ME-3023 Hardware PCB Switch Settings (with universal firmware ≥ V20-08R)

The ME-3023 Main PCB's are used in the LW5A(G)(E)–LW25A(E) Laser Welders. The ME-3023 Main PCB operates on firmware V20-08R and newer (universal code). Laser model is selected via SW7.

SW1	Function	Default
1	*Factory use only (leave switch position OFF)*	OFF
2	Shutter 3 – Independent Mode (ON:enabled)	OFF
3	Fiber Sensor Detect (AMY only) (ON:enabled)	OFF
4	Shutter 2 – Independent Mode (ON:enabled)	OFF
5	Shutter 1 – Independent Mode (ON:enabled)	OFF
6	**Laser Configuration**	OFF
7		OFF
8		OFF

Laser Configuration

Configuration	SW1-6	SW1-7	SW1-8
1E	OFF	OFF	OFF
2E	OFF	OFF	ON
3E	OFF	ON	OFF
2T	ON	OFF	OFF
3T	ON	OFF	ON
Independent	ON	ON	ON

SW4	Function	Default
1	**Laser Acceptance Time**	OFF
2		OFF
3	*Factory use only (leave switch position OFF)*	OFF
4	*Factory use only (leave switch position OFF)*	OFF
5	Laser Controller Type (ON: MLE-115A) (OFF: MLE-118A)	ON
6	OEM Selection (ON: AMYA - LW) (OFF: AMY Japan - ML)	ON
7	PCB (RTC) Type[1] (ON: ME-1925) (OFF: ME-3023)	OFF
8	LW5AG Interlock Auto-reset (LW5AG only)	OFF

Laser Acceptance Time

Time	SW4-1	SW4-2
16mS (default)	OFF	OFF
8mS	ON	OFF
4mS	OFF	ON
1ms	ON	ON

RS-485 Communication Settings

SW3	RS-485(1)(2) Comm Function
FULL (up)	Full-duplex communication
HALF (down)	Half-duplex communication

SW2	Function	Default
1	Mirror 1 – Independent Mode (ON:enabled)	OFF
2	Mirror 2 – Independent Mode (ON:enabled)	OFF
3	Fiber Sensor 1 Contact Switch (OFF:enabled)	ON
4	Fiber Sensor 2 Contact Switch (OFF:enabled)	ON
5	Fiber Sensor 3 Contact Switch (OFF:enabled)	ON
6	Fiber Sensor 1 LED (OFF:enabled)	ON
7	Fiber Sensor 2 LED (OFF:enabled)	ON
8	Fiber sensor 3 LED (OFF:enabled)	ON

Controller Communication Setting (ME-1925C)

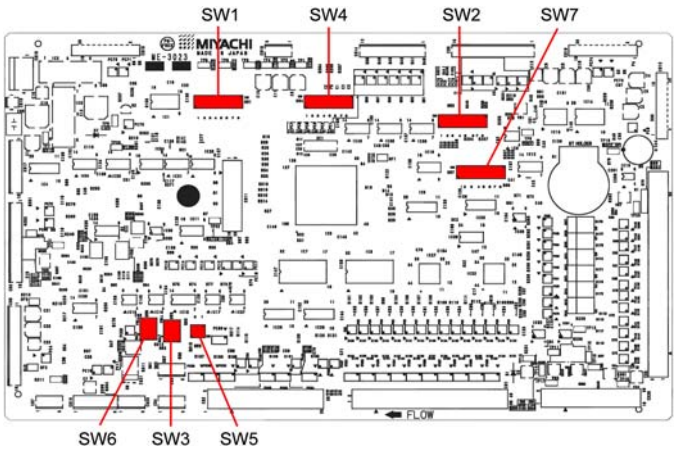
SW6	Communications	Controller
FULL (up)	Full-duplex	MLE-118A
HALF (down)	Half-Duplex	MLE-115A

Communication Termination Resistor

SW5	Termination Resistor	Default
1	Laser Controller (ON: In circuit)	OFF
2	RS-485(1)(2) (ON: In circuit)	OFF

SW7 – Laser Model (*leave all unused SW7 positions OFF*)

Laser Model	SW4-6	SW7-1	SW7-2	SW7-3
LW5A(E)	ON	ON	OFF	OFF
LW5AM(E)[2]	ON	OFF	OFF	OFF
LW15A(E)	ON	OFF	OFF	OFF
LW25A(E)	ON	OFF	ON	OFF
LW5AG(E)	ON	OFF	OFF	OFF
ML-2051A(-CE)	OFF	ON	OFF	OFF
ML-2052A(-CE)[2]	OFF	OFF	OFF	OFF
ML-2050A(-CE)	OFF	OFF	OFF	OFF
ML-2150A(-CE)	OFF	OFF	ON	OFF
ML-8150A(-CE)	OFF	OFF	OFF	OFF



1. If ME-1925 firmware code is programmed into the ME-3023, set SW4-7 to ON.
2. The LW5AM and ML-2052A require special firmware code (SA1178096) to operate. Leave SW7-1 through SW7-3, OFF.

