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## 1 Safety instructions

- Always follow all warnings and information that is affixed to or noted on the device itself, or included in this manual.
- This device is sensitive to electrostatic discharge, which may cause damage to the interior of the device or affect its normal operation. Please observe the required precautions when handling components liable to damage as a result of electrostatic discharge.
- Always disconnect the device from the power supply before cleaning, or before removing or installing a device option.
- Do not use any liquid detergents or cleaning sprays for cleaning. Always use only a damp cloth for cleaning.
- Never operate the device in locations where there is a risk of water or other liquids entering the device.
- The place where the device is installed should be sufficiently stable, as the device can be severely damaged by strong impacts, e.g. as a result of it falling to the floor.
- Make sure that the power supply used matches the voltage values as specified for the device.
- Never attempt to insert objects into openings on the device, as short circuits or electric shock could result from the voltage present inside the device.
- Do not attempt to repair the device yourself. Only perform actions on the device as expressly instructed by the manual. Otherwise, you run the risk of touching dangerous live parts inside the device.
- All installation work must be carried out by PROTECHNA technicians or by professional machine technicians and electricians.



All electrical connections must be completed by suitably-qualified personnel.

Before making any electrical connections, ensure that there is no risk of personnel coming into contact with live parts.



Use only a dry cloth for cleaning the inspection head beds on the COGAS-TOP CREEL 2 Series 3210. To remove stubborn dirt, use **only isopropyl alcohol** as an additional agent.

## 2 Functional description

#### 2.1 General

The COGASTOP CREEL 2 3210 is used for the automatic detection of yarn defects affecting spun and filament yarns during the warping or beaming process. Slubs, knots and spinning defects can be detected. The warping machine can be stopped in the event of such yarn defects.

During the warping process, slub logs are recorded continuously, which can then be exported via USB.

The yarn monitoring system consists of a COGASTOP CREEL 2 3210 control unit with integrated control panel and one or more inspection head beds, depending on the application. The COGASTOP CREEL 2 3210 provides yarn quality monitoring at every level, directly on the creel. The number of inspection head beds therefore depends on the number of levels on the creel. A maximum of 20 inspection head beds can be connected.

#### 2.2 Series 3210 control unit with integrated control panel

On the control unit, the yarn signal is compared with the configurable machine stop threshold. The warping machine is then stopped if the following conditions are met and the system is being **operated normally**:

#### Major

Machine stopped immediately if the major machine stop threshold is exceeded

#### Minor

Yarn defect counter is incremented without stopping machine if minor machine stop threshold is exceeded

#### Length selector

Machine is stopped if a configurable number of minor slubs is exceeded during a configurable length of run (or period of time).

The control unit has an integrated control panel, featuring an LCD screen and keyboard, which is normally mounted onto the control console on the warping drum.

The LCD screen displays the level of yarn noise, the level of the last stop signal, the configured stop or count threshold, the length specification and the total number of defects.

A user-friendly system of menu screens is provided here for entering all of the operating parameters.

#### 2.3 Inspection head

The high operational reliability of the monitoring system is guaranteed by the use of advanced light barriers that handle the signal detection and transmission from the inspection heads to the control unit. Even the smallest slubs can be detected, thanks to digital sensitivity adjustment that offers a step width of 0.1%. The optical head guarantees excellent linearity of the light beam, which in turn ensures uniform sensitivity across the entire working width. The threads pass through a circular detection field roughly 10 mm in diameter. A yarn defect entering this detection field will reduce the light level proportionally to the defect size. The machine is stopped if this reduction in light level is larger than the sensitivity as configured. If an activation threshold of 10% is set, for example, more than 10% of the 10 mm detection field must be obstructed by the defect in order to stop the machine.

The rounded profile of the guide on the inspection head bed improves the yarn run while also preventing the deposition of abraded particles and slubs at the detection site.

#### 2.4 Assembly Service

The COGASTOP CREEL 2 3210 yarn monitoring system is delivered with its main components already pre-assembled. Accordingly, customers can typically finish assembly and commission the device themselves. If difficulties are encountered, however, then customers are welcome to make use of the PROTECHNA Assembly Service. Customers from outside Germany should direct enquiries about the Assembly Service to their local PROTECHNA representative.

#### 2.5 Service

Customers can request on-site assistance for their COGASTOP CREEL 2 3210 yarn monitoring system from our service technicians. Often, however, less critical issues can be clarified by phone or email, without the need to arrange a service technician call-out.

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## 3 General information

To ensure the system works as intended, the following requirements must be met:

- The system must be set up as stated in the installation instructions by professional machine technicians and electricians.
- Instructions on yarn guidance must have been properly followed (see section 3.2).

#### 3.1 Bar indicator lamps and warning lamp

#### Display of error states:

The control unit uses error messages to report yarn defects as well as malfunctions in the monitoring system itself. These are also indicated by a warning lamp, which is visible from a distance.

