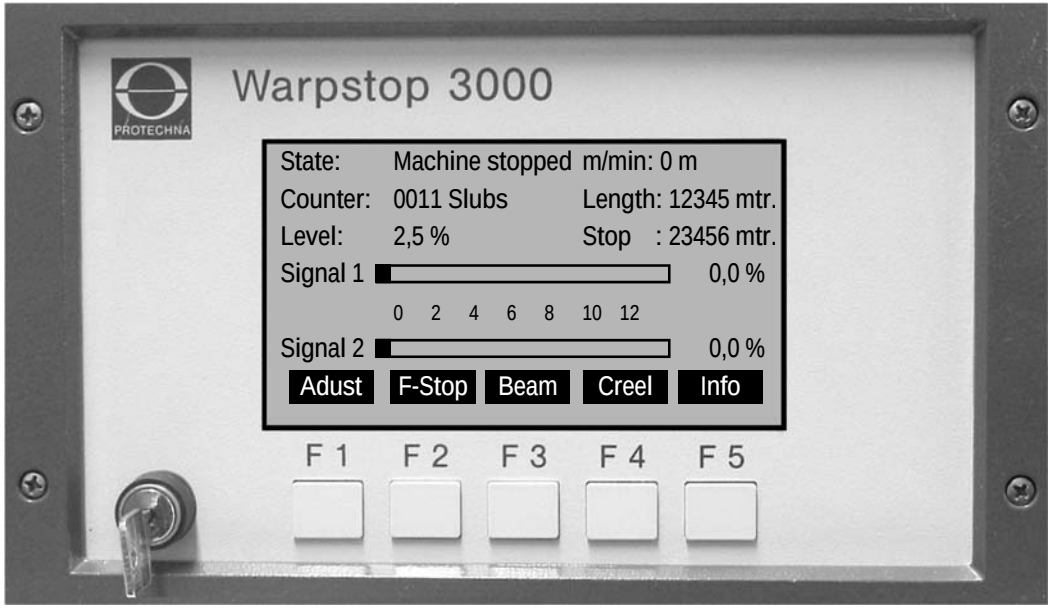
Art. Nr. 14296

PROTECHNA

Qualitätssicherung für Textilien



Working Instructions
PROTECHNA Yarn Inspector
WARPSTOP Series 3000
Type 3020 DUO

B-E-0455/2.04/E

CE

List of contents

Safety advice

Before installing the device, please carefully read the following instructions for your own personal safety as well as the operational security of the equipment.

- Always follow all warnings and instructions which are shown as direct advice or mentioned, as well as any in this instruction book.
- Before any cleaning, or to remove or replace an option, the device must always be disconnected from the power supply. For cleaning, no liquid agents or sprays are allowed, instead only a dry cloth must be used.
- Never use the equipment in areas where dangers are present, where water or other liquids could enter the device.
- The mounting position for the device must always be stable, as strong vibration could cause the unit to fall and be badly damaged.
- Always make sure that the correct voltage rating is used to match the power supply.
- Never try to push any objects though any openings in the device, as the interior voltage could cause short circuits or electrical shocks.
- With the exception of the detailed information in the instructions, you should never attempt to repair the device yourself, Otherwise you could place yourself in danger from contact with high voltage parts.
- Please handle the light wave conductors with great care. For example, if they bent they could become unusable. This will result in them having to be replaced.
- When you have decided on the position of the inspection head, please do not forget, that both of the stand feet must be firmly anchored to the floor. To do this, holes must be drilled into the floor and then provided with floor plugs. Please make sure that no electric wires or other lines are underneath the stand feet.

Cleaning of the overrun profiles (ceramic surface) of the WARPSTOP series 3000 inspection head beds must be carried out only with a dry cloth. **Isopropyl alcohol exclusively** may be used at heavy soiling. Other cleaning agents must not be used. After cleaning is carried out the ceramic surface should be wiped off with **acid-free oil** (e.g. yarn oil).

The electrical connection must only be carried out by suitably qualified technical personnel. Before the electrical connection, you must make absolutely sure that there is no danger to come into contact with any parts that might carry live electricity.

Introduction

General

The PROTECHNA yarn inspector WARPSTOP Type 3020 DUO is a precision device for detecting selected yarn faults during the warping process. In normal use the warping machine will be stopped on detection of a yarn fault.

By using the latest light wave conductor technology as well as a computerised speed related signal comparison, a very high operational standard of the surveillance system is guaranteed.

By using two inspection heads, yarn faults can then only lead to the machine being stopped when they occur in both inspection heads at an exactly defined time period. False stops are accordingly almost eliminated.

Thanks to a digital sensitivity setting, with a calibration possibility in steps of 0,1%, even the smallest faults are detected.

Typical yarn faults which can be detected are loose filaments, knots and broken capillaries. The WARPSTOP Series 3000 can detect such yarn faults in a wide range of multifilament yarns, for example, Nylon, Polyester, Acetate, Viscose, Rayon, Artificial Silk, Acrylic yarns, Tyrecord, Glass Fibre etc.

The yarn inspector comprises of the control unit WARPSTOP Series 3000 with integrated operator panel, an impulse sensor with a magnetic foil to determine the yarn speed, two inspection heads and the support stands.

Inspection Heads

The inspection heads work using the latest light wave conductor technology for the evaluation and the data transfer to the control unit.

The optical heads guarantee a high linearity of the light beams and also provide an even sensitivity over the total inspection head width.

Since no electronic parts are contained inside the inspection heads, the unit is insensitive to external electrical interference. Should it be necessary to change the transmitter or receiver electronics, no adjustment of the inspection heads is required since all electronic parts are inside the control unit.

The new designed overrun profile of the inspection heads ensures an improved guidance of the yarn through the light beams, as well as a reduction of soiling of the inspection heads caused by slubs and yarn residue.

Introduction

Control Unit 3000 with Integrated Operator Panel

The signals received in the control unit are compared to the pre-set threshold stopping signal. The resulting electrical signals are then digitally processed in the control unit, so that the occurrences will only lead to the machine being stopped if the events happened because of a specific yarn speed and defined time period was observed. In this manner, interference impulses - caused by jumping threads for example - will be eliminated. In the event of a yarn fault, the warping machine will either be stopped immediately or switched off following the completion of a pre-set stopping delay phase.

The control unit with its integrated operator panel with LCD display and keyboard can be placed in any position to suit your requirements. The following information is displayed on the LCD screen: The yarn noise level value for each inspection head, the size of the last stop signal, the pre-set stopping thresholds, the machine speed as well as the total number of faults indicated.

All operational parameters can be entered via an easy to use menu control. In addition it is possible to provide the control unit with a printer interface (optional).

Impulse Giver with Magnetic Foil

In order for the control unit to be able to identify a yarn fault, the second inspection head bed unit must be activated at an exact time sequence and the yarn running speed must be permanently measured. This is accomplished with the help of an impulse giver connected to the control unit and an impulse giver mounted on an overrun roller fitted with Magnetic foil.

Assembly - Service

The PROTECHNA yarn inspector WARPSTOP Series 3000 is usually despatched ready to use, so that the customer has the possibility to set the unit into operation without assistance.

Should however any problem occur, one can make use of the services of the PROTECHNA assembly service. Customers overseas should in this case make contact with the respective PROTECHNA agent.

Service

Service technicians are available on special request to check and test the PROTECHNA yarn inspector WARPSTOP Series 3000. Generally, however, most small problems can be cleared up by a telephone call or by letter, without the need to require a visit by a technician.

For further information please contact:

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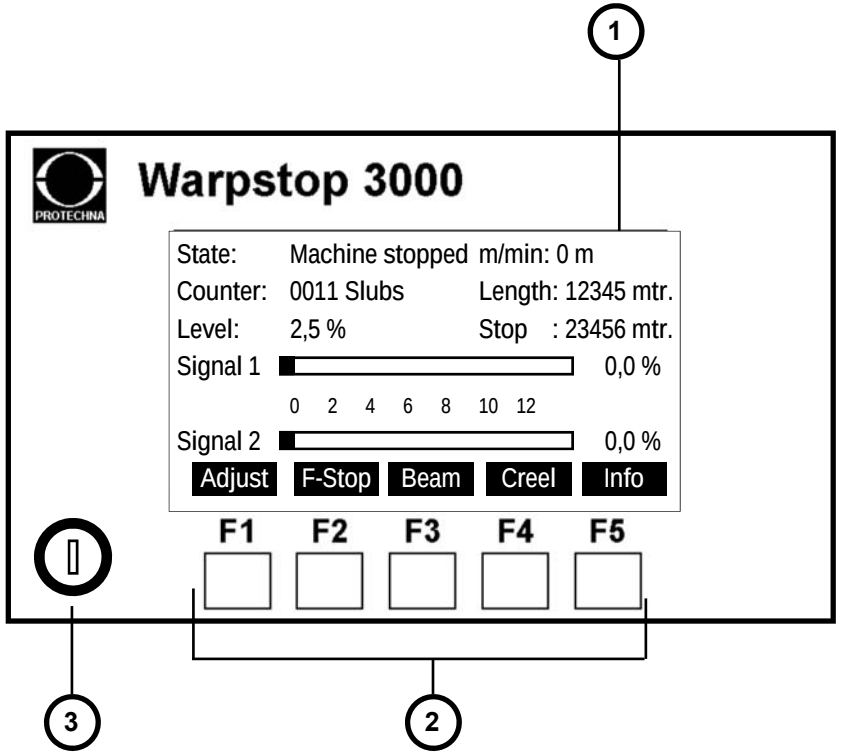
Control Unit Series 3000 - Front View