ME-3023 Memory Soft Switch Settings (MSW with universal firmware ≥ V20-08R):

The following parameters can be set in the Laser's Memory Soft Switches (part of Initialization Screen).
Note: The default position for all Soft Switches is **OFF**. The switch positions shown below assume the ME-3023 is installed with universal firmware (≥ V20-08R).

To gain access to the Memory Soft Switches (MSW), access the Initialization Screen:

MLE-115A	With the Power + Keyswitch OFF, press and hold the MENU key while powering ON. Release the MENU key once the Initialization Screen appears.
MLE-118A	With the Power + Keyswitch OFF, press and hold the ENCODE button while powering ON. When the Laser model displays, turn the ENCODE button CCW while continuously holding the ENCODE button down. Release when the Initialization screen appears.

MSW1	Function	ON	OFF (default)
1	Automatic High Voltage start-up	HV will ***not*** turn on during start-up	HV will turn on during start-up
2	Enable Start Input on EXT-I/O(1)-20 when in Panel Control Mode	Start/Stop Inputs enabled	Start/Stop Inputs disabled
3	*Factory use only (leave switch position OFF)*		
4	*Factory use only (leave switch position OFF)*		
5	Remote Interlock Auto-Reset[1]	Auto-Reset Enabled	Auto-Reset Disabled
6	Energy Measurement resolution	00.00J (x10) (Pk Power ≤ 0.10kW)[1]	000.0J (x1)
7	Time Setting resolution	0.05mS steps (max setting ≤ 5mS) [1]	0.1mS Steps
8	*Factory use only (leave switch position OFF)*		

1. *These settings are not available in the LW5AG, leave switches in the OFF position. Use SW4-8 on the ME-3023 PCB to control the Remote Interlock Auto-Reset function on the LW5AG.*

MSW2	RS-485 Function	ON	OFF (default)
1	Data Bit Length	7 bits	8 bits
2	Parity Bit	No Parity	With Parity
3	Parity Mode	Odd Parity	Even Parity
4	Stop Bit	1 Stop Bit	2 Stop Bits
5	**Communication Baud Rate**		
6			
7	*Factory use only (leave switch position OFF)*		
8	*Factory use only (leave switch position OFF)*		

Communication Baud Rate

Baud Setting	MSW2-5	MSW2-6
9,600 bps (default)	OFF	OFF
19,200 bps	OFF	ON
38,400 bps	ON	OFF
9,600 bps	ON	ON

MSW3	Function	ON	OFF (default)
1	*Factory use only (leave switch position OFF)*		
2	*Factory use only (leave switch position OFF)*		
3	*Factory use only (leave switch position OFF)*		
4	*Factory use only (leave switch position OFF)*		
5	*Factory use only (leave switch position OFF)*		
6	Trigger Signal Output, EXT-I/O(1)-7[2]	Trigger Output active	No Trigger Output
7	Scanning Welder Interface	Used with AMY Scanner	No Scanner Interface
8	*Factory use only (leave switch position OFF)*		

2. *For LW5A/15A/25A only (function not available in LW5AG).*

ME-1925 Hardware PCB Switch Settings

The ME-1925 Main PCB's are used in the LW5A(G)(M)(E)–LW25A(E) Laser Welders. V00-xx firmware code is Laser model specific. V2x-xx firmware code is universal code, where the Laser model is selected via MSW3.

SW1	Function	Default
1	*Factory use only (leave switch position OFF)*	OFF
2	Shutter 3 – Independent Mode (ON:enabled)	OFF
3	Fiber Sensor Detect (AMY only) (ON:enabled)	OFF
4	Shutter 2 – Independent Mode (ON:enabled)	OFF
5	Shutter 1 – Independent Mode (ON:enabled)	OFF
6	**Laser Configuration**	OFF
7		OFF
8		OFF

Laser Configuration

Configuration	SW1-6	SW1-7	SW1-8
1E	OFF	OFF	OFF
2E	OFF	OFF	ON
3E	OFF	ON	OFF
2T	ON	OFF	OFF
3T	ON	OFF	ON
Independent	ON	ON	ON

SW4	Function	Default
1	**Laser Acceptance Time**	OFF
2		OFF
3	*Factory use only (leave switch position OFF)*	OFF
4	*Factory use only (leave switch position OFF)*	OFF
5	Laser Controller Type (ON: MLE-115A) (*ME-1925C only*) (OFF: MLE-118A)	ON
6	ME-1925C: OEM selection (note 3) (≥ V20-08H)	OFF
7	ME-1925C: RTC selection (note 2) (≥ V20-08H)	OFF
8	ME-1925A/B: RS-485 Term. Resistor (ON: In Ckt)	OFF
	ME-1925C: LW5AG I/L Auto-Reset (≥ V20-08H)	OFF

