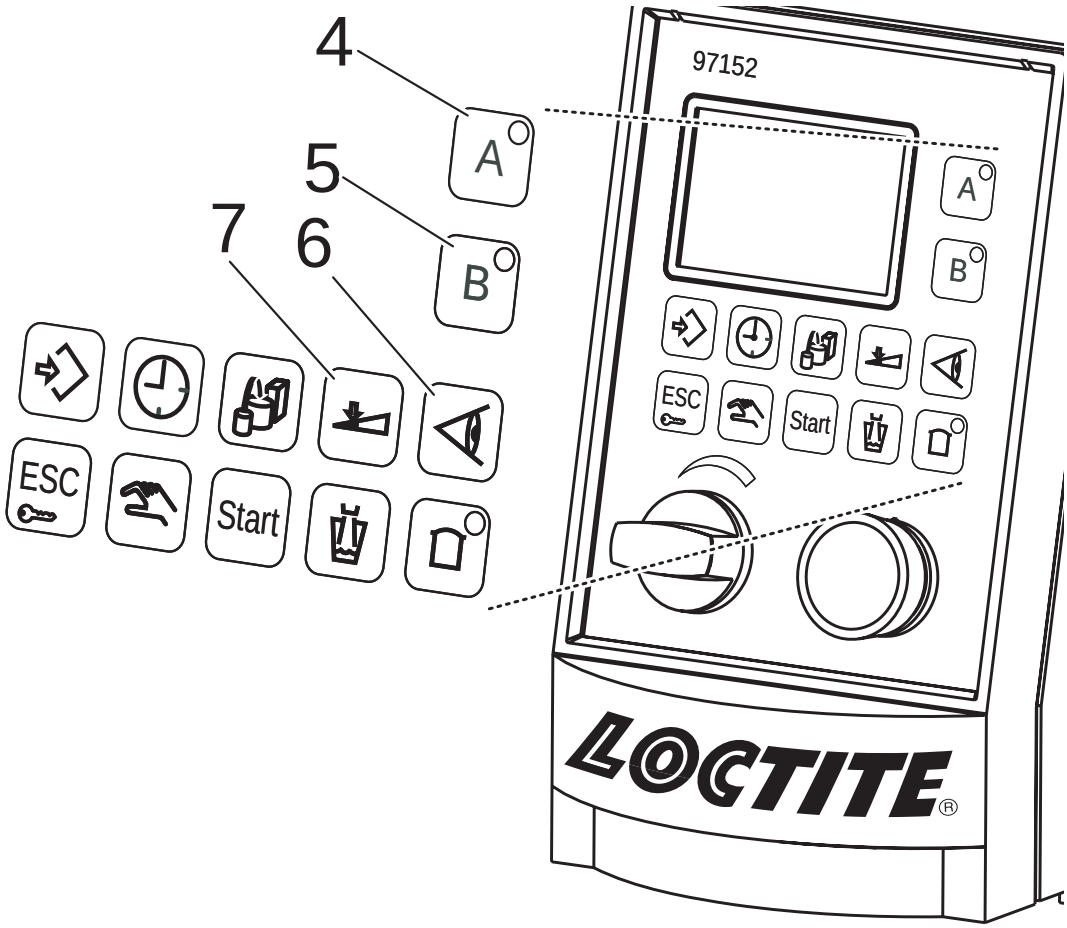
Precision pressure regulator to regulate reservoir pressure.
Turn the regulator knob to adjust the dispense pressure within a range from 0.00 bar to 700 bar (0 to 100 PSI).
If error message "*12 Supply?* " is displayed with a beep, the reservoir is either empty or has been switched off.
If "-!-" is blinking and pressure is indicated with a beep, the dispense pressure setting was changed by more than ± 10 %.
Press key **10** ***Enter*** to store the indicated dispense pressure as new comparison value for automatic pressure monitoring. If no new dispense pressure is to be set, the old dispense pressure setting must be restored. In both cases the error message and the beep will disappear.

3 Selector / Confirm button

Turn the button to move from one menu option to the other or make settings such as dispense time, start of flow monitoring, etc.
Push the button to confirm or store these settings.

It is recommended to press key **10** ***Enter*** to store the settings, as accidental turning of the button may cause a change in the setting, so that the wrong value would be stored.

2 Description



4 **Key: *Channel A***

5 **Key: *Channel B***

– To select the channel for further adjustments.

– In the setup menus, these keys are used to switch the relevant options on or off.

6 **Key: *Monitoring***

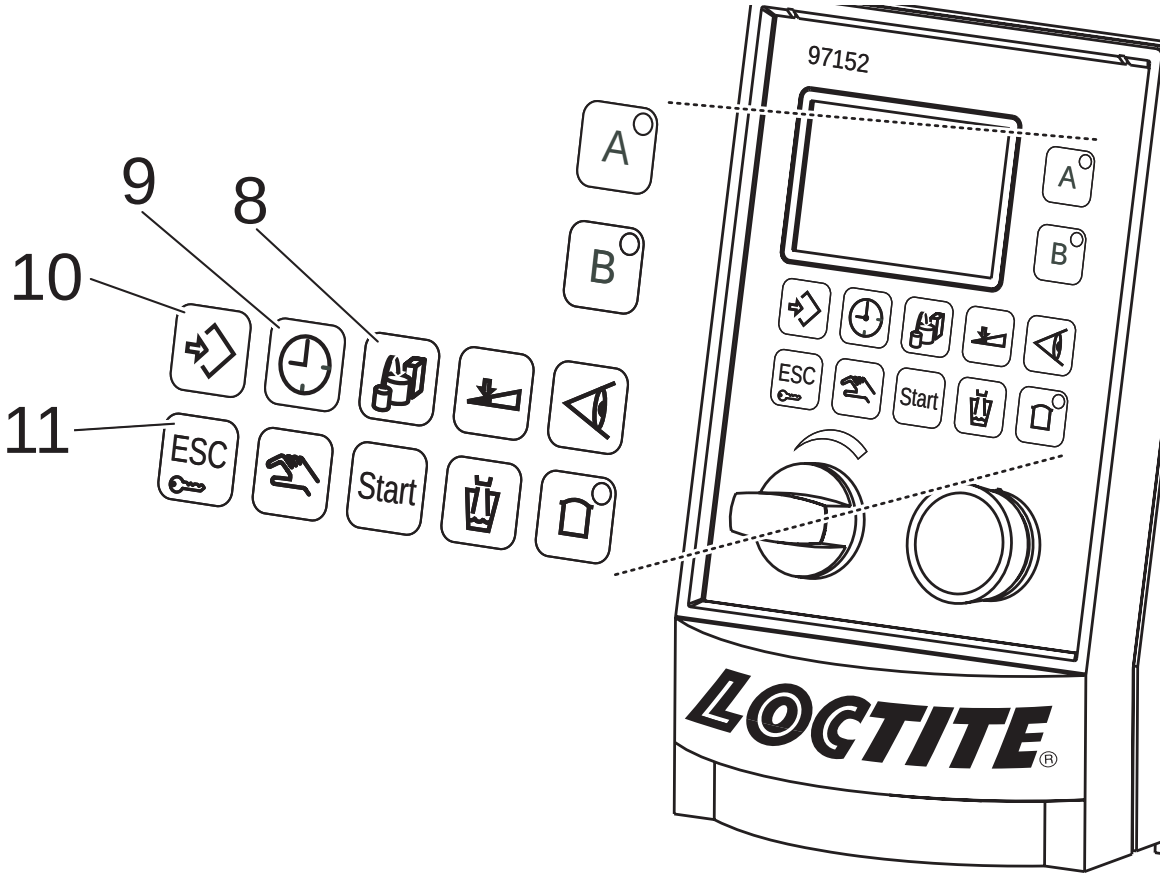
Without preselection of a channel, the online monitoring On/Off menu is displayed.

With preselected channel, the online monitoring Setup menu is displayed. All necessary adjustments can be made in the menu, such as adjustment of the required tolerance, evaluation limits, etc.

7 **Key: *Adjustment***

With preselected channel, the channel menu is displayed.
This key is used for setup of a **basic configuration** of the selected **channel**, e. g.
– activation of advancing slides, rotor sprays, online monitoring, continuous mode.
If the menu is activated without preselecting a channel, Channel A will be automatically switched to active mode.

2 Description



8 **Key: *Preselection of stored dispense programs***

For manual selection of stored dispense applications. The display shows the selected application in the 3rd line, indicated as letters (a-d) in square brackets.

9 **Key: *Time***

With preselected channel, the value setup menu is displayed.

– For adjusting dispense, pre-delay and post-delay times.

If this key is pressed without preselecting a channel, Channel A will be automatically switched to active mode.

10 **Key: *Enter***

– For storing a setting.

– For resetting error messages. This function has priority when error messages are displayed.

11 **Key: *ESC / Lock***

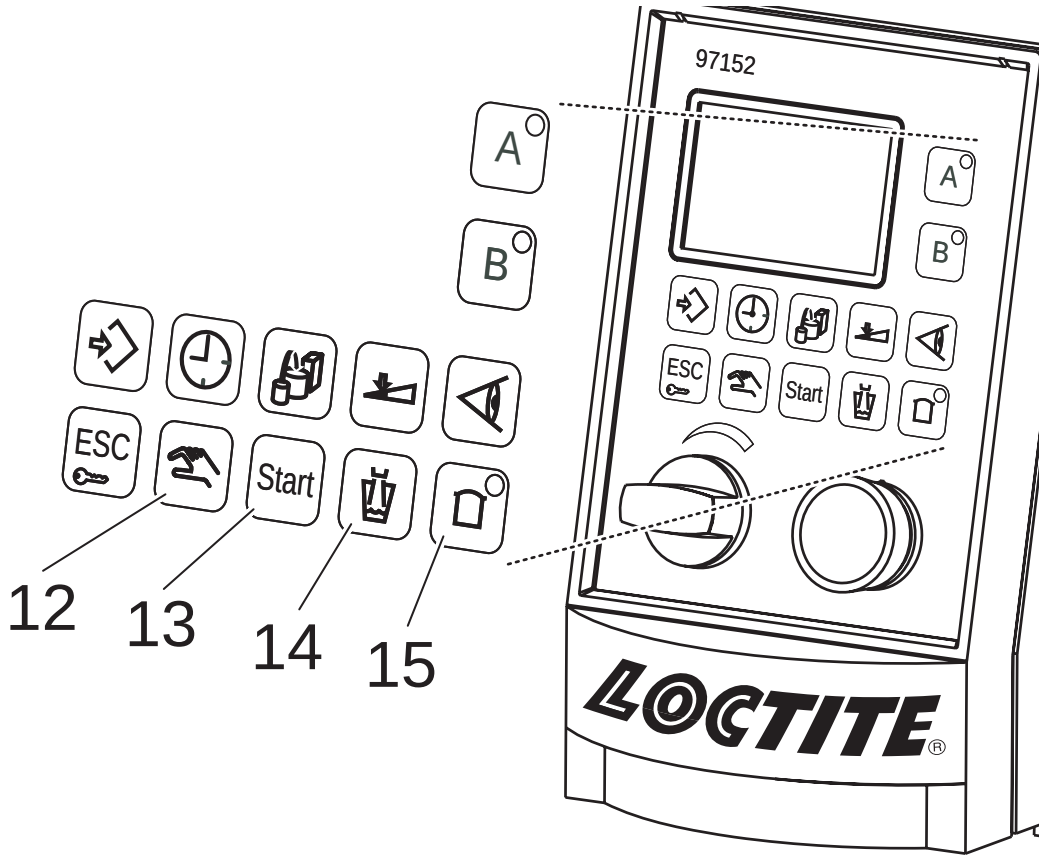
– For leaving submenus without storing the values.

– For aborting input of values without storing.

– In the *Operation* display view, the system can be locked/unlocked by keeping the key depressed for more than 2 s.

This prevents unauthorized access. A PIN must be entered for activation or deactivation.

2 Description



12 **Key: *Setup*** and ***Manual mode***

Without preselected channel, for the following settings:
– Language setting,
– Channel setting,
– Factory settings,
– Setup of dispense program change, and
– Checking of input and output signals.

With preselected channel, the adjustments for setup mode can be made, such as dispensing valve On or Off.

> **!** **Caution!**
> All adjustment and setup operations in the MANUAL OPERATION directory must be performed by authorized personnel only!

13 **Key: *Start***

After channel preselection a complete dispense cycle can be started, e. g. in manual mode. Without channel preselection, Channel A is automatically switched to active mode.

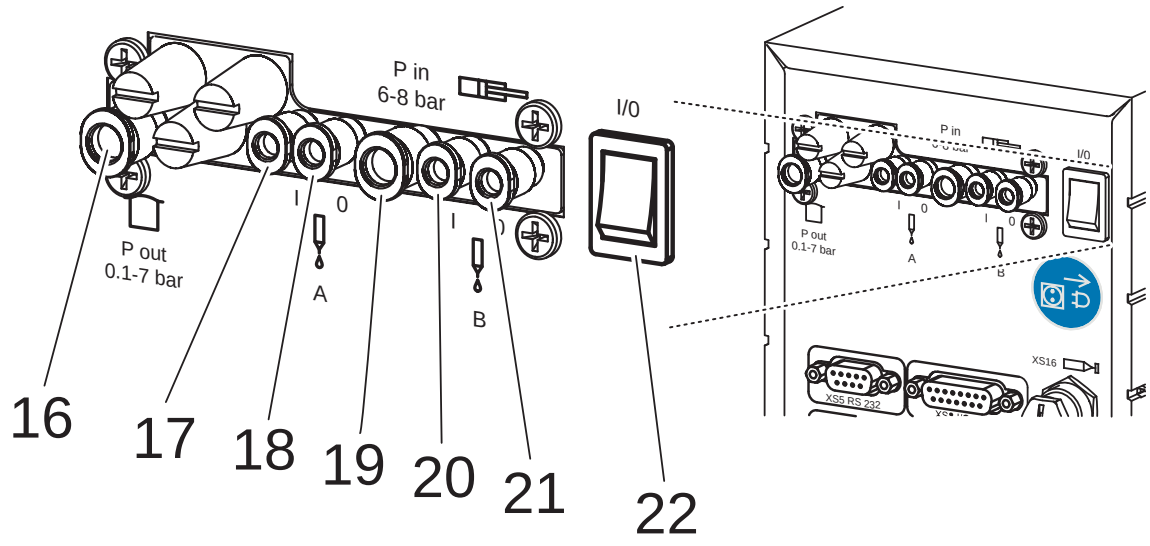
14 **Key: *Prime***

With preselected channel, is used for priming the feed line of the selected channel or opening the selected dispense valve as long as the key is depressed. This step proceeds independent of the adjusted dispense time. If this key is pressed without preselecting a channel, Channel A will be automatically switched to active mode.

15 **Key: *Reservoir***

Key for reservoir pressurization/depressurization. Reservoir pressurization/depressurization is actuated only as long as the key is depressed. The reservoir will be depressurized automatically after low level signaling. For pressurization, the hand lever valve on the product reservoir must be set to ON or Pressurize.

2 Description



16 **Pneumatic Connection Reservoir**

Regulated air pressure supply (0 - 7 bar, 0 – 100 PSI) to the reservoir, for air hose OD Ø 6 mm $^{+0.05}_{-0.10}$, ID Ø 4 mm.