#### 3.1.1 Indicator lamp on the bars



Colour/light mode	Description
Blue, flashing	Initialisation after switch-on
Blue, steady	Inspection head bed switched off
Red, flashing	Inspection head bed has stopped machine
Colour sequence green - yellow - orange-red:	
Green	Signal far below switching threshold
Yellow	Signal nearer switching threshold
Orange-red	Signal just before/over switching threshold

#### 3.1.2 Warning lamp

Colour/light mode	Description
On	Monitoring active
Off	Monitoring inactive
Flashing	Machine stopped or test mode on

#### 3.2 Yarn guidance instructions

To ensure the yarn runs smoothly in the light beam, a hold-down mechanism must be fitted before and after the guide rod: this mechanism presses the threads against the rod.

If this is not done and the threads do not run smoothly, then it will not be possible to set the defect threshold low enough and false stops will occur.

Note that the original hold-down bars fitted to the COGASTOP CREEL 2 3210 inspection head bed do not necessarily need to be used – yarn guide elements already present on the creel can also be used instead.

The hold-down bars on the COGASTOP CREEL 2 3210 have knurled screws that allow their height to be set quickly and precisely.



## 4 Operating the series 3210 control unit

All operations and parameter setting for the COGASTOP CREEL 2 3210 is performed using the control unit. The corresponding menu screens are presented and explained on the following pages.



#### 4.1 Meaning of buttons on the front of the control unit

LED colour/light mode (5)	Description
Green	ОК
Yellow	Fatal boot error
Yellow, flashing	WDT reset
Red	Fatal hardware error



#### 4.2 Meaning of ports, sockets and buttons on the back of the control unit

- (7) 24 VDC Ring power feed for inspection head beds (only needed if number >14)
- (8) Lamp Socket for warning lamp
- (9) Service USB port
- (10) LV-IO Low-voltage machine port
- (11) Display Port for 8027 matrix display
- (12) LED Lit when network connection present
- (13) Sensor bus Port for inspection head beds
- (14) Pulse Socket for rotary encoder
- (15) Mains In Socket for 7-pin power cord
- (16) Earth Socket for earth connection cable
- (17) F2 Fuse for high-voltage stop contact
- (18) F1 Mains fuse
- (19) On/Off On/off switch

#### 4.3 Using the main menu

The top edge of the screen is used to display information about the logged-on **user**  $\aleph$ , the current **article** loaded and the current **production time**  $\vartheta$  after a machine stop.

The bottom edge of the main menu shows a bar with the available submenus. Press the **Info**, **Settings**, **Service** or menu button to access the respective submenu.

The right-hand edge of the screen shows links to the **bar charts for levels** (1), **slub counters for levels** (2) and **diagnostics for levels** (3) submenus. The button for **test mode ON/OFF** (4) is also shown here.



The main menu screen displays monitoring for the yarn sheet. The **Counter:** table displays the number of **major > and minor >** slubs as well as the **length selector >**.

Use the "+/-" buttons (5) to select the required percentages for the major and minor slubs.

The **switching threshold diagram** (6) displays the switching thresholds for the major (red) and minor (blue) slubs. The signal indicators are for each inspection head bed and show the size of the yarn defect measured as a percentage.

- The machine stops if a major slub exceeds the configured switching threshold.
- If a minor slub exceeds the configured switching threshold, then this is only counted the machine is not stopped.
- If parameters have been set for the length selector, then the machine stops if the configured number of minor slubs exceeds the time/length set for the length selector.

The **Machine:** table displays the length of the current beam as well as the machine's current warping speed (only visible if a pulse generator has been connected).

Press the **Beam Length: 0** button on the bottom edge of the screen to reset the length of the current beam.

#### 4.4 Status line on the main menu

The status line (1) shows the system status.

_	R Protechna	ENKALON	00:00:00	<b>€</b> ?∄	₽. 00
(1)►		Machine S	STOP: Slub detected		
U		Counter:	М	achine:	0
	<b>•</b> 5.8	14	Warp length:	3143	V
	<del></del>	408	Speed:	149	
	218	13			
	-				
			<u>————</u>		
	+		<b>•</b>		007
	<b>*</b>		A7 12.9%		
	_				
		<del></del>	· · · · · · · · ·		
	0	2 4	6 7 8 9	10 12 14 16	18 20
	Info	Settings Clr W-Len	igth	Service	

Status line text (1)	Colour	Description
No text, no status line	None	Machine stopped, no event
"Monitoring active"	Purple	Machine running, monitoring active
"Test mode activated"	Yellow	Test mode: Stop-output deactivated
"Machine stop: slub"	Red	Machine stopped due to slub

The status is shown with the following meanings at the top right-hand edge of the screen:

$\mathbf{O}$						
Icon		Designation	Description			
Ð	ф	Connectivity	Inspection head beds connected/not connected			
	(((.	Wi-Fi Wi-Fi not yet available				
		Network	rk Network not yet available			
ж. •		USB	USB device connected/not connected			
Ö	Ô	Gearwheel	Machine running/not running			
Ο	0	Test mode	Monitoring active/test mode (flashing)			

#### 4.5 Navigating in submenus



On submenu screens, available menu options are shown as **tabs** (1). The highlighted tab indicates the tab currently selected.