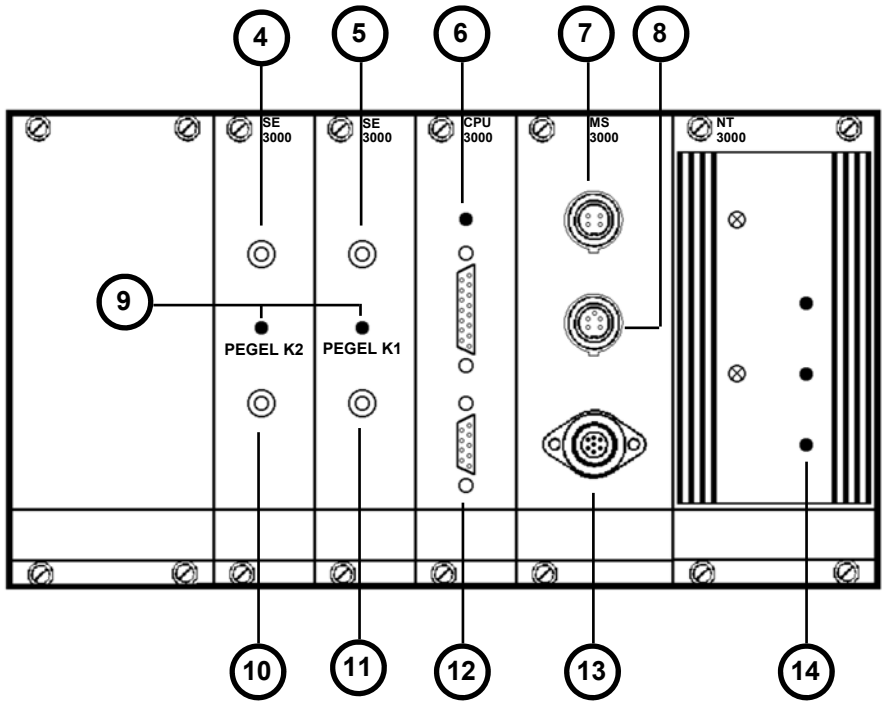


1. **LCD screen**

2. **Function keys F1 to F5**: The functions of the keys differ with the change of the screen. The individual function of each key is displayed on each screen.

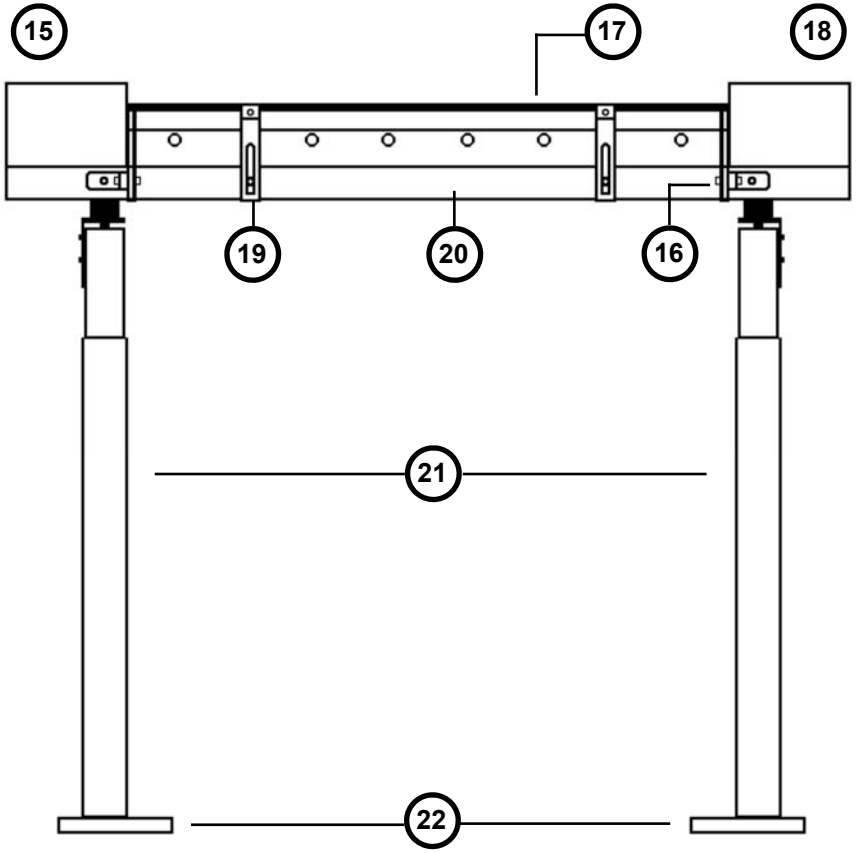
3. **Power switch**: Switches the control unit on and off

Control Unit Series 3000 - Rear View



4. **Connection socket for the light wave conductor (Channel 2)**
5. **Connection socket for the light wave conductor (Channel 1)**
6. **CPU indicator** : Ligths up when the computer board works correctly
7. **4-pole socket**: Connection socket for the impulse sensor to monitor the yarn speed
8. **5-pole socket**: Connection socket for the low voltage reset and the semi-conductor output
9. **Level indicators**: Light up when the inspection heads work correctly
10. **Connection socket for the light wave conductor (Channel 2)**
11. **Connection socket for the light wave conductor (Channel 1)**
12. **15-pole and 9-pole sockets (optional)**: Connection socket for a serial interface (9-pole). The 15-pole socket is not used.
13. **Socket POWER**: Connection socket for the 7-pole power/control cable
14. **Power supply indicators**: Light up when the power supply works correctly

Inspection Head



15. **Housing**: Contains the optical system of the inspection heads

16. **Holders for the thread guide units**: The thread guide units serve to regulate the yarn sheet over the overrun profiles

17. **Overrun profiles**: Thread guides in the surveillance area with high performance ceramic covering

18. **Housing**: Contains the optical system of the inspection heads

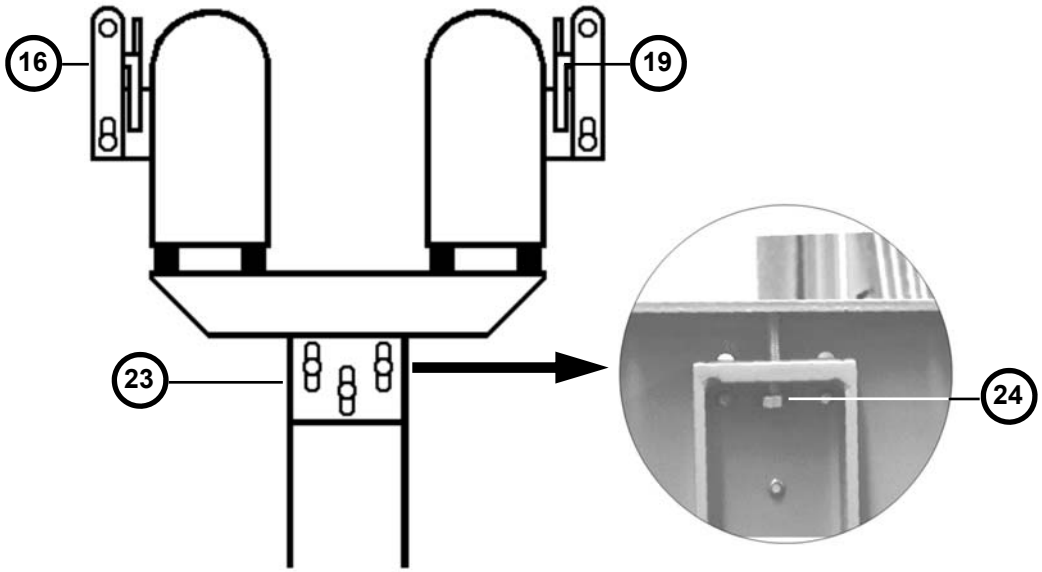
19. **Reed holders**: The reeds are not part of the delivered consignment