17, 18 **Pneumatic Connection A** to a dispense valve

I = Dispense valve open.
O = Dispense valve closed.
Use port **I** for single actuated dispensing valve and close port **0** with plug, for air hose OD Ø 4 mm $^{+0.05}_{-0.10}$, ID Ø 2.5 mm.

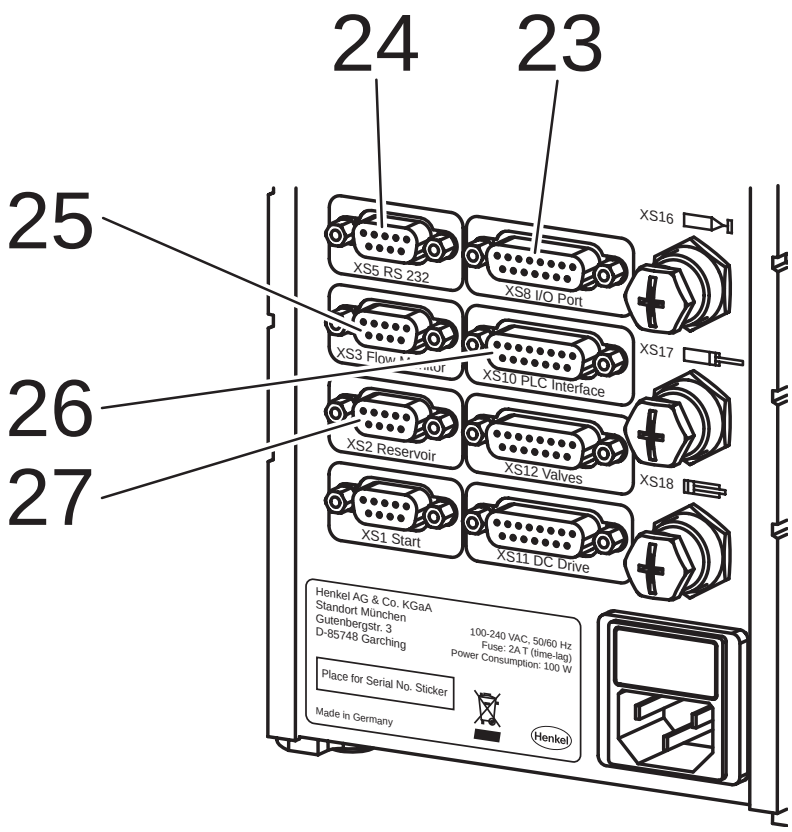
19 **Main air connector** 2 - 10 bar (30 PSI - 145 PSI) for air hose OD Ø 6 mm $^{+0.05}_{-0.10}$, ID Ø 4 mm

20, 21 **Pneumatic Connection B** to one dispense valve or one advancing slide

I = dispense valve open or advancing slide forward.
O = dispense valve closed or advancing slide backward.
Use port **I** for single actuated dispensing valve and close port **0** with plug, for air hose OD Ø 4 mm $^{+0.05}_{-0.10}$, ID Ø 2.5 mm.

22 **I/O switch**

The power switch is used to switch the unit on and off.



23 **Connection XS 8 I/O Port**

Connection option for additional peripheral units.
One input and one output for each channel, additionally two high-speed outputs, see section 7.2.5 "XS 8 I/O Port".

24 **Connection XS 5 RS232**

Serial interface for connection of a programmable logic controller (PLC) or a PC for data readout or for firmware updating.

Connect via 9 pin Sub D cable (1:1). Only pins 2, 3 and 5 must be assigned. Observe the serial interface protocol.
9600 baud/1stop bit/no parity/8 data bits.

25 **Connection XS 3 Dispense monitor**

Connector for a Pre-Amplifier **97211**, for flow monitoring on channel A. A second pre-amplifier for channel B can be connected with splitter cable **97529**.

Calorimetric dispense monitoring requires only one Pre-Amplifier **97512**. Unlike pressure based monitoring systems, this pre-amplifier can be used for monitoring 2 dispense valves.

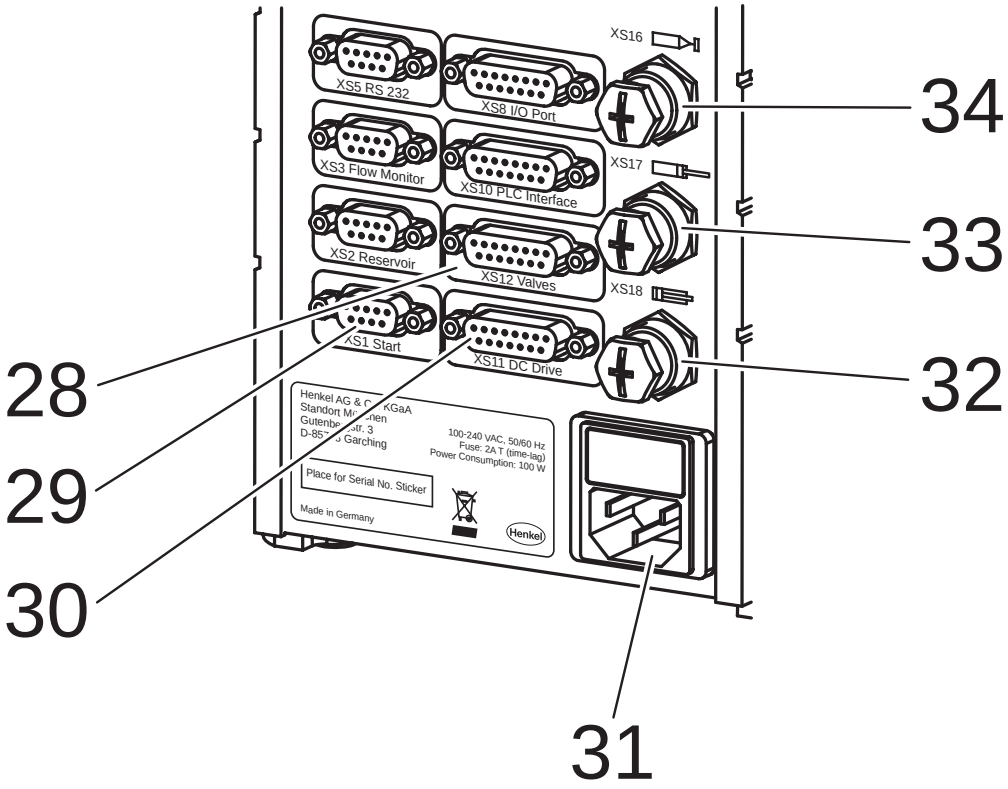
26 **Connection XS 10 PLC**

Parallel interface for connection of a programmable logic controller.

Per dispense channel, two output signals each are available for “Ready” and “Error”, and two input signals for “Start” and “Reset”; additional signals for “Refill” and “Empty” provided from product supply (reservoir).

27 **Connection XS 2 Product reservoir**

Is used to connect the product reservoir. Only one reservoir can be actuated.



28 **Connection XS 12 External solenoid valve module**
Use to connect the 15 pin connection cord to the optional external solenoid valve module **97204**.

29 **Connection XS 1 Start**
Use to connect foot switch **97201**.
Two Start inputs each for channels A and B via special start splitter cable 97203.

30 **Connection XS 10 DC Drives**
Use to connect a DC motor with drive box.

31 **Power Connection** 100 - 240 VAC, 50/60 Hz with glass tube miniature fuse 2A semi time-lag, 5 x 20 mm

32 **Connection XS 18: Cylinder in top position**
Is used to connect the electric end position switch (for pin assignment see section 7.2.10).

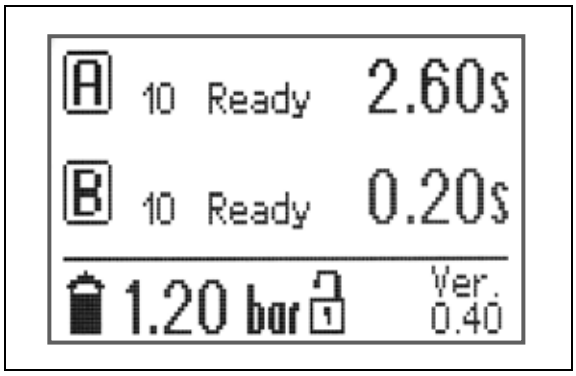
33 **Connection XS 17: Cylinder in bottom position**
Is used to connect the electric end position switch (for pin assignment see section 7.2.10).

34 **Connection XS 16: Rotor**
Is used to connect the rotor (for pin assignment see section 7.2.9).

2.3 Start display - Overview

2.3.1 Display overview

This display is an overview of the most important parameters of all active channels. The factory default setting for Channel A is always in active mode. The display also shows the status of product supply if a reservoir has been connected.



2 lines of information about the channels (channel status) are displayed.

– The capital letter in the frame indicates the dispense channel,
– Program step of the channel as a figure. Used as reference for fault tracing in the program sequence – see section 2.3.2,
– Status of the dispense channel as a memo (plain text) for the most important program steps, errors, etc.,
– Programmed dispense time in seconds.

Time runs down as dispense cycle proceeds. Time runs up in continuous mode.

The bottom line, from left to right, indicates
–reservoir fill level,
–product pressure in the reservoir,
–locked / unlocked status of controller,
–active dispense program (a-d), and
–the firmware version.

2.3.2 Status numbers of program steps

These program steps may also be used for error tracing and troubleshooting. In case of any questions it is very helpful for Henkel Service engineers to have these numbers for reference.

Status Number	Description of Program Step	Display message
9	Check if start signal is gone	
10	Wait for start signal	Ready
12	Product supply not OK	Supply?
14	Flush via the keyboard	Flush
20	Started, set times	
32	Wait for advancing slide	
42	Wait for signal "Rotor speed o. k."	
44	During pre-delay time	Pre time
52	During dispense time	Dispensing
62	During post-delay time	Post time
64	Wait for rotor run down time	
66	Wait for advancing slide in top position	
70	Dispensing completed, peripheral OK	Mess.
92	Emergency stop wait for reset	STOP
98	Error: Wait for reset signal	

2.4 Controller access function

This function is a safety feature to safeguard the system against unauthorized manipulation.

Enter a PIN as desired to prevent unauthorized users from configuring the controller, changing dispense applications, etc.
Enter number "2000" to unlock.

In locked condition, only the following functions can be accessed:
– On/off switching of product reservoir, i.e. reservoir pressurization/depressurization for replacing the bottle of product..
– Start via foot switch, or by external actuation of a dispense cycle, not by pressing key **13** ***Start***.
– Resetting of error messages.

2.5 Modes of operation

2.5.1 Time controlled mode

Use this mode for internal timing of dispensing and delay times.

Times are adjusted by the user and remain unchanged for longer periods.

Benefits

– Very high precision of dispense timing is achieved.
– Maximum measuring accuracy for flow monitoring is available without constraints.

2.5.2 Continuous mode

Used when different dispense times are necessary, e. g. for different dispense amounts on the parts, or for different parts.

Dispense times have to be provided by a higher ranking controller such as a plant PLC or a robot controller.

Benefit

– High flexibility by synchronization with robot systems.

Limitations

– Fluctuations in PLC runtime directly affect both the dispense time and the runtime of the connected advancing slides. Therefore, this mode is not recommended for options using internally controlled advancing slides.
– Flow monitoring is available for time independent operation only.

2.6 Menu types

Push the relevant keys to open a menu.

While the red ring on the Selector / Confirm button is illuminated, the button can be turned or pressed to
– change settings such as dispense time,
– scroll within a menu, but also to
– store the selected value.

Within the On/Off menu, the channel keys for dispense channels A and B are defined as switches.

Within the channel setup menu, the channel keys for dispense channels A and B are assigned as scroll keys, as the button is required for setup of time values. Channel key A scrolls upward, channel key B downward.

In case of a wrong input, abort the procedure by pushing key ESC/Lock and start again.

2.6.1 On / Off menus

This description applies to the following menus:
– "Dispense channel setup" **with** preselection of the dispense channel
– "Dispense channel setup" **without** preselection of the dispense channel
– "Online Flow Monitor" **without** preselection of the dispense channel (for reference dispensing cycles)
– "Setup mode" **with** preselection of the dispense channel

2.6.2 Selection menus

This description applies to the following menus:
– "Preselection of stored dispense programs"
– "System setup"

2.6.3 Value setup menus

This description applies to the following menus:
– "Online Flow Monitor" **with** preselection of the dispense channel
– "Dispense, pre-delay and post-delay times, DC motor speed" **with** preselection of dispense channels A or B.
– "Dispense, pre-delay and post-delay times, DC motor speed" **without** preselection of dispense channels, channel A automatically selected

2.7 Peripheral connection options using valve modules

Various dispense valves and accessories can be connected to the controller. They all require a pneumatic and/or electrical connection. For this purpose, pneumatic (internal valve module) and electrical connections are provided on the rear panel of the unit. Whenever an external solenoid valve module is used, all required dispense system components are connected to this module. It is **not possible** to **control** components connected both to the **internal and** the **external** valve module.

2.7.1 Integrated pneumatic solenoid valve module: 1 dispense channel

All components are connected to the connectors of dispense channel A and actuated in the dispense channel A system menu.
The Flow Monitor is connected to connection XS 3, the product reservoir is connected to connection XS 2.

Connectable components	LOCTITE designations
1 dispense valve with double acting actuator (for dispense valves with single acting actuator, close port 0 with blind plug).	– Diaphragm Valve 97135 or 97136 – Stationary Applicator Valve 97113 or 97114 – Cyanoacrylate Dispense Valve 97134 or 98013 – Light Cure Dispense Valve 98009
1 double acting advancing slide	– Advance Slide 97118 or 97119
1 electric rotor unit	– Rotospray 97115 or 97144
1 Dispense flow monitor	– Pressure based On-line Pre-amplifier 97211and dispense valve with pressure sensor, or – Calorimetric Pre-amplifier 97512 with dispense valve 97830
1 DC motor	– Eccentric Rotor Pumps 97660, 97663, 97665 or 97669
1 Product reservoir	– 0.5 l product reservoir 97125 or 97106 – 2 l product reservoir 97108 – Supply Pump 97809 – 2 l Bag Dispenser 97124

2.7.2 Integrated pneumatic solenoid valve module: 2 dispense channels without advancing slide

All components are connected to the connectors of dispense channel A and actuated in the dispense channel A system menu. In this configuration, the advancing slide connectors are used for the 2nd dispense valve. Therefore, no advancing slide can be connected. The second dispense valve with its flow monitor is actuated in the dispense channel B system menu. Flow monitors are connected to connection XS 3, the product reservoir is connected to connection XS 2.