Please note: The path to the respective submenu/tab is displayed in the line (2).

On some submenus, special permissions are required, e.g. for the **Settings and Service submenus**. If you select one of these submenus, a **login menu** appears, where you can then enter the password (see section 9.1).

Press the **"Home"** (3) button to go back to the main menu. You can also use the **"ESC" button** on the control unit itself to go back to the previous (parent) menu screen at any time.

To edit a parameter, first select this parameter from the corresponding menu screen. Then use the **"Arrow" buttons** (4) to select the required parameter from the submenu. The current parameter is highlighted with a red border. If the parameter is a selectable value, you can use the **"+/-" buttons** (5) to page up/down in the selection. If the parameter is a numerical value, you can use either the **"+/-" buttons** (5) or the **"Pen" button** (6) to change the value. Using the **"Pen" button** (6) gives you access to a number input menu (see section 4.7). If you have changed the parameter with the **"+/-" buttons** (5), then you do not need to confirm this value individually to apply it. Changed values are applied automatically. Data transfer to the inspection head beds takes just a few seconds.

#### **Text input** 4.6 ENKALON v) 00:00:00 **Q** Protechna **€**@垛 $\odot \mathbf{O}$ Settings - Save Save ENKALON ŵ Save as 1 A B C D E F G H I J K L M N O ₽ PQRSTUVWXYZ\ 7 ) 3 4 5 6 7 8 9 0 , 1 2 ↑ T abc... 4 -× (3) 2 2 $\widehat{2}$ 2 OGASTOP:

If fields allow the input of alphanumeric characters, a virtual keyboard appears after you press the **"Pen" button**.

- The "Delete" button (1) deletes the characters in the selected field.
- Use the **"Arrow" buttons** (2) to select a character from the grid shown onscreen. The currently active character is indicated with a brown border.
- Use the **"abc..." button** (3) to toggle the key pad (e.g. from upper to lower case).
- Use the **"Return" button** (4) to enter each letter individually.
- Use the **"Enter" button** 🔽 to confirm the characters entered.
- Please note: input not confirmed with the **"Enter" button** will be lost!

#### 4.7 Number input



- Use the "Delete" button (1) to delete numbers (2) from right to left.
- To enter floating-point numbers, use the **button** (3) for the **decimal point**.
- The new sequence of digits is confirmed when you press the **"Enter" button** . The virtual numerical keyboard disappears and you go back to the last submenu screen you were on.

## 5 Test mode submenu

To activate test mode, complete the following steps on the main menu screen:

- Press the **"Test mode ON/OFF" button** Ito switch on test mode.
- Use the **"OK" button** to confirm the prompt "Machine stopping disabled".
- Status line "Test mode active!" (1) appears on the main menu and the test mode icon (2) flashes in red.



Defect detection for inspection head beds is working normally. Although detected defects are displayed, they will not cause a machine stop.



Test mode makes it easier to optimise your monitoring parameters, because the warping machine does not stop when a defect is detected. This allows you to make adjustments while the warping process is still running.

To deactivate **test mode**, complete the following steps on the main menu screen:

- Press the **"Test mode ON/OFF" button** I to switch off test mode.
- Use the **"OK" button** to confirm the prompt "Surveillance is active, machine will be stopped when defects are detected".
- Status line "Surveillance is active" appears on the main menu.





To access the **slub counters for levels** submenu from the **main menu**, press the **main button**.

This submenu displays the counters for the major and minor slubs, and the length selector counter for each inspection head bed (B – left-hand creel side, A – right-hand creel side).

Use the **"Clear major"** (1), **"Clear minor"** (2) and **"Clear length"** (3) buttons to reset the counters to "0".

Press the **"Home"** (4) or **"ESC"** button to go back to the **main menu**.



	R F	Protechna STOP - Stat		NKALON	t	00:00:0	00	<del>0</del> 🛜	re 🔋 🕻	्रे 💽
1		Level: B7 B6 B5 B4 B3 B2 B1	Noise: 0.8 % 1.7 % 0.5 % 0.4 % 0.5 % 1.1 % 1.8 %	Laser: 90 % 93 % 92 % 93 % 90 % 92 % 92 %	Status: Ok Ok Ok Ok Ok Ok	Level: A7 A6 A5 A4 A3 A2 A1	Noise: 1.8 % 0.5 % 2.2 % 0.5 % 0.4 % 0.3 % 0.5 %	Laser: 94 % 95 % 94 % 95 % 96 % 94 % 94 %	Status: Ok Ok Ok Ok Ok Ok	
	COGA	<b>STOP</b>								

## 8 Level diagnostics (inspection head beds) submenu

Press the we button on the main menu to go to the Level diagnostics submenu.

