

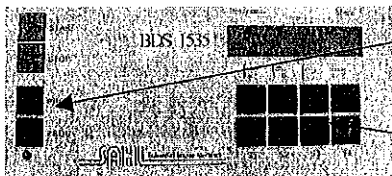
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Electronic metering device with automatic tension control

4.6 Sequence with stitch count and knee witch (semi P19=1)

Par19 BDS modus
0=K,1=S,2=A 1<

- The sequence is the same as with stitch count (see chapter before), but before reaching the number of programmed stitches you can change to the next tension by pressing the knee switch.
- The stitch count starts immediately from 0.
- Select mode “Semi”, set parameter **P19= 1** (see chapter **5.4 Adjustment of the operation mode (Mechanic P19)**)



- With the **prog +** & **prog -** button you can select the program you wish to use (e.g. program 1 as shown below)

- Each program has 4 sides

P..1	semi 1-4	P...1
.20	150	.85 .15

P..1	semi 5-8	P...1
.60	100	..0 075

P..1	semi 1-4	P...1
.20	100	.22 .50

P..1	semi 5-8	P...1
.30	..0	.26 ..0

- You can see the stitches after which the tension should change to the next one
- In our example the device would work **100** stitches with the second tension **150**.
- If you press the knee switch after **80** stitches, the device changes immediately to the next tension (**85**) and starts

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4.7 Teach-in function

- Programming is made simple with this new sew and teach function, by manually sewing, in automatic and semi-automatic mode, tension values and stitches are recorded.

```
P...1 auto1-4 run  
.20 150 .85 .15
```

```
P...1 auto1-4 P...1  
.20 150 .85 .15
```

```
TEACH-IN[r1] P...1  
.tens....20 sti.....0
```

- Select tens **auto (2)** or tens **semi (1)**P19
- Select the programme number you wish to use

- Press **stop**

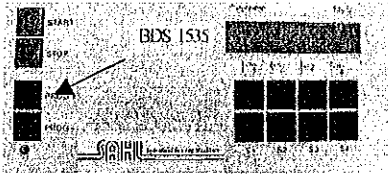
- Press **stop again and hold** and within 0,3 seconds press **prog -**

The elastic must be inserted

- The tension of the actual program is shown. In our case "20"
- Pressing **S2** the tension value can be changed and will be loaded in a buffer.
- By sewing manually the stitch counter rises.
- Pressing the **knee switch** will load the indicated value in the buffer. After that the next range will be indicated and the stitch count starts from zero. this can be done up to range 8
- If you do not sew stitches you cannot change to the next range.
- Pressing **prog-** you can change to the range before with its programmed stitches.
- If you press **start** you can start from the beginning without any storage.
- If you use less than 8 ranges the next range will be zero automatically.
- If you select a range where zero is already programmed the value will be changed automatically to 100.

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➤ Press **prog+** to store the programmed values
attention :

Values are only stored after pressing prog+
If you press stop all values are lost!!!

P...1	1-4	P...1
.45	150	.85 .15

➤ Press **stop** (exit teach in mode)

4.8 Pull off mode (no tension)

ATTENTION

You cannot enter the programming mode from the pull off screen

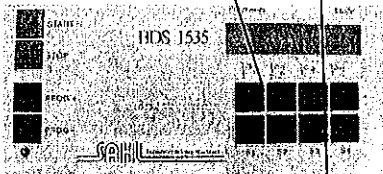
pull off	Stop
tens....20	tm.....5

➤ By pressing the **prog +** button you reach the pull off mode in between program 1 and program 19

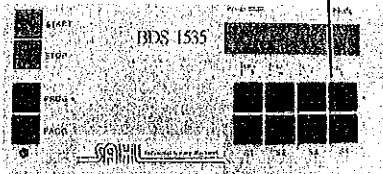
➤ When the adjusted tension (20) is reached, the device transport forwards for the adjusted time (5= 50ms) with a fixed (adjustable from P17 .SERVICE 1) speed forward.

➤ This mode is also active in the normal working mode (e.g. with knee switch) (see chapter 3.5 **Tension value = 1**).