Laser Acceptance Time

Time	SW4-1	SW4-2
16mS (default)	OFF	OFF
8mS	ON	OFF
4mS	OFF	ON
1ms	ON	ON

RS-485 Communication Settings

SW3	RS-485(1)(2) Comm Function
FULL (default)	Full-duplex communication
HALF	Half-duplex communication

SW2	Function	Default
1	Mirror 1 – Independent Mode (ON:enabled)	OFF
2	Mirror 2 – Independent Mode (ON:enabled)	OFF
3	Fiber Sensor 1 Contact Switch (OFF:enabled)	ON
4	Fiber Sensor 2 Contact Switch (OFF:enabled)	ON
5	Fiber Sensor 3 Contact Switch (OFF:enabled)	ON
6	Fiber Sensor 1 LED (OFF:enabled)	ON
7	Fiber Sensor 2 LED (OFF:enabled)	ON
8	Fiber sensor 3 LED (OFF:enabled)	ON

Controller Communication Setting (ME-1925C)

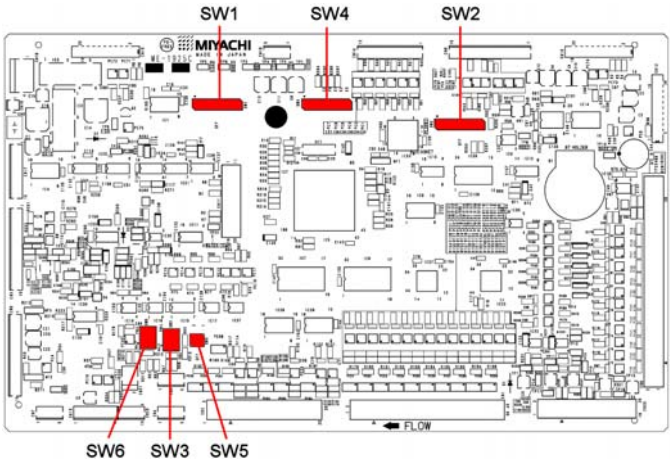
SW6	Communications	Controller
FULL (up)	Full-duplex	MLE-118A
HALF (down)	Half-Duplex	MLE-115A

Communication Termination Resistor (ME-1925C)

SW5	Termination Resistor	Default
1	Laser Controller (ON: In circuit)	OFF
2	RS-485(1)(2) (ON: In circuit)	OFF

Notes:

1. The ME-1925A and ME-1925B Main PCB's can only be used with the MLE-115A Controller.
2. When firmware V20-08R (and newer) is programmed onto the ME-1925 Main PCB, turn SW4-7 **ON** (enables the correct RTC).
3. When firmware V20-08R (and newer) is programmed onto the ME-1925 Main PCB, SW4-6 selects the OEM:
   OFF: Amada Miyahi (Japan)
   ON: Amada Miyachi America (U.S.)
   Configure the Laser model via MSW3-3/4.



ME-1925 Memory Soft Switch Settings (MSW):

The Memory Soft Switches (MSW) are used to control Laser options. Some options are available at certain revisions [these are notated with (> Vxx-xx) in the Function description]. The MSW are available through the Initialization Screen. Access to the Initialization Screen depends on the Laser Controller used:

To gain access to the Memory Soft Switches (MSW), access the Initialization Screen:

MLE-115A	With the Power + Keyswitch OFF, press and hold the MENU key while powering ON. Release the MENU key once the Initialization Screen appears.
MLE-118A	With the Power + Keyswitch OFF, press and hold the ENCODE button while powering ON. When the Laser model displays, turn the ENCODE button CCW while continuously holding the ENCODE button down. Release when the Initialization screen appears.

MSW1	Function	ON	OFF (default)
1	Automatic High Voltage start-up	HV will ***not*** turn on during start-up	HV will turn on during start-up
2	Enable Start Input on EXT-I/O(1)-20 when in Panel Control Mode	Start/Stop Inputs enabled	Start/Stop Inputs disabled
3	*Factory use only (leave switch position OFF)*		
4	*Factory use only (leave switch position OFF)*		
5	Remote I/L Auto-Reset[1] (> V20-08R)	Auto-Reset Enabled	Auto-Reset Disabled
6	Energy Measurement resolution	00.00J (x10) (Pk Power ≤ 0.10kW)[1]	000.0J (x1)
7	Time Setting resolution	0.05mS steps (max setting ≤ 5mS)[1]	0.1mS Steps
8	*Factory use only (leave switch position OFF)*		

1. *These settings are not available in the LW5AG, leave switches in the OFF position. Use SW4-8 on the ME-1925 PCB to control the Remote Interlock Auto-reset function on the LW5AG.*

MSW2	RS-485 Function	ON	OFF (default)
1	Data Bit Length	7 bits	8 bits
2	Parity Bit	No Parity	With Parity
3	Parity Mode	Odd Parity	Even Parity
4	Stop Bit	1 Stop Bit	2 Stop Bits
5	**Communication Baud Rate**		
6			
7	*Factory use only (leave switch position OFF)*		
8	*Factory use only (leave switch position OFF)*		

