



# STar™ Drive M/E (Motor/Encoder)

For use with the microTargeting™ Motor/Encoder Accessory Options

## Accurate

Confidently place Deep Brain Stimulating (DBS™\*\*) or lesioning electrodes with assurance of cellular-level target confirmation

## Efficient

Perform all electrode operations through an integrated drive and guide tube system using precise, precalibrated components.

Sample additional tracks without repositioning the drive or stereotactic frame.

All components are steam sterilizable or isolated with a pre-sterilized drape sleeve.

## Proven

Hundreds of surgical teams already use FHC's innovative microelectrode technology derived from over 38 years experience as the world's leading manufacturer of research and clinical microelectrodes.

## Innovative

FHC's research heritage and custom fabrication capabilities allow us to work closely with field leaders to further enhance microTargeting™ technology.

## Reliable

FHC supports microTargeting™ products with comprehensive training, technical support and service.

All microTargeting™ products are cleared for clinical use within the United States and European Union.



™\* Trademark of FHC, Inc.

FHC's STar™\* (Surgical Targeting) Drive M/E System for motor/encoder is the next generation of the popular microTargeting™ Drive for precise neurosurgical positioning. Smoothly advance probes such as recording microelectrodes and stimulating or lesion electrodes through long metal bushings that dramatically reduce noise and microphonics.

The STar™ Drive M/E may be operated in 3 different modes: 1) manually using either the top or side knob, reading the position on the scale; 2) manually with optional encoder and a digital display; 3) or, electronically with optional motor, remote control, and digital display.

The STar™ Drive M/E is compatible with leading industry stereotactic systems through frame adapters secured with a new positive locking clamp. Five electrode positions include a central track aligned with the stereotactic Z axis and 4 parallel tracks offset by 2mm (on center) from the center track. When used with the center and offset positioners, the STar™ Drive M/E offers **up to 49 targeting options** without stereotactic repositioning. A Lead Holder is provided to position lesion or stimulating electrodes after microelectrode recording without needing to remove the drive.

Two Insertion Tube Sets are available:

- 1) The Single Electrode Insertion Tube Set** includes an insertion tube/stylet, a spacer tube and cleaning tool. An electrode (ordered separately), held in a single electrode carrier (ordered separately), can be positioned in any one of the five tracks and if additional data is required, it can be repositioned in any other track. The spacer tube assures alignment of the thinner recording microelectrode and is removed prior to positioning the stimulating or lesion electrode without removal of the outer guide tube from its final position. Depth stops for custom electrodes are also available.

™\*\* Trademark of Medtronic, Inc.

## Ergonomic Control

- \* Lightweight Frame
- \* Low Center of Gravity
- \* Locking Stereotactic Frame Adapters
- \* Lead Holder positions stimulating lead without removing drive

## Ease of Use

- \* Accessible Knobs & Scales
- \* Combined Wash, Sterilization & Storage
- \* Fewer Parts
- \* Quick Assembly
- \* Improved Array Electrode Insertion Tube System & Locking Carrier
- \* Simple Array Tube Extractor



The optional Lower Guide for STar™ Drive M/E is required if using microTargeting™ Array Electrode Tube Sets, including the Medtronic FC1012 or FC1018 insertion tubes.

"Innovation through collaboration"



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- 2) The STar™ Array Electrode Insertion Tube Set features a simplified 2-tube set that eliminates the need for a lower guide and array spacer tubes. Both tubes are held in the STar™ Array Locking Carrier with a single thumb screw. The microelectrode is inserted into the insertion tube for recording.

The electrode and tubes move together in this configuration. When a track is selected, the microelectrode is removed and the tubes are lifted out with the new STar™ Array Insertion Tube Extractor. The Lead Insertion Tube/Stylet is then positioned in the same track.

The STar™ Drive M/E's lightweight frame, low center of gravity, dual scales and easily accessible knob controls facilitate smooth operation. The drive is provided in the new, convenient SteriSuite case which minimizes component handling through automatic washing, steam sterilization and storage.

The drive uses available microTargeting™ electrodes with lengths calibrated to reduce time for pre-operative measurements and set-up.

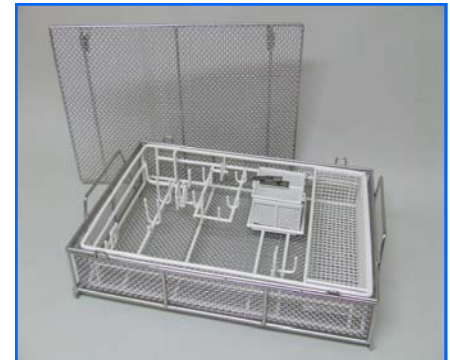
Minimal assembly is required for this reliable and accurate device, which is also available in a competitively priced, lightweight, manually operated version (Catalog #ST-DS-MA).

