



eLIBRA[®] Dynamic Knee Balancing System

Medacta GMK Surgical Technique

The eLIBRA® Dynamic Knee Balancing System

("eLIBRA® DKBS")

- ▶ The eLIBRA® DKBS can be used in primary C/R and P/S knee procedures.
- ▶ The eLIBRA® DKBS works with high flex and rotating platform (mobile bearing) knee designs.
- ▶ The eLIBRA® DKBS works in conjunction with Computer Navigation.
- ▶ The eLIBRA® DKBS can be used in minimally invasive (MI) exposures.
- ▶ *eLIBRA® DKBS instrument sets* are *specific to the implant system* being used due to variations in A/P positioning of the implant specific A/P femoral resection guides.

The eLIBRA® DKBS System Overview

- ▶ The eLIBRA® DKBS works in conjunction with, but does not replace, the instrument set used with the selected implant system. The eLIBRA DKBS only replaces the implant specific instrument used to develop femoral implant rotation (in most instrument sets this is combined with the sizing guide).
 - The eLIBRA® DKBS femoral component accommodates 0°-10° of external rotation
- ▶ In 90 degrees of flexion, rotation of the eLIBRA® DKBS femoral component develops collateral tissue balance by elevating the lateral femoral condyle into a position providing stable articulation (dynamic balance) prior to performing the A/P femoral bone resections.
 - **CONTRAINDICATION:** eLIBRA® DKBS/LIBRA® DKBS are not recommended for reconstructions requiring full lateral release, resulting in lack of ligament supported stopping point for external rotation

Step 1

Establishing the *Extension Gap & Alignment*

- ▶ Perform the distal femoral and proximal tibial resections using the implant specific resection guides. Verify correct and adequate distal femoral and proximal tibial bone resections.
- ▶ Take appropriate surgical steps to align the leg/create a parallel extension space.
- ▶ *Note:*
 - It is recommended to remove all medial and lateral osteophytes from the border of the femur to avoid ligament "tenting." Posterior osteophytes should also be removed before mounting the eLIBRA[®] DKBS femoral component. Posterior osteophytes are easiest seen, felt, and removed with the knee in extension, using a laminar spreader to provide better access.



Step 2.1

Secure the eLIBRA® DKBS Femoral Component to the Distal Femur

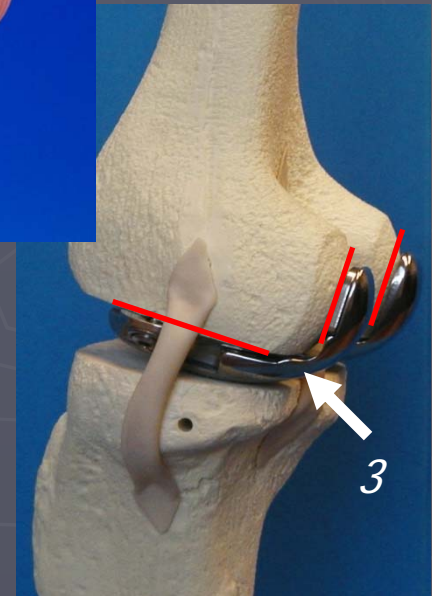
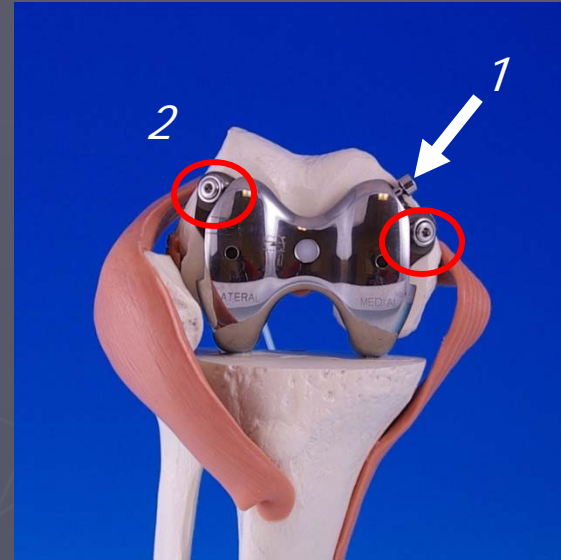
- Position and secure the eLIBRA® DKBS femoral component against the distal femur and flush against the posterior femoral condyles using two fixation screws. (*Detail 2*)