Communication Baud Rate

Baud Setting	MSW2-5	MSW2-6
9,600 bps (default)	OFF	OFF
19,200 bps	OFF	ON
38,400 bps	ON	OFF
9,600 bps	ON	ON

MSW3	Function	ON	OFF (default)
1	*Factory use only (leave switch position OFF)*		
2	*Factory use only (leave switch position OFF)*		
3	*Select Laser Model* (> V20-08R)		
4	*Select Laser Model* (> V20-08R)		
5	*Factory use only (leave switch position OFF)*		
6	Trigger Signal Output (> V00-02L)		
7	Scanning Welder Interface (> V00-02L)	Used with AMY Scanner	No Scanner
8	*Select Laser Model* (> V20-08R)		
8	*Select Laser Model* (> V20-08R)		

Laser Model	SW4-6	MSW 3-3	MSW 3-4	MSW 3-8
LW5A(E)	ON	ON	OFF	OFF
LW15A(E)	ON	OFF	OFF	OFF
LW25A(E)	ON	OFF	ON	OFF
LW5AM(E)[2]	ON	OFF	OFF	OFF
LW5AG(E)	ON	OFF	OFF	OFF
ML-2051A(-CE)	OFF	ON	OFF	OFF
ML-2050A(-CE)	OFF	OFF	OFF	OFF
ML-2150A(-CE)	OFF	OFF	ON	OFF
ML-2052A(-CE)[2]	OFF	OFF	OFF	OFF
ML-8150A(-CE)	OFF	OFF	OFF	OFF

2. *The LW5AM (S00715) or ML-2052A (S00578) require special firmware code and MSW3 is unused.*

ME-3024 Hardware PCB Switch Settings (with universal firmware ≥ V50-16N)

The ME-3024 Main PCB's are used in the LW50A(C)(E)-LW600A(E) Laser Welders. The ME-3024 Main PCB operates on firmware V50-16N and newer. The V50-xx firmware code is universal code, where the Laser model is selected via SW5.

SW1	RS-485(1)(2) Communication Function
FULL (down)	Full-duplex communication
HALF (up)	Half-duplex communication

SW2	Function	Default
1	*Factory use only (leave switch position OFF)*	OFF
2	Number of Simmer Units (ON: 1 / OFF: 2)	ON[1]
3	Fiber Sensor Detect (MHC only) (ON: enabled)	OFF
4	*Factory use only (leave switch position OFF)*	OFF
5	**Laser Configuration**	OFF
6		OFF
7		OFF
8		OFF

Laser Configuration

Configuration	SW2-5	SW2-6	SW2-7	SW2-8
1E	OFF	OFF	OFF	OFF
2E	OFF	OFF	OFF	ON
3E	OFF	OFF	ON	OFF
4E	OFF	OFF	ON	ON
2T	OFF	ON	OFF	OFF
3T	OFF	ON	OFF	ON
4T	OFF	ON	ON	OFF
5T[2]	ON	ON	OFF	OFF
6T[2]	ON	ON	OFF	ON
2E2T	OFF	ON	ON	ON
2E3T[2]	ON	ON	ON	OFF
3E2T[2]	ON	ON	ON	ON
Independent	ON	OFF	ON	ON

1. *Turn SW2-2: **OFF** when installed in the LW500A/600A.*
2. *5T, 6T, 2E3T & 3E2T configurations only on LW50A-150A.*

SW5 – Laser Model (for Main PCB's with V50-xx firmware)

Laser Model	1	2	3	4	5	6	7	8
LW50A(E)	OEM SELECT	ON	OFF	LASER CONTROLLER TYPE	OFF	OFF	OFF	INTERLOCK AUTO-RESET
LW50AC(E)		ON	ON		OFF	OFF	OFF	
LW70A(E)		OFF	OFF		OFF	OFF	OFF	
LW70AC(E)		OFF	ON		OFF	OFF	OFF	
LW100A(E)		ON	OFF		OFF	ON	OFF	
LW150A(E)		OFF	OFF		OFF	ON	OFF	
LW300A(E)		ON	OFF		ON	OFF	OFF	
LW300AH(E)		ON	ON		ON	OFF	OFF	
LW400A(E)		OFF	OFF		ON	OFF	OFF	
LW500A(E)		ON	OFF		ON	ON	OFF	
LW600A(E)		OFF	OFF		ON	ON	OFF	

SW5-1 – OEM Select

ON	Miyachi America (LW)
OFF	Miyachi Japan (ML)

SW5-4 – Laser Controller Type

ON	MLE-115A
OFF	MLE-118A
OFF	MLE-116A

SW5-8 – Used to auto-reset the Interlock (**ON** = auto reset)

