

Display & Power Assist Accessories

for microTargeting™ Drive Systems

Accurate

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

Efficient

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

Sample additional tracks without repositioning drive or stereotactic frame.

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

Proven

Hundreds of surgical teams already use FHC's innovative microelectrode technology derived from our over 30 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.



Power Assist Assembly with Sterile Drape Sleeve shown assembled on the microTargeting™ Drive and Mounting Stand, connected to Power Assist/Display Module with Remote Control.

FHC's microTargeting™ Drive Accessories add power assist and/or position display capabilities to the basic Drive System. These add-on units use a simple, field installed adapter kit and require minimal changes to the basic microTargeting™ Drive System.

The mechanical components of the Drive System are steam sterilizable for rapid turn around and ease of use in all environments. The Display and Power Assist/Display Assemblies do not require sterilization; they are designed to use sterile draping sleeves. The sterile sleeve is easily applied and does not interfere with function. The Display or Power Assist with Display assembly is inserted inside the sterile drape which has pre-punched holes at the stretch material tip for a tight seal. The draped assembly is then attached to the Drive. The cable inside the drape extends outside the sterile field for connection to the Display or Control module.

The microTargeting™ Drive can be set-up in two configurations:

- Display Configuration consisting of a Display Assembly and Display Module; the drive is still controlled manually
- Power Assist with Display Configuration consisting of a Power Assist with Display Assembly, a microTargeting Controller, and a Handheld Remote Control

Features

- **Accessory components add increased functionality to the microTargeting™ Drive:**
 - Digital display of electrode position (control of drive is manual), or
 - Motorized Power Assist control (including hand held remote) and display of position
- **Display and Power Assist components are coupled to steam sterilizable microTargeting™ Drive using a sterile draping system --reduces turnaround time, decreases wear/tear on electronic components**
- **Bright, 1 cm high LED Display shows electrode tip position in microns**
- **All components are compact sized and can be mounted, sterilized (where applicable), and stored conveniently**
- **Computer monitoring/control available via serial port on Display and Power Assist modules**

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Display & Power Assist Accessories for microTargeting™ Drive Systems

Assuming microTargeting™ Drive purchased separately, a typical Display configuration (shown below) will consist of:

- 1ea 66-DA-EN Display Assembly
- 1ea 66-EL-PD Display Module
- 1ea 66-DA-AC Adapter Kit
- 1Pk/20 66-DA-SD Sterile Drape Sleeves



Display configuration showing Display Assembly mounted on microTargeting™ Drive (Adapter Kit installed), Sterile Sleeve not installed.

A typical Power Assist/Display configuration will include:

- 1ea 66-DA-ME Power Assist w/ Display Assembly
- 1ea 66-EL-MC Power Assist Module
- 1ea 66-DA-AC Adapter Kit

Ordering Information

- 66-DA-AC Display/Power Assist Adapter Kit
- 66-DA-EN Display Assembly
- 66-DA-ME Power Assist w/ Display Assembly
- 66-DA-SD Sterile Drape Sleeves (Pk 20)
- 66-DA-SC Storage Case
- 66-EL-PD Display Module including Power Supply
- 66-EL-MC Power Assist Controller/Display Module including Remote Control and Power Supply
- 66-EL-AA Articulating Arm and Mobile Stand
- 66-EL-SW Serial Interface Software w/ Cable

The position of the tip of the microrecording, lesion or stimulating electrode relative to the zero position is shown on a 1 cm high LED display to one micron precision. An indicator arrow points down when the drive is being advanced, up when it is retracted, and to the display when the drive is at rest.

The Display configuration retains the manual control of the drive advance.

The Power Assist/Display configuration adds a stepper motor drive which is controlled from a hand held Remote Control with a single control function. Rotating the control knob from its center position causes the drive to retract or advance; the distance from center determines the rate. The control is spring loaded to return to zero when the knob is released.

A Return to Zero push button causes the drive to return to the zero at maximum rate when it is depressed.

In both the Display and Power Assist Configurations the Zero push button can only be activated once (when the drive is zeroed).

Drive Accessory items are listed separately so extra components can be purchased conveniently.

Both the Display and Power Assist Controller/Display Modules include a serial port which can be accessed with simple commands (see specifications) so that the display data can be easily accessed through any computer including surgical navigation and data acquisition systems.