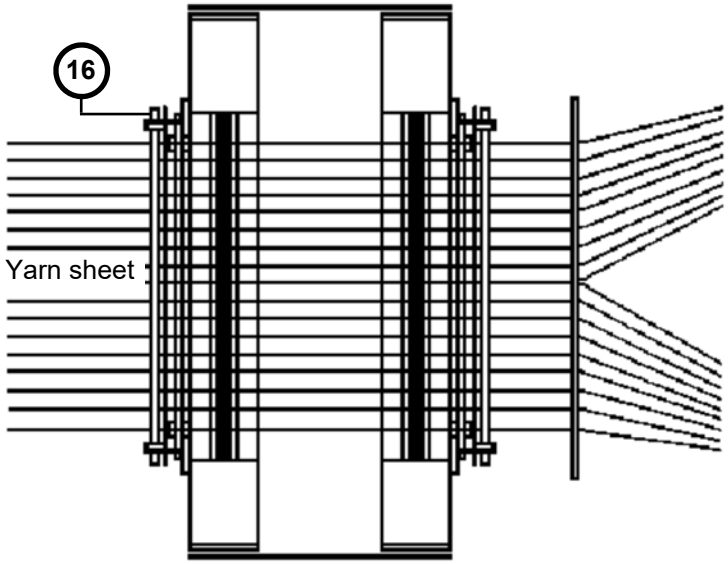
20. **Tubular steel bed**: Supports the complete inspection head assembly

21. **Tubular steel bed**: Supports the complete inspection head assembly

22. **Floor plates**: With securing holes to fix the complete inspection head to the floor

Inspection Head





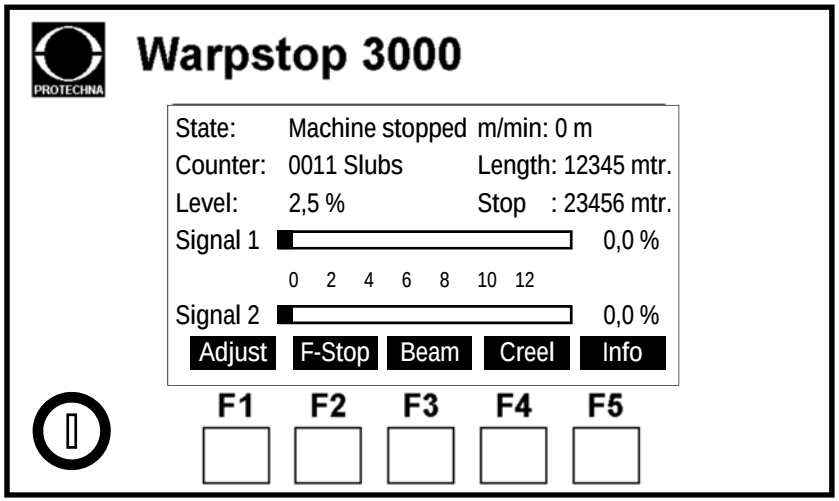
16. **Holders for the thread guide units**: The thread guide units serve to regulate the yarn sheet over the overrun profiles

19. **Reed holders with reeds**: The reeds are not part of the delivered consignment

23. **Hight adjustment**: To adjust the hight of the inspection head bed

24. **Adjustment screw (M10)**: To adjust the hight of the inspection head bed

Function Keys - Operational Menu



Assignment of the function keys in the operational menu (at stationary machine)

F1 - Adjust: By pressing this key it is possible to enter the setting menu. The setting menu may be safeguarded with a code number. The code number is: **4 5 2 1 3**.

F2 - F-Stop: False stop key. If you press the F2 key after a false stop, the slub counter is reduced by one. The input must be confirmed with YES (F1).

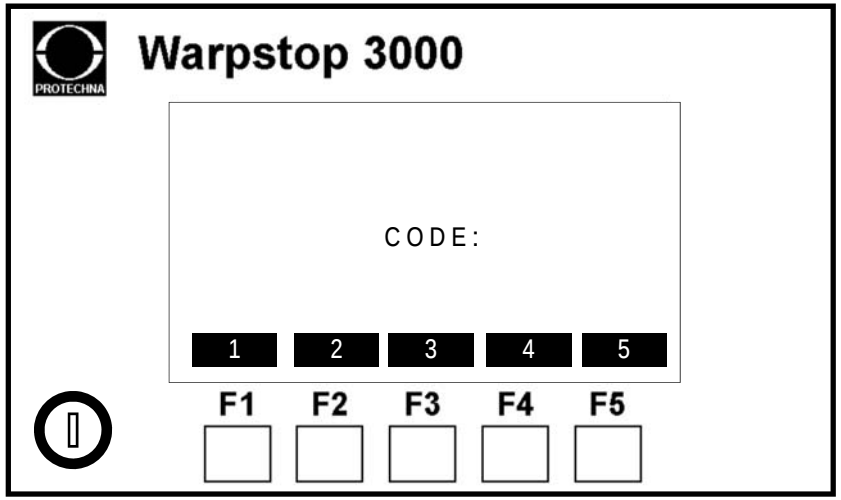
F3 - Beam: Re-setting the slub counter and metre counter for the warping length. The input must be confirmed with YES (F1).

F4 - Creel: This key only is only activated in connection with the optional available **WarpWatch** programme. The input must be confirmed with YES (F1).

F5 - Info: By pressing this key it is possible to get the following information:

Display	Information
Software version	Display of the software version of the programme being used. In the case of queries it is possible you may be asked which software you have.
System condition	System status display
Display	Display and input possibility for the length measure unit (metre or yard)
Distance between beds	Display and input possibility for the distance between the two detecting heads.
Pulses	Display and setting possibilities for the number of pulses per Metre/Yard. This setting is dependent on the type of the magnetic foil.
Test operation	Switching possibilities between normal operation and test operation.

Function Keys - Code Number Input



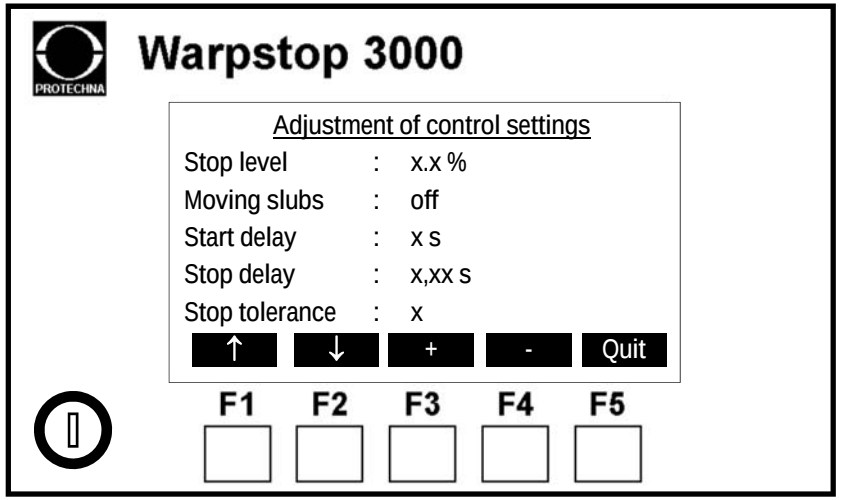
This menu opens automatically, if you want to change the settings (Adjust) in one of the menus and the code number input function is activated.

The code number is: **4 5 2 1 3**.

Please press the following keys **in sequence**:
F4 - F5 - F2 - F1 - F3

Then the corresponding input menu will open.

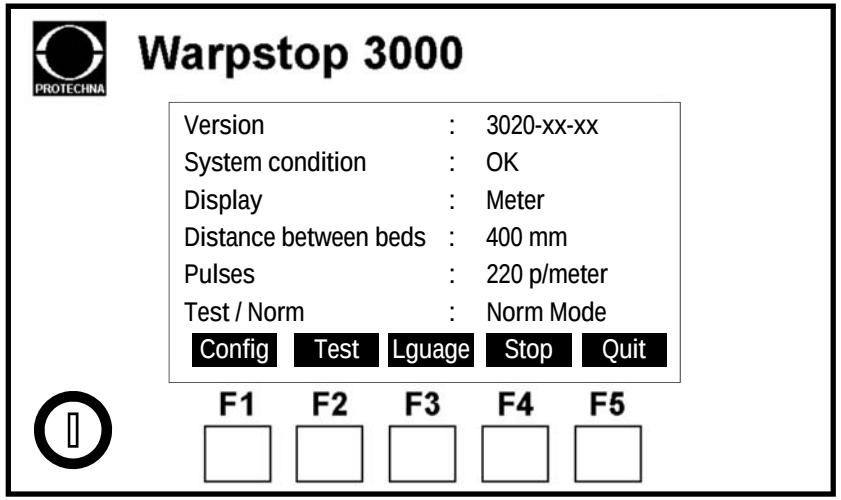
Function Keys - Setting Menu



The setting menu may be safeguarded with a code number.
The code number is: **4 5 2 1 3**.

F1 - Arrow up:	Setting position upwards
F2 - Arrow down:	Setting position downwards
F3 - (+):	To increase a value
F4 - (-):	To decrease a value
F5 - Quit:	To exit the setting menu

Function Keys - Info Menu (only Display)



F1 - Config: By pressing this key it is possible to enter the setting menu. The setting menu may be safeguarded with a code number. The code number is: **4 5 2 1 3**.