- *Note:*

- RT & LT components place the adjustment mechanism **medial** to the positioned patella. (*Detail 1*)

- *Note:*

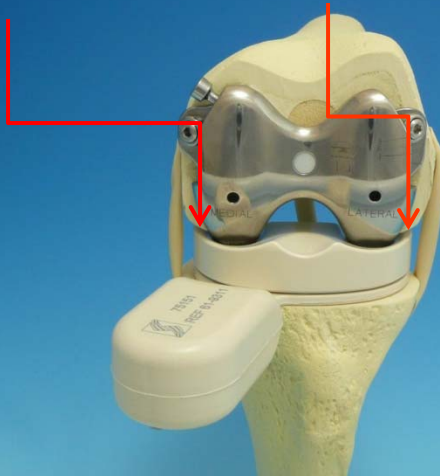
- The lateral foot should be in the closed position and both condylar reference feet should be flush against the most proud surface on the posterior femoral condyles. (*Detail 3*)



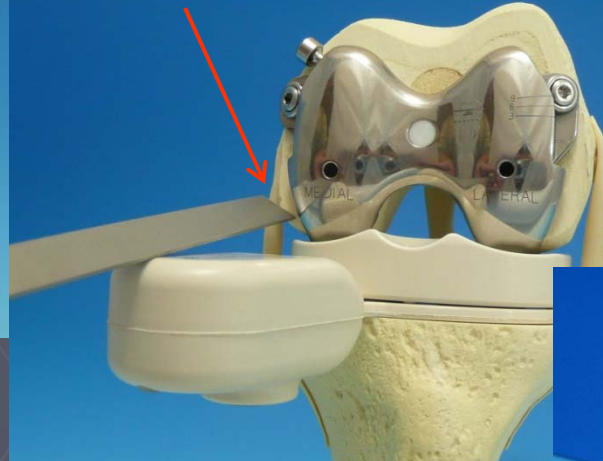
Step 2.2

Verify no excessive bone overhanging the POSTERIOR medial or lateral aspects of the eLIBRA® DKBS femoral component that might prevent the eLIBRA® DKBS femoral component from seating in the eLIBRA® DKBS tibial insert condylar troughs.

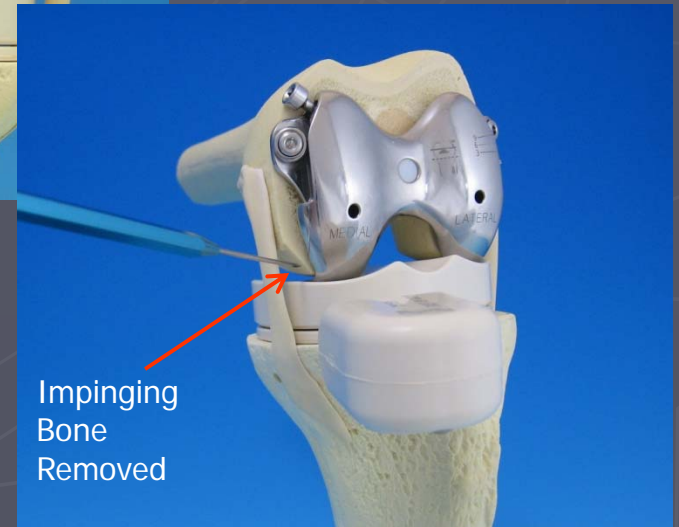
Possible Impingement Areas



Chamfer off any impinging bone



Impinging Bone Removed



The eLIBRA® DKBS Display and Force Sensor



The eLIBRA® DKBS Display is reusable and runs on standard AAA batteries

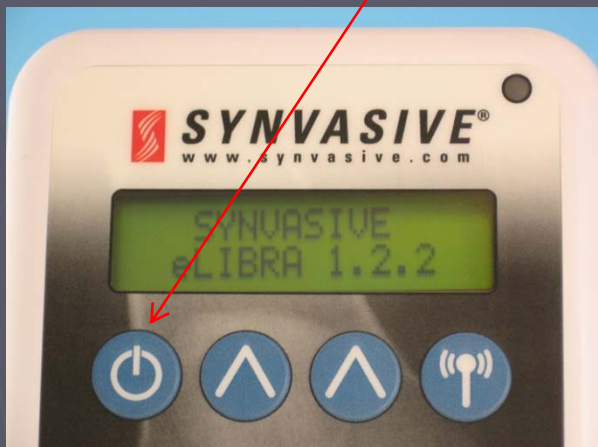
The eLIBRA® DKBS Force Sensors are **Single Use Sterile** instruments