The STar™ Drive M/E is designed for use with existing microTargeting™ Motor/Encoder Accessories and microTargeting™ electrodes. MicroTargeting™ Array Insertion Tube Sets can be used, but require the use of a lower guide, available separately.

The STar™ Frame Adapter for Radiomics features an expanding fitting



STar™ Frame Adapters support leading stereotactic frames and are secured with a positive locking clamp.



The STar™ SteriSuite Case safeguards all Drive System components and minimizes handling while traveling through an automatic wash and into steam sterilization and storage.

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## Specifications and Ordering information



### Specifications

#### STar™ Drive

**Drive travel:** 50mm.

**Drive advancement knob:** 25µm graduation, 1 mm movement per revolution.

**Micro-, lesion or lead electrode position:** 30 mm from predicted target when drive retracted to 0.00 with electrode fully extended.

**Macroelectrode position:** position determined from electrode configuration dimensions.

**Array spacing:** 2.00 mm from center.

**Array guide hole diameter:** 1.88mm.

**Bushing configuration:** center hole on stereotactic axis with 4 holes offset by 2.00 mm on center and orthogonal to the center hole.

**Materials:** type 6061 aluminum with Nituff and Nickel plating, Radel, Type 316 Stainless Steel,

#### Single electrode IT set:

**Insertion tube dimensions/material:** 1.8 mm OD, 1.6 mm ID/ type 304 Stainless Steel.

**Spacer tube dimensions/material:** 1.5 mm OD, 1mm ID/ type 304 Stainless Steel.

**Electrode carrier material:** Nickel plated brass

**Electrode stops material:** Radel with type 304 Stainless Steel fastener.

#### STar™ Array Electrode IT set:

**Array Insertion Guide Tube Dimensions/material:** 1.8 mm OD, 0.9 mm ID/type 304 Stainless Steel

**Array Electrode Insertion Tube Dimensions/material:** 0.89 mm OD; 0.6 mm ID/ type 304 Stainless Steel.

**Lead Electrode IT Dimensions/Material:** 1.8 mm OD, 1.6 mm ID/ type 304 Stainless Steel.

**STar™ Array Locking Carrier material:** Nickel plated brass.

#### STar™ SteriSuite:

**Material:** Electropolished Stainless Steel  
**Insert:** Nylobond coated Stainless Steel

### Ordering Information

ST-DS-ME microTargeting™ STar™ Drive System including: microTargeting™ STar™ Drive M/E, Lead Holder with Depth Stop (1.8 mmØ), Verification Probe, STar™ SteriSuite Case, Cleaning Brushes (3), Lead Measuring Fixture, and spare knobs. (All items are also available individually.)

#### Stereotactic Adapters (one required):

- 70-FA-RD STar™ Frame Adapter for Radionics CRW™ (expanding)
- 70-FA-RD-01 STar™ Offset Frame Adapter for Radionics CRW™ (expanding)
- 70-FA-LX STar™ Frame Adapter for Leksell Stereotactic System® with lower arm bushing
- 70-FA-LX-01 STar™ Offset Frame Adapter for Leksell Stereotactic System®
- 70-FA-RM STar™ Frame Adapter for Leibinger RM™
- 70-FA-ZD STar™ Frame Adapter for Leibinger ZD™
- 70-FA-SF STar™ Drive Platform Adapter Kit for use with FHC's frameless stereotactic Platform

#### Insertion Tube Sets and Carriers: (one Tube Set & one Carrier needed)

##### Array Configuration

70-AC-AR Star™ Array Locking Carrier

##### Array (Sterile)

70-IT-ARP Sterile STar™ Array Electrode Insertion Tube and Stylet (pk 5)

70-CN-ET Sterile STar™ Array Insertion Tube Extractor (pk 5)

66-IT-1019 Sterile Lead Insertion Tube and Stylet (pk 5)

##### Array (Non-Sterile)

70-IT-AR Non-Sterile STar™ Array Electrode Insertion Tube Set: including six array insertion guide tubes, six array electrode insertion tubes and stylets, one Lead Insertion Tube and Stylet, and two STar™ Array Tube Extractors

##### Single Configuration

70-AC-01 STar™ Single Electrode Carriers

##### Single (Sterile)

66-IT-01P Sterile Single Electrode Insertion Tube Set including one insertion tube, stylet, spacer tube (pk 5).

##### Single (Non-Sterile)

66-IT-01 Non-Sterile Single Electrode Insertion Tube Set including one insertion tube, stylet, spacer tube and cleaning tool.

#### Also required:

Microelectrodes such as:

- mT type D (AR2) (Medtronic #22670): microTargeting™ Array Electrode
- mT type D (BP7) (Medtronic #34680): microTargeting™ Single Electrode

#### Optional components:

- 70-LG-01 Lower Guide
- 66-DS-PD (Medtronic #FC1007) Encoder including Display Module
- 66-DS-PA (Medtronic #FC1008) Motor including Display Module and Remote Control



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