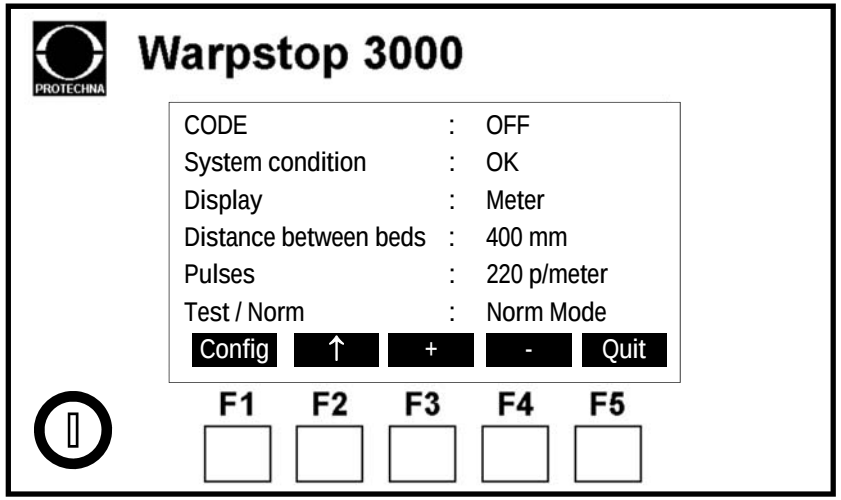
F2 - Test: Switching between normal operation and test operation. To switch over this key must be pressed and held for approx. 5 seconds.

F3 - Lguage: By pressing this key it is possible to enter the language menu

F4 - Stop: By pressing this key it is possible to enter a pre-set length, at which the warping machine shall be stopped.

F5 - Quit: To exit the info menu

Function Keys - Info Menu (Enter Settings)



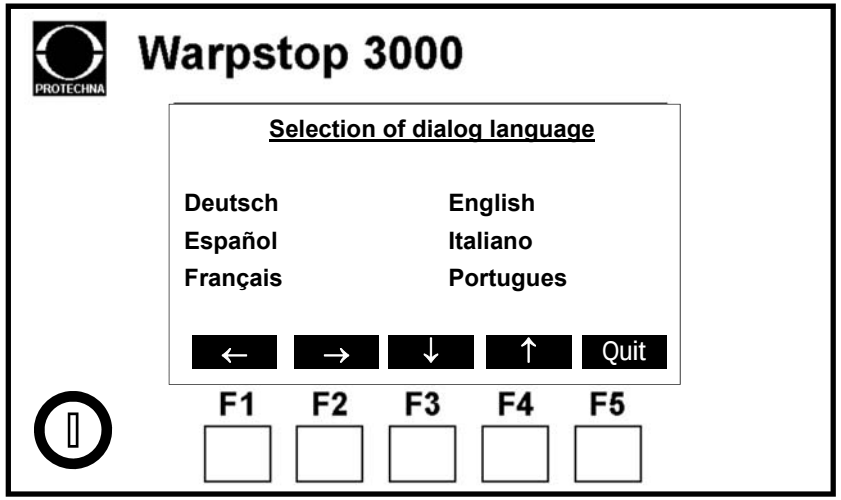
The setting menu may be safeguarded with a code number.
The code number is: **4 5 2 1 3**.

It is possible to alter the following settings in this menu:

Code:	Code number input function On or Off
Display:	Metre or Yard
Distance between beds:	Distance between the two overrun profiles
Pulses:	Setting the number of pulses per Metre/Yard. This setting is dependent on the type of the magnetic foil.

F1 - Config:	Without function in this display
F2 -Arrow:	To change the setting position
F3 - (+):	To increase a value
F4 - (-):	To decrease a value
F5 - Quit:	To exit the info menu

Function Keys - Language Menu



(You get to this menu via the information display)

F1 - Arrow left: Setting position to the left

F2 - Arrow right: Setting position to the right

F3 - Arrow down : Setting position downwards

F4 - Arrow up: Setting position upwards

F5 - Quit: To leave the setting menu

General User Information

- Before you first turn on the yarn inspector, make certain that the correct required voltage rating for the device matches that of the power supply.
- When you turn on the yarn inspector, the control unit will be initialised for a short moment.
- Be careful to make sure that all plugs are securely screwed in. Plugs which are not screwed in can influence the surveillance device in a negative manner.
- Please handle the light wave conductors with great care. For example, if they bent they could become unusable. This will result in them having to be replaced.
- Keep the optics of the inspection head clean. Avoid fingerprints on the optics. Clean the optics using a dry lint free cloth only.
- When you are entering information in the control unit and have not keyed a function for longer than 30 seconds, the display will revert back to the operation menu.
- Please make sure that the stopping threshold is set **higher** than the yarn noise level.

- **Info Key (F5)**
  In the case of a fault in the surveillance system, further information about the cause of it can be requested at the operational display by pressing the key **Info** (F5). If a fault is present, the **Info** display will blink.
- **Beam Key (F3)**
  By pressing this key the fault counter and the metre counter for the warped length will be reset at zero. The input must be confirmed with YES (F1).
- **Creel Key (F4)**
  This key only is only activated in connection with the optional available **WarpWatch** programme. The input must be confirmed with YES (F1).
- **F-Stop Key (F2)**
  False stop key. If you press the F2 key after a false stop, the slub counter is reduced by one. The input must be confirmed with YES (F1).
- **Test Operation**
  The surveillance device can also be used to count the yarn faults without stopping the machine. When you wish to use this function, please switch the unit to the test mode operation. The switching possibilities will be displayed at the info. display. The function key to switch between Normal- and Test running must be pressed and held in for approx. 5 seconds.

General User Information

- **Impulse Giver**
  The impulse giver should be connected into the back of the control unit, with the 4 pin socket, into the board **MS 3000**..

  When using materials which is stretched, then the impulse giver must always be mounted on one of the over-run rollers which are generally found near to the inspection head bed.

- **Display of the Machine Speed**
  The surveillance device also has the possibility to display the machine speed. This information is displayed on the LCD display of the control unit next to the line - Machine Status, whilst the machine is running.

  When working with materials that is stretched, it can happen that the machine speed display, could vary with the indicated speed indicator on the warping machine.

- **Display of the Slub Position**
  After the machine was stopped by a slub, the position of the slub (in the direction of the movement of the yarn) is shown. This information is displayed on the LCD display of the control unit next to the line Machine Status, whilst the machine is standing.

  After recognising the slub and activating the stop relay the following display appears (Example): Pos: 1.23 mtr (yrd). The display is shown until the machine is restarted.

- **Stopping the Warping Machine**
  The WARPSTOP control unit can be used to stop the warping machine when reaching a pre-set warped length.

  Please note, that the length displayed at the WARPSTOP control unit can differ from the actual warped length. This is dependent on the mounting position of the magnet foil.

  When the pre-set length was reached and the machine was switched off, the machine remains locked until the metre counter and the slub counters are set to Zero by pressing the **Beam (F3)** key.

Setting the Stop Level (Sensitivity)

To carry out the setting of the stop level Sensitivity) please proceed as follows:

Position	Description
1	Turn the control unit on. The power supply indicators must light.
2	Press the key **F1 (Adjust)** on the control unit to enter the setting menu. The setting menu may be safeguarded with a code number. The code number is: **4 5 2 1 3**.
3	Press the key **arrow up** or **arrow down** until the value next to the line **Stop level** is flashing.
4	Press the key **(+)** until the value is approx. 5 %.
5	Exit the setting menu by pressing the key **Quit**.
6	Start the warping machine.
7	The bar graph displays on the LCD screen will now show the basis yarn noise level of the warp sheet. The precise value of the noise level will be found next to each of the bar graph displays.
8	Please make note of the value of the noise level. This value is decisive in determining the position of the sensitivity setting.
9	Press the key **F1 (Adjust)** on the control unit to enter the setting menu. The setting menu may be safeguarded with a code number. The code number is: **4 5 2 1 3**.
10	Press the key **arrow up** or **arrow down** until the value next to the line **Stop level** is flashing.
11	By pressing the keys **(+)** and **(-)**, please set the value for the sensitivity (stop level) approx. 1 % higher than the basic yarn noise level.
12	Exit the setting menu by pressing the key **Quit**.

This setiing is only a basic setting. The exact setting of the sensitivity depends first of all upon your requirements. Please note, however, that the value is always **higher** than that value which is displayed as the basic noise level.

Further Settings

Moving Slubs

In some cases, moving slubs cannot be recognised correctly by the surveillance device although they are usually rather big in size. Since this kind of slubs are not firmly connected to the thread, they are held back for a short time at every overrun profile of the inspection head beds and therefore do not pass the second inspection head bed within the permitted time window (see also: Stop Tolerance Setting).

By activating this function, slubs are exclusively recognised by the second inspection head bed when they exceed an adjustable size.