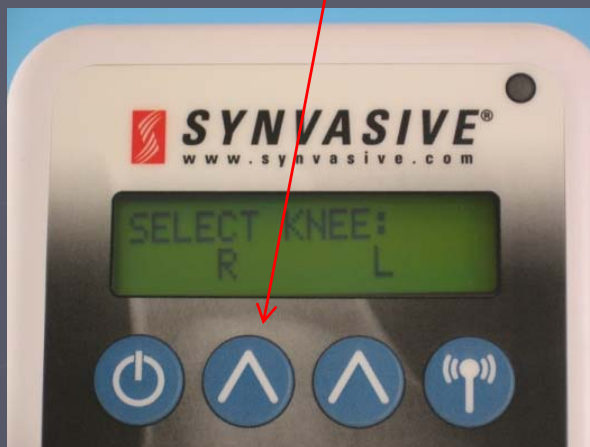
Step 2.3

Activating & Orienting the eLIBRA[®] DKBS Soft-tissue Force Sensor

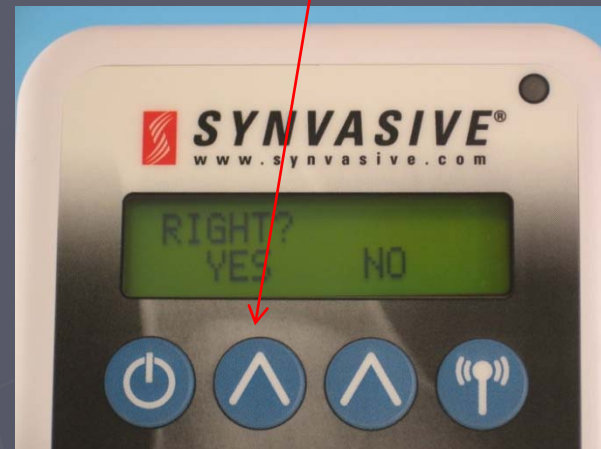
1) Press On/Off Button



2) Select Side



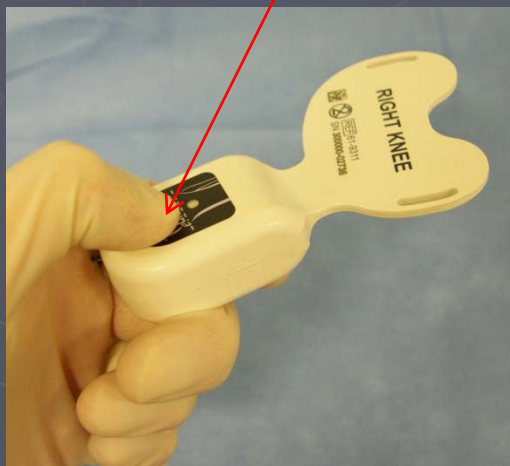
3) Verify Side



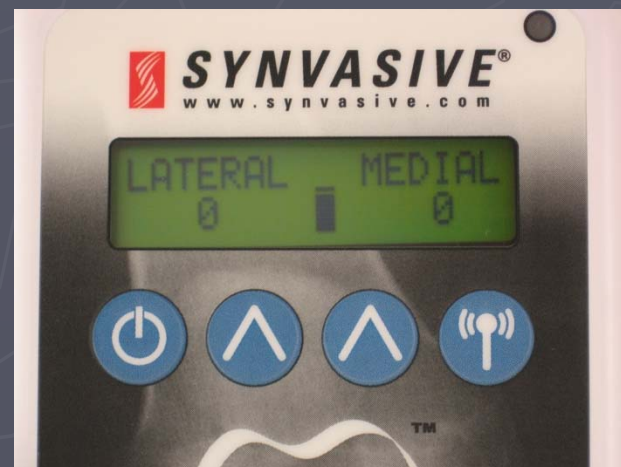
4) Ready to Activate Sensor



5) Activate Sensor – Push Activation Button



6) Sensor Active – Ready for Tibial Insert



Step 3

Select and Insert the eLIBRA® DKBS Tibial Insert

- ▶ An eLIBRA® DKBS Tibial Insert is selected and assembled to the active sensor (3.1). The assembly selected **MUST** provide medial stability while the knee is at 90 degrees of flexion.