Connectable components	LOCTITE designations
2 dispense valves with double acting actuator (for dispense valves with single acting actuator, close port 0 with blind plug).	– Diaphragm Valve 97135 or 97136 – Stationary Applicator Valve 97113 or 97114 – Cyanoacrylate Dispense Valve 97134 or 98013 – Light Cure Dispense Valve 98009
1 electric rotor unit	– Rotospray 97115 or 97144
2 Flow monitors	– Pressure based On-line Pre-amplifier 97211and dispense valve with pressure sensor for each dispense channel (splitter cable 97529 required) , or – Calorimetric Pre-amplifier 97512 with dispense valve 97830
1 DC motor	– Eccentric Rotor Pumps 97660, 97663, 97665 or 97669
1 Product reservoir	– 0.5 l product reservoir 97125 or 97106 – 2 l product reservoir 97108 – Supply Pump 97809 – 2 l Bag Dispenser 97124

2.7.3 External pneumatic/electric solenoid valve module: 2 dispense channels

All components must be connected to the external solenoid valve module. Connecting components to a mixed configuration of internal and external valve modules is not possible.

Flow monitors are connected to connection XS 3. Use splitter cable 97529 for connecting two pressure based on-line preamplifiers.

The product reservoir is connected to connection XS 2.

Dispense channels A/B, each

Connectable components	LOCTITE designations
1 dispense valve with double acting actuator (for dispense valves with single acting actuator, close port 0 with blind plug).	– Diaphragm Valve 97135 or 97136 – Stationary Applicator Valve 97113 or 97114 – Cyanoacrylate Dispense Valve 97134 or 98013 – Light Cure Dispense Valve 98009
1 double acting advancing slide	– Advance Slide 97118 or 97119
1 electric rotor unit	– Rotospray 97115 or 97144
1 Flow monitor	– Pressure based On-line Pre-amplifier 97211and dispense valve with pressure sensor, or – Calorimetric Pre-amplifier 97512 with dispense valve 97830
1 DC motor	– Eccentric Rotor Pumps 97660, 97663, 97665 or 97669

For both dispense channels

Connectable components	LOCTITE designations
1 Product reservoir	– 0.5 l product reservoir 97125 or 97106 – 2 l product reservoir 97108 – Supply Pump 97809 – 2 l Bag Dispenser 97124

Both dispense valves must be supplied from one product reservoir as the controller will handle only one reservoir low level sensing function. Whenever supplying a second dispense valve from the reservoir, replace the reservoir lid with a lid with 4-way splitter 8953094 for the 0.5 l reservoir. Use 4-way splitter 8953095 for the 2l reservoir.

2.8 Factory settings

Factory settings for both dispense channels

Advancing slide ..... Off
Rotor ..... Off
Flow monitor ..... Off
DC motor ..... Off
Continuous mode ..... Off
Common start ..... Off
Dispense time ..... 0.20 s
Pre-delay time ..... 0 s
Post-delay time ..... 0 s
Flow monitor ..... Off
Tolerance 50%
Dispense measurement start point 20
Dispense measurement stop point 100
Measurement factor 1
Flow monitor reference measurement ..... Off

Additional factory settings for dispense channel A

DC motor speed 10%

System setup

Controller unlocked ..... Yes
Language ..... English
Valve module configuration ..... 2 channel internal V
Changeover stored dispense programs ..... Off

Additional factory settings

Reservoir pressure when unit is switched on ..... On (cannot be changed)
Stored reference reservoir pressure ..... 0 bar

3 Technical Data

3.1 Electrics

Power supply	100-240 VAC; 50/60 Hz
Power consumption	approx. 60 W
Power fuse	Glass tube miniature fuse, 2A semi time-lag
Internal control voltages	5 VDC; 24 VDC
Protection	IP 33 acc. to VDE 0470, Part 1 / EN 60529-1991

3.2 Pneumatics

Pneumatic supply	min. 2 bar; max. 10 bar Observe technical data specified for the dispense valve!
Quality If the required quality is not achieved, install a Loctite® 97120 filter regulator.	filtered 10 µm, oil-free, non-condensing Order No. 88649
Adjustment range of the pressure regulator	0.1 – 7.00 bar
Pressure indication	0.1 – 7.00 bar
Pressure range of optional external solenoid valve module 97204	2.5 – 8 bar
Pneumatic hose size, P in	ID Ø 4 mm ; OD Ø 6 mm $^{+0.05}_{-0.10}$
Pneumatic hose size, to connect reservoir	ID Ø 4 mm; OD Ø 6 mm $^{+0.05}_{-0.10}$ OD Ø ¼ inch (6.3 mm) not suitable!
Pneumatic hose size, to connect dispense valves	ID Ø 2.5 mm ; OD Ø 4 mm $^{+0.05}_{-0.10}$
Pneumatic hose size, to connect advancing slides	ID Ø 2.5mm; OD Ø 4 mm $^{+0.05}_{-0.10}$

3.3 Dimensions and other data

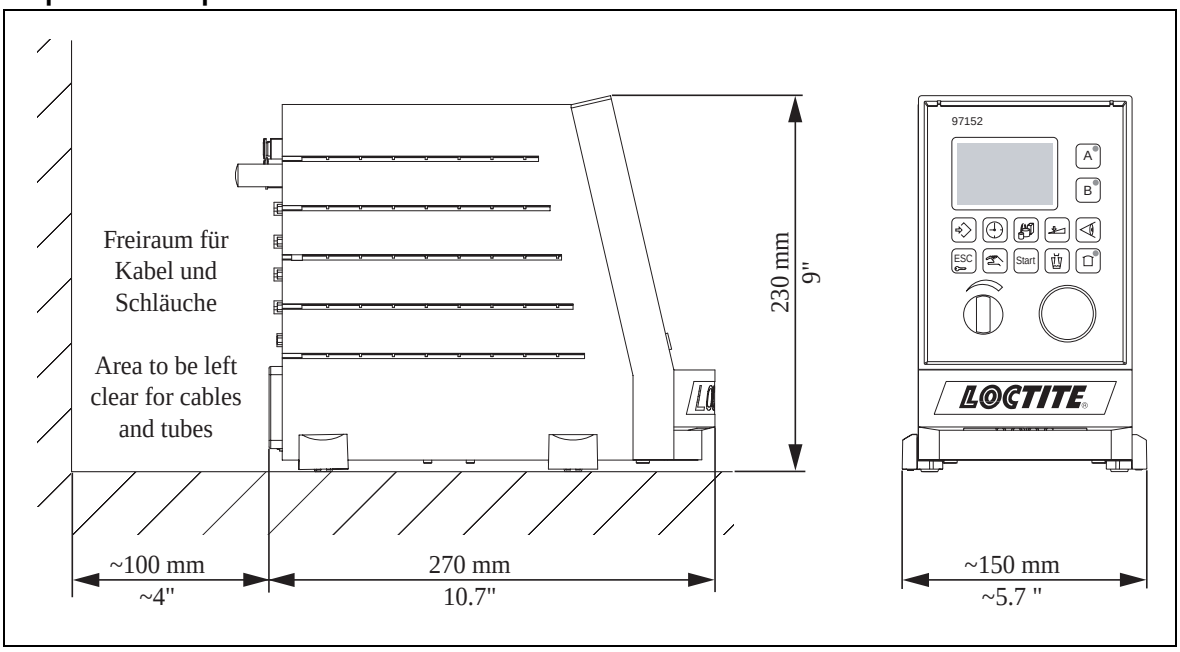
Dimensions W x H x D:	150 x 230 x 270 mm
Operating temperature	+10 °C to +40 °C
Storage temperature	-10 °C to +60 °C
Weight	3.0 kg

4 Installation

4.1 Environmental and operating conditions

– Keep product feed lines as short as possible. The shorter the feed line, the smaller the specific resistance and the lower the required dispense pressure.
– Avoid kinking of feed lines.
– Typically, the feed line should be no longer than 2 m.
– Carefully tighten all fittings.
– Avoid exposure to direct sunlight and UV radiation!
– Avoid condensing humidity.
– Avoid splash water.
– For indoor use only. Not intended for use in potentially explosive areas.

4.2 Space requirements



4.3 Connecting the unit

- Connect power cord to the power supply.
- Connect pneumatic hose to compressed air supply **19**.

4.4 Startup

- Switch the power switch **22** to position I.

4.5 Shutdown

- Switch the power switch **22** to position **O**.
- Disconnect power cord from line voltage.
- Switch off external pneumatic supply.

5 Operation

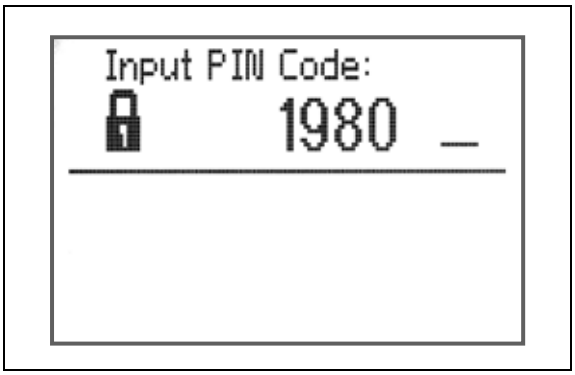
5.1 Lock/unlock controller

This function is a safety feature to safeguard the system against unauthorized manipulation, refer also to section 2.4.

Lock

- Keep ESC/Lock key 11 depressed for more than 3 s.
- Turn the button to select a number which is not the number "2000".
- To store the setting, press key **10** ***Enter*** or push the button.

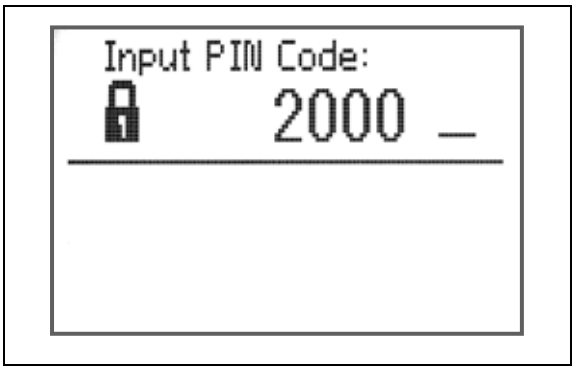
The controller is locked.



Unlock

- Keep ***ESC/Lock*** key **11** depressed for more than 3 s.
- Turn the button to select the number "2000".
- Press key **10** ***Enter*** to store the setting.

The controller is unlocked.



5.2 Programming procedure

The following steps describing how to proceed to program the controller for a dispensing application are provided for guidance. However, you should clarify beforehand what the application looks like and what peripherals are to be used or connected. Please contact Henkel Technical Service in Munich for further assistance.

Adjust settings only where needed. To allow you to execute the individual steps, they are cross-referenced to the relevant sections in the Operating Manual. The sequence of steps should be followed. Each programming step must be confirmed and saved by pushing key **10** ***Enter***.

5.2.1 System Setup

To allow you to execute these steps, the controller must be in unlocked condition. Section 5.1.2 describes how to unlock the controller.

- Press key **7** ***Setup*** and select menu option *Language selection*,
- Turn button to scroll to menu option
  - *Valves and channels*, next select
  - *Factory settings*, next select
  - *Dispense program preselection*, next select
  - *Input/Output status.*

For further procedure within the menu refer to section 5.3

5.2.2 Dispense channel configuration

The key for Channel A is quoted only as an example. Push the key of the channel for which you have to make the adjustments.

- First press key **4** ***Channel A***, then key **7** ***Setup***.
  - –For adjustments in menu option *Advancing Slide*, proceed as described in section 5.4
  - –For adjustments in menu option *Rotospray*, proceed as described in section 5.4
  - –For adjustments in menu option *Flow monitor*, proceed as described in sections 5.4 and 5.7.
  - –For adjustments in menu option *DC motor*, proceed as described in sections 5.4 and 5.6.
  - –For adjustments in menu option *Continuous mode (externally actuated dispense time)*, proceed as described in section 5.4
  - –For adjustments in menu option *Common start*, proceed as described in section 5.4

5.2.3 Setup mode

- First press key **4** ***Channel A***, then key **7** ***Manual mode***, for further procedure see section 5.5.

5.2.4 Timing setup

- First press key **4** ***Channel A***, then key **9** ***Time***.
  - –Set the dispense time,
  - –Set predelay and postdelay times only if you require them, e. g. when operating an advancing slide or a rotor unit.
  - –Percentage speed of a connected DC motor,

  for further procedure see section 5.6

5.2.5 Further adjustments

- Adjust dispense pressure for connected product reservoir.

The amount of product dispensed is determined by several factors including the following:
- – Amount of pressure in the reservoir
- – Length of time the dispensing valve remains open.

Required information is described in section 5.8.

5.2.6 Checking of setup

- First press key **4** ***Channel A***, or key **5** ***Channel B***, then key **13** ***Start*** to start a dispense cycle.

> **!** **Caution!**
> If a reservoir pressure has been set for the product supply unit, product will flow from the connected dispense valves!
> Furthermore, the advancing slides connected to the system will move to dispensing position.
> Be sure to take appropriate safeguarding action!

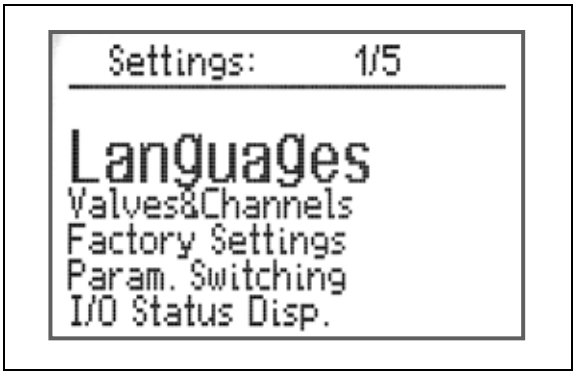
- Actuate a connected foot switch to trigger a dispense cycle start and check if adjustments are correct.
- If a primary controller (PLC) is connected, trigger a dispense cycle start to check setup and signal exchange.

5.3 Menu "System setup"

The first step is to preconfigure the controller. For this purpose, the controller must be unlocked.

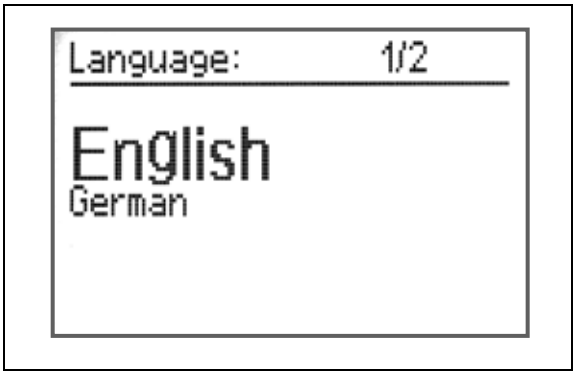
This menu is activated by pressing the key  .

This is the menu for general setup of the dispensing system.
Turn the button to select the desired entry which will be displayed in large letters, and confirm by pressing key **10 *Enter***.
Confirm any adjustments to settings by pressing key **10 *Enter***.
Press key **11 *ESC/Lock*** to leave the menu.



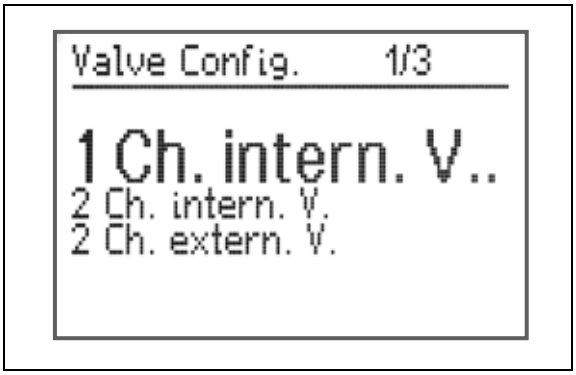
5.3.1 Language

Currently only English and German available.