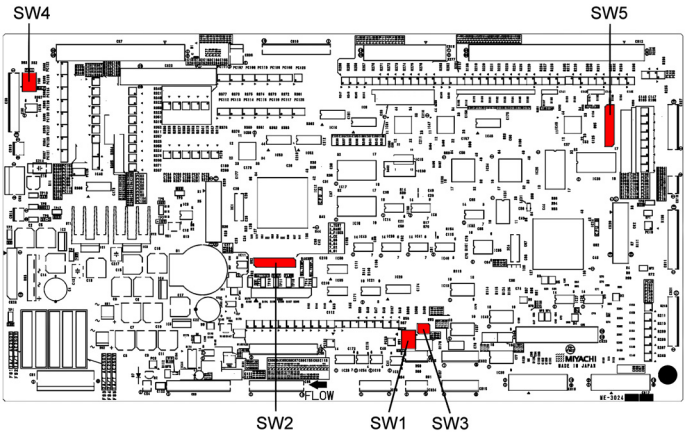
Communication Termination Resistors (full-duplex)

SW3	Termination Resistor[3]	Default
1	RS-485(1)(2) (ON: In circuit)	OFF
2	Laser Controller (ON: In circuit)	OFF

3. *Turn termination resistors ON in noisy environments.*

Controller Communication Setting

SW4	Communications	Controller
FULL (up)	Full-duplex	MLE-118A / MLE-116A
HALF (down)	Half-Duplex	MLE-115A



ME-3024 Memory Soft Switch Settings (MSW with universal firmware ≥ V50-16N)

The Memory Soft Switches (MSW) are used to control Laser options. The MSW are available through the Initialization Screen. Access to the Initialization Screen depends on the Laser Controller used:

MLE-115A	With the Power & Keyswitch OFF, press and hold the MENU button while powering ON. Release the MENU button once the Initialization Screen appears.
MLE-118A	With the Power & Keyswitch OFF, press and hold the ENCODE button while powering ON. When the Laser model displays, turn the ENCODE button CCW while continuously holding the ENCODE button down. Release when the Initialization screen appears.
MLE-116A (LW500A/600A)	With the Power & Keyswitch OFF, turn ON the Laser. When the picture of the Laser appears, press the left button (4th from top) + right button (2nd from top) simultaneously.

Note: The Factory default position for all MSW Switches is: **OFF**.

MSW1	Function	ON	OFF (default)
1	Automatic High Voltage start-up	HV will **not** turn on during start-up	HV will turn on during start-up
2	Enable Start Input on EXT-I/O(1)-20 when in Panel Control Mode	Start Input enabled	Start Input disabled
3	*Factory use only (leave switch position OFF)*		
4	Laser Start Signal Accept Time (Input Pulse requirements)	Laser will fire on any input transition (≥ 20µS)	Input pulse must meet Laser Accept Time in order to fire
5	*Factory use only (leave switch position OFF)*		
6	Energy Measurement resolution	00.00J (x10) (Pk Pwr ≤ 0.10kW)	000.0J (x1)
7	Time Setting resolution	0.05mS steps (max setting ≤ 5mS)	0.1mS steps
8	*Factory use only (leave switch position OFF)*		

MSW2	RS-485 Function	ON	OFF (default)
1	Data Bit Length	7 bits	8 bits
2	Parity Bit	No Parity	With Parity
3	Parity Mode	Odd Parity	Even Parity
4	Stop Bit	1 Stop Bit	2 Stop Bits
5	**RS-485 Communication Baud Rate**		
6			
7	*Factory use only (leave switch position OFF)*		
8	Enable Start Input on EXT-I/O(1)-20 when in RS-485 Communications	Start Input enabled	Start Input disabled

RS-485 Communications Baud Rate

Baud Setting	MSW2-5	MSW2-6
9,600 bps (default)	OFF	OFF
19,200 bps	OFF	ON
38,400 bps	ON	OFF
9,600 bps	ON	ON

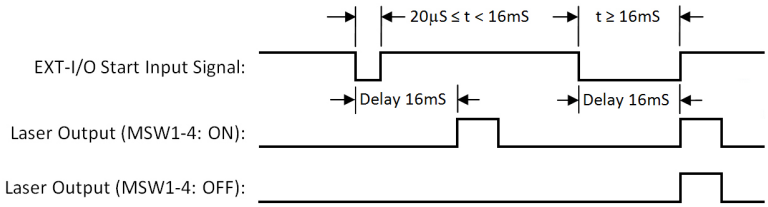
MSW3	Function	ON	OFF (default)
1	*Factory use only (leave switch position OFF)*		
2	**Start Delay / Laser Accept Time Setting (*see next page*)**		
3			
4			
5	**END** signal after Laser fires, EXT-I/O(1)-4	Enabled	Disabled
6	**Trigger** Signal output, EXT-I/O(1)-7	Trigger Output Active	No Trigger Output
7	Scanning Welder Interface	For MHC Scanner	No Scanner Interface
8	Dummy Shot visible on SCHED screen	Enabled	Disabled

Start Delay / Laser Accept Time Setting

Laser Accept Times	SW3-4	SW3-3	SW3-2
16mS (default)	OFF	OFF	OFF
8mS	OFF	OFF	ON
4mS	OFF	ON	OFF
1mS	OFF	ON	ON
0.1mS	ON	x	x

x = don't care

The relationship between MSW1-4 and the "Laser Accept Time":