Please note that at active moving slubs evaluation the machine is immediately switched off, when a slub exceeding the pre-set value passes the second inspection head bed. **The DUO function is not active for these slubs.**

The setting range for this function is 4 % to 11 % (in 1% steps). The setting **Off** turns this function off.

If the LCD screen is still displaying the operation menu, then please switch to the setting menu by pressing the key **F1 (Adjust)**. The setting menu may be safeguarded with a code number. The code number is: **4 5 2 1 3**.

Press the key **arrow up** or **arrow down** until the value next to the line **Moving Slubs** is flashing. Then set the required value, as of which slubs shall lead to switching off the machine directly, by using the keys **(+)** or **(-)**.

If you do not wish to carry out any further settings, please press the key **Quit**. The display at the LCD screen will now change back to the operational menu.

Start Delay

An adjustable start delay avoids false stopping during the start up phase of the warping machine.

Please set the time for the start delay for only as long as necessary. During the commencement of the start delay phase, the warp sheet will not be controlled.

The start delay allows settings in the range of 0 to 20 seconds to be used.

If the LCD screen is still displaying the operation menu, then please switch to the setting menu by pressing the key **F1 (Adjust)**. The setting menu may be safeguarded with a code number. The code number is: **4 5 2 1 3**.

Press the key **arrow up** or **arrow down** until the value next to the line **Start Delay** is flashing. Then set the required time, using the keys **(+)** or **(-)**.

If you do not wish to carry out any further settings, please press the key **Quit**. The display at the LCD screen will now change back to the operational menu.

Further Settings

Stop Delay

The device has the possibility to set a stopping delay phase. Should you wish to activate this stop delay, following the stop signal from the Warpstop unit one can pre-set a time before the machine is brought to a halt.

Please activate the stop delay only when an achievable braking distance is present. If a too great a value for the stop delay is input, it could be possible that the yarn fault could pass onto the warp beam. Normally the stop delay phase should be switched off.

The stop delay allows settings in the range of 0 to 1.2 seconds to be used (in 0,01 second steps).

If the LCD screen is still displaying the operation menu, then please switch to the setting menu by pressing the key **F1 (Adjust)**. The setting menu may be safeguarded with a code number. The code number is: **4 5 2 1 3**.

Press the key **arrow up** or **arrow down** until the value next to the line **Stop Delay** is flashing. Then set the required time, using the keys **(+)** or **(-)**.

If you do not wish to carry out any further settings, please press the key **Quit**. The display at the LCD screen will now change back to the operational menu.

Stop Tolerance

Once a yarn fault is detected by the first inspection head, this yarn fault has to be present at the second inspection head after a given time. This time depends on the yarn speed. The yarn speed ist detected permanently by an impulse sensor to enable the control unit to activate the second inspection head for a short time in order to stop the machine. This short time is defined as stop tolerance.

The stop tolerance can be set in impulses received from the impulse sensor. The higher the number of impulses is set, the longer the second inspection head is active. The stop tolerance can be set between 1 and 5 impulses. The normal setting is 2. However, if loose slubs occur on the yarn the setting 5 is required.

If the LCD screen is still displaying the operation menu, then please switch to the setting menu by pressing the key **F1 (Adjust)**. The setting menu may be safeguarded with a code number. The code number is: **4 5 2 1 3**.

Press the key **arrow up** or **arrow down** until the value next to the line **Stop Tolerance** is flashing. Then set the required number, using the keys **(+)** or **(-)**.

If you do not wish to carry out any further settings, please press the key **Quit**. The display at the LCD screen will now change back to the operational menu.

Further Settings

Reset of the Fault Counter and the Metre Counter

The resetting of the fault counter and the metre counter for the warping machine takes is carried out in the operational display.

At the line **Counter** in the operational display, the number of stoppages of the machine caused by the surveillance device will be displayed.

At the line **Length** the production in metres or yards will be displayed.

When you wish to reset this displays to the zero position. please press the key **F3 (Beam)**. The input must be confirmed with YES (F1).

Impulse

The device is normally despatched with a pre-set pulse count of 220 impulses per metre.

When a difference in the pulse count at the magnetic foil position is indicated you must alter this setting.

If the LCD screen is still showing the operational display, then please switch to the Info display by pressing the key **F5 (Info)**. Please switch forward into the setting menu by pressing the key **F1** (**Adjust**) in the info display. The setting menu may be safeguarded with a code number. The code number is: **4 5 2 1 3**.

Press the **arrow key**, until the value next to the line **Pulses** starts to blink. Please then set the required pulse count using the keys **(+)** and **(-)**.

When no further settings are required, please press the key **Quit**. The display on the LCD screen will now change back to the operational display.

If you should use yards as length measure unit, then the pulse count for the delivered magnet foil must be set to **201** impulses per yard.

Please make a note of the pre-set pulse count. Only in this way is it possible to reset again the correct pulse count when it has been inadvertently changed.

Further Settings

Language

The device has the capability to operate in different languages.

If the LCD screen is still showing the operational display, then please switch to the Info display by pressing the key **F5 (Info)**. Please switch forward into the language menu by pressing the key **F3** (**Lguage**) in the info display.

Please set the required operator language, using the **arrow keys**. The selected language blinks on the display.

If you do not wish to carry out any further settings, please press the key **Quit**. The display at the LCD screen will now change back to the operational menu.

Distance between Inspection Head Beds

When a yarn fault has been detected by the control unit, the second inspection head must respond and be activated at a precise time period This means that the space distance between the two inspection heads must be set correctly.

Using the mounting parts delivered for the two inspection heads, a space spacing distance of **400 mm** must be set. Normally the device is despatched with the mounting parts set-up for the required distance.

If due to grounds of a variance of distance between the two inspection heads during assembly, then the setting must be altered.

If the LCD screen still displays the operational signal, then please switch to the Info display by pressing the key **F5 (Info)**. Please switch forward into the setting menu by pressing the key **F1** (**Adjust**) in the info display. The setting menu may be safeguarded with a code number. The code number is: **4 5 2 1 3**.

Please press the **arrow key** until the value next to the line **Distance between beds** blinks. Then please set the correct distance between both of the inspection heads using the keys **(+)** and **(-)**.

When no further settings are required, please press the key **Quit**. The display on the LCD screen will now change back to the operational menu.

Please make a note of the pre-set distance setting. Only in this way is it possible to reset again the correct spacing between both the beds, if the setting has inadvertently been changed.

Further Settings

Test Operation / Normal Operation

The surveillance device can also be set to count the yarn faults only, without causing the machine to be stopped. When you wish to use this function, please switch the device to its test operation.

When the surveillance device is in its test mode, it cannot cause the machine to be stopped.

If on the LCD screen, the operational menu is still displayed, then please switch to the info display by pressing the key **F5 (Info)**.

Press the function key **F2** for approx. 5 seconds until the display next to the line **Test/Norm** changes to read **Test Mode**.

When no further settings are required, please press the key **Quit**. The display on the LCD screen will now change back to the operational menu.

To return to the normal operation mode, carry out the procedure as above. Please press the function key **F2** in the info display for so long until the display next to the line **Test/Norm** changes to **Norm Mode**.

Display

The display of the control unit can be switched over between metre and yard.

If the display is switched over to yard, the input pulses/metre is switched over to pulses/yard. Please, also correct this value.

If the LCD screen still displays the operational signal, then please switch to the Info display by pressing the key **F5 (Info)**. Please switch forward into the setting menu by pressing the key **F1** (**Adjust**) in the info display. The setting menu may be safeguarded with a code number. The code number is: **4 5 2 1 3**.

Please press the **arrow key** until the value next to the line **Display** blinks. Then please set the required display using the keys **(+)** (for yard) and **(-)** (for metre).

When no further settings are required, please press the key **Quit**. The display on the LCD screen will now change back to the operational menu.

Independent of the chosen length measure unit the input for the distance between the two overrun profiles (Distance between beds) remains in millimetres.

Further Settings

Code Number Input Function

The setting menus (Adjust) can be protected by a code number against accidental alteration.

It is necessary to enter the code number every time when switching in one of the setting menus, when the code number input function is activated. The code number is: **4 5 2 1 3**. The code number cannot be altered.

If the operational display is still shown on the LCD screen, then please switch to the Info display by pressing the key **F5 (Info)**. Please switch forward into the setting menu by pressing the key **F1** (**Adjust**) in the info display. The setting menu may be safeguarded with a code number. The code number is: **4 5 2 1 3**.

Please press the **arrow key** until the text next to the line **Code** blinks. Then please set the required function using the keys **(+)** (ON) and **(-)** (OFF).

When no further settings are required, please press the key **Quit**. The display on the LCD screen will now change back to the operational menu.

Stopping the Warping Machine

The WARPSTOP control unit can be used to stop the warping machine when reaching a pre-set warped length.

Please note, that the length displayed at the WARPSTOP control unit can differ from the actual warped length. This is dependent on the mounting position of the magnet foil.

If the operational display is still shown on the LCD screen, then please switch to the Info display by pressing the key **F5 (Info)**. Please switch forward into the stopping menu by pressing the key **F4** (**Stop**) in the info display.