5.3.2 Valves and channels:

This is the option for selecting the dispense channels and valve modules to be used.
– 1 dispense channel (A), using the integrated valve module.
– 2 dispense channels (A and B), using the integrated valve module.
– 2 dispense channels (A / B), using the external solenoid valve module 97204.

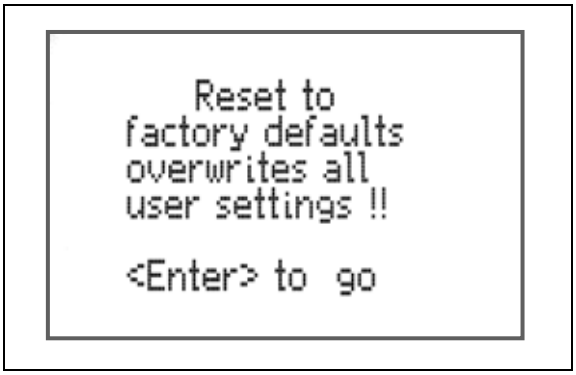


5.3.3 Reset to factory settings:

Press key **10 *Enter*** to reset all setup adjustments to the factory setting.

Programmed values and functions will be deleted.

Press key **11 *ESC/Lock*** to leave the menu without deleting these values/functions.

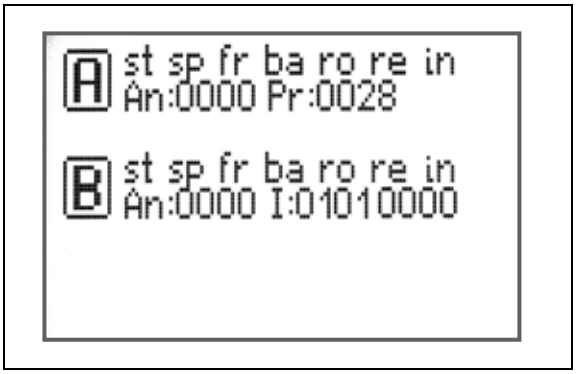


5.3.4 Stored dispense program changeover types:

This is the option for selecting the type of changeover for the stored dispense programs.
– No changeover, as these programs will not be used.
– Manual changeover by pressing key **8** ***Preselection of stored dispense programs***
– Changeover using external control signal via interface XS 8.

5.3.5 I/O signal status

This is an overview of all digital and analogue inputs and outputs with their current switch statuses. To allow checking of individual functions, switch statuses are displayed either in capital or in lower-case letters.
As a general rule, lower case letters indicate a non-active/non-switched status; capital letters refer to an active/switched status.



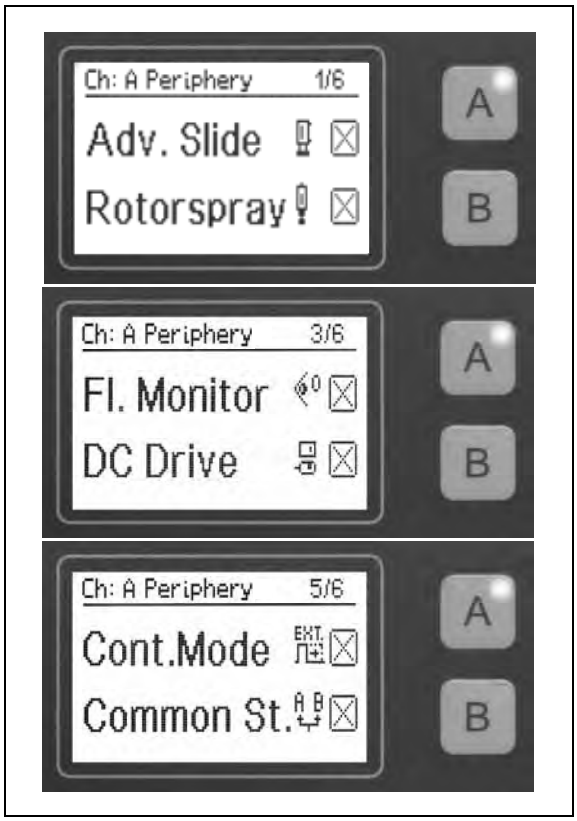
Description of signal messages

st	Start XS 1
sp	Start PLC interface
fr	Limit switch, dispensing position (forward)
ba	Limit switch, home position (back)
ro	Rotor Speed o. k.
re	Reset input PLC
in	XS 8 I/O input
An:XXXX	Online inputs
I:XXXXXXXX)	Power

5.4 Menu "Dispense channel setup"

This menu is activated by pressing the keys A or B and .

If the menu is activated without preselecting a channel, Channel A will be automatically switched to active mode. Setup options are the same for both channels.



This is the menu where dispense channels A and B can be configured.

The channel keys for dispense channels A and B are defined as switches. The relevant keys are used to switch the peripherals and functions On (✓) or Off (X).

Any unit that has been connected to the system but has not been activated will not be actuated.

Activation options per dispense channel:

– 1 advancing slide (double acting), with 2 proximity switches for end position detection.
– 1 electric rotor unit 97115 or 97144
– 1 Online Flow Monitor.
  For applications requiring monitoring of Channel B, the flow monitor can be connected to connector XS 3 using splitter cable 97529/order no. 945063.
– 1 DC motor
– Function “Continuous Mode“ for external actuation of a dispense channel. The start signal must be present as long as dispensing is to continue.
– Common start of both dispense channels with one start signal (internal or external). This function can only be activated in the channel system menu for channel B; the menu for channel A will only display the function. May also be activated as “Continuous Mode“.

Caution!
Different dispense, pre-delay and post-delay times will result in different dispense cycle durations.

5.5 Menu "Setup mode"

This menu is activated by pressing the keys A or B and .

Caution!
In this mode, all units connected to the controller or to the external valve module will be actuated. For example, a connected advancing slide will move to its dispense position when the channel is switched on (✓).

There must be no obstacles within this range.

Any unit switched on in this mode, although not activated in the channel system menu, will be actuated.

This On/Off menu is provided for setup operation of a dispense system.
In this menu, the manual mode for dispense channels A or Be can be switched on or off. The channel keys for dispense channels A and B are defined as switches. The relevant key is used to switch the connected unit On (✓) or Off (X).

The three little bars in the display are provided for advancing slide and rotor unit status indication.
They have the following meaning:

– < – advancing slide in home position, corresponding limit switch active.
– – > advancing slide in dispensing position, corresponding limit switch active.
R – – Rotor unit has reached preset speed.

Note!
As long as the setup mode has been activated for any one dispense channel, no dispensing cycle can be started in the other dispense channel.

Malfunctions occurring during normal dispensing operating are ignored in manual mode.

5.6 Menu "Dispense, pre-delay and post-delay times, DC motor speed"

This menu is activated by pressing the keys A or B and ⏲.

This is the option for selecting
– Dispense time,
– Pre-delay time,
– Postdelay time and
– Percentage speed of a connected DC motor

Use keys **4** ***Channel A*** or
5 ***Channel B*** to scroll through the menu.
Adjustments are made by turning the button.

Pre-delay time:

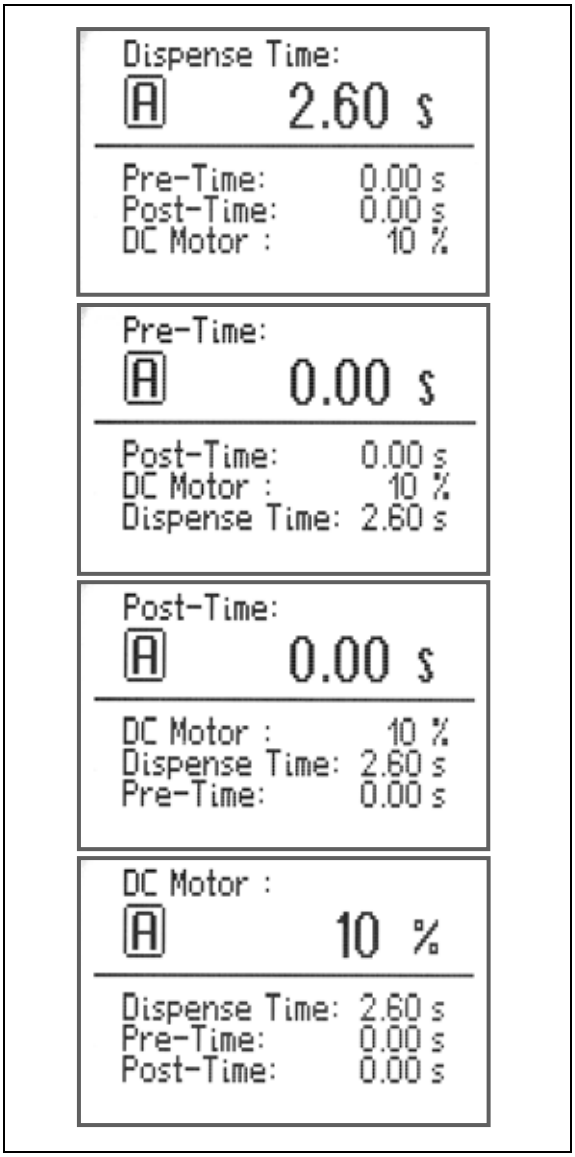
This is the time that elapses until the rotor or the dispense step starts.

Post-delay time:

This is the time after end of the dispense step. Before the next step, e.g. before the advancing slide returns to home position, the rotor continues to rotate for a short time to spin off any residual product remaining on the slinger disc. When this time has elapsed, the controller is "Ready", and a new start signal can be actuated.

DC motor:

This is the option for selecting the percentage speed of a connected DC drive.
100 % is the maximum motor speed. For Rotor Pumps 97660, 97663, 97665 and 97669, the ideal speed range is between 30 and 60 %. When priming the pumps, the speed may be temporarily reduced to a minimum of 10%. For further information please refer to the operating manual of the relevant dispensing pumps.



5.7 Menu "Online Flow Monitor"

5.7.1 Value setup

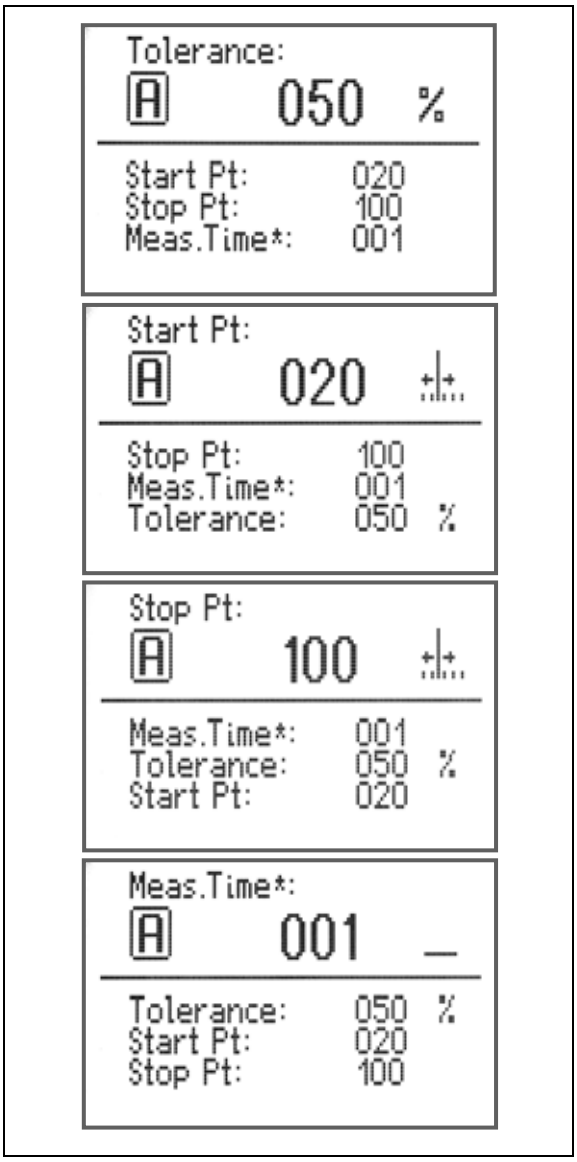
This menu is activated by pressing the keys A or B and ◁ .

Pressing the key **6** ***Monitoring*** without preselecting a channel will automatically switch Channel A to active mode. Preselection of the dispense channel is required to call up the setup menu for Channel B.

This is the option for selecting
– tolerance, 10% - 400%,
– evaluation start point,
– evaluation stop point, and
– measuring time factor value, 1- 10.

Use keys **4** ***Channel A*** or
5 ***Channel B*** to scroll through the menu.
Adjustments are made by turning the button.

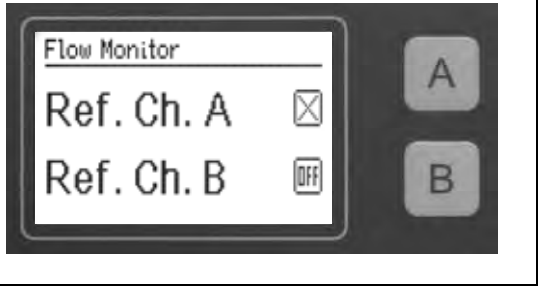
For further information see section 5.11.



5.7.2 Activation of reference dispensing

This menu is activated by pressing the key ◁ .

In this menu, the reference measurement of the Online Flow Monitor for dispense channels A or B can be switched on or off. As a first step, monitoring of the dispense channel must be activated as described in section 5.11.1. The display changes from OFF to X. The channel keys for dispense channels A and B are defined as switches. The relevant key is used to switch the flow monitor On (✓) or Off (X).



5.8 Setup of reservoir pressure, empty and refill signals

5.8.1 Reservoir pressure setup

- Turn the regulator knob **2** to adjust the dispense pressure within a range from 0.00 bar to 7.00 bar (0 to 100 PSI).

If error message "*12 Supply?*" is displayed with a beep, the dispense pressure setting was changed by more than ± 10 %.
Press key **10** ***Enter*** to store the indicated dispense pressure as new comparison value for automatic pressure monitoring. If no new dispense pressure is to be set, the old dispense pressure setting must be restored. In both cases the error message and the beep will disappear.

5.8.2 Empty and refill signals

Product bottle in the reservoir is full.

Product bottle in the reservoir is almost empty. When this signal is displayed, available product is sufficient for further dispensing shots. However, it would be wise to get a new, full product bottle ready.

The product bottle is empty.
No further dispensing shots are possible as this signal prevents triggering of any new dispense cycles.

This symbol in the display means that the **reservoir is depressurized**. The reservoir can be opened to replace the product bottle.

The empty product bottle has been replaced by a full bottle, and the product reservoir lid is clamped in place. The reservoir must be reactivated by pressing the blinking key **15** ***Reservoir***. Then, pressurize the reservoir to the pre-set pressure and trigger the next dispense cycle.

The monitoring display indicates only error message "*12 Supply ?*" with a beep. To check if the reservoir is empty, press key **11** ***ESC/Lock*** to go to the System Display.