Example shown with Laser Accept Time = 16mS

MSW4	Function	ON	OFF (default)
1	Branch Shutter 1 – Independent Control	Enabled (installed)	Disabled (not installed)
2	Branch Shutter 2 – Independent Control	Enabled (installed)	Disabled (not installed)
3	Branch Shutter 3 – Independent Control	Enabled (installed)	Disabled (not installed)
4	Branch Shutter 4 – Independent Control	Enabled (installed)	Disabled (not installed)
5	Branch Shutter 5 – Independent Control[4]	Enabled (installed)	Disabled (not installed)
6	Branch Shutter 6 – Independent Control[4]	Enabled (installed)	Disabled (not installed)
7	*Factory use only (leave switch position OFF)*		
8	*Factory use only (leave switch position OFF)*		

4. *Can only be set in the LW50A-150A Laser Welders*

MSW5	Function	ON	OFF (default)
1	Time-Share Shutter 1 – Independent Control	Enabled (installed)	Disabled (not installed)
2	Time-Share Shutter 2 – Independent Control	Enabled (installed)	Disabled (not installed)
3	Time-Share Shutter 3 – Independent Control	Enabled (installed)	Disabled (not installed)
4	Time-Share Shutter 4 – Independent Control[5]	Enabled (installed)	Disabled (not installed)
5	Time-Share Shutter 5 – Independent Control[5]	Enabled (installed)	Disabled (not installed)
6	*Factory use only (leave switch position OFF)*		
7	*Factory use only (leave switch position OFF)*		
8	*Factory use only (leave switch position OFF)*		

5. *Can only be set in the LW50A-150A Laser Welders*

MSW6	Function	ON	OFF (default)
1	"Schedule No." displays on Laser Controller when set through EXT-I/O.[6]	Enabled	Disabled
2	*Factory use only (leave switch position OFF)*		
3	Seam Weld Count	Counts all seam weld pulses	Does not count ramp pulses
4	*Factory use only (leave switch position OFF)*		
5	*Factory use only (leave switch position OFF)*		
6	*Factory use only (leave switch position OFF)*		
7	*Factory use only (leave switch position OFF)*		
8	*Factory use only (leave switch position OFF)*		

6. *When the "Schedule No." is set through the EXT-I/O, the MLE-118A Laser Controller can also display the selected Schedule No. When set to OFF, the Schedule No. will be displayed as ##.*

ME-1958 Hardware PCB Switch Settings

The ME-1958 Main PCB's are used in the LW50A(C)(E)-LW600A(E) Laser Welders. V00-xx firmware code is Laser model specific. V50-xx firmware code is universal code, where the Laser model is selected via SW5. The ME-1958A does not contain dipswitch SW5 and can <u>only</u> operate with the MLE-115A Laser Controller.

SW1	RS-485(1)(2) Communication Function
FULL (down)	Full-duplex communication
HALF (up)	Half-duplex communication

SW2	Function	Default
1	*Factory use only (leave switch position OFF)*	OFF
2	Number of Simmer Units (ON: 1 / OFF: 2)	ON[1]
3	Fiber Sensor Detect (MHC only) (ON: enabled)	OFF
4	*Factory use only (leave switch position OFF)*	OFF
5	**Laser Configuration**	OFF
6		OFF
7		OFF
8		OFF

Laser Configuration

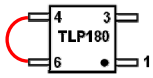
Configuration	SW2-5	SW2-6	SW2-7	SW2-8
1E	OFF	OFF	OFF	OFF
2E	OFF	OFF	OFF	ON
3E	OFF	OFF	ON	OFF
4E	OFF	OFF	ON	ON
2T	OFF	ON	OFF	OFF
3T	OFF	ON	OFF	ON
4T	OFF	ON	ON	OFF
5T[2]	ON	ON	OFF	OFF
6T[2]	ON	ON	OFF	ON
2E2T	OFF	ON	ON	ON
2E3T[2]	ON	ON	ON	OFF
3E2T[2]	ON	ON	ON	ON
Independent	ON	OFF	ON	ON

1. *Turn SW2-2: **OFF** when installed in the LW500A/600A.*
2. *5T, 6T, 2E3T & 3E2T configurations only on LW50A-150A.*

SW5 – Laser Model (for ME-1958A Main PCB's with V50-xx firmware, short circuit PCxx output when switch is ON)

Laser Model	1	2	3	4	5	6	7	8
LW50A(E)	OEM SELECT	ON	OFF	LASER CONTROLLER TYPE	OFF	OFF	OFF	INTERLOCK AUTO-RESET (> V50-16N)
LW50AC(E)		ON	ON		OFF	OFF	OFF	
LW70A(E)		OFF	OFF		OFF	OFF	OFF	
LW70AC(E)		OFF	ON		OFF	OFF	OFF	
LW100A(E)		ON	OFF		OFF	ON	OFF	
LW150A(E)		OFF	OFF		OFF	ON	OFF	
LW300A(E)		ON	OFF		ON	OFF	OFF	
LW300AH(E)		ON	ON		ON	OFF	OFF	
LW400A(E)		OFF	OFF		ON	OFF	OFF	
LW500A(E)		ON	OFF		ON	ON	OFF	
LW600A(E)		OFF	OFF		ON	ON	OFF	
ME-1958A :	PC23	PC24	PC25	PC26	PC95	PC96	PC97	PC98