It is possible to set the length, at which the machine shall be stopped, in steps of 10.000 m, 1.000 m, 100 m and 10 m by using the keys **F1** to **F4**. The set value is displayed in the line **Warping Length for Stop**.

If you do not wish to stop the warping machine by the control unit, the value in the line **Warping Length for Stop** must be set to **Zero**.

When no further settings are required, please press the key **Quit**. The display on the LCD screen will now change back to the operational menu.

Notes

Operation

Turn on the control unit. All indicator diodes on the back of the control unit must light up.

Start the warping machine. The surveillance device will be in operation after the running of the pre-set start delay phase.

If a fault occurs in the warp sheet exceeding the stop threshold level, the machine will be stopped immediately or after completion of a pre-set stop delay phase.

The fault counter on the control unit will move forward another digit and remain in this position until the machine has been re-started.

Last Stopping Signal

The surveillance device has the capability to display the size of the last stopping signal. If a fault occurs in the warp sheet exceeding the stop threshold level, the machine will be stopped.

The size of the signal is displayed on both of the bar graphs and the value of the signal is displayed next to them. This display will remain until the machine has been re-started.

Mono Operation

If there is a failure of one of the inspection heads or the impulse giver, the surveillance system will switch automatically to the Mono operation. Should one of these faults occur, the display **Info** will blink. A respective fault signal can be seen at the operational display using the key **Info** (F5).

Display of the Machine Speed
see: **General operating instructions**

Key (F5) Info
see: **General operating instructions**

Display of the Slub Position
see: **General operating instructions**

Stopping the Warping Machine
see: **General operating instructions**

Automatic Device Control

The WARPSTOP Series 3000 is fitted with an automatic level adjustment device for the transmitter. This regulator keeps the system always in its optimum working condition and compensates for slight soiling of the optical system as well as variances in the thread thickness of the material being checked.

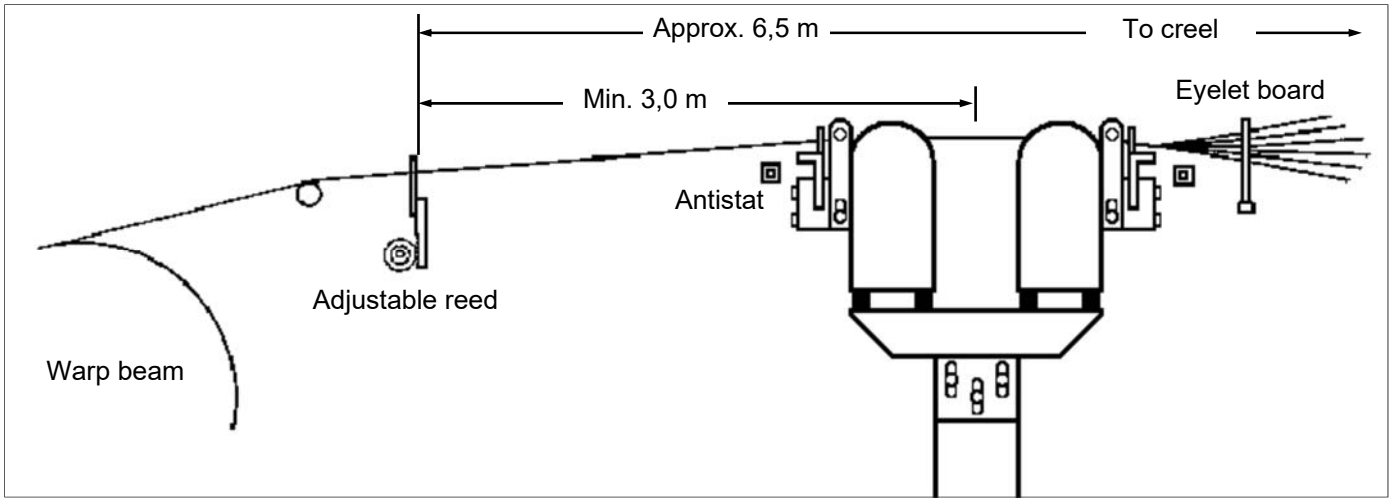
The display for this regulation function is found at the back of the control unit. The indicator diodes **PEGEL** (Level) on the boards **SE 3000** must light. When the regulation cannot cope with setting the optimal level, the warping machine will be stopped automatically and the respective indicator diode will be extinguished.

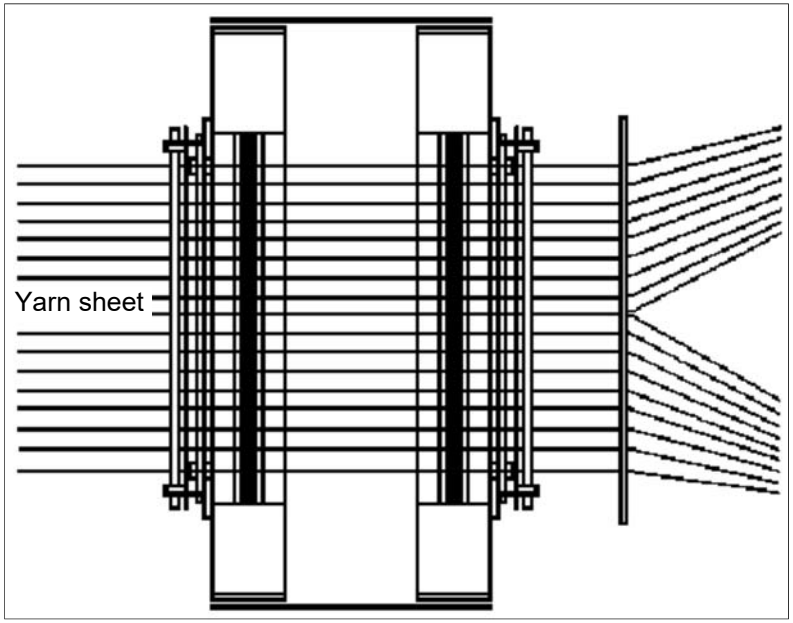
In this case, you should first of all clean the optics of the inspection head using a soft dry cloth.

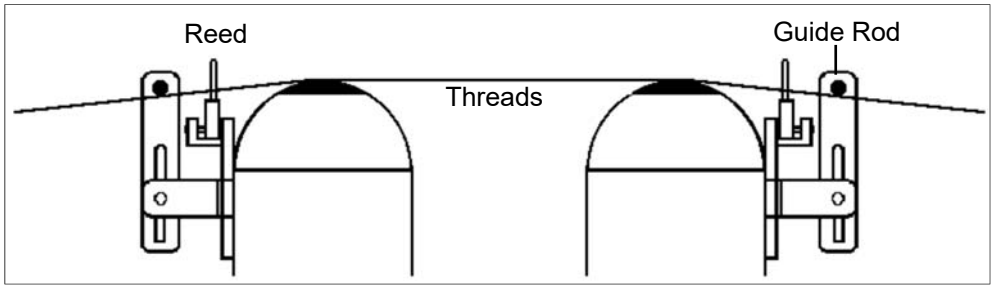
Other causes could be:
- Defective transmitter
- Defective receiver
- Defective light wave conductor
- Defect in the electronic control for the transmitter
- Interrupted light beam

Notes

Assembly - Drawings







Assembly

As you will see from the drawing above, to obtain the best possible performance from the yarn inspector, the distance between the warping machine and the creel should be at least 6,5 meters.

The inspection heads should be positioned between the warping machine and creel at a point exactly on the centre line - with a minimum distance of 3,0 m from the inspection heads to the pin reed.

The control unit should be mounted at the front, directly on the warping machine (see drawings below). In this way, the setting of the sensitivity, as well as the monitoring of the fault counter is made easy.

For the electrical connection of the unit, as well as the linking up of the components, these cables are supplied:

- One power/control cable - 7 pin
- Four light wave conductors to the inspection heads
- One connection cable for the impulse giver - 4-pin

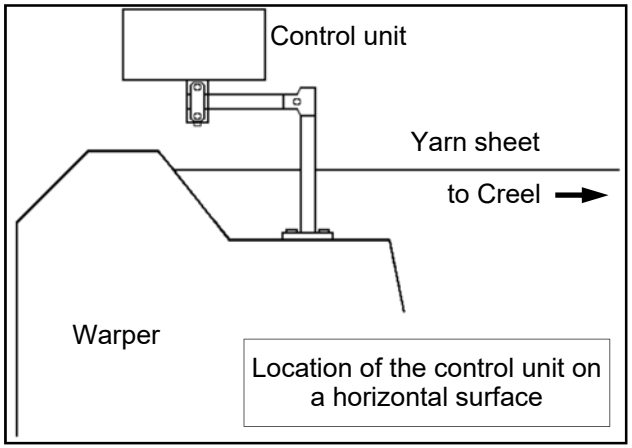
The Customer should provide:

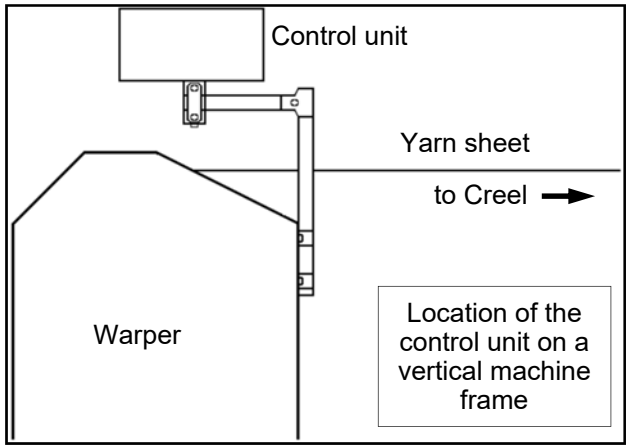
- Warping reeds
- Eyelet board
- The necessary antistatic tubes

As you will see from the drawing above, the use of antistatic tubes and two comb reeds are recommended. The quantity of the recommended antistatic tubes depends on the prevalent conditions (humidity, type of yarns etc.).