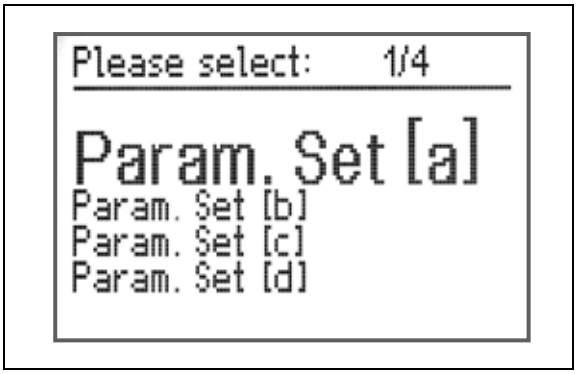
5.9 Menu "Preselection of stored dispense programs"

This menu is activated by pressing the key  .

This menu is used for manual selection of stored dispense programs, to execute and, if necessary, change programs.

4 different dispense programs can be stored. To store a dispense program, the relevant parameter set must first be selected.

- Select the parameter set by turning the button, store by pressing key **10** ***Enter***.



Menus "Dispense, pre-delay and post-delay times, DC motor speed" and "Online Flow Monitor" can now be accessed for setup. Whenever these settings are stored, the controller will assign them to the selected parameter set. The reference measurement of the Online Flow Monitor will also be transferred. Configuration settings made in the "System setup" and "Dispense channel setup" menus will not be stored in the parameter set.
To allow you to use this function, selection of the parameter sets must be defined in the "System setup" menu - see section 5.3.

5.10 Setup of dispense time

This menu is activated by pressing the keys A or B and  .

- Turn the button to select the desired dispense time and press key **10** ***Enter*** to store.

This section explains the necessary steps for adjusting the required amount of product to be dispensed. It contains all the information required for easy and fast setup. In addition, the "**Start settings**" table is explained.

The operating manuals of the relevant system components must be available for reference.

Dispense amount

The amount of product dispensed is determined by the following factors:
– Amount of pressure in the reservoir
– Length of time the dispensing valve remains open.
– Valve stroke
– Dispense needle

Drop size

Definition: A small drop has a diameter of approx. 1 mm.
A medium-sized drop has a diameter of approx. 2.5 mm.
A big drop has a diameter of approx. 5 mm.

Dispense needles

Various dispense needle types and sizes are available for each product and corresponding application of the dispense valve:

– Conical dispense needles made of polyethylene for high viscosity products and large dispensed amounts.
– Stainless steel needles for low viscosity and UV curing products (especially suitable for spot applications).
– Flexible dispense needles made of polyethylene
– PTFE-lined stainless steel needles (especially for fast curing products).

Dispense pressure

When dispensing Cyanoacrylate adhesives, the dispense pressure normally should not exceed 1 bar. If this pressure is not sufficient it would be better to increase the dispense time and/or use a bigger dispense needle. The dispense time should be long enough to allow the dispense valve to open and close properly.

5 Operation

Outgassing of products

To avoid problems due to outgassing of products, use low dispense pressure and longer dispense timing for your process whenever possible. In addition, it is helpful to depressurize the dispense valve at regular intervals.

If possible, reduce the valve closing speed (refer to operating manual of relevant dispense valve).

High viscosity products

Use a feed line with larger internal diameter for dispensing high viscosity products. Instead of using a ¼“ feed line, use a ⅜“ feed line. Feed line Kit No. **97220**, order no. 135561, is available for this purpose.

Use a larger, conical dispense needle, e.g. needle PPC18GA, ID - ø 0.84 mm, green (No. **97222**) or PPC16GA, ID ø 1.19 mm, gray (No. **97221**), otherwise the amount of product dispensed will be insufficient.

Separation of products

To ensure optimum adhesive strength, the product should not be allowed to separate. Use only small containers holding the amount of product consumed during a shift or a day to minimize separation.

Avoid angled fittings for product connections, e.g. to the dispense valve. Use straight fittings only. Care should be taken to run the feed line properly, with a wide radius.

Thixotropic products

Prolonged idle periods will change the flow behavior of a thixotropic product due to its chemical properties. As a result, the amount of product dispensed will be reduced. To compensate for this phenomenon, run 2 – 3 dispense cycles before returning the system to operation.

Start settings

	Small drops		Medium-sized drops		Big drops	
	Dispense time in seconds	Dispense pressure in bar	Dispense time in seconds	Dispense pressure in bar	Dispense time in seconds	Dispense pressure in bar
Low viscosity products up to 125 mPas (like fruit juice) Cyanoacrylates and anaerobics, e.g. 401, 406, 496, 290	0.5	0.2 – 0.6	0.5	0.5 – 1.0	1.0	0.5 – 1.0
Medium viscosity products up to 1,000 mPas (like heavy oil), Cyanoacrylates and anaerobics, e.g. 243, 270, 480, 648	0.5	0.5 – 1.0	1.0	0.5 – 1.0	1.0	1.0 – 2.0
High viscosity products up to 10,000 mPas (like honey) Cyanoacrylates and anaerobics, e.g. 326, 330, 572, 573, 574, 638	0.5	0.7 – 1.2	1.0	1.0 – 2.0	2.0	1.0 – 2.0
Paste and gel-type products Cyanoacrylates, anaerobics and silicones, e.g. 454, 510, 660, 5088.	0.5	1.2 – 2.0	1.0	1.7 – 2.5	2.0	2.0 – 3.0

5.11 Programming of Online Flow Monitor

The integrated flow monitoring function of controller 97152 is used for monitoring the quality of adhesive applied to the parts. This means that the flow monitor detects and evaluates the following dispensing malfunctions:
– Air bubbles in the dispensing system
– Pressure changes in the dispensing system
– Lost or clogged dispense needle
– Touch-down of dispense needle on the part.

The pressure based flow monitor measures the dispense pressure profile via a sensor and saves this value. As a rule, the sensor is integrated in the dispense valve. The duration of measurement corresponds to the duration of dispensing. In time controlled mode, the controller compares the pressure profile that has been measured to a previously stored reference measurement, based on 3 different factors:

– Integral of pressure profile (equals the amount of product dispensed)

– Length of envelope curve for the pressure profile

– Maximum dispensing value (measured curve) to detect pressure peaks.

In continuous mode, only the pressure level during the dispensing step is compared to the reference limit.

The calorimetric system is similar with respect to system integration and signal processing but is based on a different measuring method. A miniaturized heating element placed in the product flow gets slightly heated, and the temperature difference in the flowing product is analyzed. This system is recommended in particular for flow monitoring of miniature dispensed amounts and low pressure settings, irrespective of delivery pressure, product viscosity and dispense needle diameter. The signal strength delivered by the pressure based method is too low for such applications and cannot be reliably processed.

As long as the measured values are within a pre-defined tolerance range, the dispense cycle is found to be OK, and the "Ready" signal is delivered to the controller. If the deviation is outside the tolerance range, this dispense cycle is recognized and signaled as an error. It will also be supplied as a fault signal to connector XS 10. The fault signal must be reset.

The system measures the previous dispense cycle and compares it to a reference measurement which was stored previously and found to be OK. Tolerance can be fine adjusted within the range from 10 to 400 % to determine the optimum between a false alarm and a reliable error recognition. By setting a tolerance value the user specifies the degree of accuracy to be maintained between any one measurement and the reference value. Air bubbles, clogged needles or a needle touchdown may have a very strong effect on the envelope curve length. Therefore this is generally the governing parameter for dispense monitoring.

All dispense curves are displayed in a window with x=120 pts. (points).
In time controlled mode, complete measurement curves are recorded automatically and independent of the length of dispense time. If the time of measurement is to be significantly longer than the time of dispensing, e.g. for visual inspection, the measuring time can be extended by an adjustable factor (1-10).

In continuous mode, the complete dispensing step is measured and analyzed, but it is possible that the measurement curve is not displayed completely. Only the first 1.2 s to 12 s after the start of measurement are displayed. The length of measurement curve indication is dependent on the selected factor. As the length of dispensing is not fixed in continuous mode, it may be impossible to display the complete measurement curve if dispense processes are very long.

If several reference measurements are recorded in succession while the system is in time controlled mode, the controller averages 8 measurements to get optimum reference values. For this purpose, the tolerances for each reading are adjusted automatically for optimum results. This is why 8 reference measurements should always be recorded.

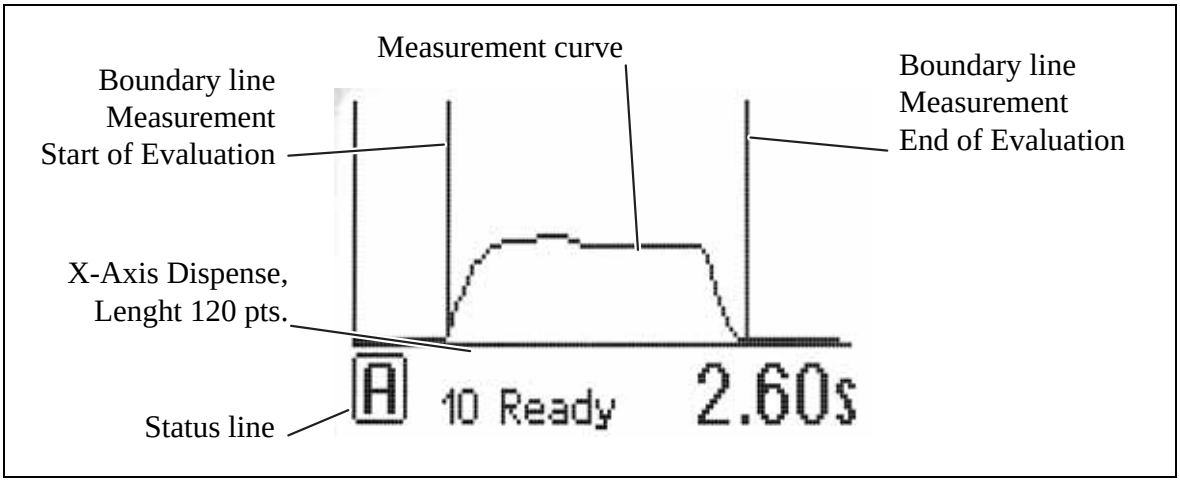
Exception: Only one reference measurement can be made when the system is in continuous mode.

5.11.1 Actuate flow monitoring

- Push the key for the channel for which the monitoring function is to be activated.

Screens displayed are different for each operating mode.

Screen display in time-controlled mode

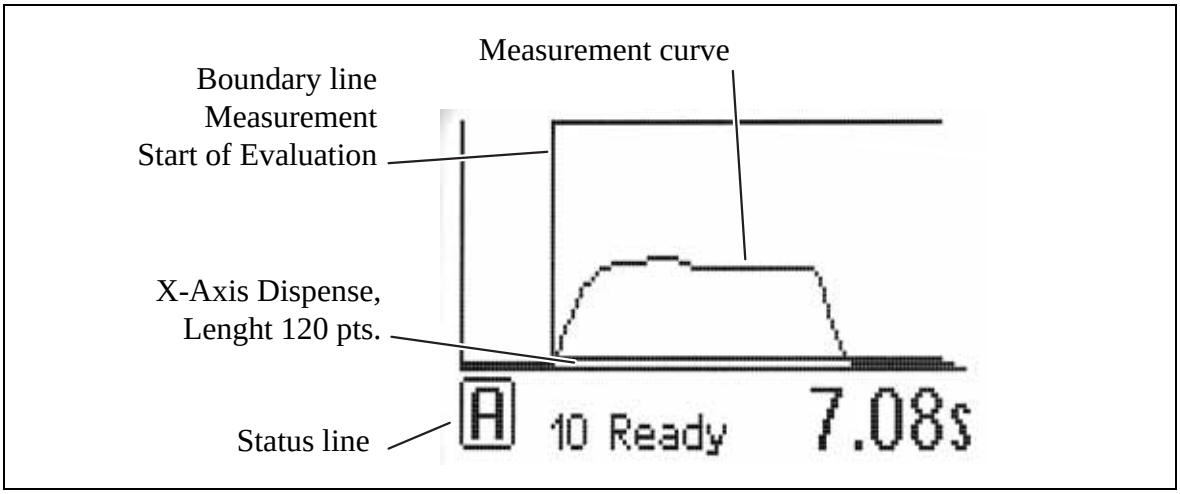


– Status line – see section 2.6.2.

– X-axis dispense, length 120 pts (0- 119 pts) – the two boundary lines can be shifted within this range, see section 5.8.2.

– Boundary lines for start and end of measurement

Screen display in continuous mode



– Displayed range within which a measurement is OK. Range is determined by the controller and displayed graphically, taking into account the preselected tolerance as well as the measured reference.

5.11.2 Setup of parameters for monitoring

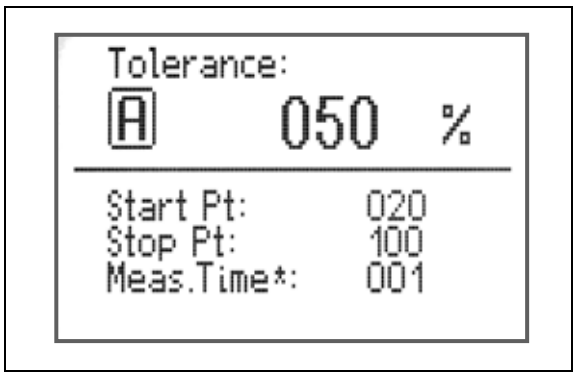
- Push the key for the channel for which the monitoring function has been activated.
- Push key **6** ***Monitoring*** to go to the setup menu.

If no graph is indicated, this means that no dispense monitoring function has been activated for this channel. To activate the monitoring function, see section 5.8.1.

Setup of tolerance value

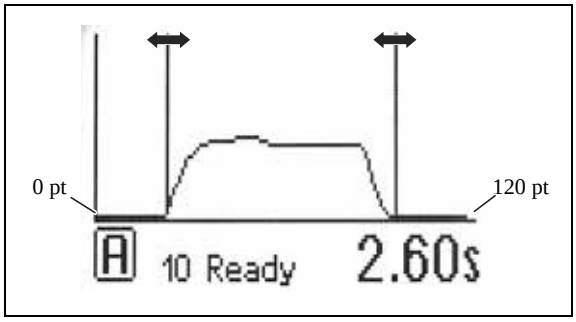
- Turn the button to select the desired tolerance value

Adjustable range: 10-400 %



Setup of evaluation limits

Measurements will be evaluated within these limits. The start point should be set to make sure that measurement will not begin before the dispense pressure is stable. The end points can be adjusted to a setting which ensures that any fluctuations at the end of the dispensing process will be disregarded for the evaluation.



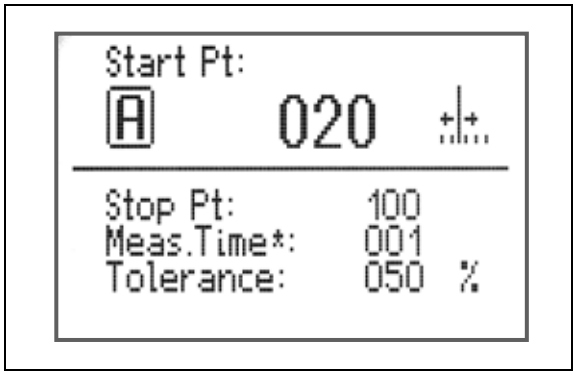
To increase the value, move the boundary line to the right, and vice versa. This applies for both boundary lines.