← For ME-1958A only with V50-xx firmware



SW5-1 – OEM Select

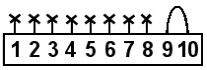
ON	Miyachi America (LW)
OFF	Miyachi Japan (ML)

SW5-4 – Laser Controller Type

ON	MLE-115A
OFF	MLE-118A
OFF	MLE-116A

SW5-8 – Used to auto-reset the Interlock (**ON** = auto reset)

ME-1958A + MLE-115A, use jumper on CN27



Communication Termination Resistors (full-duplex)

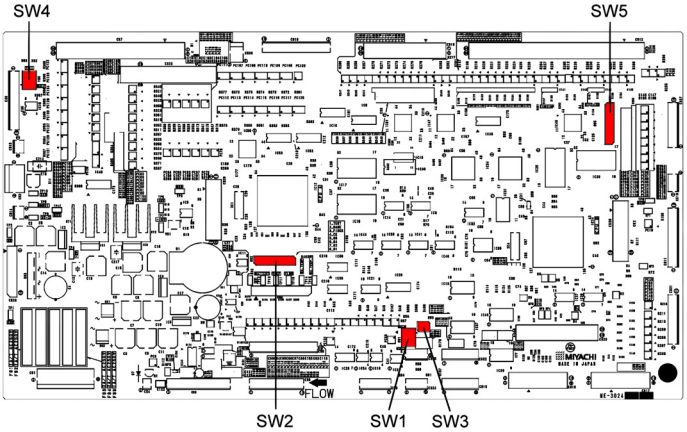
SW3	Termination Resistor[3]	Default
1	RS-485(1)(2) (ON: In circuit)	OFF
2	Laser Controller (ON: In circuit)	OFF

3. *Turn termination resistors ON in noisy environments.*

Controller Communication Setting

SW4	Communications	Controller
FULL (up)[4]	Full-duplex	MLE-118A / MLE-116A
HALF (down)	Half-Duplex	MLE-115A

4. *The ME-1958A cannot operate in full-duplex mode.*



ME-1958 Memory Soft Switch Settings (MSW)

The Memory Soft Switches (MSW) are used to control Laser options. Some options are available starting at certain firmware revisions [these are notated with (> Vxx-xx) in the Function description]. The MSW are available through the Initialization Screen. Access to the Initialization Screen depends on the Laser Controller used:

MLE-115A	With the Power & Keyswitch OFF, press and hold the MENU button while powering ON. Release the MENU button once the Initialization Screen appears.
MLE-118A	With the Power & Keyswitch OFF, press and hold the ENCODE button while powering ON. When the Laser model displays, turn the ENCODE button CCW while continuously holding the ENCODE button down. Release when the Initialization screen appears.
MLE-116A (LW500A/600A)	With the Power & Keyswitch OFF, turn ON the Laser. When the picture of the Laser appears, press the left button (4th from top) + right button (2nd from top) simultaneously.

Note: The Factory default position for all MSW Switches is: **OFF**.

MSW1	Function	ON	OFF (default)
1	Automatic High Voltage start-up	HV will **not** turn on during start-up	HV will turn on during start-up
2	Enable Start Input on EXT-I/O(1)-20 when in Panel Control Mode	Start Input enabled	Start Input disabled
3	*Factory use only (leave switch position OFF)*		
4	Laser Start Signal Accept Time (Input Pulse requirements) (> V50-10N)	Laser will fire on any input transition (≥ 20µS)	Input pulse must meet Laser Accept Time in order to fire
5	*Factory use only (leave switch position OFF)*		
6	Energy Measurement resolution	00.00J (x10) (Pk Pwr ≤ 0.10kW)	000.0J (x1)
7	Time Setting resolution (> V00-02H)	0.05mS steps (max setting ≤ 5mS)	0.1mS steps
8	*Factory use only (leave switch position OFF)*		

MSW2	RS-485 Function	ON	OFF (default)
1	Data Bit Length	7 bits	8 bits
2	Parity Bit	No Parity	With Parity
3	Parity Mode	Odd Parity	Even Parity
4	Stop Bit	1 Stop Bit	2 Stop Bits
5	**RS-485 Communication Baud Rate**		
6			
7	*Factory use only (leave switch position OFF)*		
8	Enable Start Input on EXT-I/O(1)-20 when in RS-485 Communications (> V00-02E)	Start Input enabled	Start Input disabled

RS-485 Communications Baud Rate

Baud Setting	MSW2-5	MSW2-6
9,600 bps (default)	OFF	OFF
19,200 bps	OFF	ON
38,400 bps	ON	OFF
9,600 bps	ON	ON