Note:

- Select the eLIBRA® DKBS tibial insert that provides the best medial stability while the knee is in 90 degrees of flexion. The knee can be taken through full range of motion with patella in place to evaluate patella tracking, and gap and ligament balance.
- If the thinnest eLIBRA® DKBS tibial insert cannot be inserted, look for structures causing posterior capsule tightness, and or reconsider amount of slope and or bone resected on/from proximal tibia.
- eLIBRA® DKBS Tibial Inserts are **best inserted in mid-flexion**, *not* 90 degrees of flexion(3.2).
- The eLIBRA® tibial insert thicknesses are **matched** to the primary knee system being used.



Step 4

Establish *Dynamic* Knee Balance

- ▶ Articulate the knee with the sensor active and in place. Return it to 90 degrees of flexion and note the compartment forces. The desired balance point should create equal relative compartment forces. If external rotation is required to dynamically balance the knee, adjust the eLIBRA® DKBS femoral component using the *green wrench* to turn the eLIBRA® DKBS adjustment screw, which will elevate the lateral condyle and balance the relative compartment forces.
- ▶ *Note:*
 - The eLIBRA® DKBS should function as an articulating spacer with articulation acting similar to implant trials. Always verify the balanced position by articulating and side-toggling the knee.



eLIBRA® Dynamic Knee Balancing System

Optimal Balancing Technique

1 - Have Assistant lift the femur (avoid lifting tibia) being sure not to influence any structures in the posterior capsule.

2 - Use towel as sling to cradle under Achilles tendon to prevent varus/valgus influence on the collateral ligaments of the knee.

3 - To reach desired balance, lift sling/tibia 90 degrees to femur and adjust the eLIBRA® Dynamic Knee Balancing System femoral component to desired point force reading.

eLIBRA[®] Dynamic Knee Balancing System

Flexion-gap and Ligament Balancing Made Easy, Accurate and Repeatable

- ▶ The eLIBRA[®] DKBS provides step-saving and time-saving surgical cues before committing to the A/P femoral resections.
- ▶ If PCL is to be sacrificed, it should be done before balancing with the eLIBRA[®] DKBS, as sacrificing the PCL may tend to loosen the flexion space and affect gap balancing.

Dynamic Balance Established

- ▶ Once Dynamic Knee Balance has been established "A/P Femoral Location Holes" are drilled through the eLIBRA® DKBS femoral component.
- ▶ The A/P Femoral Location Holes are used to locate the implant system A/P cutting guides.
- ▶ There are several methods used to define the final position of the implant system A/P cutting guides, based on implant system femoral component design rationale: posterior referencing, anterior referencing, central lugs, large lug holes or varying posterior condylar thicknesses requiring eLIBRA® DKBS "Adapter Blocks."
- ▶ Variations of the different approaches are shown in Step 5 on the following pages

Step 5

Posterior Reference

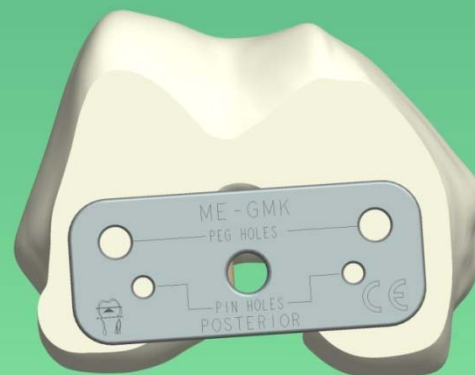
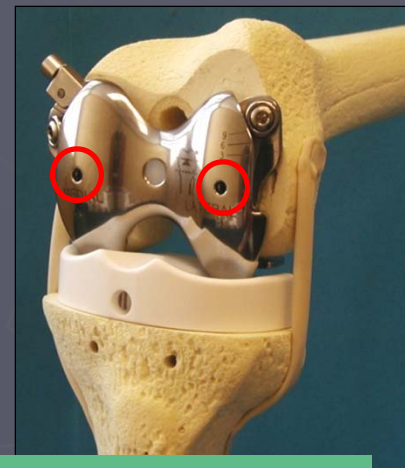
Drill the two holes through the eLIBRA® DKBS femoral component using a Steinmann pin or comparable diameter twist drill.