➤ By pressing the **S2+ or S2 -** buttons the tension value can be changed.



➤ By pressing the **S4+ or S4 -** buttons the running time (tm) can be changed.



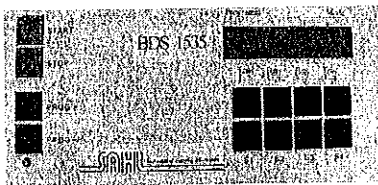
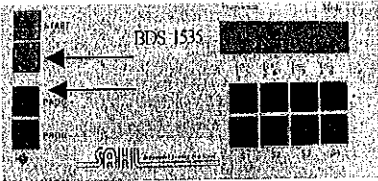
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4.9 Program linking

```
access>PRG. link
no Prog. linked
```

- You can link programs P1 to P19 in knee/semi/automatic-mode
- In program Number. 0 (pull-off) linking is not possible.
- Entering the program-mode from knee/semi/automatic
- Press stop



- **Press and hold the STOP-button then press PROG+ button.**
- **Pull off mode is not available for program linking**

actual program

```
PRG...1 next
Program ...2
```

- In the program-mode you can make a linking from the actual program (left corner upper line) to the next program (right corner bottom line)

next program

```
access>PRG.Link
...2 ...1
```

- With PROG +/- only linked programs can be changed.

```
access> PRG-link
MISTAKE PRG-
link
```

- The last program has to be linked with the first program for cycle sewing otherwise this error message on the left will be indicated.

➤ ATTENTION:

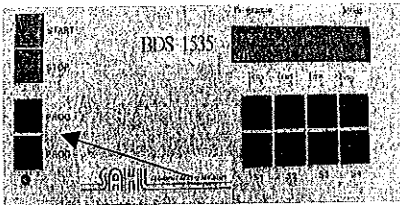
Take care that a program number is not used twice!

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5. Technical adjustments

5.1 Enter parameters – level for access



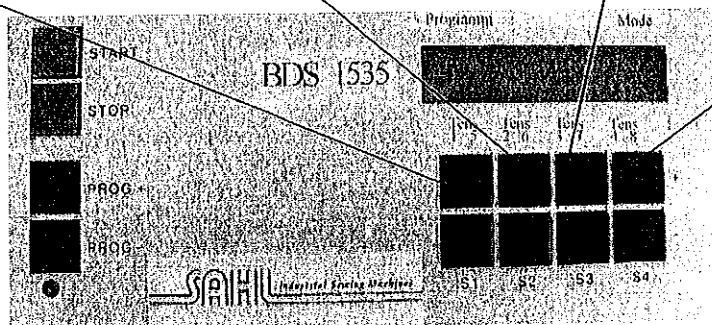
- Switch off device
- Press and hold **prog +** button and switch on.
- **You can also from Run;**
- **Press stop**
Press and hold stop and press prog + at the same time

Prog. Parameter loading active

- Wait until the left shown indication appears.
- Now release **prog +** button

- Here you can now change all parameters to control the metering unit
- There are 4 different levels of parameters. Each level has its own code for access.
- After entering the parameter level you start with “**program link**”
- At the end of this manual you can see which code is used for which parameter
- Pressing any tension switch will enter the code you wish (see below).

access>PRG.link no Prog. linked	access>Mechanic Ref.Nr: /5803	access>Service1 Ref.Nr: /6108	access>Service2 Ref.Nr: /9371
------------------------------------	----------------------------------	----------------------------------	----------------------------------



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5.1 1

Elasticity Value

In this position you are able to adjust the Elasticity value

The elasticity value can be adjusted to the elastic being used.

There are 10 steps in this adjustment, from maximum (1) to. Minimum (10) Adjust to suit the elastic and tensions as required.