Regardless that the WARPSTOP is in the main insensitive to stray fields and electrical interference, one should avoid that the connections to the antistatic tubes are arranged together with the cables to the WARPSTOP unit.

The following assembly refers to the WARPSTOP Series 3000 Type 3020 DUO. If this system is used in conjunction with a PROTECHNA end break detector model FSG or CAMSCAN, then the respective assembly instructions for the thread break system must be followed.





Assembly

First please assemle the stands. The stands should be assembled into a position which will be approx. that of the working height of the inspection heads.

The stands should now be located at a minimum distance of 3 m away from the pin reed.

To install the inspection heads it is not necessary to removed the yarn sheet from the warping machine. The inspection heads can be moved under the yarn sheet and then mounted onto the stands using the supplied shock absorber.

You will see from the drawings on pages 28, how the inspection heads are mounted onto the stands.

Drawing on page 28: In this drawing the measurements are indicated, which must be followed in order to achieve the best possible performance from the WARPSTOP. The WARPSTOP and the creel should both be set -up according to these measurements. The minimum space was be established by trial and should also take into account the speed of the warping machine.

The installation of the reeds can be seen from looking at page 28.

The height of the inspection heads must be adjusted with the hight adjustment scrwes, so that when working with the largest beam diameter an approx. yarn path is achieved, as shown in the drawing on page 28.

The horizontal position of the inspection heads must be checked and then set with the use of a spirit level. Following this, the locking nuts for the hight adjustment can be fixed in place.

The eyelet board and the guiding rods must be placed in such a position, that the threads at the guiding rods form a yarn sheet. At the same time, the guiding rods must be in such a deep position, that the threads can never be displaced away from the over-run rods (see drawing page 28).

The guiding rods must be set up parallel to the over-run rods.

Screw the foot plates firmly to the floor.

It is very important to make sure that you have a perfect earthing of both the inspection heads and also the control unit!

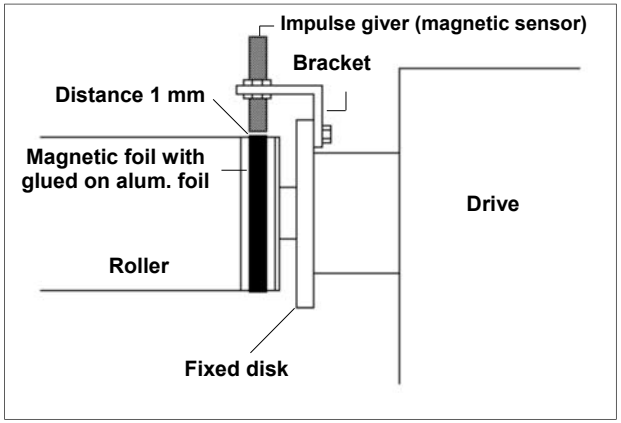
Important! When setting up the inspection heads it is vital to place them in the correct position. The inspection head facing the creel is channel 1, the inspection head facing the warping machine is channel 2.

Assembly of the Impulse Giver

Please do not forget to check the correct pulse count for the foil and if needed reset !

The impulse giver is necessary to measure the actual yarn speed.

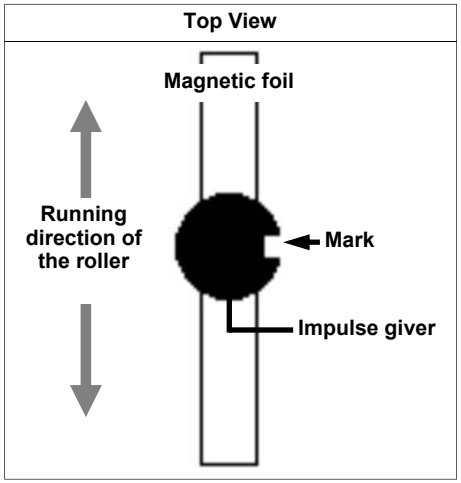
The impulse giver should be mounted on one of the rollers on the warping machine or levelling roller device i.e. which give the running speed of the yarn (see also: **General operating instructions**). The distance and position of the impulse giver relative to the roller, can be seen on the drawings.



With machines, in which the selected roller alters or changes, you should check to see if the stroke to the impulse giver is smaller than +/- 5 mm. Otherwise one should use a different roller which meets the required specification.

Finally, the magnetic foil supplied, must be attached to the levelling roller. As the foil is glued in place, please make sure that the surface to which it is to be fixed to, is absolutely free from any oil or grease.

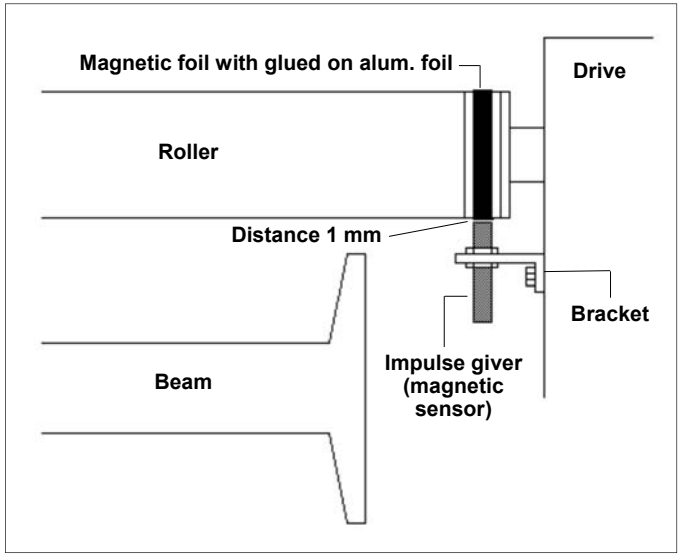
The fitting of the foil will be made easier if you first mark the position it is to be placed in, on the levelling roller.



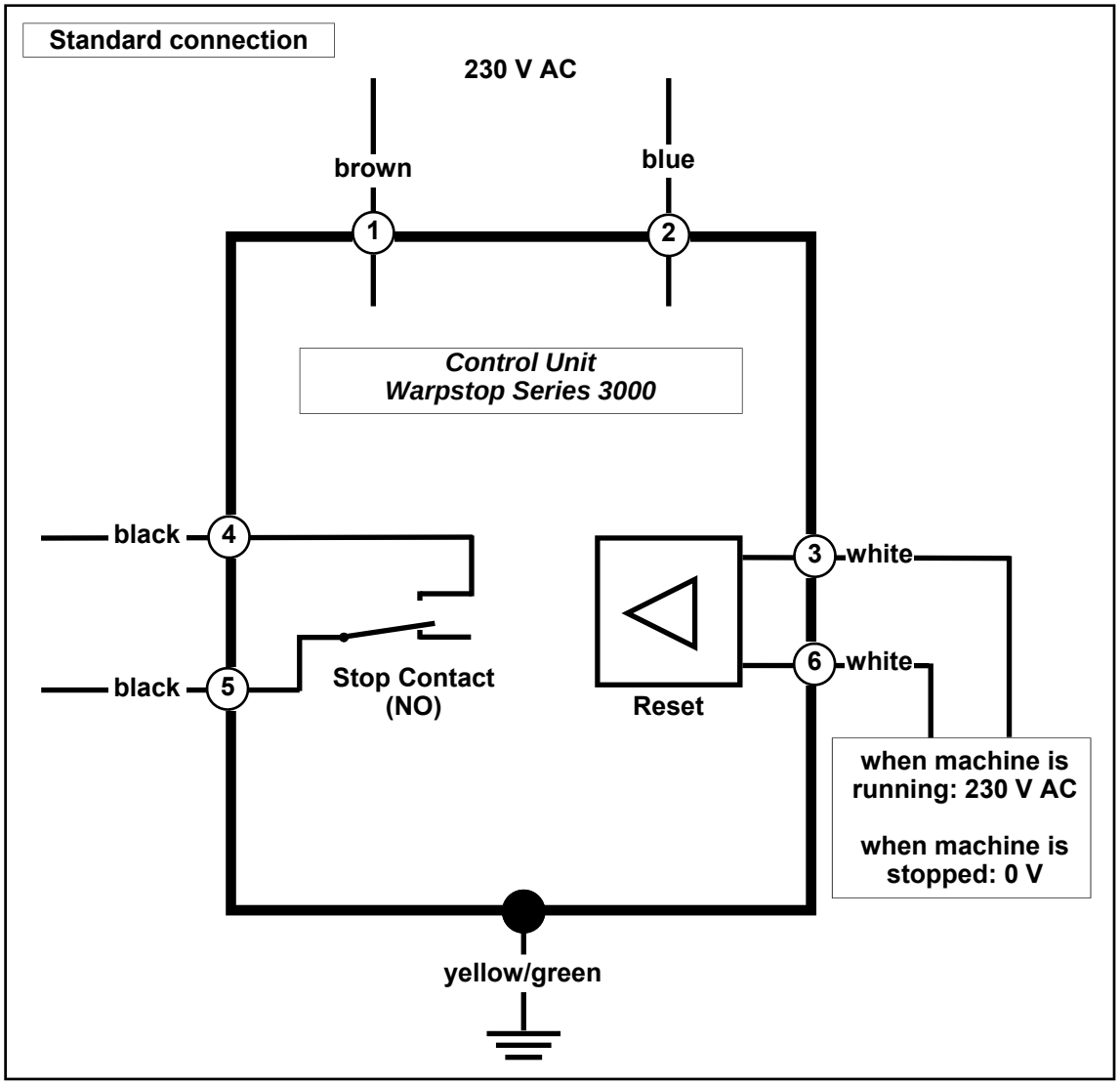
Please apply the foil to the roller using pressure, but do not stretch it.