This submenu screen displays the following parameters for each inspection head bed (A/B):

- Level: Number of the individual inspection head bed
- Signal: Standard light barrier noise, in percent
- Laser: Light barrier level in percent
- Status: Laser transmitter status

Code	Description
"Level diagnostics" submenu	
ОК	ОК
Level!	Level <40%
E-Sync	Synchronisation with laser not possible
U-Volt!	Voltage in inspection head bed <18 V
E-Firm!	Firmware download not possible
E-Cks!	Parameter set checksum not OK
WDT!	Watchdog reset

Press the **"Home"** (1) or **"ESC"** button to go back to the **main menu**.

## 9 Settings submenu

#### 9.1 Login



When you are not logged in, you are automatically prompted to enter a password for any submenu that requires authorisation. The password is factory-set to "8 5 5 2 1" but can be changed as required. Press the **buttons** around the edge of the screen (1) to enter your password (see sections 4.7 and 12.1). If you enter an incorrect password, the PIN field shows the message "Incorrect password". You can then try entering your password again. Confirm your login by pressing the **"Enter"** button.

#### 9.2 List of settable parameters



After logging in correctly, you are taken to the **Settings** tab, which displays a **list of settable parameters**. Use the **"Arrow" buttons** (1) to select the parameter you want. You can change parameter values with the **"+/-" buttons** (2) and the **"Pen" button** (3). If you have changed the parameter with the **"+/-" buttons** (2), you do not need to confirm this value individually to apply it. Changed values are applied automatically when you select the next parameter or exit the relevant menu. All you need to do is press the button for one of the other submenu screens or use the **"Home"** button (4) to go back. This will apply your input to the COGASTOP system. Use the **"ESC"** or **"Home"** button (4) to return to the **main menu**.

#### **Description of parameters:**

#### Length selector count Minor (slubs)

Defines the number of minor slubs that will cause a machine stop for a preconfigured length or time. Enter a zero here to deactivate this function.

#### Length selector length (metre/yard)

If a preconfigured number of minor slubs is counted within this length, the machine stops (only if a pulse generator is connected – see p. 24, "Pulse generator pulses per metre (yard)" and p.25, "Length (metre/yard)").

#### • Length selector time (s)

If a preconfigured number of minor slubs is counted within this time, the machine stops (only if a pulse generator is **not** connected – see p. 24, "Pulse generator pulses per metre (yard)").

#### Start delay (s)

This parameter configures the delay between the machine start and the start of monitoring. The start delay must be long enough to ensure that yarn defects of any type have run out of the monitoring range after the machine start and the machine has achieved its target speed.

#### Stop delay (time)

If a major slub is detected or the number of minor slubs is reached during a preconfigured period, the machine is stopped after the expiry of the time set here. This either happens with a delay or with an immediate stop.

#### Stop delay (length)

If a major slub is detected or the number of minor slubs is reached during a preconfigured length, the machine is stopped after the expiry of the length set here. This either happens with a delay or with an immediate stop. This function can only be selected if a pulse generator is connected to the control unit.

#### Response time (in 50 µs steps)

The smaller the response time, the less sensitive the system is to false stops:

Speed	Value	Response time (in µs)
from 1200 m/min	1	50
from 800 m/min	2	100
from 500 m/min	4	200

#### Installation settings

Use the 🔳 button to open the Installation settings submenu.

#### 9.3 Installation settings



#### **Description of parameters:**

#### Count sensors

This displays the number of inspection head beds that are connected to the control unit.

#### • Pulse generator pulses/metre (yard)

For this parameter, enter the number of pulses per metre of yarn run length. This will depend on the pole pitch of the magnetic film or the pitch circle that is attached to the guide roller. If you are operating the COGASTOP without a pulse generator, enter the value "0" here. The length selector will then be operated with the parameter "Time in seconds". Otherwise, it is operated with the parameter "Length in metres". On the main menu, which you can access with the "Home" button (1), the machine table and tab "Beam Length = 0" are shown.

#### Creel: left side

This is the designation used for the inspection head beds on the left-hand side of the creel.

#### Creel: right side

This is the designation used for the inspection head beds on the right-hand side of the creel.

#### Level count direction

The counting direction for the inspection head beds can be set to either "up" or "down".

#### Length (metre/yard)

The length can be specified in metres or yards.

#### Data bus direction

The direction of the connection from control unit to the first inspection head bed can be set to "left" or "right".