Remove the eLIBRA® DKBS femoral component and position the eLIBRA® DKBS A/P Positioning "ADAPTER BLOCK" against the distal femur.

Note- An introducer is included in eLIBRA DKBS instrument sets requiring secondary adapter blocks, or anterior referencing jigs.

Drill either the two "Pin" or "Peg" positioning holes with the corresponding implant system drill.

Remove the eLIBRA® DKBS Adapter Block, size the femur, place the size specific implant system A/P femoral resection guide and complete the implant system technique.



Step 5.1

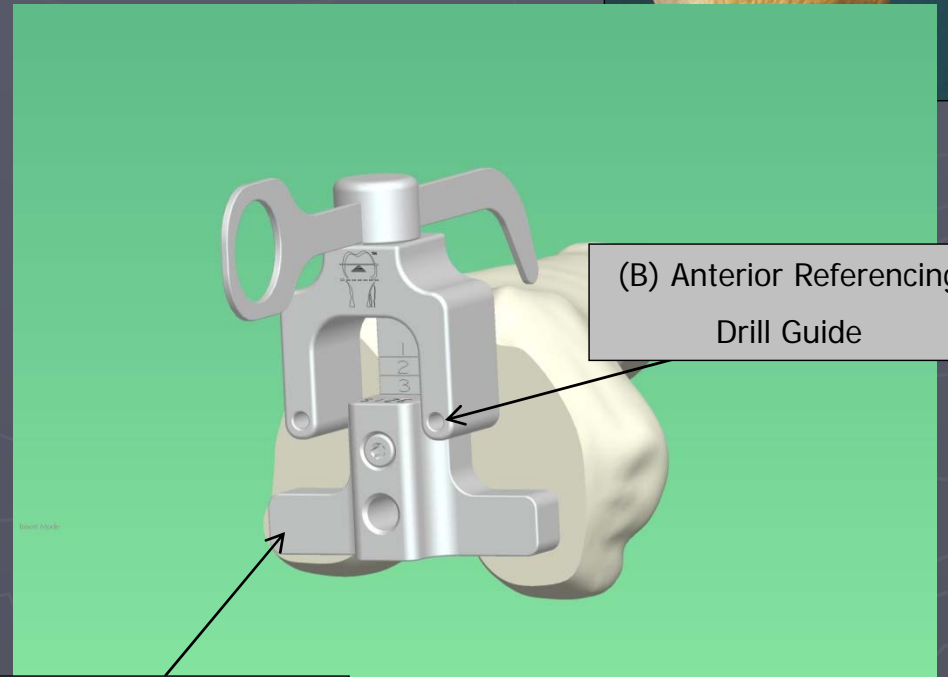
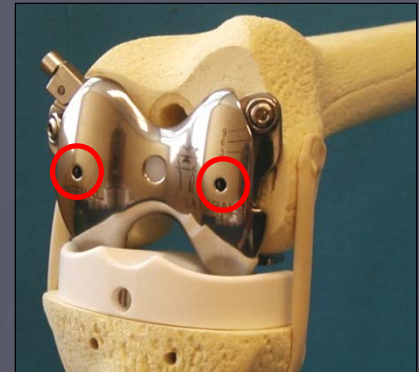
Anterior Reference

Drill 2 holes through the eLIBRA DKBS femoral component using an 1/8" diameter Steinmann pin or twist drill. Remove the eLIBRA® DKBS femoral component and position the anchoring plate (A) for the eLIBRA® DKBS anterior referencing drill guide (B) against the distal femur.

Position the stylus on the desired location in the trochlea.

Drill through eLIBRA® DKBS anterior referencing drill guide (B) to locate the Implant system A/P femoral resection guide.

