LASERMARK – LMH SERIES
AUTOMATIC SELF-LEVELING ROTARY LASER

LASER SAFETY

THE USE OF CONTROLS, ADJUSTMENTS, OR THE PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

DO NOT STARE INTO THE LASER BEAMS. DO NOT DISASSEMBLE THE INSTRUMENT OR ATTEMPT TO PERFORM ANY INTERNAL SERVICING. REPAIR AND SERVICING OF THIS LASER ARE TO BE PERFORMED ONLY BY CST OR AUTHORIZED SERVICE CENTERS.


LMH SERIES OPERATION

3.1 LEVELING:

1. REMOVE THE LASERMARK LMH FROM ITS CASE. THE UNIT CAN STAND ALONE ON A LEVEL, STURDY SURFACE OR BE SECURED TO A 5/8”X11 SURVEYOR’S TRIPOD.

2. PRESS THE POWER BUTTON ONCE, AND ALLOW TIME (UP TO 60 SECONDS) FOR THE UNIT TO SELF LEVEL. THE POWER ON LED (FIG. 1) AND THE LASER WILL BLINK DURING THIS PROCESS. PLEASE NOTE, THE LASER HEAD MAY BEGIN TO ROTATE BEFORE LEVELING IS COMPLETE. THE SELF-LEVELING SPEED IS APPROXIMATELY ONE DEGREE PER 4 SECONDS.

3. AFTER SELF LEVELING, THE LASER HEAD WILL ROTATE AT 600 RPM (THE LMH 600 WILL ROTATE AT THE LAST SELECTED SPEED. PRESS THE POWER BUTTON AGAIN TO TURN THE UNIT OFF). (NOTE: FOR LMH-GR AND LMH 600 MODELS, SEE SECTION 4.3.2 (PAGE11)

3.2 RE-LEVELING:

IF THE UNIT IS BUMPED OR MOVED, THE UNIT WILL AUTOMATICALLY ATTEMPT TO RE-LEVEL ITSELF. THE POWER ON LED AND THE LASER WILL BLINK DURING THIS PROCESS UNTIL
THE UNIT IS LEVEL ONCE AGAIN. THE LASER HEAD WILL RESUME ROTATION.

ON THE JOB SITE, IT MAY BE NECESSARY TO PREVENT RE-LEVELING IN ORDER TO PREVENT INACCURATE MEASUREMENTS BY THE OPERATOR. THE LMH’S ANTI-DRIFT SYSTEM (SECTION 3.3) IS USED FOR THIS PURPOSE.

3.2.1 AXIS DRIVE ERROR:

IF THE LHM IS SET UP OR TIPPED BEYOND ITS SELF-LEVELING RANGE OF 5 DEGREES PLUS OR MINUS, THE LASER HEAD WILL INITIALLY ATTEMPT TO LEVEL; HOWEVER WHEN THE SELF-LEVELING LIMIT IS REACHED, THE LEDS WILL BLINK, INDICATING AN AXIS DRIVE ERROR (FIG. 2). TURN THE LMH OFF, MOVE THE UNIT INTO A MORE LEVEL POSITION, THEN TURN THE UNIT ON AGAIN.

3.3 ANTI-DRIFT SYSTEM (ADS): (LMH, LMH-C, ANDLMH-GR ONLY):

BY DEFAULT THE ADS FEATURE IS ON. THE DEFAULT SETTING OF THE ADS FUNCTION MAY BE SET TO ON OR OFF. WHEN THE UNIT IS OFF, PRESS AND HOLD THE MANUAL MODE (FOR LMH-GR, DOWN ARROW BUTTON) AND THEN PRESS THE POWER BUTTON. ONCE THE UNIT IS ON, TURN THE UNIT OFF FOR 15 SECONDS AND THEN BACK ON. ADS WILL NOT BE THE DEFAULT WHEN UNIT IS TURNED ON. TO MAKE THE UNIT RETURN TO ADS AS DEFAULT, REPEAT THESE INSTRUCTIONS. WHEN THE LMH SERIES LASER IS FIRST TURNED ON, THE ADS FEATURE DOES NOT BEGIN RECORDING FOR 1 MINUTE. THIS ALLOWS THE INSTRUMENT TO BE SET UP AND ADJUSTED. IF AFTER ONE MINUTE, THE UNIT IS DISTURBED AND THE ADS LIGHT IS FLASHING IT IS NECESSARY TO CHECK ANY BENCH MARKS THAT HAVE BEEN MADE AND ENSURE THE PROPER “HI” (HEIGHT OF INSTRUMENT). AFTER THE FLASHING ADS HAS BEEN RESET, BY PRESSING THE ADS BUTTON ONE TIME, YOU WILL HAVE AN ADDITIONAL MINUTE TO SET AND CHECK YOUR MEASUREMENTS. TO TURN ADS OFF PRESS THE ADS BUTTON ONCE. THIS WILL PUT THE UNIT INTO NORMAL AUTO SELF-LEVELING MODE.