#### • Beam change:

This specifies the input on the control unit where the **"Beam change"** signal is connected. The other input in this case is the **"Machine running"** signal (Run). If the **"Beam change"** signal is present, then all counters and the beam length are reset to **"0"**.

#### **Setting options**

Selection	"Beam change" signal	"Machine running" signal
Not active		High voltage + low voltage
HV-Run	High voltage	Low voltage
LV-Run	Low voltage	High voltage

If the number of sensors changes because sensors are added or removed, use the **"binoculars"** (2) button to detect them and have the system updated.

Press the **"ESC" button** is here to go back to the **List of settable parameters** screen.

Press the "Home" (1) button to go back to the main menu.



# 9.4 Saving settings

T

Settings

All parameters in the **Settings** menu can be saved to article files and then reloaded at a later time.

Load

To save settings for articles, press the **"Save" button** on the **List of settable parameters** screen or in the **Installation** settings. This takes you to the **Save** tab.

If you then select the article already created in the **Save** (1) row, you can then overwrite this by using the **"Enter"** button. Confirm the prompt **"Article already exists!" "Do you want to overwrite?"** with the **"Yes" button** or cancel with **"No"**.

Please note: The **"Save"** (1) row displays the filename of the current article. This corresponds to the article shown in the status line. An asterisk (\*) indicates that article parameters have been changed but not yet saved.

An existing article can be selected with its associated data record and saved as a new article by using a new name. The new file can be created in the **Save as** (2) row. Select \* **New article** \* (2) and use the **"Pen" button** (4) to open the onscreen **keyboard** (3). Enter a new filename and use the **"Enter" button** v to confirm. The new article now becomes the active article. This is also the case if no article yet exists.

Press the **"Settings" button** to go back to the **List of settable parameters** screen. Press the **"ESC" button (5)** to go back to the **main menu**.



#### 9.5 Loading settings



To load settings for articles saved earlier, press the **"Load" button** on the **List of settable parameters** screen or in the **Installation** settings. This takes you to the **Load** tab.

Use the **"Arrow" buttons** (1) to select the article you want and use the **"Enter" button** vot confirm your selection. The selected article is now loaded. All settings on the **Settings** tab are then replaced with the settings saved in the article.

A **Default** article file is provided for resetting the monitoring system to its factory settings. When this file is loaded, the monitoring system is reset to its factory-set state.

Use the "Wastepaper bin" button (2) to delete a selected article.



Press the **"Settings" button** to go back to the **Enter values** screen. Press the **"ESC" button** or the **"Home" button** (3) to go back to the main menu.

## 10 Info submenu

#### 10.1 Version

	8	Protechna		ALON :	00:00:00	<b>€</b> ?5	1
	Info						
(1)►		Control uni	t				
$\bigcirc$		Electronic n	ameplate		3210 Main Boar	d Rev1.2	
		Hardware r	evision		000001.2		
		Serial numb	ber		000000000099	9999	
		Software			2.0.22		
	T COGASTOF		- Laser				
	Software re		revision no.		L 1 : 3210_V2.29		
	↓						
	Ve	rsion	Errors	Service	L-Status		

Press the **"Info" button** to access the **Info** tab. This tab displays the following (read-only) information about the control unit:

Electronic nameplate

Version number of the control unit motherboard

Hardware version

Hardware version of the control unit

Serial number

Serial number of the control unit

Software

Software version of the control unit

Data from the COGASTOP Laser is then listed (read-only).

Software revision no.

Software revision of the COGASTOP Laser

Hardware version

Hardware version of the COGASTOP Laser

The other tabs, **Errors**, **Service** and **L-Status**, can be selected from the bottom edge of the screen. Use the **"ESC"** or **"Home"** button (1) to return to the **main menu**.

Control unit         Electronic nameplate       3210 Main Board Rev1.2         Hardware revision       000001.2         Serial number       00000000099999         Software       2.0.22         COGASTOP - Laser       000000000000000000000000000000000000	8	Protechna 🗋 ENKALON	v) oo:oo:oo 🛛 😌 🤝 🕂 🚦 🔅 🖸
Control unit         Electronic nameplate       3210 Main Board Rev1.2         Hardware revision       000001.2         Serial number       00000000099999         Software       2.0.22         COGASTOP - Laser       000000000000000000000000000000000000	Info		
Electronic nameplate     3210 Main Board Rev1.2       Hardware revision     000001.2       Serial number     00000000099999       Software     2.0.22       COGASTOP - Laser     2000000000000000000000000000000000000	俞	Control unit	
Hardware revision     000001.2       Serial number     00000000099999       Software     2.0.22       COGASTOP - Laser     2.0.2000000000000000000000000000000000		Electronic nameplate	3210 Main Board Rev1.2
Serial number     00000000099999       Software     2.0.22       COGASTOP - Laser		Hardware revision	000001.2
Software     2.0.22       COGASTOP - Laser     2.0.21		Serial number	000000000099999
COGASTOP - Laser		Software	2.0.22
	T	COGASTOP - Laser	
Software revision no. L 1 : 3210_V2.29		Software revision no.	L 1 : 3210_V2.29

When you access the **L-Status** tab, an additional row (1) appears on the **Version** tab. This displays information about the light barrier status for the individual transmitters. The light barrier display switches automatically between the inspection head beds. After a few seconds, the additional row disappears and can be displayed again by accessing the **L-Status** tab again. Error codes for this submenu can be found in section 17.

