

**Reliability at work**



# Operating Manual

chain tensioner with PMC<sup>®</sup>-R

Doc. no.: 1999 001 024 BA 00

Translation of the original operating manual



**Bucyrus Europe GmbH**

Industriestraße 1 Phone: +49 (0) 23 06 / 709 - 0 Email: [info@de.bucyrus.com](mailto:info@de.bucyrus.com)  
 D-44534 Lünen Fax: +49 (0) 23 06 / 709 - 1421 Web: [www.bucyrus.com](http://www.bucyrus.com)

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: [www.heydownloads.com](http://www.heydownloads.com) by clicking the link below



- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

---

## 2 Your safety



---

# 4 Installation





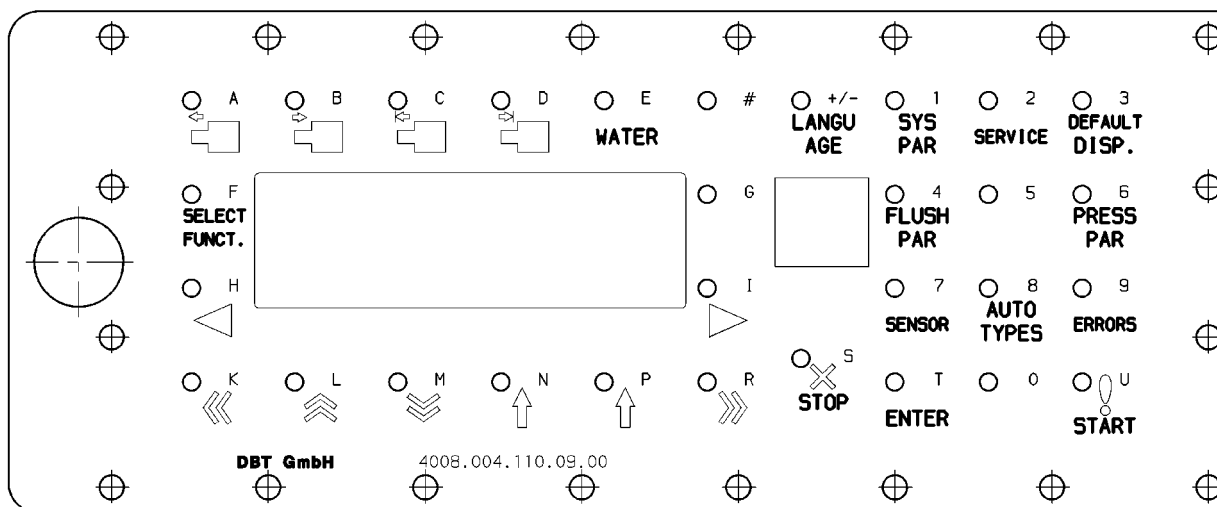
## Operation of the PMC®-R control unit

### The PMC®-R control unit; overview of the keyboard and menu functions

19 keys, a 2x22-digit alphanumeric display, a numeric keypad with 10 keys, a local blocking switch, a local emergency shutdown switch, a warning LED and the stop pushbutton are placed at the front side of the control unit. A detailed description of the function of the individual elements follows below.

The operating panel consists of keyboard, display and LEDs.

Fig. 3: Operating panel of the PMC®-R as chain tensioning control unit



#### Important!

Do not operate the PMC®-R until after you have first carefully studied the operating instructions!



## Operation of the PMC®-R control unit

**Start condition:** The default menu column is active.

☞ Press R three times (3 menu movements to the right) to reach the SYSTEM PARAMETERS column.

In the display now is:

**SYSTEM PARAMETERS**

☞ Actuate key M once in order to scroll down one menu line.

The P\_pretension parameter is reached.

In the display now is:

**P\_pretension \*100**

☞ Press key T [ENTER] in order to start the input mode.

The Pretens.press. parameter is password-protected, therefore the display now shows:

**Password: ?**

☞ Enter the password (e.g. 3333) using keys 0 to 9.

In the display now is:

**Password: ?!!!!**

☞ Actuate the key T [ENTER] to exit password entry. Now the parameter value can be changed.

In the display now is:

**P\_pretension ?**

☞ Entry of the new parameter value using keys 0 to 9 (e.g. 120).  
Display:

**P\_pretension ?120**

☞ Press T [ENTER] key to end the entry and to save the entered value.

The display now shows:

**P\_pretension \*120**



## Rinsing the tensionable drive frame

(3) The cylinders are extended until:

- The distance covered is greater than/equal to “Min.ext.path”  
Then the cycle is continued at (2) after a short period of retraction (self-contained) of the cylinders.
- The time parameter Tensioning time runs out. Then the cycle is continued at (2) after the time parameter for delay time runs out.

(4) The cylinders are retracted until:

The time parameter Tensioning time runs out. Then the cycle is continued at (2) after the time parameter for delay time runs out.