Enter parameter level as above

Press and Hold Prog +

Elasticity value - max 1
--

Elasticity value ----- medium 5

Elasticity value -----min 10

Adjust with S4+ or S4-

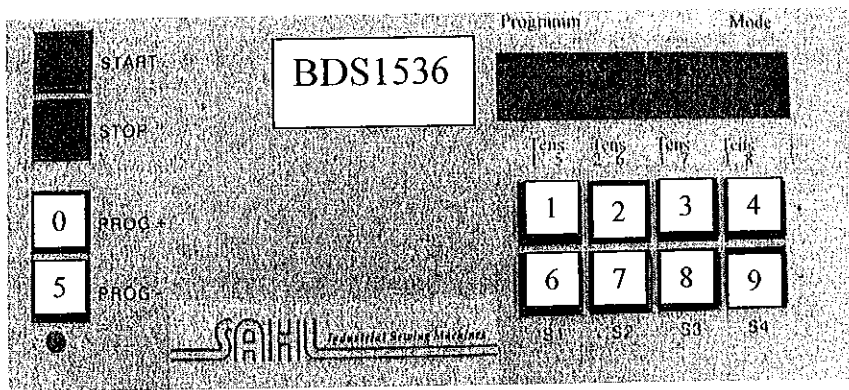
You can also make this adjustment in Service 1 Par 14

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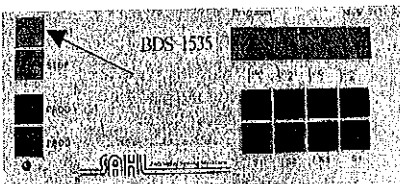
5.2.1 The BUTTON CODE

The numbers are indicated in the picture below.



```
access>Mechanic
Ref.Nr: /
```

- E.g. after entering the “Mechanic” level (tension switch 2).....



- Press.... **start** – button

```
access>Mechanic
Ref.Nr: /5803
```

- A cursor is shown in the display
- Now enter the code for the mechanic level

```
Access>Mechanic
Ref.Nr: /****
```

- The numbers can not be seen but are shown as “ * ”

```
Par19 BDS mode
0=K,1=S,2=A 0<
```

- Now the first parameter is shown. (P19)
- It's value is “0” (Default value)

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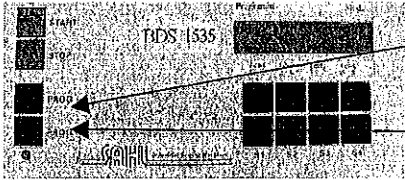
Electronic metering device with automatic tension control

5.2 Change parameter

- First enter the level with it's code (see 5.1 Enter parameters – level for access)

Par19 BDS mode
0=K,1=S,2=A 0<

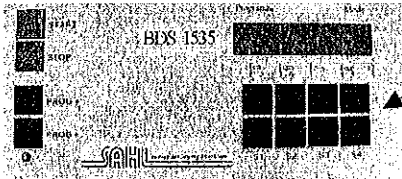
- In our example we entered the mechanic code
- The first indicated parameter is the **BDS-mode**



- Press the **prog +** button shows the next higher parameter
- Pressing the **prog -** button shows the next lower parameter

Par19 BDS modus
0=K,1=S,2=A 0<<

- The parameter number (19) appears in the first line on the left
- Its value (0) in the second line on the right

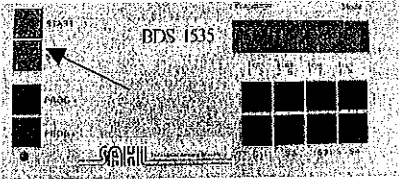


- You can change the parameter value by pressing the **S4+** or **S4-** buttons.

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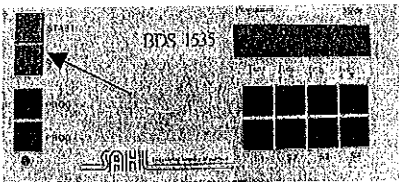
Electronic metering device with automatic tension control

5.3 Exit parameter



➤ Press **stop** button

```
Access>Mechanic  
Ref.Nr: /
```



➤ Press **stop** button again

```
Prog. Parameter  
loading active
```

➤ The new program parameters will be loaded again

```
P...1 kneel-4 RUN  
.25 .50 200 ..0
```

➤ The device is ready now.

➤ Press the **start**-button.

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5.4 Adjustment of the operation mode (Mechanic P19)

➤ Enter parameter mode (see chapter 5.1 Enter parameters).

Par19 BDS mode 0=K,1=S,2=A 0<

➤ The mode is adjusted with parameter **P19**.

Operation mode:

- **0**= Change tension only with knee switch
- **1**= Change tension with knee switch or stitch count (in this mode when pressing the knee switch, the next tension is selected no matter if the adjusted number of stitches is reached or not).
(with special feature – ASZ adapter)
- **2**= Change only after stitches (with special feature – ASZ adapter)

➤ Exit parameter (see chapter 5.3 Exit parameter).

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5.5 Change language English, German (P29)

- Enter parameter mode with service 2 code (see chapter 5.1 Enter parameters).

Par29 Deutsch=0
English=1 1<

- The language is adjusted with parameter P29 Language.

Language:

- **0**= German.
- **1**= English.

- Exit parameter (see chapter 5.3 Exit parameter)

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5.6 Adjustment for tensions lower than 15

5.6.1 P21 – minimum tension switch-off point

- In general the tension should not be lower than 15.
- This value is represented in the parameter **P21 BDS pull of tension limit**.
- If the adjusted tension is lower than 15 the device does not regulate, the elastic will be metered forward at the set tension value
- Enter the parameter mode with the mechanic code (see chapter 5.1 Enter parameters).

Par21 BDS pull of
tens. Limit ...15<

- You can lower the parameter **P21** to allow a regulated control for values lower than 15.

- Exit parameter (see chapter 5.3 Exit parameter)

5.6.2 P22 – BDS minimum tension before stop

- This value represents the minimum time for how long the sensor does not have a tension value as the device controls backwards.
- After this time the device changes to stop.
- An acoustic warning signal is omitted until any button is pressed
- At low tensions or special elastic this could happen more often.
- Enter the parameter mode with the mechanic code (see chapter 5.1 Enter parameters).

5.6.3 P23 – BDS free run time

Par23 BDS free
time=.5ms 1000<

- You can also increase parameter **P23** so that the device controls backwards for a longer time.
- Depending on the material of the elastic, if the value is too high it could affect the tension control,

- Exit parameter (see chapter 5.3 Exit parameter)

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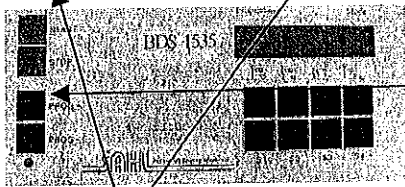
5.7 Working with less than 8 tensions

- If you want to work with less than 8 tensions please adjust as below:
- In our example we want to work with 6 tensions.

P...1 knee1-4 P01
100 101 102 103

1 2 3 4

- Here you can see the first 4 tensions (1-4)
- After reaching the 4th tension the device changes to the 5th tension which is seen on the next page by pressing **Prog +**



- Press **prog +** button

P...1 knee5-8 P01
100 101 ..0 103

5 6 7 8

- Now you can see the tensions 5 to 8.
- At tension 7 the value 0 is programmed, therefore the device changes after tension 6 to tension 1.

“0” value always switches back to tension 1

5.7.1 Working with more than 8 tensions

See programs linking 4.8

5.8 Reducing current (parameter 26)

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- If the tension in standard working mode is lower than the value in parameter 26 (default= 750) the current of the stepper motor will be reduced when the motor stops.
- If the tension in standard working mode is higher than the value in parameter 26 (default= 750) the current of the stepper motor will **not** be reduced when the motor stops.
- Therefore you should try to adjust parameter 24, always higher than the value in the working mode.
- Depending on the elastic, it is possible that the motor does not run further after a stop. In this case you have to adjust the parameter 24 lower than the value in the working mode. The motor then has always the maximum current and gets warmer. This has no effect to the function of the stepper motor.