~	ל Protechna [י	ENKALON	00:00:00	<b>€</b> ?#	Ö Ο
Inf	o - Log Error			02/0	5/2022
)► 🔐	13:05:09 E01027	: Communica	tion restart		
	13:04:50 E01026	i: Communica	tion lost		
	12:26:08 E01020	i Communica	tion lost		-
	12:15:49 E01026		tion lost		
) 1		<b>_</b>			
	Info Erro	-s	T T		
	(1)  (2)	(3)			
s "Frrors"	to go to the <b>Frr</b>	ors tab on the	Info submenu	This tab lists a	Il system errors a
details in ch	nronological or	ler.	ino submenu	. 1113 (00 11313 0	in system enors a
	-				
			(2)		
		Error numbe	er (2)	Error text (	3)





Use the "Info" submenu to access the Service tab.

#### Downloading the slub log and service file

Various log files can be selected from the **Service file** row. Use the "+/-" buttons (1) to select the **Slub log** (2) or **Service file** (3). Prepare for the download by inserting an empty USB flash drive into the port on the control unit. Press the **i** button (4) to start downloading the file you have selected. You use the 1 button (5) to start a firmware update for the inspection head beds (see section 13.2).

#### 10.4.1 Slub log

The slub log is a report for the counter (see section 4.3), and provides an overview of all of the major and minor slubs detected by the inspection head beds. Data from length selector counting is also logged. The file logs all of the various slubs that occur as well as the number of slubs of each type per inspection head bed.

Filename on the USB flash drive: COGASTOP\_Slub log\_20210906\_152712.txt

Filename format: COGASTOP\_Slub log [YYYY][MM][DD]\_[hh][mm][ss].txt

#### Sample slub log in .txt format:

imesta	mp (d.m.	y h:m:s)	: 27.01	.2022 01:11		Tran	sferrin	g the .t	xt file to	o Excel:
	atons 1				Se	lect tex	t, copy	and pa	ste into	Excel sl
uni cou	incers :				timestamp	(d.m.y homes)	: 27.01.20	22 01:10		
ainer	minon:	length:			21000000000					
					sum counte	es :				
00014	888257	000002								
		22222			major:	minor:	length:			
unts	per sense	or:								
					20	3 12	<sup>0</sup>	0		
eel -	B:				counts per s	sensor:				
eel:	sensor:	major:	minor:	length:	creel - A:					
	1	00001	00016	00000						
1	2	00000	00016	00000	creet:	sensor:	major:	minor;	length:	
	3	00003	00054	00001	B7		1	5	25	0
1	4	00000	00000	00000	B6		2	3	16	0
k	5	00000	00000	80808	BS		3	0	5	0
2	6	00000	00059	00001	B4		4	0	0	0
	7	00000	00024	00000	B3		5	0	0	0
					82		6	0	3	0
eel -	A:				81		7	3	13	0
					creel - B					
reel:	sensor:	major:	minor:	length:	eren er					
7	8	00002	00025	88888	creel:	sensor:	major:	minor:	length:	
5	9	00002	00002	80808	A7		8	6	44	0
	10	00004	00032	00000	A6		9	0	8	0
	11	00002	00010	00000	AS	1	0	3	12	0
	12	00000	00008	00000	A4	1	1	0	0	0
1	13	00000	00000	60600	A3	1	2	0	0	0
	14	00000	00011	00000	A2	1	3	0	0	0
					41		4	0		

#### 10.4.2 Service file

This file provides information about the measured values for the individual articles and several machine parameters. The file also lists all activities performed. The file is required by PROTECHNA for troubleshooting.

Once the download has finished, press the **"ESC" button** to return to the **Service** tab. Then press **"Version"** (7) to go to the **Info** tab or the **"Home" button** (6) to return to the main menu.

## 11 Language submenu

	<b>R</b> Protechna		00:00:00	<b>€</b> @₽₽.	0
	Language				
②—►	Ch Language		English		
					+ -1
	Language	I			

Press the 🌐 **button** on the main menu to go to the **Language** submenu.

You use this submenu to set one of eleven languages to be used by the system.

- German
- English
- French
- Italian
- Spanish
- Portuguese
- Polish
- Turkish
- Chinese
- Japanese
- Korean

Use the "+/-" button (1) to page through the language menu and select the language you want to use. Press the "Enter" button v to set the system language.