FHC offers a Windows® 95, 98, 2000/ NT compatible software package that includes provision for setting the initial distance of the electrode tip to a predicted target and then displays a running update of the tip's position as it is advanced to that target. If the Power Assist Controller/Display configuration is used, the program allows the operator to advance or retract in preselected step sizes by depressing the keyboard up and down arrows keys. Note that this function is always overridden by any rotation of the knob on the Remote Control.

FHC offers a convenient Articulating Arm and Mobile Stand which includes provision for mounting either Module and its power supply. It also includes cable raceways, as well as a convenient tray with provision for storing all components that do not require sterilization. Alternatively, we also offer a storage case which can be configured to hold the non sterilized components.



Articulating Arm and Mobile Stand shown with Power Assist Assembly, Power Assist Module, and Power Supply installed. Note coupler and Remote Control stowed on Tray for storage between procedures.

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Display & Power Assist Accessories Example Procedure

Converting microTargeting™ Drive (one time only):

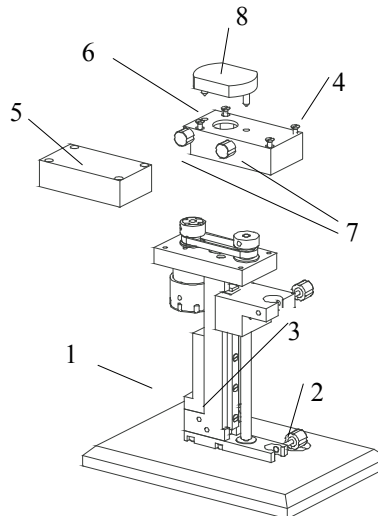
1. Replace the microTargeting™ Drive cover with the Accessory Top cover by removing the four screws (screwdriver provided) holding the cover to the Drive.
2. Position the Sterilization Cover and secure.
3. Store the Drive and Mounting Stand (provided with the adapter kit) in the sterilization case provided with the Drive.

Pre-operatively:

1. Sterilize the case containing the microTargeting™ Drive System and Mounting Stand by steam or EtO.
2. Position the Drive on the Mounting Stand. Remove the Sterilization Cover.
3. Insert the Display or Power Assist Assembly into a sterile sleeve and extend the sleeve over the cable. Position the draped assembly on the microTargeting™ Drive and rotate the Drive advance knob until the assembly slides down onto the Drive Cover; tighten the two knobs to secure.
4. Connect the assembly cable to the Display or Controller Module. Zero the display after setting the Drive to zero using the visual scale on the Drive.

During the procedure:

1. Mount the assembled microTargeting™ Drive on the stereotactic system.
2. Load the insertion tube and electrode.
3. Advance the microelectrode either manually (if Display configuration) or using the Remote Control or computer (Power Assist configuration) The tip position of the electrode used in the microTargeting™ Drive is displayed on the Module as the drive is advanced.
4. The Drive Assembly can be removed during the procedure and the operation can proceed using the manual control and visual scale on the Drive.
5. After the procedure is complete, remove the Power Assist or Display Assembly, discard the sterile drape, and return the sterilization cover to its position on top of the Drive.



Adapter Kit Installation

- 1: microTargeting™ drive
- 2: Mounting Stand
- 3: Pylon Locking Screw
- 4: Top Cover holding screws
- 5: microTargeting™ Drive Top Cover removed
- 6: Accessory Top Cover
- 7: Top Cover Knobs
- 8: Sterilization Cover



Non sterile hand pulling the cable out of the sterile drape



Drive with Display Assembly installed in sterile sleeve.

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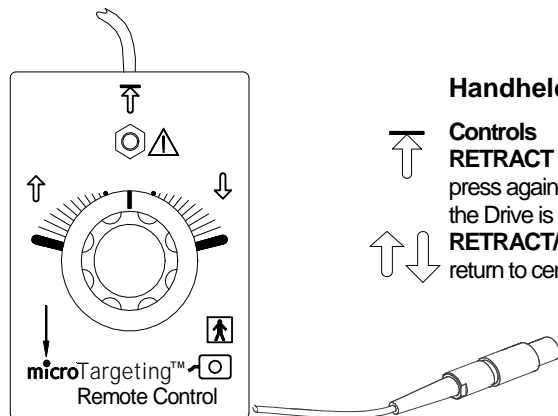
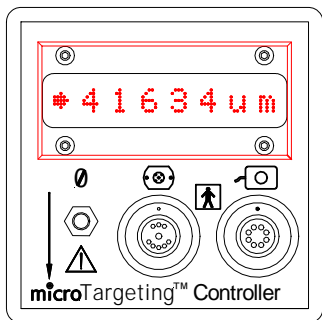
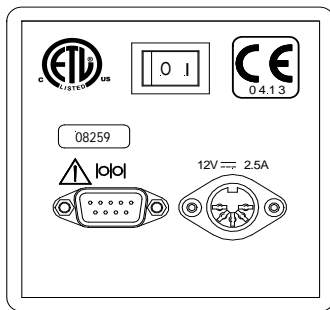
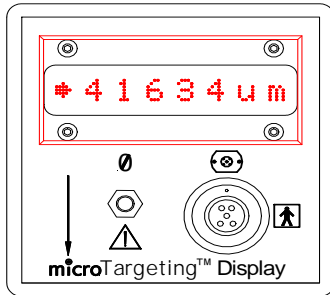
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Display Module Front Panel