To ensure optimum positioning of lines, a measurement should have been taken before making this adjustment.

Start point (boundary line left)
Start of evaluation

- Press key **4** ***Channel A***.

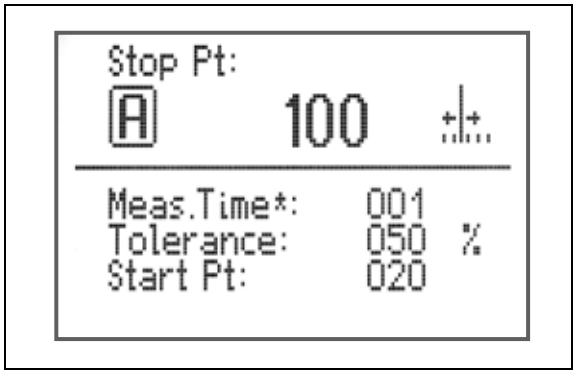
Adjustable range: 0-90 pts.



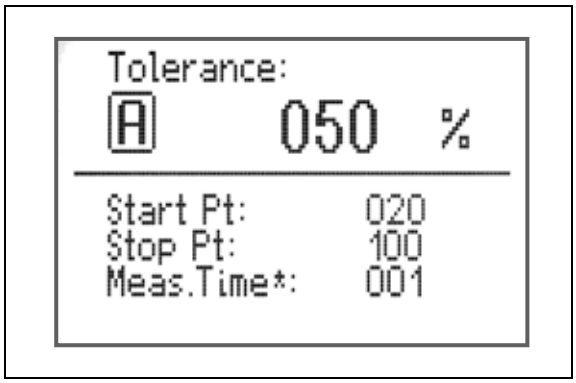
Stop point (boundary line right)
End of evaluation

- Press key **4** ***Channel A***, or key **5** ***Channel B***.

Adjustable range: 30-119 pts.



Setup of measuring time factor

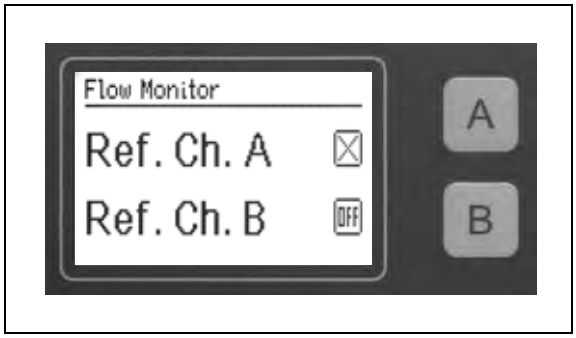


- Press key **4** ***Channel A***, or key **5** ***Channel B***.

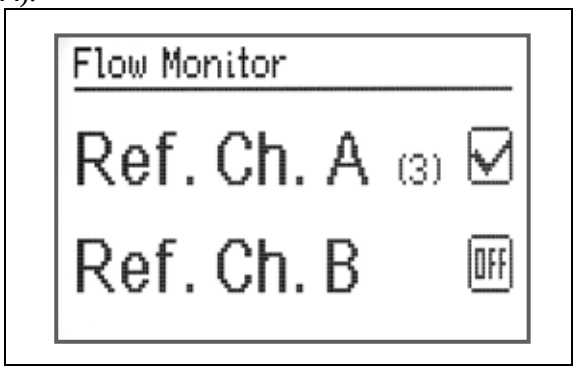
Adjustable factor: 1-10.

- For adjustments of values see section 5.1.
- Press key **10** ***Enter*** to store the settings and return to the Monitoring screen

5.11.3 Setup of reference dispensing



- Press key **6** ***Monitoring***. The overview of flow monitoring modules is displayed.
- To run one or several reference dispensing cycles, monitoring of the dispense channel must first be activated as described in section 5.11.1.
  The display changes from OFF to X.
  The channel keys for dispense channels A and B are defined as switches. The relevant key is used to switch the flow monitor On (✓) or Off (X).



- Press key **13** ***Start*** to run the reference dispensing cycles for the active dispense channel. A counter runs.

A maximum of 8 reference dispensing cycles should be performed. Time intervals between reference dispensing cycles should be equal to the production line cycle times. A start signal must be triggered for each reference dispense cycle. Whenever another start signal is triggered after the final reference dispense cycle, the controller switches automatically to X. The number of dispense cycles triggered is indicated as a numeral in square brackets. *[8]*.

- Press key **10** ***Enter*** to store. Then return to the system display.

5 Operation

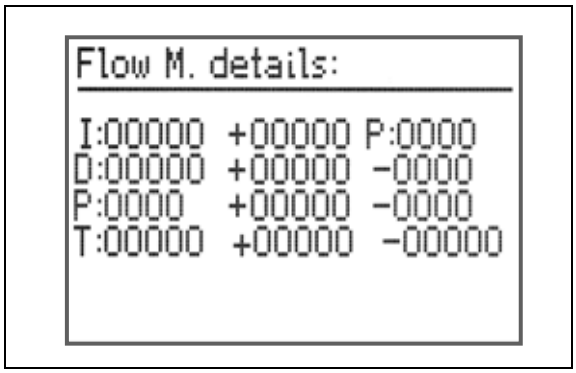
Monitoring status screen

This overview shows the current status of connected flow monitors.

- Without channel preselection, press key **6** ***Monitoring*** twice.

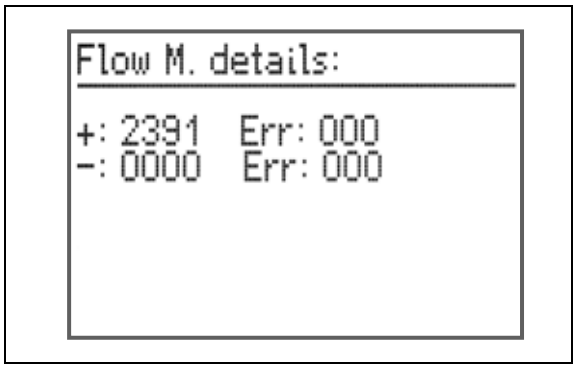
Status displayed in time controlled dispense mode:

I:00000 +00000 -00000
D:00000 +00000 -00000
P:0000 +0000 -0000
T:00000 +00000 -00000



Status displayed in continuous dispense mode:

+:0000 Err: 000
-:0000 Err: 000



Description of status options in the display

In timed mode

I	Integral value	Current measured values
D	Curve length	
P	Peak value	
T	Time	
+	–during reference measurements: –during measurements:	maximum measured upper limit including tolerance (above = error)
-	–during reference measurements: –during measurements:	minimum measured upper limit (below = error)

In continuous mode

+	–while referencing: –while measuring:	maximum measured value upper limit
-	–while referencing: –while measuring:	minimum measured value lower limit
Err	Number of times values were above or below the limits (if tolerance value setting is exceeded ➞ error)	

6 Troubleshooting

Malfunction	Possible Cause	Corrective Action
Digital display does not light up.	– No power supply.	• Check supply voltage.
	– Power switch **22** in position O (Off).	• Set power switch **22** to position I (On).
	– Power fuse **31** defective.	• Check/replace **31** mains fuse.
	– Power cord defective.	• Replace power cord.
	– Controller defective.	• Henkel Service.
No change in value on digital display.	– No compressed air.	• Check compressed air supply.
	– Product reservoir not actuated or defective.	• Check product reservoir (refer to operating manual of the reservoir).
	– Controller defective.	• Henkel Service.
Required pressure is not reached.	– Supply pressure insufficient.	• Increase supply pressure. It must be at least 0.5 bar above the desired dispense pressure.
No, too little or too much product. Probably with fault signal (with beep).	– Dispense pressure not correct.	• Correct the dispense pressure.
	– Pneumatic hose not correctly connected.	• Correct pneumatic hose connection.
	– Dispense needle clogged or too small/big	• Replace dispense needle.
	– Dispense valve not correctly connected or defective.	• Check dispense valve (refer to operating manual of the dispensing valve).
	– Product reservoir manually depressurized or defective.	• Check product reservoir (refer to operating manual of the reservoir).
	– Controller defective.	• Henkel Service.
LED in key does not light up.	– LED defective.	• Henkel Service.
	– Key defective.	• If the key works (check via digital display), emergency operation may be continued until Henkel Service is available.
No start signal.	– Automatic reservoir empty. The Empty fault signal (with beep) blinks on the digital display.	• Refill automatic reservoir.
	– Plug in socket XS1: Start **29** loose.	• Set power switch **22** to position O (Off). Tighten down plug. Set power switch **22** to position I (ON).
	– Foot switch defective.	• Replace foot switch.
	– Internal control voltage not looped out	• Install jumper between pin 5 and pin 8 of XS 1.

7 Annex

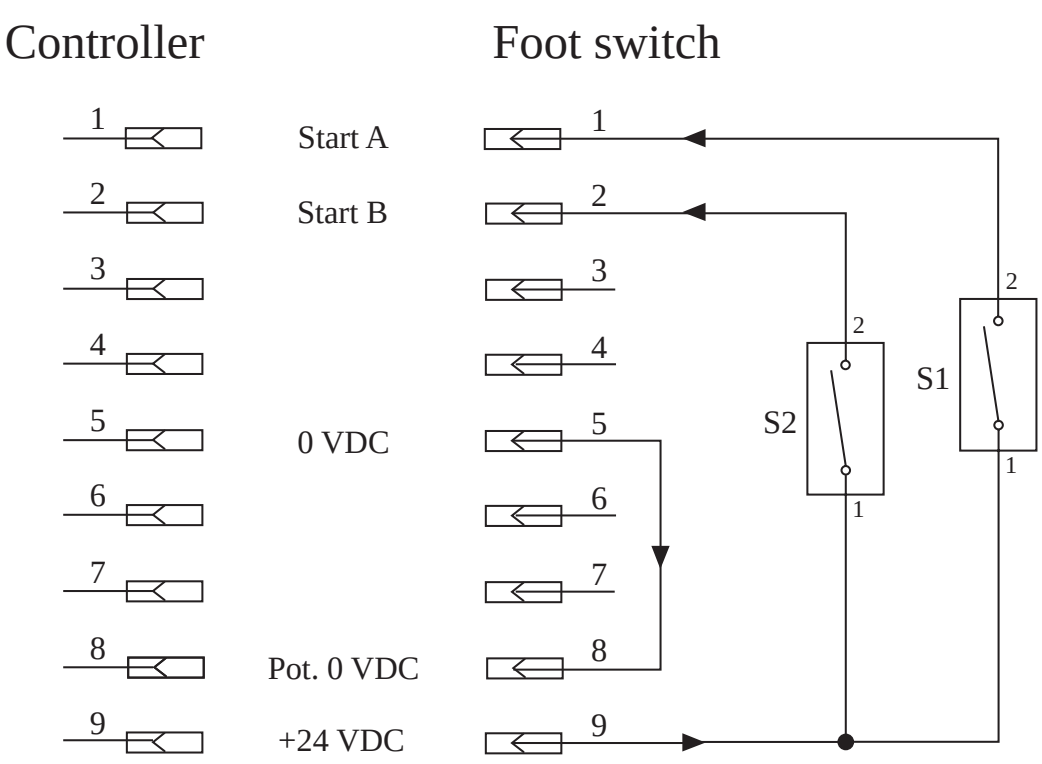
7.1 Spare parts and accessories

Item no.	Description	Type no.	Order no.
–	I/O Multiplex Box XS 8	97522	840911
–	I/O Multiplex Box XS 12	97521	840910
–	Splitter cable XS 3/XS 4	97529	945063
–	Start splitter cable	97203	142638
–	Foot switch	97201	88653
–	Filter regulator unit	97120	88649
–	Valve module	97204	142639