If a conveyor signal error or pressure sensor error appears during the automatic sequence of operations, then a corresponding error message will be displayed and saved, the automatic sequence is shut down - insofar as it has been correspondingly parametered - and the conveyor enabling signal is reset. If the cylinder limit stop is reached during the running time of the automatic sequence, then the setting procedure is deactivated and a corresponding warning signal is saved. Here, too, the possibility exists of switching off the system by means of parameterization. If no shutdown occurs, then the control system will then be inactive until an opposite cylinder pressure change arises.

### Conveyer shutdown

If the conveyor is switched off and the signal “Conveyor is stopped” is received, then any setting procedures will be interrupted at once and the control unit waits for a new starting procedure.

## Rinsing the tensionable drive frame

The tensionable drive frame can be equipped with spray jets for flushing tasks in order to ensure its ease of movement during operation. The flushing is intended to free the frame of coal dust which could have an unfavorable effect on its mobility.

The individual spray jets are brought together into a single group, which are fed by a valve.

The flushing jets are switched via valve outlet 11 on the valve strip. This valve can be used manually or automatically.

### Manual rinsing

The manual flushing of the tensionable drive frame at the tail-end drive is always possible outside of the automatic sequence. The signal “Conveyor runs” is not necessary for the rinsing operation. To prevent an inadvertent opening of the flushing valves, the key combination of keys H or I + then key E has been made available for the triggering of the function. As a result of this, the additional menu fl. Valve1 ON appears. By using the keys L or M, you can navigate in the auxiliary functions. The P key triggers the actual function.



## Automatic pressure system parameters

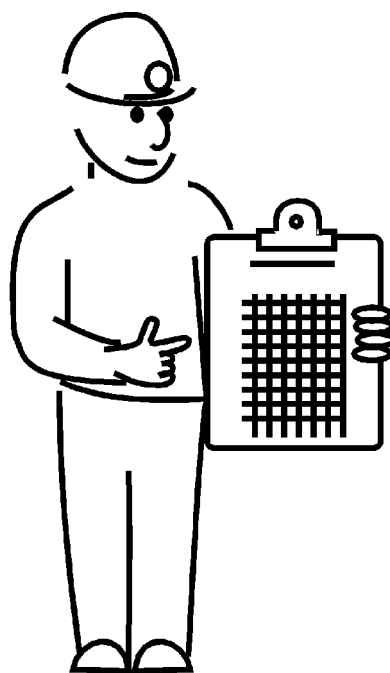
Tensioning time * 200	If a tensioning procedure takes longer than the time determined here without the path determined by the min.ext.path being travelled over, the valve will be switched off and the controller will be restarted only after a delay time. Minimum value=10, Maximum value=6000 [1/100s]	Spannzeit * 200	Dauert ein Spannvorgang länger als die hier festgelegte Zeit ohne das der durch den Parameter Min.Ausf.Weg festgelegte Weg zurückgelegt ist, wird das Ventil abgeschaltet und die Regelung erst nach einer Wartezeit wieder fortgesetzt. Minimalwert=10, Maximalwert=6000 [1/100s]
Rel.time * 200	If a relief procedure takes longer than the time determined here without the target pressure being reached, then the valve is switched off and the control is not resumed until after a delay time. Minimum value=10, Maximum value=5000 [1/100s]	Entsp.zeit * 200	Dauert ein Entspannvorgang länger als die hier festgelegte Zeit ohne das der Zieldruck erreicht wird, wird das Ventil abgeschaltet und die Regelung erst nach einer Wartezeit (T_Wait) wieder fortgesetzt. Minimalwert=10, Maximalwert=5000 [1/100s]
<b>English-language display</b>	<b>English-language meaning</b>	<b>German-language display</b>	<b>German-language meaning</b>
T_PostRet * 0	After every tensioning procedure, the tensioner cylinder is automatically retracted (bled) again for the time determined here. If the parameter value is greater than 0, then this post-setting procedure is a permanent part of the tensioning procedure. After that, the control procedure (next measuring cycle) is continued after completion of a delay time. Minimum value=0, Maximum value=150 [1/100s]	Nachst.zeit * 0	Nach jedem Spannvorgang wird der Spannzylinder automatisch wieder für die hier festgelegte Zeit eingefahren(entlüftet). Ist der Parameterwert größer 0, ist dieser Nachstellvorgang fester Bestandteil des Spannvorgangs. Danach wird die Regelung (nächster Messzyklus) erst nach Ablauf einer Wartezeit fortgesetzt. Minimalwert=0, Maximalwert=150 [1/100s]
T_Wait * 200	After completion of the tensioning or relief time, the setting procedure is interrupted for the time defined here. After that, the controller checks again whether the chain-condition triggering the setting procedure is still present and starts if this is the case, and the maximum tensioning or release number is not yet exceeded, a new setting attempt. Minimum value=50, Maximum value=3000 [1/100s]	Wartezeit * 200	Nach Ablauf der Spann- oder Entspannzeit wird der Stellvorgang für die hier festgelegte Zeit unterbrochen. Anschließend überprüft die Regelung erneut ob der den Stellvorgang auslösende Kettenzustand noch vorliegt und startet, falls dies so ist und die maximale Spann- oder Entspannanzahl noch nicht überschritten ist, einen erneuten Stellversuch. Minimalwert=50, Maximalwert=3000 [1/100s]