Controls:
ZERO: Push button to zero the display after the Display Assembly has been mounted on the Drive and Drive has been set to 0.00 on the scale. NOTE: As a safety feature, the display cannot be re-zeroed without powering off the Module.

Position Display: 8 characters, including directional arrow, Resolution: 1 micron

Connectors:
Display Assembly: 5 pin receptacle: for display assembly 66-DA-EN, color coded blue

Module Back Panel, (Both)

Controls:
POWER: Rocker switch for main power I = ON, O = OFF

Connectors:
POWER ENTRY: 5 pin circular DIN receptacle, (12VDC, Common, Earth)
COM: 9 pin male D-Sub receptacle, RS232 (serial port), uses standard IBM-PC 9-pin serial cable (straight through)

Power Assist Controller/Display Module Front Panel

Controls:
ZERO: Push button to zero the display after the Display Assembly has been mounted on the Drive and Drive has been set to 0.00 on the scale. NOTE: As a safety feature, the display cannot be re-zeroed without powering off the Module.

Position Display: 8 characters, Resolution: 1 micron

Connectors:
POWER ASSIST/DISPLAY ASSEMBLY: 9 pin receptacle for 66-DA-ME, color coded blue
REMOTE CONTROL: 8 pin receptacle: color coded white

Handheld Remote Control

Controls:
RETRACT TO ZERO: momentary push button retracts the motor back to zero, press again to cancel auto-retract. NOTE: If this push button is depressed before the Drive is zeroed, the module will go into the "Remote Control Calibrate" mode.
RETRACT/ADVANCE: Knob controls direction and speed of the drive. Spring return to center (speed = 0) when released.

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Display & Power Assist Accessories Specifications

1. Sterile Drape Sleeves:

Material: Kraton
 Dimensions: 17.8cm(d) x2.4m (7" (d) X 8'), open, 20x30x.3cm (8"x12"x1/8"), packaged
 Sterilization: Presterilized by EtO
 Package quantity: 20 each in individual sterile packages

2. Display/Power Assist Adapter kit:

Dimensions:

	Stand	Accessory Top Cover	Sterilization Cover
Height:	4 cm (1.57")	1.42 cm (.56")	0.64 cm (.25")
Width:	7.8 cm (3")	2.71 cm (1.06")	2.39 cm (0.94")
Length:	11.5 cm (4.5")	5.32 cm (2.09")	3.18 cm (1.25")
Weight:	230g, (8 oz.)	28.5 g, (1 oz.)	12.8 g, (.5 oz.)

 Material: Aluminum 6061/ Pins and Pylon 304 Stainless Steel
 Finish: Black, Hard Coat Anodize w/PTFE

3. Display Assembly:

Material: Radel R 5000 series (Black)
 Dimensions: Height: 3.81cm (1.50")
 Width: 2.39cm (0.94")
 Length: 3.18cm (1.25")
 Weight: 49 grams (2 oz.) not inc. connector/cable
 Interface: Mates with 66-DA-AC
 Electrically isolated from drive system
 Cable Length/Diameter: 3m (9.8'), 3.0mm (0.12") Ø, shielded
 Connector: 5 pin indexed, Color coded blue with strain relief (mates with 66-EL-PD)
 Linear Resolution: 1 micron (calculated)
 Sterilization: Do not sterilize, use sterile draping system

4. Power Assist w/Display Assembly:

Material: Radel R 5000 series (Black)
 Dimensions: Height: 6.13cm (2.41")
 Width: 2.39cm (0.94")
 Length: 3.18cm (1.25")
 Weight: 72 grams (3 oz.), not including connector/cable
 Cable Length/Diameter: 3.0m (9.8'), 3.5mm (0.14") Ø, shielded
 Connector: 9 pin indexed, Color coded blue with strain relief (mates with 66-EL-MC)
 Interface: Mates with 66-DA-AC
 Electrically isolated from drive system
 Linear Resolution: 1.0 microns (calculated)
 Maximum Speed: 1200 steps / second (0.66 mm/sec)
 Sterilization: Do not sterilize, use sterile draping system