7.2 Pin assignment

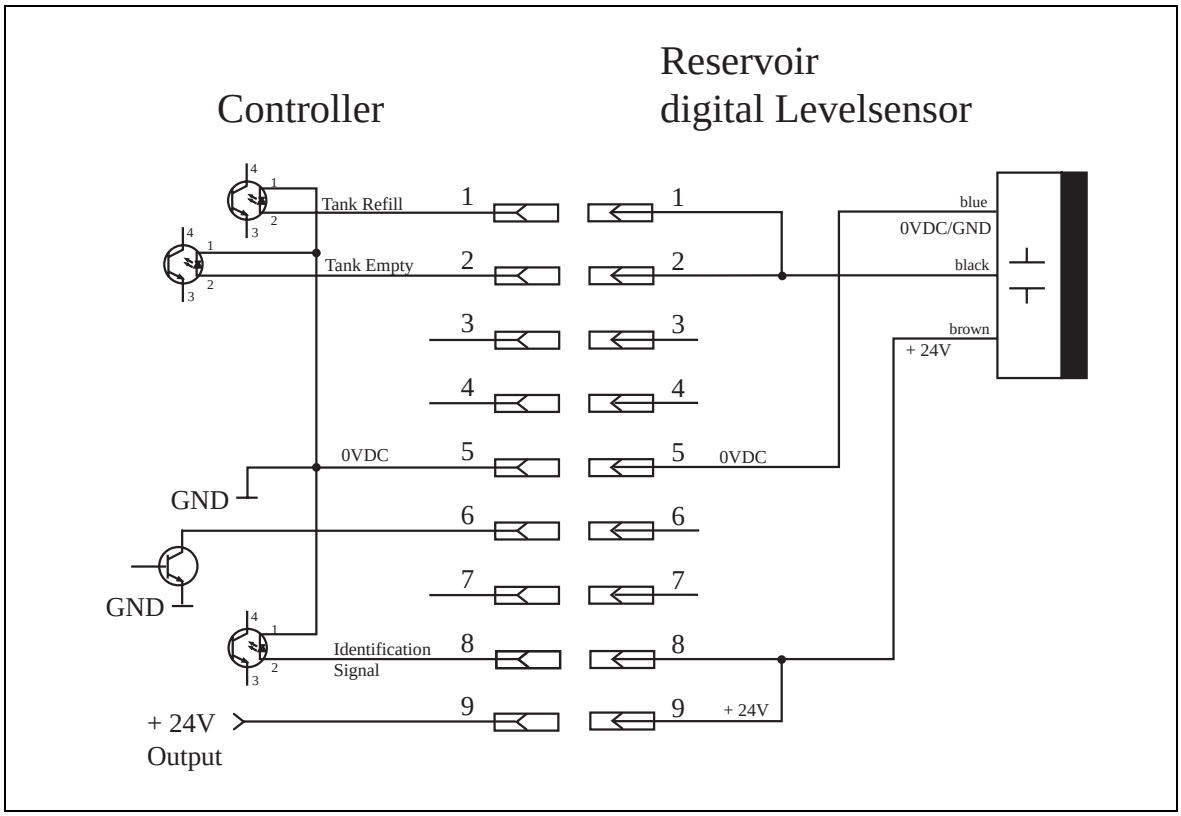
7.2.1 XS 1 Start

7.2.1.1 XS 1 Start via foot switch

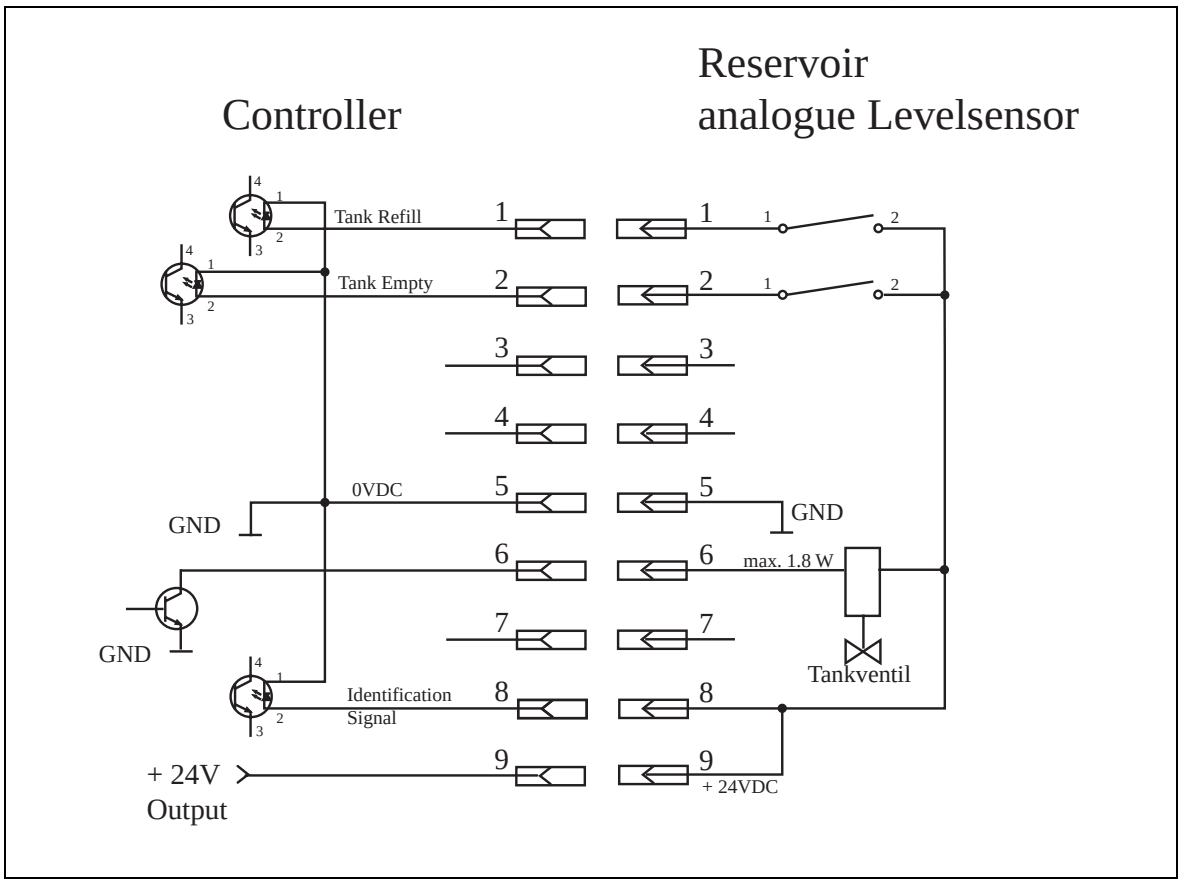


7.2.2 XS 2 Product reservoir

7.2.2.1 XS 2 product reservoir with digital level sensor (e.g. model 97125)

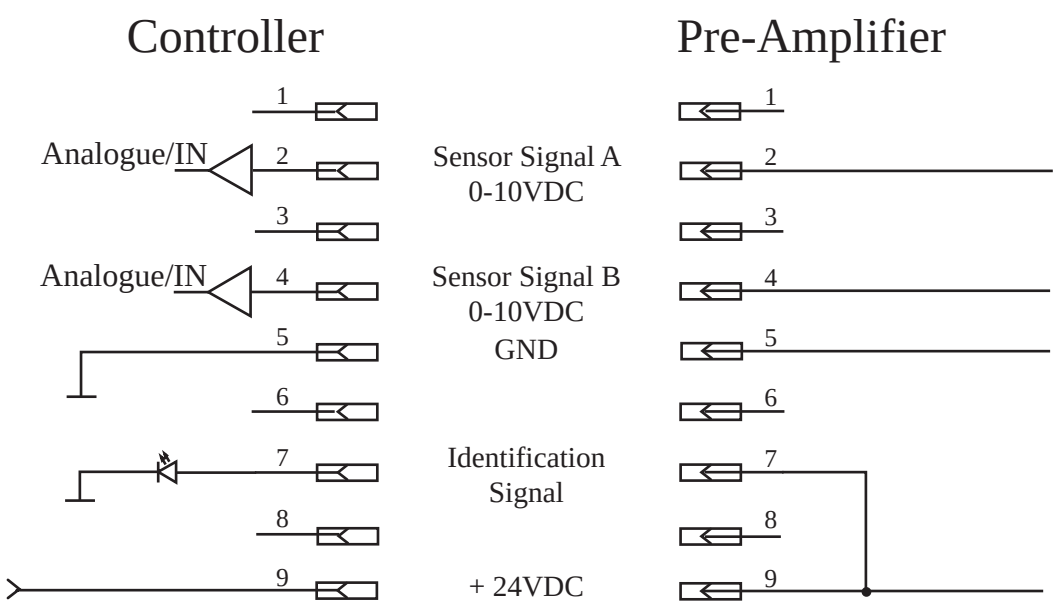


7.2.2.2 XS 2 Analog product reservoir (e. g. models 97106/97108)



7 Annex

7.2.3 XS 3 Flow monitor

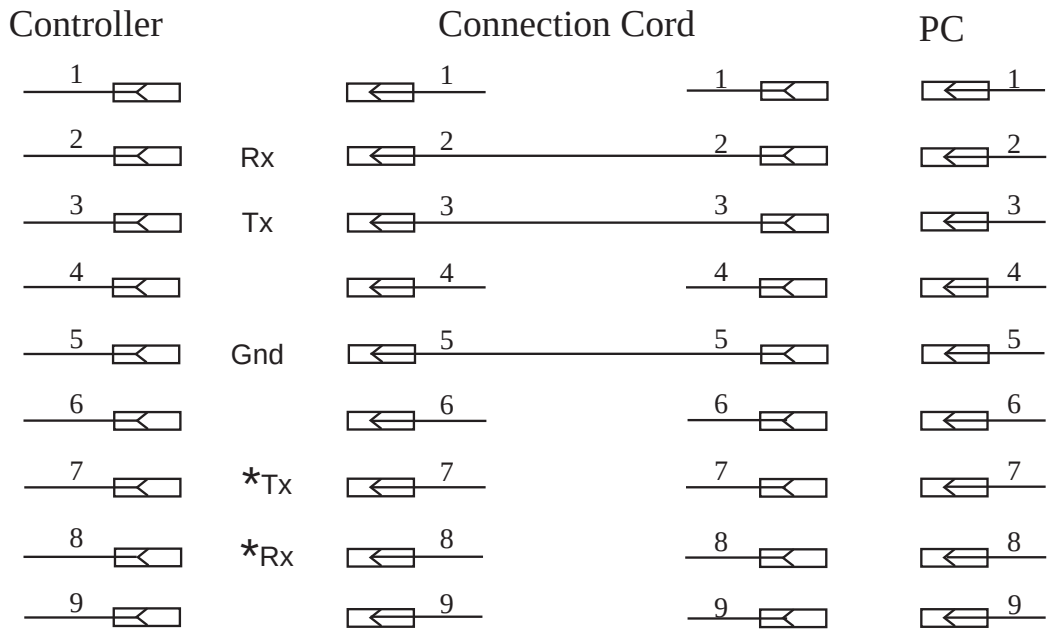


All other pins may never be connected!

7.2.4 XS 5 Serial interface RS232

To be connected via serial cable, pins 7 and 8 must not be assigned. Observe the serial interface protocol.

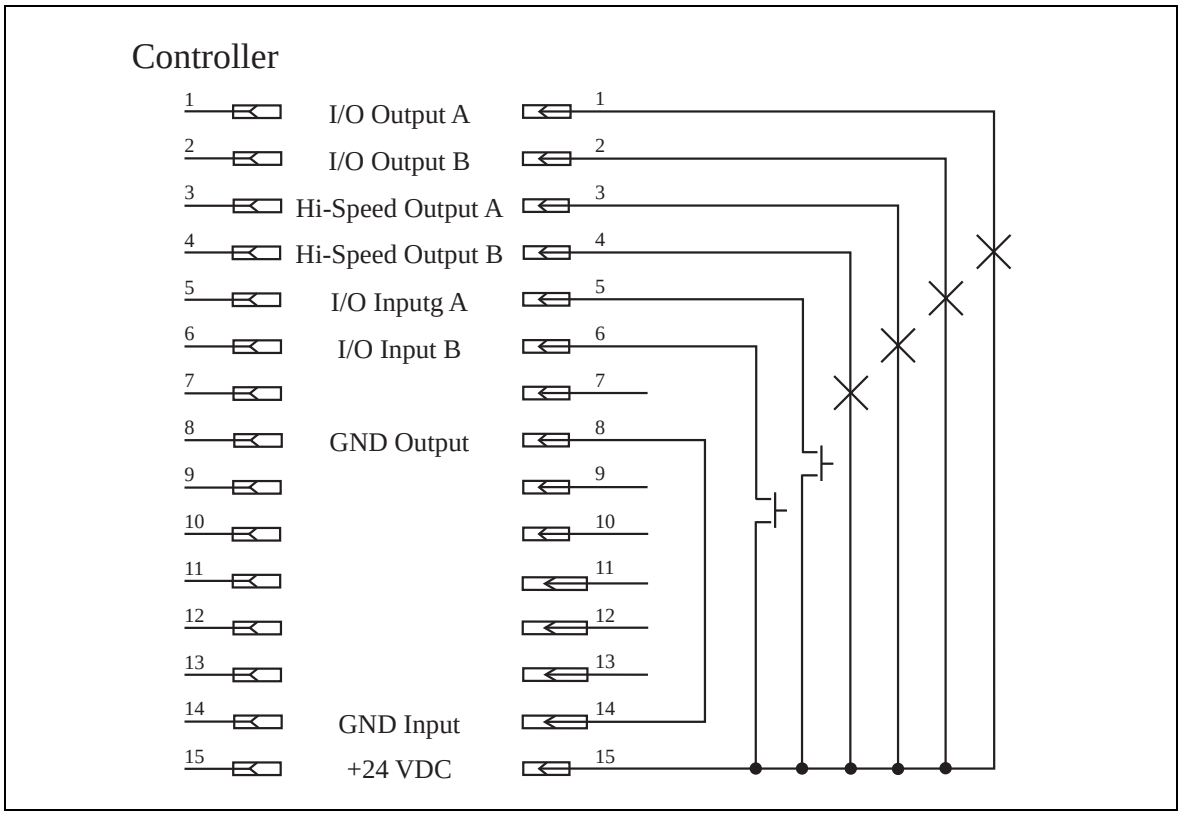
9600 baud/1stop bit/no parity/8 data bits.



All other pins may never be connected!

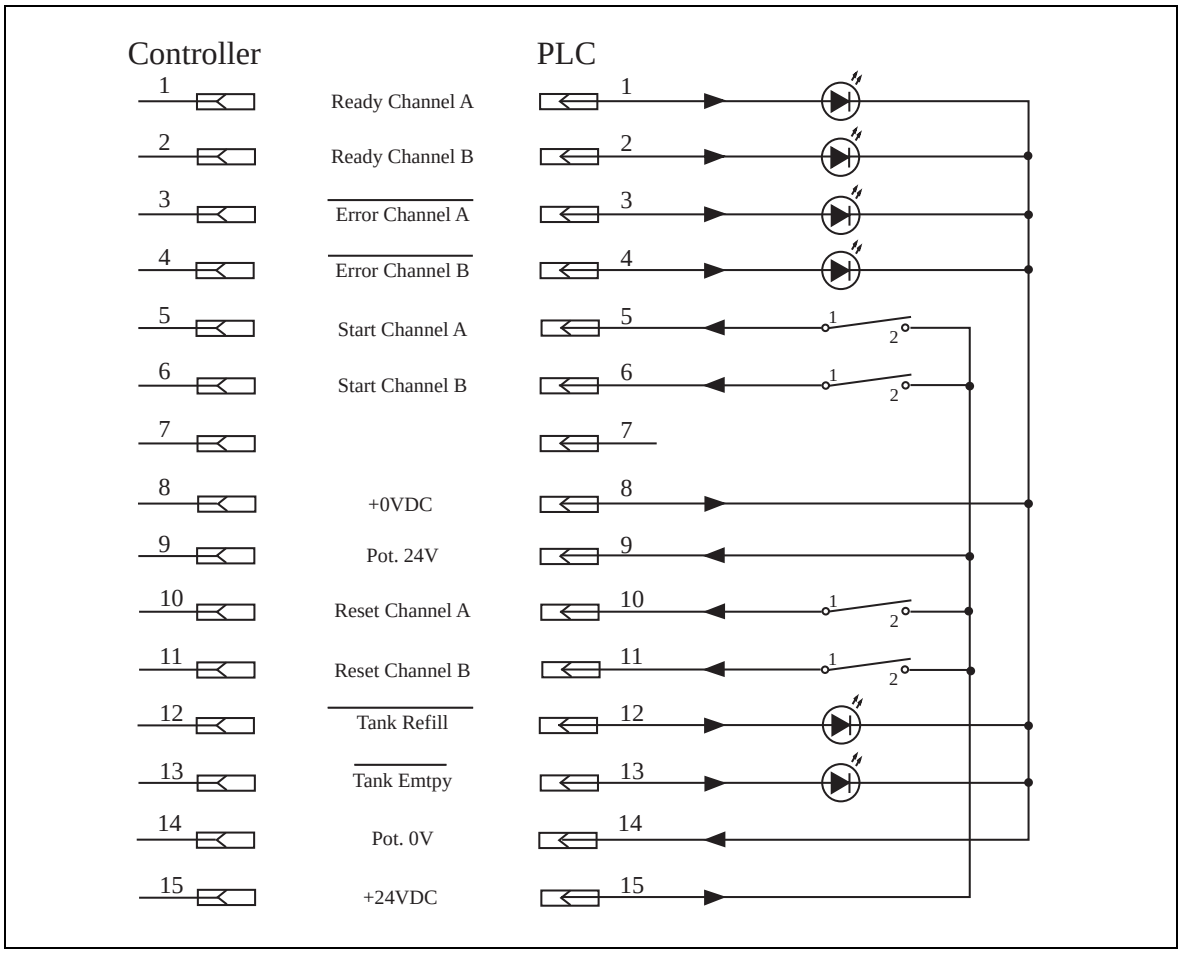
* The pins can be used ONLY for firmware updates!