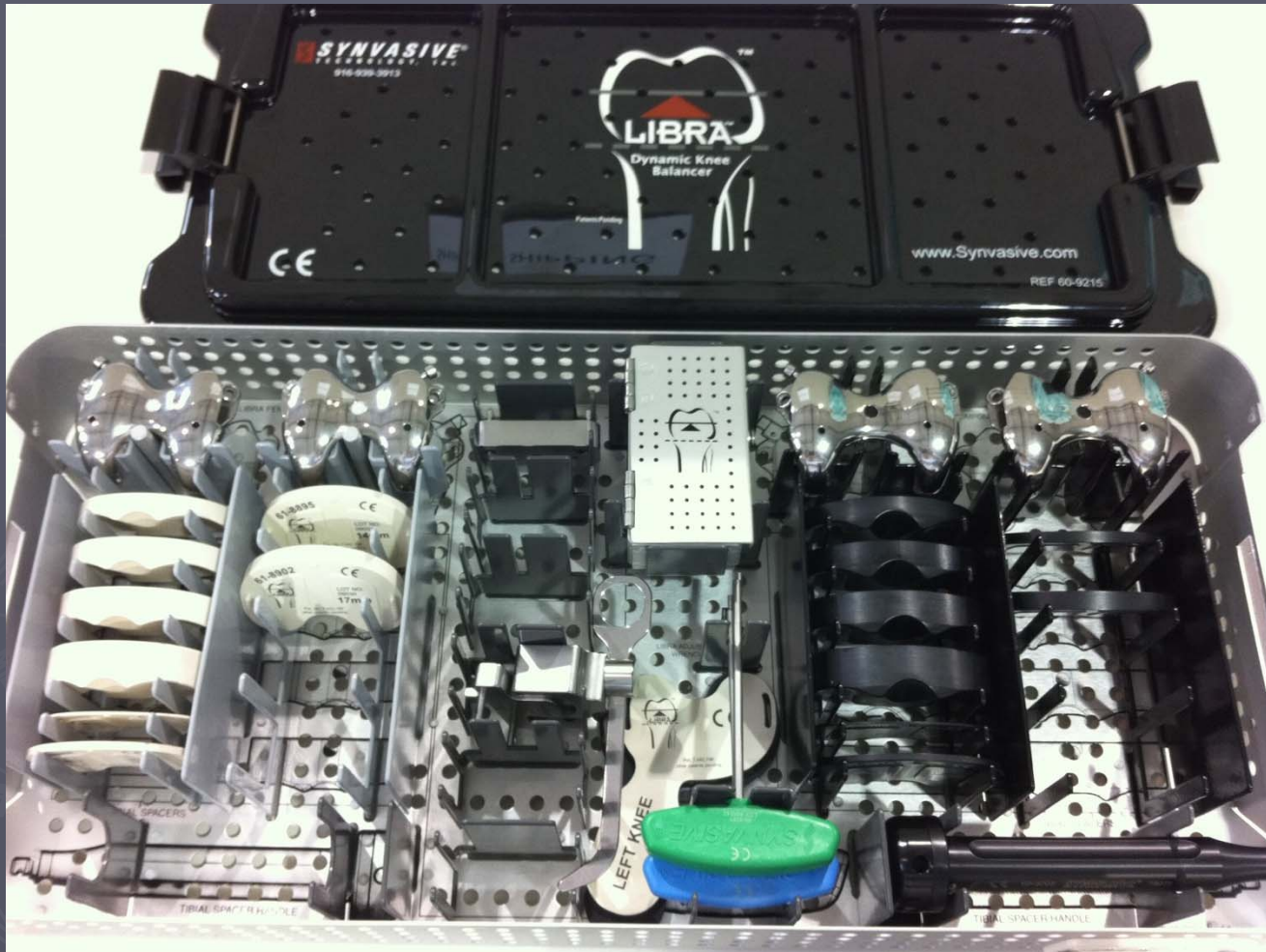
Remove the eLIBRA® DKBS anterior referencing drill guide, place the size specific implant system A/P femoral resection guide and complete the implant system technique.



(B) Anterior Referencing Drill Guide

(A) Anchoring Plate

The eLIBRA Dynamic Knee Balancing System™ Instrument Set



The eLIBRA® Dynamic Knee Balancing System (eLIBRA® DKBS) can only be operated by trained medical personnel. Failure to follow the training and information provided may result in possible injury, device malfunctions, device failure, damage to the device, damage to property or other serious consequences associated with the use or misuse of this equipment.