3.4 GRADE MODE: SINGLE AXIS GRADE (LMH-GR AND LMH600NLY)

THE SINGLE GRADE FUNCTION IS IDEAL FOR GENERAL SITE GRADING, CHECKING EXCAVATION, LANDSCAPING AND DRAINAGE, AND MORE.
MANUAL GRADE MODE CAN BE ACTIVATED BY PLACING THE AUTOMATIC LEVELING SENSOR IN THE OFF POSITION. PRESSING THE MANUAL GRADE BUTTON WILL DEACTIVATE THE SENSOR.

THE SELECTED GRADE CAN BE AS MUCH AS A POSITIVE OR NEGATIVE 10%, AND SET IN REFERENCE TO THE Y-AXIS OF THE UNIT.

OPERATOR CAN USE ONE OF TWO METHODS TO GENERATE SINGLE-AXIS GRADE (FIG. 4). METHOD 1: PLACE THE UNIT IN THE MIDDLE OF THE TWO POINTS (A AND B) TO GET A HIGHER DISTANCE. METHOD 2: PLACE THE UNIT AT ONE POINT (A) AND LOCATE THE OTHER POINT (B).

ON THE LMH600, YOU MAY FIRST PRESS VARIABLE ROTATION BUTTON AND SET THE LASER TO THE DESIRED ROTATION SPEED. PRESS THE “MANUAL GRADE” BUTTON TO ACTIVATE MANUAL GRADE OPTION. PRESS THE ARROW BUTTONS (FIG.5B) TO ADJUST TO YOUR DESIRED GRADE.

THE UNIT WILL REACT TO “MORE” AND “LESS” INPUT (FIG. 5A AND 5B). ALLOW THE UNIT AMPLE TIME TO REACT TO THE INPUT PROVIDED, BETWEEN GRADE SETUPS OR CHANGES.

3.5 GRADE MODE: DUAL AXIS SLOPE (LMH600 ONLY)

THE DUAL GRADE FUNCTION ALLOWS MORE SPECIALIZED SITE PREPARATIONS SUCH AS ROAD GRADING, AIRPORT JOBS (GRADING AND PAVING), IRRIGATION, TRENCHING, LANDFILLS, SLOPES AND EMBANKMENTS, AND PIPELAYING.

TO ENTER A DUAL GRADE SETTING, PRESS THE MANUAL MODE (GRADE) BUTTON. THEN PRESS THE ARROW BUTTONS TO ADJUST GRADE (FIG.5B). ALLOW THE UNIT AMPLE TIME TO REACT TO THE BUTTON BEING Pressed. REFER TO EXAMPLES IN FIG. 6 TO PREDICT YOUR RESULTS.

LMH SERIES APPLICATIONS

USE YOUR LASERMARK LMH SERIES AUTOMATIC SELF-LEVELING LASER FOR THESE AND MANY OTHER PROJECTS:

OUTDOOR GENERAL CONSTRUCTION APPLICATIONS AND SITE PREPARATION, GRADING AND EXCAVATING, BATTERBOARDS AND FOUNDATIONS, MASONRY WORK, SETTING CONCRETE FORMS,
MACHINERY INSTALLATION, MARKING ELEVATION, SEPTIC WORK, PAVING ROADS, DRIVEWAYS, CHECKING DEPTH OF TRENCHES.

4.0 BENCHMARKING

DURING THE WORK DAY, PERIODICALLY CHECK YOUR INITIAL SETUP TO ENSURE THAT THE LASER REFERENCE HAS NOT MOVED.