7.2.5 XS 8 I/O Port

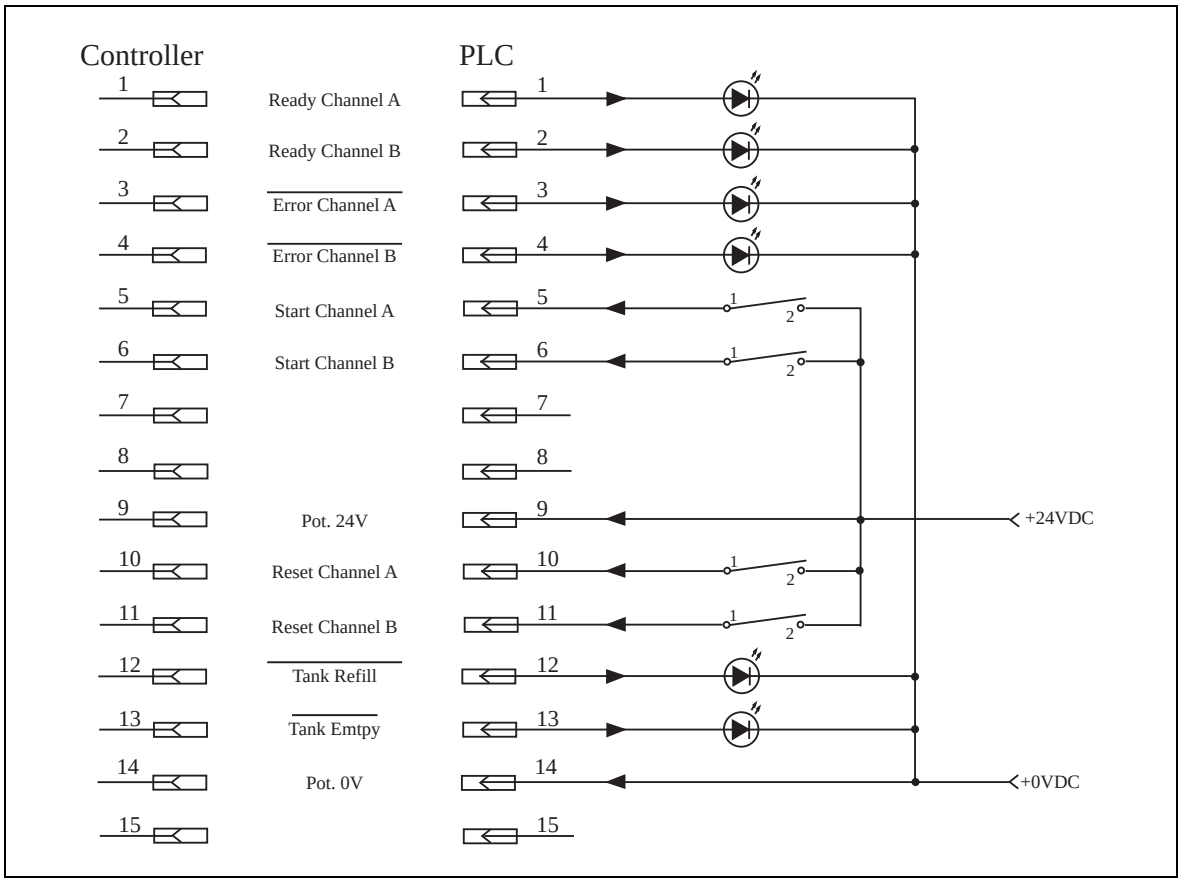


7.2.6 XS 10 PLC

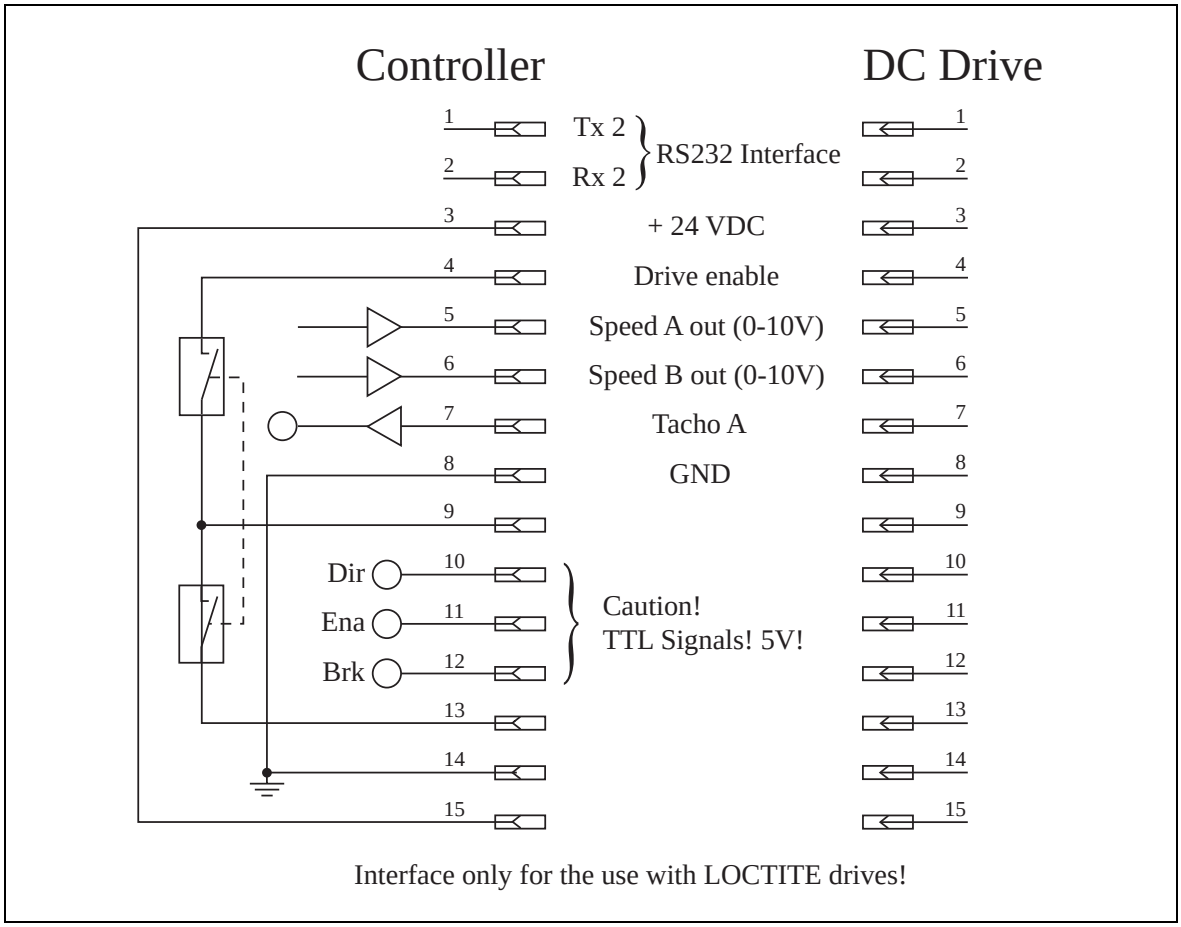
7.2.6.1 XS 10 PLC internal power supply



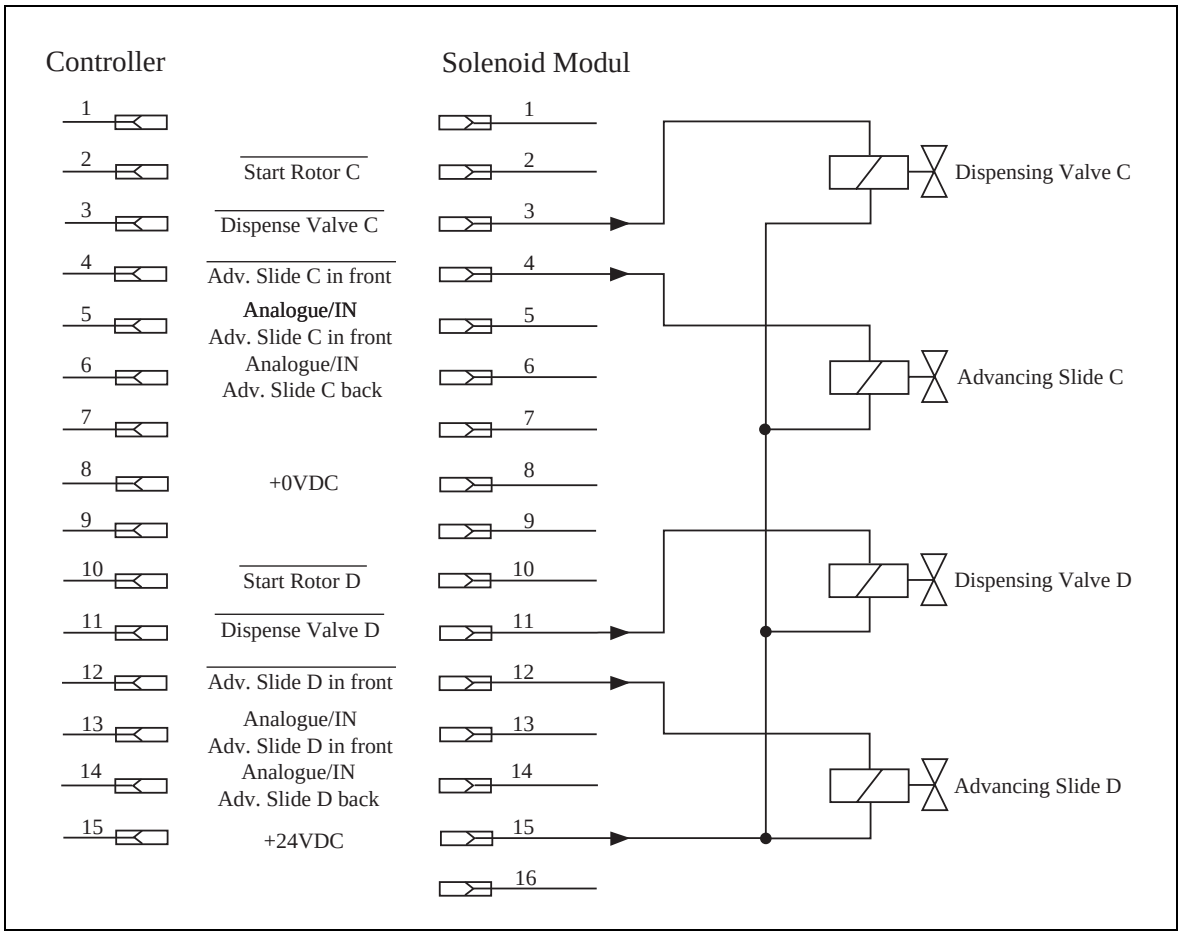
7.2.6.2 XS 10 PLC external power supply



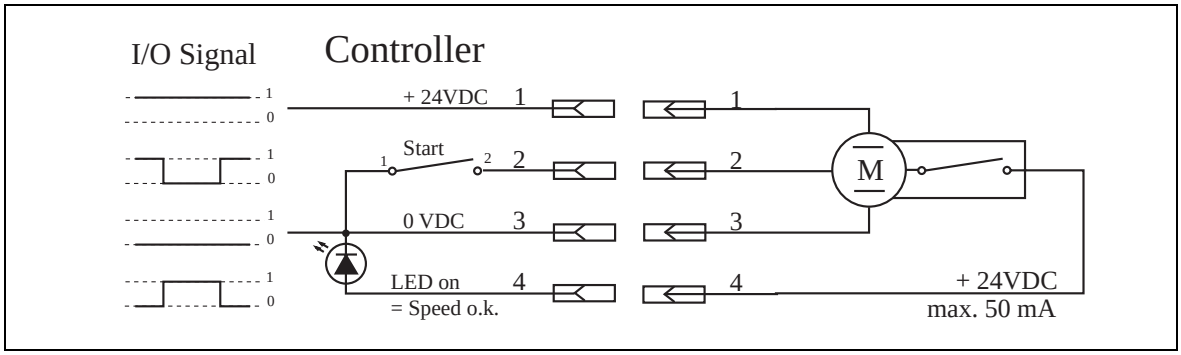
7.2.7 XS 11 DC drive



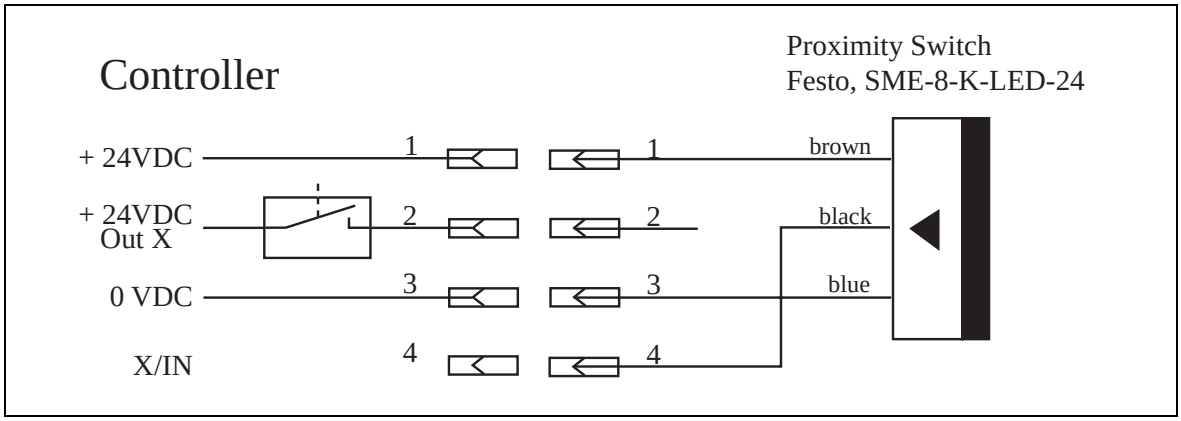
7.2.8 XS 12 External solenoid valve module



7.2.9 XS 16 Rotor unit



7.2.10 XS 17 / XS 18 Proximity switch advancing slide



7.3 EC Declaration of Conformity

Declaration of Conformity	
The Manufacturer according to EC regulations	Henkel AG & Co. KGaA Standort München Gutenbergstr. 3 D-85748 Garching b. München
declares that the unit designated in the following is, as a result of its design and construction, in accordance with the European regulations, harmonized standards, national standards and technical specifications listed below.	
Designation of the unit	Dual Channel Controller 97152
Equipment item no.	1275665
Applicable EU Regulations	EC Directive for Low Voltage 73/32/EEC EC Directive for Electro-Magnetic Compatibility 89/336/EEC, including amendments 2004/108/EC RoHS Directive 2002/95/EC WEEE-Directive 2002/96/EC
Applicable harmonized standards	EN 55011:2007+A2:2007-Class A-Group1; EN61000-3-2:2006; EN61000-3-3:1995+A1:2001+A2:2005; EN 61000-6-2:2005; EN 61000-4-2:1995+A1:1998+A2:2001; EN 61000-4-3:2006; EN 61000-4-4:2004; EN 61000-4-5:2006; EN 61000-4-6:2007; EN 61000-4-8:1993+A1:2001; EN 61000-4-11:2004;
Date/Manufacturer's signature	 Nov 23rd, .2008 (Dr. W. Fleischmann)
This declaration is not valid if there are any changes not approved by Henkel.	

Henkel AG & Co. KGaA
Standort München
Gutenbergstraße 3
D-85748 Garching b. München