code Nummer	This line shows the number of the plugged-in Code plug. Permitted plugs are 2 = face conveyor-PMC®-R 3 = beam stage loader-PMC®-R	Code Nummer	Diese Zeile zeigt die Nummer des gesteckten Codeplugs an. Erlaubte Stecker sind 2 = Strebförderer-PMC®-R 3 = Streckenförderer-PMC®-R
LTime	This line shows the time required for a program run (loop time).	LZeit	Diese Zeile zeigt die Zeit, die für einen Programmdurchlauf benötigt wird (Loopzeit).
<b>English-language display</b> Lmi 10 Lma 32	<b>English-language meaning</b> This line shows the minimum and maximum loop times that have occurred since the last reset. You can reset the times by using the P key.	<b>German-language display</b> Lmi 10 Lma 32	<b>German-language meaning</b> Diese Zeile zeigt die minimale und die maximale Loopzeit an, die seit dem letzten Rücksetzen aufgetreten sind. Sie können durch die Taste P die Zeiten rücksetzen.
Cal. Beeper (P)	This line permits calibration of the horn.	Cal. Beeper (P)	Diese Zeile erlaubt das Kalibrieren der Hupe.

---

# 6 Technical data





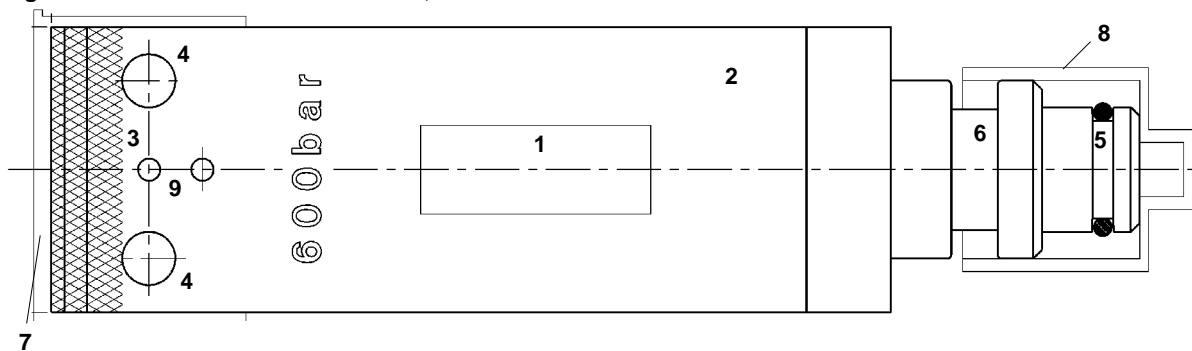
## Sensors

A variety of sensors are available in order to utilise all of the possibilities of the PMC<sup>®</sup>-R individual controls. Analogue sensors exist for pressure measurement and step distance measurement.

### Pressure sensor

A pressure sensor with a very low current consumption was developed for the PMC<sup>®</sup>-R system. Basis of the pressure sensor is a "Wheatstone" measuring bridge which is attached to a ceramic membrane. A measurement-value booster, which generates a measuring voltage from 0.5 to 4.5 V for a measuring range from 0 to 600 bar, is installed in the pressure sensor housing. The hydraulic side of the pressure sensor (plug-type connector DN10) is directly connected with the measuring body of the sensor. The electrical side has an SKK24 coupler for the electrical connection between the PMC<sup>®</sup>-R and cylinder - using SKK24 hose cables or lines. For reasons of safety in the face of mechanical loads, these cable connections should be made with hose cable. The measured values of the sensor allow simple measurements such as for shield setting, as well as special automation tasks such as automatic readjustment sequences, shield pulling under roof contact or adjustable setting pressure, etc.

Fig. 20: PRESSURE SENSOR IPS 600; ATEX



- 1 Name plate, if not lasered
- 2 Position of the lasered name plate details
- 3 SKK24 coupler
- 4 Bore holes for SKK24 clamps
- 5 Sealing groove on the hydraulics with O-ring
- 6 Groove for hydraulic clamp
- 7 Protective cap SKK24-side
- 8 Protective cap on the hydraulics
- 9 Bore holes for guide pins

Fig. 21: Illustration of the pressure sensor



CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: [www.heydownloads.com](http://www.heydownloads.com) by clicking the link below



- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL