# PRACTITIONER'S MANUAL

## **DAW Industries**

# SLK Multi-Matrix<sup>™</sup> KD 2.5

Polycentric Self-Learning Microprocessor with True-KD<sup>™</sup> Biomechanics

Stock #: TGK-5PS10SLKMTX

### **IMPORTANT:**

Adjusting alignment beyond recommended limits described within will adversely affect patient's gait, and could cause premature wear.

#### HEADQUARTERS:

6610 Nancy Ridge Road San Diego, CA 92121-2252 Orders: (800) 252-2828 • (858) 622-4962 Fax: (800) 856-8563 www.daw-usa.com

Technical Support (800) 242-8669

CENTRAL/EASTERN DISTRIBUTION CENTER: 5579-B Chamblee Dunwoody Road Suite 227 Atlanta, GA 30338-4154 Orders: (800) 824-7192 Fax: (800) 865-8563





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## **Popular Proximal Options**

# SLK Multi-Matrix<sup>™</sup> KD 2.5

Polycentric Self-Learning Microprocessor with True-KD<sup>™</sup> Biomechanics

Stock #: TGK-5PS10SLKMTX



Lo-Pro Rotator<sup>™</sup> (#: TKR-01) **Provides Rotational Adjustment** Attach any 4-Hole connector

Suggested L-Codes\*: L5984





3-Prong KD Adapter, Stainless Steel (#: TSC-KDL) **Provides Rotational Adjustment** 

Browse our complete selection of Unique Components at daw-usa.com/all-connectors

## **Recommended K3 Foot**



K3 Pro-Action<sup>™</sup> Foot Engineered for the low to moderately active K3 Individual

Provides 3 Dynamic Energy Returning Carbon Keel Options & Multi-Axial Ankle Motion with Rotation.

Suggested L-Codes\*: L5981 L5986

\*Please refer to the complete reimbursement disclaimer at www.daw-usa.com





- 1-Step Programming
- ✓ Intelligent Variable Cadence
- ✓ Custom-ICR<sup>™</sup> Geometric Stability Adjustment
- Natural Polycentric Toe-Clearance in Swing
- ✓ Ultra-Lite Carbon Fiber Construction
- Precise Adjustability of Stance Flexion Stability
- ✓ Trouble-Free Zero Maintenance
- Proven Durability & Dependability



**IMPORTANT:** 

Read technical information thoroughly before using knee unit.





#### Specifications

#### Patient profile:

Body weight	Under 275lb (125kg)
Functional level	K3 /K4
Amputation level	Knee Disarticulation

#### **Knee Specifications:**

Stock number	TGK-5PS10SLKMTX
Max weight limit	275lb (125kg)
Knee weight	2.7lb (1227g)
Swing control	Microprocessor Controlled Swing
Stability controls	Microprocessor Controlled Stance, Custom-ICR <sup>™</sup> Stability Adjustment & Stance Flexion Stability
Proximal connection	M6 threaded 4-hole or, Unthreaded single hole
Distal connection	30mm tube clamp
Warranty	2 years, upgrade for additional 3 years

## Page # Why is Custom-ICR Better?.....4 Extension Assist Adjustment ......7 Replacing or Trimming the Extension Assist Spring ......14 Stairs, Ramps and Stumble Control Function ......14 DAW Prosthetic Knee Limited Warranty .....17

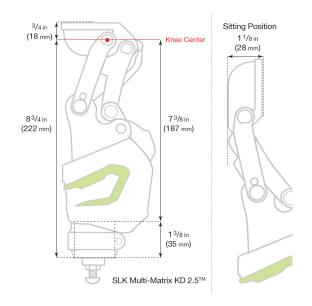
Popular Proximal Options ......(inside back cover)





## Contents

## **BUILD HEIGHT**



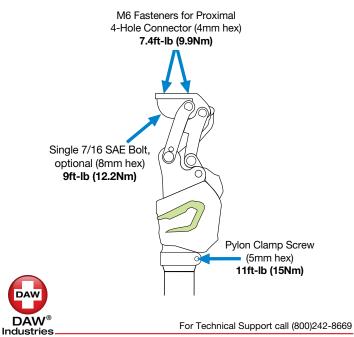
## **TORQUE SETTINGS**

#### **Important:**

Use blue Loctite<sup>™</sup> 242 on all screws referenced here.

It is not recommended to use Ottobock Titanium Pylon. Do not use a spacer for height adjustment. Ensure pylon is cut straight.

It is recommended these torques be checked within 30 days and then 6 months after your delivery of this prothesis.



### **Helpful Hints**

### DO

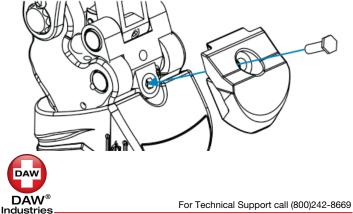
- ✓ Use Loctite<sup>™</sup> 242 on all screws that can come loose.
- ✓Use a torque wrench when tightening all screws to the recommended torque setting.
- ✓ Use only the knee connector bolt supplied with the knee unit.
- ✓ Refer to this technical manual at all times.
- Contact Technical Support at (800) 242-8669 with any questions.

## **DO NOT**

- Force or "jimmy" any parts together, all components should fit together properly, contact Technical Support for assistance.
- Integrate with other manufacturers components the without first reviewing with Technical Support.
- **X**Fit on patients in excess of knee's max weight limit.
- Do any maintenance on this knee without first reviewing with DAW Industries.
- Disassemble any portion of this knee component (unless expressly described in this manual) as it will void the warranty.
- XUse excessive powder inside of foam cover.

## NOTE

After aligning the prosthesis, be sure the socket is not limiting knee flexion, otherwise the bumper flexion socket bumper should be added

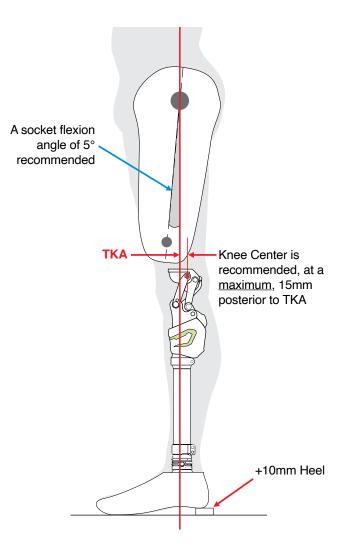


## **Trouble Shooting**

Symptom	I	Solution	Page
Terminal Impact	1. 2.	Check minor adjustment of the extension flexion Adjust, cut, or remove extension spring.	7
No Swing Phase Dampening Control	1. 2.	Check battery Check that wireless monitor is on "Auto: Yes"	13
Clicking, Grinding, or Squeaking Noise	1.	Remove, clean, and/or replace extension spring.	14
Pylon Turning		Tighten pylon clamp to 11ft-lbs Invert pylon Some other manufacturers diameters not to spec )frequent problem with O.B. Replace pylon (undersized)	2
Pylon is too tight	1.	Replace pylon (oversized)	2

## RECOMMENDED BENCH & STATIC ALIGNMENT

Standard alignment procedure must be observed to obtain the maximum benefits offered by this knee. All alignment references should be taken from the center of the anterior superior knee axis (commonly referred to as the Knee Center).







### Why is Custom-ICR Better?

#### Improve Stability without Altering Alignment

Without altering your alignment, the Custom-ICR<sup>™</sup> Stability Adjustment optimizes the location of this knee's ICR to optimize stability and minimize energy consumption (see next page to optimize your Patient's Custom-ICR setting).

Watch the "Custom-ICR Setting" video at daw-usa.com/videos

#### What is a 4-Bar Knee's ICR? And why is its location important?

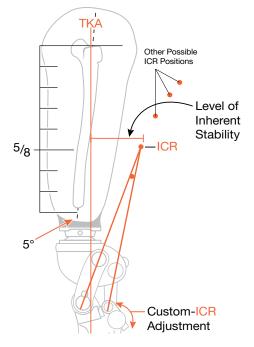
A Polycentric knee's Instantaneous Center of Rotation or ICR is a theoretical point located at the intersection of 2 lines which pass through the axes and continue proximally (see fig. below).

The ICR location of any polycentric knee determines two factors: The knee's Level of Inherent Stability in stance phase Your Patient's energy consumption.

#### Why is an Adjustable ICR Position advantageous?

A traditional 4-Bar knee's ICR location is not adjustable. If it is located too far posterior for your Patient's individual biomechanics, your Patient will consume excessive energy.

With this 5-Bar Custom-ICR knee, your Patient will consume the absolute minimum amount of energy.



The optimal location of the ICR is the area where the Amputee applies force to their socket wall during stance phase. It is most commonly,  $\frac{5}{8}$  down the length of the femur.



## **DAW Prosthetic Knee Limited Warrranty**

The knee comes with a Limited Warranty for 2-years. It covers manufacturer defects (excluding wear & tear). An additional 3 years of warranty coverage can be purchased for +15% of the original cost of the knee. See full warranty statement at: www.daw-usa.com/practitioner-resources/

#### Weight limit of this knee is 275lb (125kg)

Bumpers are not under warranty.

Tight screws and a straight cut of the tubing are a must. Not following recommended use of components, including weight limit and alignment, will void the warranty. Make sure to read all instructions enclosed with the knee unit.

All repairs on the knee module must be done by a factorytrained DAW technician. Any disassembly done on the knee during the warranty period(s) will void the warranty (excluding dissasembly of the extension spring housing).

#### Service Under Warranty

For all component repairs call DAW Industries right away. We will ship a replacement knee the same day, which will become your patient's new knee. The replacement component is under warranty for the time remaining on the original component.

The overnight shipping charge will be credited upon receipt of the failed knee component.

#### Service Outside of Warranty

Knees not under warranty may be repaired by DAW. While any unwarranted knee is being serviced, DAW will provide a rental knee subject to availability. The DAW rental fee is listed in the price list under each knee. The rental fee covers the period DAW takes to complete the repair with ten (10) days allowed for shipping in both directions. The same rental fee will be charged every 30 days passed the initial rental fee period.

For any repair you must first contact our Technical Services at 1(800)242-8669. This will allow DAW to best understand the issue. Our Technical Support will immediately asses if the repair qualifies as a "minor" or "substantial" repair. A "minor" repair will be completed, as a courtesy, free of charge (you will just pay for return shipping). A "substantial" repair will be billed at a flat rate according to knee model. Upon return of your repaired knee, you will be invoiced for the repair charge, if any. When DAW receives the rental knee, your account will be credited for the value of the returned knee (Gold Preferred + = FREE rental; Preferred = 33% off).

In the event your knee is unrepairable, you will be notified immediately. The rental must then be returned to DAW, 2nd day, within five (5) working days. The rental fee may be applied toward the purchase of a new DAW knee.



**DAW**® Industries

### **Benefits:**

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- Off the Shelf.
- BK, AK and Discontinuous 2-Part AK to choose from.
- Slips on and off easily.
- Soft, flexible and durable.
- Skin-like texture and feel.
- Does not interfere with function of knee.
- Seven skin tones + 1 Graphite Black (Blush, Fair, Caucasian, Suntan, Dark Suntan, Light Black, Black)

## DAWSKIN & DAWtoeSKIN STANDARD & MECA-STRETCH SIZING CHART



SIZE	ADOLESCENT	PETITE	SMALL	MEDIUM	LARGE
CIRC.	14 to 19 cm	20 to 25 cm	21 to 24 cm	25 to 27 cm	28 to 30 cm
в	1/ <sub>8</sub> 1/ <sub>4</sub>	11 <sup>3</sup> ⁄4 to 13 in	<b>12 ¾ to 14 ¼ in</b>	<b>14 to 16</b> ¼ in	<b>16</b> <sup>1</sup> / <sub>2</sub> <b>to 18</b> <sup>3</sup> / <sub>4</sub> <b>in</b>
	( 23 to 26 cm)	( 29 to 33 cm)	( 32 to 36 cm)	(35 to 41 cm)	( 41 to 47 cm)
С	5 <sup>1</sup> /4 to 7 in	<b>7</b> <sup>1</sup> ⁄4 <b>to 8</b> <sup>1</sup> ⁄2 <b>in</b>	8 <sup>1</sup> / <sub>2</sub> to 9 <sup>1</sup> / <sub>2</sub> in	<b>9 to 10</b> <sup>1</sup> ⁄ <sub>4</sub> in	<b>9 ¾ to 11 ½ in</b>
	(13 to 18 cm)	(18 to 21 cm)	(21 to 24 cm)	( 22 to 26 cm)	(24 to 29 cm)
LENGTH	BK 20 in (50 cm)	BK 20 in (50 cm)	<b>BK 21 in</b> (53 cm)	BK 23 in (58 cm)	BK 24 in (60 cm)
	AK 27 in (68 cm)	AK 29 in (73 cm)	<b>AK 29 in</b> (73 cm)	AK 31 in (78 cm)	AK 34 in (85 cm)

PRODUCT AVAILABILITY	вк	AK	AK2-PART
DAWSKIN ORIGINAL	ALL SIZES	ALL SIZES	NO
DAWSKIN MEGASTRETCH	ALL SIZES	ALL SIZES	ALL SIZES
DAWtoeSKIN MEGASTRETCH	ALL SIZES (except petite & adolescent)	ALL SIZES (except petite & adolescent)	ALL SIZES (except petite & adolescent)
DAWsplitSKIN MEGASTRETCH	ALL SIZES (except petite & adolescent)	ALL SIZES (except petite & adolescent)	ALL SIZES (except petite & adolescent)



#### MEDICARE L-CODES

BK: L 5962 –	Addition, Endoskeletal System, Below Knee Flexible Protective Outer Surface Covering System.
AK: L 5964 –	Addition, Endoskeletal System, Above Knee Flexible Protective Outer Surface Covering System.



For Technical Support call (800)242-8669

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## Custom-ICR Adjustment

For help with this adjustment, watch the Custom-ICR Setting video at daw-usa.com

→ Product Support ↓→ Videos

During bench or static alignment:

a) Loosen the <u>Set Screw</u> (2mm hex)

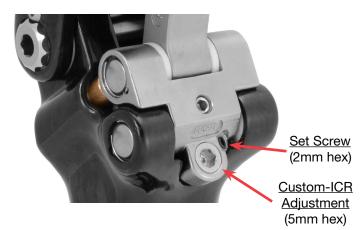
b) The factory Custom-ICR setting is set for an Amputee with an 8-inch residual femur. To adjust the Custom-ICR setting to your patient's residual femur length, turn the <u>Custom-ICR Adjustment</u> (5mm hex):

 $1\!\!\!/_4$  turn clockwise for every inch of femur shorter than 8

Or...

1/4 turn *counter-clockwise* for every inch of femur longer than 8.

c) Retighten the <u>Set Screw</u> before dynamic alignment.



#### During dynamic alignment:

Adjust the setting to your Patient's weak or strong hip extensor strength.

Turn *clockwise* to provide more stability to compensate for weaker hip extensors

Or...

If patient is hanging up in swing phase,

Turn *counter-clockwise* to provide more efficiency to a Patient with stronger hip extensors.



## **Stance Flexion** Adjustment

#### **IMPORTANT:**

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**RED TABS** should be removed before dynamic alignment.

#### **General Stance Flexion Adjustment:**

Equally turn the Stance Flexion Adjustment Screws:

Counter-Clockwise for less resistance to Stance Flexion (and a higher max Stance Flexion Angle)

Clockwise for more resistance to Stance Flexion (and a lower max Stance Flexion Angle)

#### **RED TABS** – What are they for?

The red tabs allow you to accurately adjust to the Maximum Stance Flexion setting while ensuring full contact remains between the Middle Posterior Axis and the Brass Cylinder given your current Custom-ICR<sup>™</sup> Stability setting.

#### **To Provide Maximum Stance Flexion:**

- A. One at a time, turn the Stance Flexion Adjustment Screws counter-clockwise until the Red Tabs pull out easily (Fig.1).
- B. Now turn each *clockwise* 3/4 of a turn. Adjust equally.

#### Note:

When adjusting Stance Flexion after RED TABS have been removed, ensure each Brass Cylinder remains in full contact with the Middle Posterior Axis (Fig.2).

#### Fig.1



Fig.2 (After Red Tabs Removed)





#### For Technical Support call (800)242-8669

(Flathead Screwdriver)

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#### FUNCTIONAL

 Patented design – Maximum flexion without interference

#### DURABLE

Extremely resilient

#### COSMETIC

 4 Sizes – easily shaped and modified

#### VERSATILE

 Adapts to any AK modular system

#### **COST-EFFECTIVE**

 Superior cosmesis in a fraction of the time

Size	X SMALL	SMALL	MEDIUM	LARGE
RIGHT	TFC-DFXSR	TFC-DFSR	TFC-DFMR	TFC-DFLR
LEFT	TFC-DFXSL	TFC-DFSL	TFC-DFML	TFC-DFLL
A	16 in (41cm)	<b>19 in</b> (48cm)	20 1/2 in (52cm)	21 1/2 in (55cm)
В	12 1/2 in (32cm)	15 in (38cm)	16 1/2 in (42cm)	17 1/2 in (44cm)
C	11 3/4 in (30cm)	13 in (33cm)	14 1/2 in (37cm)	15 ½ in (39cm)
D	7 1/2 in (19cm)	8 in (20cm)	9 in (23cm)	10 in (25cm)
Length	29 in (74cm)	33 in (84cm)	35 in (89cm)	37 1/2 in (95cm)

## Do Not Forget To Order DAWSkin™

### **TWO-PART DISCONTINUOUS**

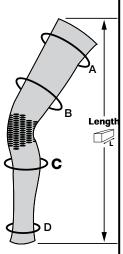
#### TFC-EG5P0SLKL (left) • TFC-EG5P0SLKR (right)

- Exoskeletal durability and cosmesis with endoskeletal light weight modularity.
- No interference with knee function.
- Excellent for knee disarticulation.
- Allows for kneeling without damage to cover.
- Inside is pre-cut for knee.

#### **Each Cover Includes:**

- Custom hard foam rubber knee cap.
- Pre-shaped plastazote tibial form.
- Inner soft form "filler" to protect the . knee and prevent play between the knee and cover.





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# Replacing or Trimming the Extension Assist Spring

#### How to Shorten, Remove, or Replace

In some instances it may be necessary to shorten the spring or remove it completely on very active patients, or replace the existing spring with a heavier one for less active patients.

- 1. Remove pylon.
- Remove pylon clamp screw ① completely with a 5mm Allen key.
- Gently remove the extension spring housing ③ (flexing and extending the knee will help).
- Make necessary adjustment to spring (cutting two coils max.). or...

Replace or remove the spring 2.

- Replace extension spring housing

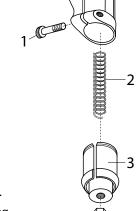
   aligned with vertical slot in the unit.
- 6. Replace the pylon (TTG-14) and pylon clamp screw ①.
- 7. Tighten the pylon clamp to 11ft-lb (15Nm).

#### **Stairs, Ramps and Stumble Control Function**

The high resistance that is required for negotiating ramps and stairs is preprogrammed into resistance level 9 of the SLK Multi-Matrix. To utilize these settings properly, the Amputee should walk on the knee for at least 3 days. The recommended training for an Amputee for ramps & stairs after 3 days of walking is as follows:

- 1. Press the (WM) (A/M) button once. Confirm the appearance of a dot in the Top Window.
- 2. Scroll to level 9 using the up arrow.
- Have your patient walk down a slight ramp several times.
   Once they feel confident on the slight ramp, have them walk on a steeper ramp.
- 4. After the patient has negotiated the ramps 20 times, they may try stairs. Unless extremely experienced, have them start with stairs that have hand rails.
- 5. When Ramp and Stair Training is complete, press the (A/M) button once so the dot in the Top Window disappears. The knee is now in control of the level of resistance and the Amputee can negotiate ramps and stairs.





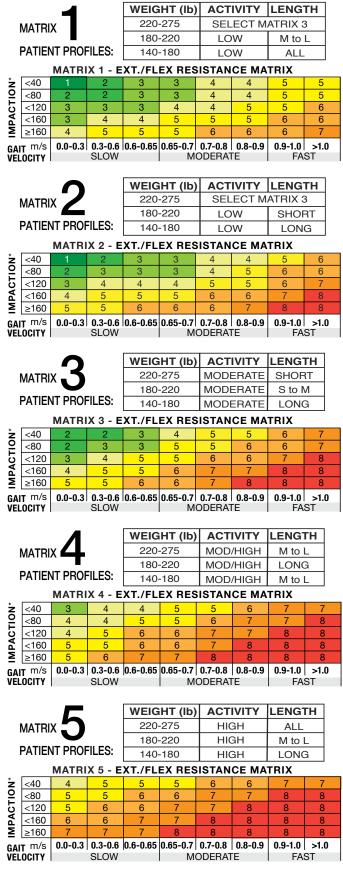
## **Extension Assist Adjustment**

#### To Adjust Extension Assist:

- A. Loosen the <u>Pylon Clamp Screw</u> (5mm hex) and remove the Pylon
- B. Loosen the Lock Nut (12mm wrench)
- C. Turn the <u>Extension Assist Control Screw</u> (5mm hex): *Clockwise* to increase extension assist *Counter-clockwise* to decrease extension assist
- D. Re-tighten the <u>Lock Nut</u>, **Hand Tighten** (12mm wrench). After returning the pylon, re-tighten <u>Pylon Clamp Screw</u> to **11ft-lb** (15Nm).







\*Impaction is an algorithmic representation of velocities in 3 planes.

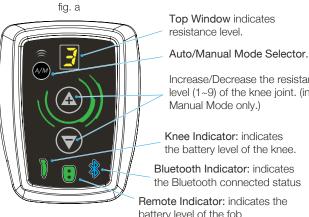


## Patient's Use Of The Remote (For Selecting Matrix, see page 8)

The SLK's remote allows the patient to wirelessly monitor the charge of the battery and manually adjust flexion resistance of the knee.

#### To adjust flexion resistance in Manual Mode: (See fig. a below)

- 1. Press the (M) (A/M) button one time, remote will beep once. Verify that a dot has appeared in the lower right-hand corner of the Top Window.
- 2. Using the ( (up/down) arrows scroll to the desired resistance level.
- 3. Pressing the (M) (A/M) button again will return the SLK to Auto Mode, the dot in the Top Window will disappear.



#### Monitoring battery charge level:

Bluetooth Indicator is: Blue (connected) Blinking blue (pairing)

#### Knee/Remote Indicator is:

Green (knee is fully charged) Blinking Green (25% charge, 7 1/2 hours remaining)

If motionless for 2 minutes the knee and remote will enter sleep mode, and power down. Press any button to wake up the remote, bend the knee to wake up the knee.

#### NOTE:

An unused fully charged battery can lose its charge after one month. All unused batteries should be completely discharged and stored in a cool dry place.



Increase/Decrease the resistance level (1~9) of the knee joint. (in

the battery level of the knee.

Bluetooth Indicator: indicates the Bluetooth connected status

battery level of the fob

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## Recommended Foot



✓ Dynamic energy return, Multi-Axis Ankle w/ rotation

- ✓ 3 split carbon keel stiffnesses: A, B, or C
  - (see keel selection chart to the right)
- Adjustable dorsi and plantar flexion
- ✓ Sizes 22-28
- ✓ Caucasian or Light Black foot shells
- ✓ Includes: foot shell, spectra sock, 3 bumper durometers

## **KEEL SELECTION CHART**

Limb Length	0 to 4"	0
(select one)	4 to 6"	1
	6 to 8"	2
	8 to 11"	3
	11" and up	4
Muscle Strength	Moderate	1
(select one)	Strong	2
(select one)	Powerful	2
	Towerrar	5
Activity	Low	1
(select one)	Medium	2
	High	3
Patient Weight	up to 100lb	0
(select one)	100 to 150lb	Ĵ
(other one)	150 to 200lb	2
	200 to 250lb	3
	250 to 300lb	4
	250 10 50010	т
Add Scores For	2 to 7	Stiffness A
Keel Selection	8 to 12	Stiffness B
	13 to 14	Stiffness C
Daw		

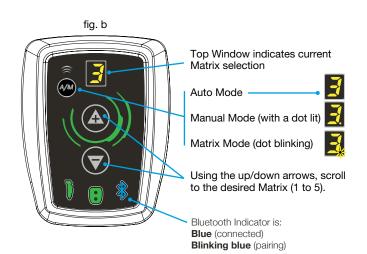
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## Entering The Desired Matrix Using Remote (Prosthetists Only)

The knee is factory set to Matrix 4. For help with this step, watch the video "Choosing & Entering Your Patient's Matrix" in the Product Support section of the DAW Website.

- 1. Turn on the remote by pressing any button.
- 2. Confirm that the Bluetooth Indicator in the bottom right-hand corner of the remote is solid blue indicating the remote and knee are connected. If the Bluetooth Indicator is blinking, flex the knee a few times until the light remains solid, (see fig. b.)
- 3. Press and hold the *(M)* (A/M) button until the Top Window shows a blinking dot in the lower right-hand corner. The Remote will beep twice.
- 4. Using the up/down arrows, (G) (S) scroll to the desired Matrix (1 to 5). See page 8 for help selecting the ideal Matrix for your patient.
- To enter your selection, press the (W) (A/M) button once more. The Top Window will show a "0". The Remote will beep twice. Your selection is confirmed.
- 6. The knee will now perform within your selected matrix. Should you wish to change your selected matrix, repeat steps 3 through 5.





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## SLK Multi-Matrix 2.5<sup>™</sup> KD Knee

**Proximal Attachments Selector Chart** 