5. Display Module with Power Adapter:

Dimensions: **Display Module** **Power Adaptor**
 Width: 8.89 cm (3.5") 7.4 cm (2.9")
 Height: 8.89 cm (3.5") 4.4 cm (1.8")
 Length: 11.63 cm (4.6") 14.9 cm (5.87")
 Weight: 480 g (1.1 lbs.) 0.74 kg (1.6 lbs)
 Case Material: HIPS Plastic (Black / Granite) UL 94 HB rated
 Power Required (Power Adapter): 85-264 VAC 47-63 Hz, NEMA 5-15 pattern Line Cord
 Display: 8 characters, 1 cm height, red, 1 micron resolution
 Mounting Options: Tabletop, 4 rubber feet prevent sliding
 Articulated Arm, Trolley: mounting Adaptor and arm available (66-EL-AA)
 Mounting studs on Module side panel provide adaptability with Medtronic
 Functional Diagnostics mounting options including External Stand and Bed Clamp

(5. Display Module with Power Adapter, cont.)

Serial Interface:

Baud Rate 19200, 1 Stop Bit, No Parity, No Handshake
 Communications Protocol: ASCII
 Commands Supported:
 V: Version Report
 C: Configuration Report
 P: Position Report
 L: Set Language
 Z: Set Drive Limit
 E: Echo to display

PIN	SIGNAL	FUNCTION	DIRECTION
1#	DTR	Data terminal ready	From mT™ Controller (mT™C)
2	TXD	Transmit data	From mT™C
3	RXD	Receive data	To mT™C
4*	DCD	Data carrier detect	To mT™C
5	GND	Signal ground	
6*	DSR	Data set ready	To mT™C
7*	CTS	Clear to send	To mT™C
8#	RTS	Request to send	From mT™C
9*	RI	Ring indicator	To mT™C

*Pin ignored by microTargeting Controller

#State of output not guaranteed, client computer should ignore these signals

6. Power Assist Controller/Display module:

Dimensions:

	Power Assist Controller Module	Remote Control	Power Adaptor
Width:	8.9 cm (3.5")	6.7 cm (2.6")	7.4 cm (2.9")
Height:	8.9 cm (3.5")	4.3 cm (1.7")	4.4 cm (1.8")
Length:	11.6 cm (4.6")	9.5 cm (3.7")	14.9 cm (5.87")
Weight:	520 g (1.2 lbs)	199g (0.44lbs)	0.74 kg (1.6 lbs)

(inc cable and plug)

Case Material: HIPS Plastic (Black / Granite) UL 94 HB rated

Power: Display Module: 12VDC @ 2.5A Max, 30Watts

Power Adaptor: 85-264 VAC 47-63 Hz

Display: 8 characters, 1cm height, red, 1 micron resolution

Mounting Options: Tabletop, 4 rubber feet prevent sliding Articulated Arm, Trolley: mounting Adaptor and arm available (66-EL-AA) Mounting studs on Module side panel provide adaptability with Medtronic Functional Diagnostics mounting options including External Stand and Bed Clamp.

Serial Interface:

Baud Rate 19200, 1 Stop Bit, No Parity, No Handshake
 Communications Protocol: ASCII
 Commands Supported:

V: Version Report
 C: Configuration Report
 P: Position Report
 +: Advance one step
 -: Retract one step
 L: Set Language
 Z: Set Drive Limit
 E: Echo to display

7. Articulating arm and Mobile Stand:

Height Adjustment: 0.8m (2.6') to 1.6m (5.4'), 360° rotation, 3 axis adjustment on arm
 Wheel and pivot locks to prevent unwanted motion
 Carriage to hold power adaptor, mT module mounting stand
 Cable ways for neat routing of serial and power cables

8. Serial Interface Software and Cable:

Cable: 9 pin female DIN (both ends), straight through, 3 m (9.8 ft)
 Software: Windows 95,98,2000/NT compatible CD

9. Protective Storage Case:

Material: Unbreakable black structural resin plastic shell with foam interior cut in 1.26 cm segments to be removed to configure for components
 Dimensions: 41(1)x34(w)x18(h) cm, (16-1/8" (l)x 13-1/4"(w)x 7"(d)) Weight: 3.2 kg (7 lbs.)

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