ESTABLISH, AT A SUITABLE DISTANCE (FURTHEST POSSIBLE), A BENCHMARK (REFERENCE) ON A STABLE SURFACE (I.E. TREE, BUILDING). PERIODICALLY DURING THE WORK DAY, CHECK THE BENCHMARK TO ENSURE THAT YOUR SETUP HAS NOT MOVED.

4.1 PROCEDURES FOR CEILING GRID APPLICATIONS (LMH 600 ONLY).

1. ATTACH THE LMH SERIES TO THE OPTIONAL WALLMOUNT BRACKET. BE SURE THE CONTROL BUTTONS ARE FACING OUTWARD. TIGHTENING THE LOCKING SCREW WILL SECURE THE UNIT TO THE BRACKET.

2. AFTER INSTALLING THE FIRST PIECE OF CEILING TRIM, ATTACH THE WALLMOUNT TO IT. BE SURE THE WALLMOUNT IS SECURE TO THE TRIM.

3. PRESS THE POWER BUTTON. IF THE OUT-OF-LEVEL INDICATOR IS BLINKING, PRESS THE MANUAL GRADE BUTTON TO PUT THE UNIT INTO AUTOMATIC MODE. ALLOW THE UNIT TO SELF-LEVEL.


5. INSTALL THE CEILING GRID. ATTACH THE MAGNETIC LASER TARGET TO THE CEILING TRIM BEING INSTALLED. ADJUST THE HEIGHT OF THE TRIM UNTIL THE LASER BEAM STRIKES THE TARGET.

NOTE: PLACING THE UNIT INTO SCAN MODE WILL MAKE INSTALLATION EASIER AND MORE EFFICIENT.

TO PLACE THE UNIT INTO SCAN MODE, PRESS THE SCAN MODE BUTTON UNTIL THE ROTATING LASER HEAD STOPS. PRESS AND HOLD EITHER CLOCK-WISE OR COUNTERCLOCK-WISE HEAD
POSITIONING BUTTON UNTIL THE LASER BEAM MOVES TO THE WORKING AREA. PRESS THE SCAN MODE BUTTON UNTIL THE ROTATING BEAM IS SCANNING THE NECESSARY ANGLE.

4.2 PROCEDURES FOR LAYDOWN APPLICATIONS (LMH600 ONLY)

1. PLACE THE UNIT IN THE LAYDOWN POSITION ON A FLAT, LEVEL SURFACE.

2. PRESS THE POWER BUTTON. IF THE “OUT-OF-LEVEL” INDICATOR IS BLINKING, PRESS THE MANUAL GRADE BUTTON TO PUT THE UNIT IN AUTOMATIC MODE.

3. PRESS THE AUTO BEAM POSITIONING BUTTON; THE LASER BEAM WILL PLUMB DOWN OVER POINT (REFERENCE ONLY).

4. USE THE LEFT AND RIGHT MANUAL GRADE BUTTONS FOR FINE ADJUSTMENT.

4.3 PROCEDURES FOR GENERAL CONSTRUCTION APPLICATIONS

NOTE: A LEVEL PLANE OF LASER LIGHT IS CREATED BY THE ROTATING BEAM OF THE LMH SERIES. THE LASER LIGHT CAN BE USED TO REFERENCE ELEVATIONS WITH THE USE OF A LASER DETECTOR.

1. PLACE THE UNIT ON A FLAT, LEVEL SURFACE SUCH AS A TRIPOD. SETUP THE UNIT IN AREAS WHERE IT CAN NOT BE OBSTRUCTED AND IT WILL BE SET AT A CONVENIENT HEIGHT.

2. PRESS THE POWER BUTTON. IF THE “OUT-OF-LEVEL” INDICATOR (LMH-GR AND LMH600 ONLY) IS BLINKING, PRESS THE MANUAL GRADE BUTTON TO PUT THE UNIT IN AUTOMATIC MODE.

2. a. LMH600 ONLY – PRESS THE VARIABLE SPEED ROTATION BUTTON TO SELECT THE DESIRE ROTATION SPEED OF THE LASER HEAD.

3. TAKE ELEVATION READINGS USING THE PLANE OF LASER LIGHT AS A REFERENCE.

TO TAKE READINGS, ATTACH THE LASER DETECTOR TO THE GRADE ROD AND PLACE THE ROD AT A POINT TO FORM AN ELEVATION READING. FOLLOW THE DETECTOR OPERATION PROCEDURES IN THIS MANUAL.
UNIVERSAL LASER DETECTOR

INTRODUCTION

THE LASERMARK UNIVERSAL LASER DETECTOR AIDS IN LOCATING AND TARGETING A VISIBLE OR INVISIBLE BEAM BY A ROTARY LASER; PERFECT FOR USE IN OUTDOOR CONDITIONS, WHERE SUNLIGHT AND DISTANCE MAY MAKE LOCATING THE BEAM MORE DIFFICULT.

POWER

A 9-VOLT BATTERY WILL PROVIDE UP TO 3 MONTHS OF TYPICAL USAGE. WHEN THE UNIT IS TURNED ON AND THE LOW BATTERY SYMBOL REMAINS LIT, THE BATTERY SHOULD BE REPLACED.

OPERATION

1. MOUNT THE UNIT ONTO A SIGHTING ROD IF YOU ARE USING ONE. TURN ON THE UNIT BY PRESSING THE ON/OFF PAD. THE LCD SYMBOLS WILL MOMENTARILY FLASH (FIG.1) AND THE “COARSE” BEAM INDICATOR SYMBOL WILL REMAIN LIT AND THE AUDIO SIGNAL WILL BE ON.

2. EXPOSE THE BEAM CAPTURE WINDOW OF THE LASER DETECTOR TOWARDS THE DIRECTION OF THE ROTATING LASER.


4. MOVE THE DETECTOR UPWARD WHEN THE LOW BEAM INDICATOR LIGHT IS LIT (WITH VOLUME ON, A SHORT PULSING AUDIO TONE IS HEARD). MOVE THE DETECTOR DOWNWARD WHEN THE HIGH BEAM INDICATOR ARROW IS LIT (WITH VOLUME ON, A LONG PULSING AUDIO TONE IS HEARD). WHEN THE BEAM IS LEVEL, THE LEVEL BEAM INDICATOR LINE WILL BE LIT AND A SOLID AUDIO TONE WILL BE HEARD.
IF THE DETECTOR IS NOT STRUCK BY A LASER BEAM AFTER 5-8 MINUTES, THE DETECTOR WILL AUTOMATICALLY SHUT ITSELF OFF TO PRESERVE BATTERY LIFE. TURN THE UNIT BACK ON USING THE POWER BUTTON.

SPECIAL FEATURES

THIS DETECTOR HAS A UNIQUE MEMORY FEATURE, WHICH PRESERVES THE LAST POSITION OF THE LASER BEAM IF THE DETECTOR IS MOVED OUT OF THE PLANE OF LASER LIGHT, AS WELL AS BUILT IN ELECTRONIC FILTERING FOR BRIGHT SUNLIGHT AND ELECTROMAGNETIC INTERFERENCE. THREE DISTINCT AUDIO TONES (HIGH, ON-GRADE, AND LOW) ASSIST TARGETING FROM A DISTANCE.

FEATURES SPEAKER OFF, LOUD (105 dBA) AND LOUDER (125+ Dba), FINE, MEDIUM, AND COARSE BEAM RESOLUTION SETTINGS, AND FRONT AND BACK LCD DISPLAYS. SEVEN DISTINCT CHANNELS OF INFORMATION (FIG 2) INDICATE THE POSITION OF THE DETECTOR IN THE PLANE OF LASER LIGHT. AS YOU MOVE THE DETECTOR CLOSER TO THE CENTER, THE ARROWS FILL IN TO INDICATE THE LASER POSITION.

CARE OF YOUR UNIVERSAL LASER DETECTOR

THIS UNIT IS GASKET SEALED FOR WATER AND DUST PROTECTION. USE A SOFT, DRY CLOTH TO REMOVE ANY DIRT OR MOISTURE FROM THE INSTRUMENT BEFORE STORAGE. DO NOT USE BENZENE, PAINT THINNER, OR OTHER SOLVENTS TO CLEAN THE INSTRUMENT. REMOVE BATTERY BEFORE LONG-TERM STORAGE OF THE INSTRUMENT.