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Attention:

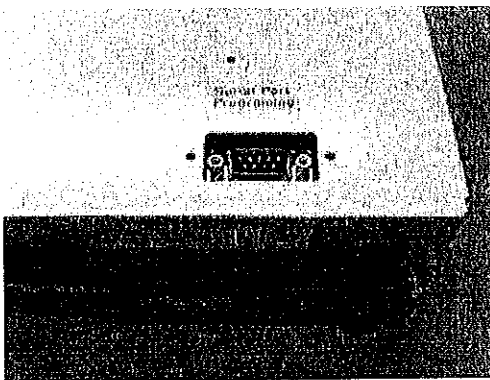
- If the device has to be returned, please pack and send the metering unit and control box only, using all the original internal packing, otherwise we cannot allow any guarantee!
- The main outer packing for the stand is not necessary.

5.10 Repair

Attention:

**If you send a device for repair always send the control box and the metering unit and the cable set together as a complete unit.
Never send only the board inside!**

5.10.1. Serial port for software support and upgrades



Software upgrades can be installed on site through the serial port.

The control box can also be upgraded to support BDS LSC and many other functions.

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5.11. EU-declaration of conformity

EU-Declaration of Conformity

According with 89/392/EWG, II A

We herewith confirm that the machine.

Machine type: BDS 1536

Serial number: _____

Complies with the following directives:

EG-machine directive 91/368/EWG, I,
EG-machine directive 73/23/EWG

Used harmonised norm, particularly:

DIN EN 292 Part 1 /1 1.9 1

Part 1: Basic Terminology, Methodical

DIN EN 292 Part 2/1 1.91 Safety of machines, basic arrangements,
Part 2: technical guiding principle and specifications

DIN EN 60204-3-1 Electrical equipment of industrial machines;
Part 3: Special demand for sewing machines, sewing units and sewing devices.

Used national technical specification, particularly:

DIN VDE 01 13 Part 1/02.86 Electrical equipment of industrial machines;
Part 1: General commitment

VBG 71/10 89 Laying , Cutting and Sewing machines

SAHL
Kirchengasse 4a
A – 4501 Neuhofen a.d. Krems
AUSTRIA

Company stamp and legal signature.....

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6. PARAMETERS

BDS 1536 VERSION 1.01

Par 13	SI	BDS stop tension Holding tension on the roller at stop	20
Par 14	SI	Elastic calibration 1 – 10. 1 is for heavy elastic 10 for very light elastic	7
Par 15	SI	BDS extern stop e.g. presser foot , special feature connected to input 5 0 = switch not connected 1 = connected	0
Par 16	SI	BDS max speed Working speed of the feeding roller in tension mode	650
Par 17	S1	BDS pull of speed Working speed of the feeding roller in pull of mode or when tension 0 is selected	350
Par 18	S1	Change range binary 0 = not selected 1 = selected	0
Par 19	MC/S1	BDS mode 0 = K, 1 = S, 2 = A. 0 = Knee switch. 1 = Semi automatic, stitch count and knee switch. 2 = Automatic with stitch count	0
Par 20	MC / S1	BDS stop Knee = 0, PC = 1 Change to first tension in semi automatic mode 0 = with knee switch 1 = automatic	0
Par 21	MC / S1	BDS pull of tension limit Tension above the pre set are regulating Tension below the pre set are metering forward only	15
Par 22	MC / S1	BDS minimum tension before stop Minimum Tension on the sensor roller before the unit goes to stop, = when elastic runs out.	10
Par 23	MC / S1	BDS free run time's x 5ms Time for rewind at above tension before going to stop	1000
Par 24	MC / S1	BDS max tension stop time Automatic stop time if tension pressure on the sensor exceeds pre set tension value e.g. elastic jams	4000
Par 25	MC / S1	Buzzer-on? if next range Buzzer on when switching tensions	1
Par 26	MC / S1	Tension limit current- lower. Holding Tension value for current reduction	750
Par 27	MC / S1	Untangle off delay. Time to switch of untangle device , after metering unit has stopped regulating	80
Par 28	MC / S1	Stitch delay sensor. Used with ASZ adaptor when stitch counting	0
Par 29	S2	Deutsch = 0 English = 1	1
Par 30	S2	PC- dark or light 0 = dark	1

The parameters are only available if the correct code number is entered
See page 24.