Press the **"Home"** (2) or **"ESC"** button to go back to the **main menu**.

## 12 Service submenu

#### 12.1 User

	8	Protechna		ALON <sup>3</sup>	00:06:33	<b>€</b> ?∄	¦₿0	
	Servi	ce - User						
	6	Operator			****			
		Service			***			
		Protechna	1		****			
(1)→▶	1							
-								
1	Ļ						Ø	
	ι	Jser	Date Time	Logging All	Logging Err./warn.	Logging Errors	Network	

Press the **"Service" button** on the main menu screen to access the **User** tab, which opens after you have confirmed the password (see sections 4.7 and 9.1). You use this tab to set passwords for specific roles instead of the factory-set password **"8 5 5 2 1"**. Select the role you want to edit with the **"Arrow" button** (1). Press the **"Pen" button**(2) to open the on-screen keyboard for entering the password (see section 4.7).

#### Roles:

#### • Operator

Machine operator role (all permissions except installation settings (see section 9.3) and firmware updates for inspection head beds (see section 13.2)).

#### Service

Role for PROTECHNA service technicians (all permissions)

#### 12.2 Date and time



The **Date Time** tab displays the time and date as currently set in the system. Use the **"Arrow" buttons** (1) to move between the date and time rows. Use the **"+/-" button** (2) to change the selected digits stepwise. You can also use the **"Pen" button** (3) to open the on-screen keyboard and enter the value directly (see section 4.7). Use the **"Enter" button**  $\checkmark$  to apply your changes.



#### 12.3 General log

The **Logging All** tab is used to store all activities performed on the device. Use the **"Arrow" buttons** (1) to view the activities chronologically and for each day. If you no longer need some entries, use the **"Arrow" buttons** (2) to select them and then use the **"Wastepaper bin" button** (3) to delete them.

Time (4)	Activity (5)	Description (6)
----------	--------------	-----------------



IP-Address         49         57         50         46           Subnet-Mask         255         255         0           Gateway         192         168         4         30	Address         49         57         50         46           bnet-Mask         255         255         255         0           teway         192         168         4         30           rt no.:         61000		R Protechna		V) 00:00	):00	<b>€</b> 🥱	品 🛛 🗘 🖸
IP-Address         49         57         50         46           Subnet-Mask         255         255         255         0           Gateway         192         168         4         30	Address     49     57     50     46       bnet-Mask     255     255     255     0       teway     192     168     4     30       rt no.:     61000     5     5     5		Service - Network					
Subnet-Mask         255         255         0           Gateway         192         168         4         30	bnet-Mask       255       255       255       0         teway       192       168       4       30         rt no.:       61000       5       5	)	IP-Address		49	57	50	46
Gateway 192 168 4 30	teway         192         168         4         30           rt no.:         61000		Subnet-Mas	ĸ	255	255	255	0
	rt no.: 61000		Gateway		192	168	4	30
Port no.: 61000			Port no.:		61000			
<ul> <li>↑</li> <li>↓</li> </ul>			<b>↓</b>					
			↓ ↓			in a	L a contin a	

The **Network** tab provides the following information:

- IP address
- Subnet mask
- Gateway
- Port number

A future update will provide an option to enter network settings here for remote customer access to the COGASTOP control unit (**currently not active**).

Press the **"ESC"** or **"Home" button** (1) on any tab on the **Service** submenu to go back to the **main menu**.



## 13 Firmware update

#### 13.1 Firmware update for the control unit

Complete the following steps:

• Copy the new firmware onto an empty USB flash drive.

To perform the firmware update, make sure that the **only** version of the firmware on the USB flash drive is the version to use for the update. The update cannot be performed properly if there are subdirectories on the USB flash drive.

- Switch off the control unit
- Plug the USB flash drive into the control unit
- Switch on the control unit
- Bootloader starts
- Dialog: "USB Scanning"
- Dialog: "is not an update" "press key to flash" (only for resetting to an older version)
- Dialog "Start update Firmware"
- Dialog "Reset to continue"
- Switch off the control unit
- Unplug the USB flash drive

#### Firmware is now up-to-date

If the firmware is already up-to-date, the dialog "Press any key to continue" is shown after the "USB Scanning" dialog. After confirming this dialog, the firmware starts normally with the latest version.

#### 13.2 Firmware update for inspection head beds

The firmware for the inspection head beds can be updated with a download (see section 10.4). To do this, save the firmware sent to you by email from PROTECHNA to a USB flash drive and plug the drive into the control unit. Then press the **button** (5) to start the download. Once the download is complete, a dialog is shown: "Communication restart". The inspection head beds are now up-to-date.

If you find yourself back on the **Service** tab after a download, you can also use the **"ESC" button** or the **"Home" button** (6) to go back to the main menu. From here, you can again press **"Version"** (7) to go back to the **Info** tab.

## 14 Maintenance and cleaning

Please take care to ensure that all plugs are screwed tightly to the control unit. Any plugs not securely screwed in can stop the monitoring system from working properly.

#### 14.1 Cleaning the lenses

Always disconnect the device from mains power before cleaning, or before removing or installing a device option. Do not use any liquid detergents or cleaning sprays for cleaning. Always use only a damp cloth for cleaning.

Keep the lenses on the light barriers clean. Avoiding getting fingerprints on the glass. Only use **isopropyl alcohol** to clean the lenses.

#### 14.2 Wear on guide rods

If wear on the guide rods caused by the yarn is too severe, these can be turned by  $90^{\circ}$  after undoing the set screws.

#### 14.3 Checking calibration

A strip of cardboard can be placed against the guide rod on the receiver side in order to check the correct calibration of the laser.



If the beam is not within tolerance, the beam can be readjusted with careful adjustment of the three adjustment screws on the transmitter.



## 15 Technical data

Control unit COGASTOP CREEL 2 3210	
Electrical connection	
Operating voltage	100 VAC to 240 VAC
Frequency	47 Hz to 63 Hz
Current draw	0.3 A
Appliance class	1
Ambient conditions	
Operation (temperature/humidity)	0°C to +40°C/5% to 85% Non-condensing
Storage (temperature/humidity)	-40°C to +85°C/15% to 95% Non-condensing
IP rating	IP54
Mechanical data	Dimensions (L/W/H), weight
Control unit	325 mm/240 mm/170 mm/4.5 kg

Switching output data	
Stop output high-voltage relay	
Max. switching voltage	250 VAC/VDC
Max. switching current	1 A
Min. switching capacity	500 mW (5 V/100 mA) Do not use for PLC input
Stop output low-voltage relay	
Max. switching voltage	48 VAC/VDC
Max. switching current	0.3 A
Min. switching capacity	10 mW (0.1 V/1 mA)
Stop output semiconductor output	
Max. switching voltage	32 VDC
Max. switching current	0.3 A
Voltage drop	2 V
Switching input data	
"RUN" high-voltage input	
Max. voltage	250 VAC/VDC
Min. voltage	80 VAC/VDC
"RUN" low-voltage input	
Max. voltage	48 VAC/VDC
Min. voltage	10 VAC/VDC

Inspection head beds (IHBs)	
Supply voltage	Continuous: 20 VDC to 28 VDC Temporary: 32 VDC
Current draw	max. 90 mA at 24 V per IHB
Laser	
Colour	Red, 650 nm
Nominal power	<0.22 mW
Frequency	20 kHz
Class	1 (not an eye hazard)
Ambient conditions	
Operation (temperature/humidity)	0°C to +40°C/5% to 85% Non-condensing
Storage (temperature/humidity)	-40°C to +85°C/15% to 95% Non-condensing
IP rating	IP54
Mechanical data	Dimensions (L/W/H), weight
Monitoring width 580	750 mm/115 mm/120 mm, 4 kg
Monitoring width 680	850 mm/115 mm/120 mm, 5 kg
Monitoring width 780	950 mm/115 mm/120 mm, 7 kg

## 16 Electrical connection

#### 16.1 Control unit







## 17 Error codes

#### 17.1 Error codes for "L-Status" submenu

Code	Description
"L-Status" submenu	
01	Firmware download error
02	Reset by WDT
03	FTP Server Start
04	FTP Time Out
05	Firmware Time Out
06	Firmware Checksum
07	Parameter Checksum Error
08	IP_format-error
Processor Faults	
51	NMI Fault
52	Hard Fault
53	MemManage Fault
54	Bus Fault
55	Usage Fault
56	SVC
57	DebugMon
58	PendSV
59	SysTick
101	Error Level (M.run)
0xFF	Reset by PWR-ON

#### 17.2 Error codes for "Level diagnostics" submenu

Code	Description
"Level diagnostics" submenu	
ОК	ОК
Level!	Level <40%
E-Sync	Synchronisation with laser not possible
U-Volt!	Voltage in inspection head bed <18 V
E-Firm!	Firmware download not possible
E-Cks!	Parameter set checksum not OK
WDT!	Watchdog reset

# **18 CE Declaration of Conformity**

## 19 Laser class certification

**Device designation** 

COGASTOP CREEL 2 3210

Transmitter 3210

Laser type

Туре

Semiconductor laser 655 nm

The power of the laser used in this system equals Class 1 according to DIN EN 60825-1 VDE 0837 Part 1

Maximal laser power exiting device: 0.22 mW

PROTECHNA Herbst GmbH & Co KG, Neubiberg, 03 Mar 2023 Development

Pilo Willin

Rico Wellnitz

Head of Development

#### Disclaimer

No liability is accepted in the event of misuse, or if the device is structurally modified or tampered with.

# 20 Notes