Finally, the supplied aluminium foil has to be fixed on top of the magnetic foil. The aluminium foil has to cover the magnetic foil completely.

The impulse giver cable is plugged into the 4-pin socket on the board **MS 3000** on the back of the control unit.



Electrical Connection - Control Unit WARPSTOP Series 3000



The electrical connection must only be carried out by suitably qualified technical personnel.

Before the electrical connection, you must make absolutely sure that there is no danger to come into contact with any parts that might carry live electricity.

The electrical standard connection between the control unit and the machine switch box is made via the 7 pin power/control cable. This cable should be plugged into the socket **Netz** (power) at the back of the control unit.

This information is only relevant, if you have received a surveillance device WARPSTOP Series 3000 in the USA version. This version is clearly marked with **115 V** labels, which are placed on the back of the control unit. The electrical data for the unit are as follows:

Power supply:	115 V AC
Reset voltage:	115 V AC

Electrical Connection - Control Unit WARPSTOP Series 3000

Before the electrical connection, you must make absolutely sure that there is no danger to come into contact with any parts that might carry live electricity.

Power Supply
The control unit is connected using the wires 1 (brown) and 2 (blue) to a alternating current of 230 V AC and with a frequency of 48 to 66 Hz. The yellow/green wire must be connected to the earth of the switch box.

Reset Input
During the normal operation of the machine (machine running) the wires 3 (white) and 6 (white) should have a voltage of 230V AC/DC +/- 20%. During the inching drive operation or when the machine is stopped, there must be no power present at these wires.

Stop Contact
The wires 4 (black) and 5 (black) should be connected to the stopping device of the machine. They serve to provide a potention free relay contact which will be activated during a fault. This contact is set up as a closed type.

This information is only relevant, if you have received a surveillance device WARPSTOP Series 3000 in the USA version. This version is clearly marked with **115 V** labels, which are placed on the back of the control unit. The electrical data for the unit are as follows:

Power supply: 115 V AC
Reset voltage: 115 V AC

It is very important to make sure that you have a perfect earthing of both the inspection heads and also the control unit!

Low Voltage Reset
To use the low voltage reset, an additional control cable must be plugged into the socket **RESET** at the rear of the control unit.

At the wires 1 (white) and 2 (brown) of the additional control cables during the operation of the machine (machine running) a voltage of 24 Volts AC/ DC +/- 20% must be present. During the inching drive operation, or when the machine is stopped, there must be no power present at these wires.

In the case of DC the polarity can be disregarded.

When using the low voltage reset, the wires 3 and 6 of the power/control cables must **not** be connected.

Semi Conductor output
To use the semi conductor output, an additional control cable must be plugged into the rear of the control unit at the socket **RESET**.

The wires 3 (green = minus) and 4 (yellow = plus) of this additional control cable should be connected with the electronic stopping equipment of the machine. They serve to provide a potention free semi conductor output with the following data: U max. = 30 V DC, I max. = 0,25 A, NO contact.

When using the semi conductor output, the wires 4 and 5 of the power/control cable must **not** be connected.

Plug Connectors- Control Unit WARPSTOP Series 3000

Connection of the Inspection Heads

	Please handle the light wave conductors with great care. For example, if they bent they could become unusable. This will result in them having to be replaced.
⚠	Please make sure that the light wave conductors for each inspection head are plugged into the respective sockets on the rear of the control unit. The light wave conductors from the inspection head facing the creel have to be plugged into the sockets on the SE 3000 board for channel 1, the light wave conductors from the inspection head facing the warping machine have to be plugged into the sockets on the SE 3000 board for channel 2.
	Please lead the light wave conductors from the control unit to the cable channel only in the enclosed protection tube. If the light wave conductors should be longer than needed, put the excess cable **carefully** in e.g. one floor stand or the cable channel, please.

For the connection between the control unit and the inspection heads the light wave conductors are used. The light wave conductors are plugged into the sockets on the boards **SE 3000** on the back of the control unit. The sockets for the light wave conductors are equipped with safety caps which should have now been removed.

- Turn the control unit on.
- Plug the light wave conductors from the inspection head facing the creel into the sockets on the SE 3000 board for channel 1. The end of the light wave conductors are equipped with a safety caps which should have now been removed. *)
- Plug the light wave conductors from the inspection head facing the warping machine into the sockets on the SE 3000 board for channel 2. The end of the light wave conductors are equipped with a safety caps which should have now been removed. *)

  *) The polarity of the light wave conductors can be disregarded.
- The green indicator diodes **PEGEL** (Level) on both SE 3000 boards must light.
- Turn the control unit off.

Connection of the Impulse Sensor

The impulse sensor is plugged into the 4-pole socket on the board **MS 3000** on the back of the control unit.

Serial Data Interface (optional)

The control unit WARPSTOP Series 3000 has the capability to operate diverse special functions via a serial data interface. If no special functions are ordered, this interface is not available.

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Notes

Technical Data

Control Unit Series 3000

Environmental conditions

Operation:	0° C to 50° C
Humidity:	max. 95 % RH
Storage:	-20° C to +70° C

Power Supply

Continous:	230 V AC +/- 20 %, 48 Hz to 66 Hz or 115 V AC +/- 20 %, 48 Hz to 66 Hz
Fuse	230 V AC: 0,5 A 115 V AC: 1,0 A
Performance rating	< 45 VA

Measurements

Width / Hight / Depth:	265 mm / 155 mm / 265 mm
Weight	7,1 kg
Safety classification	IP 54

Impulse Giver

Environmental conditions

Operation:	0° C to 50° C
Humidity:	max. 95 % RH
Storage:	-20° C to +70° C

Measurements

Length:	70 mm
Ø Body:	12 mm
Ø incl. cable rqadius and connection:	85 mm
Normal switching distance:	2 mm
Principle of measurement	magnetic
Weight	0,15 kg
Safety classification	IP 54

EC - Conformity Declaration

We hereby declare:

Protechna Herbst GmbH & Co KG
Lilienthalstr. 9
85579 Neubiberg
Germany

That the product to the following description insofar as its original design and construction and also the model now despatched by us, corresponds to the relevant safety and health requirements laid down by the EC Directives.

Any alteration of the product carried out without permission nullifies this declaration.

Description of the product: **Yarn Inspector**

Type: **Warpstop**

Model - No. **Series 3000**

Relevant EC Directives:

EC - Directive relating to Electro-Magnetic Tolerance (89/336/EEC) followed by 93/31/EEC

EC - Low Voltage Directive (73/23/EEC)

Applied co-ordinating standards, in particular:

DIN EN 50 081 Part 2	Electromagnetic Tolerance (EMV) Technical base standard interference emission
DIN EN 50 082 Part 2	Electromagnetic Tolerance (EMV) Technical base standard inteference strength
DIN EN 60 204	Electrical equipment on industrial machines
DIN EN 61 010	Safety regulations for measuring, controlling, regulating and laboratory equipment

Applied national standards and technical specifications, in particular:

DIN VDE 0100

Signature of manufacturer: W. Bühler

Dipl. Ing. W. Bühler

Details of signatee: Development Manager

Date: January 1996