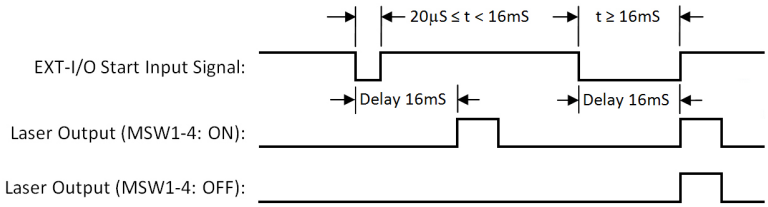
MSW3	Function	ON	OFF (default)
1	*Factory use only (leave switch position OFF)*		
2	**Start Delay / Laser Accept Time Setting (*see next page*)**		
3			
4			
5	**END** signal after Laser fires, EXT-I/O(1)-4 (> V00-02H)	Enabled	Disabled
6	**Trigger** Signal output, EXT-I/O(1)-7 (> V00-02H)	Trigger Output Active	No Trigger Output
7	Scanning Welder Interface (> V00-02H)	For MHC Scanner	No Scanner Interface
8	Dummy Shot visible on SCHED screen (> V00-02E)	Enabled	Disabled

Start Delay / Laser Accept Time Setting

Laser Accept Times	SW3-4	SW3-3	SW3-2
16mS (default)	OFF	OFF	OFF
8mS	OFF	OFF	ON
4mS	OFF	ON	OFF
1mS	OFF	ON	ON
0.1mS	ON	x	x

x = don't care

The relationship between MSW1-4 and the "Laser Accept Time":



Example shown with Laser Accept Time = 16mS

MSW4	Function	ON	OFF (default)
1	Branch Shutter 1 – Independent Control	Enabled (installed)	Disabled (not installed)
2	Branch Shutter 2 – Independent Control	Enabled (installed)	Disabled (not installed)
3	Branch Shutter 3 – Independent Control	Enabled (installed)	Disabled (not installed)
4	Branch Shutter 4 – Independent Control	Enabled (installed)	Disabled (not installed)
5	Branch Shutter 5 – Independent Control[5]	Enabled (installed)	Disabled (not installed)
6	Branch Shutter 6 – Independent Control[5]	Enabled (installed)	Disabled (not installed)
7	*Factory use only (leave switch position OFF)*		
8	*Factory use only (leave switch position OFF)*		

MSW5	Function	ON	OFF (default)
1	Time-Share Shutter 1 – Independent Control	Enabled (installed)	Disabled (not installed)
2	Time-Share Shutter 2 – Independent Control	Enabled (installed)	Disabled (not installed)
3	Time-Share Shutter 3 – Independent Control	Enabled (installed)	Disabled (not installed)
4	Time-Share Shutter 4 – Independent Control[5]	Enabled (installed)	Disabled (not installed)
5	Time-Share Shutter 5 – Independent Control[5]	Enabled (installed)	Disabled (not installed)
6	*Factory use only (leave switch position OFF)*		
7	*Factory use only (leave switch position OFF)*		
8	*Factory use only (leave switch position OFF)*		

5. *Can only be set in the LW50A-150A Laser Welders*

MSW6	Function	ON	OFF (default)
1	"Schedule No." displays on Laser Controller when set through EXT-I/O.[6] (> V50-10N)	Enabled	Disabled
2	*Factory use only (leave switch position OFF)*		
3	Seam Weld Count (> V50-16N)	Counts all seam weld pulses	Does not count ramp pulses
4	*Factory use only (leave switch position OFF)*		
5	*Factory use only (leave switch position OFF)*		
6	*Factory use only (leave switch position OFF)*		
7	*Factory use only (leave switch position OFF)*		
8	*Factory use only (leave switch position OFF)*		

6. *When the "Schedule No." is set through the EXT-I/O, the MLE-118A Laser Controller can also display the selected Schedule No. When set to OFF, the Schedule No. will be displayed as ##.*

ME-1891 Hardware PCB Switch Settings

The ME-1891 Main PCB was used in the LW50A(C)(E)/70A(E)/300A(E)/400A(E) Laser Welders. This PCB was replaced with the ME-1958A PCB in July 2002. The ME-1891 operates with the MLE-115A Laser Controller (only).

SW3	RS-485(1)(2) Communication Function
FULL (right)	Full-duplex communication
HALF (left)	Half-duplex communication

SW4	Function	Default
1	*Factory use only (leave switch position OFF)*	OFF
2	Number of Simmer Units (ON: 1 / OFF: 2)	ON
3	Fiber Sensor Detect (MHC only) (ON: enabled)	OFF
4	*Factory use only (leave switch position OFF)*	OFF
5	**Laser Configuration**	OFF
6		OFF
7		OFF
8		OFF

1. *5T, 6T, 2E3T & 3E2T configurations on the LW50A/70A only.*

Laser Configuration

Configuration	SW4-5	SW4-6	SW4-7	SW4-8
1E	OFF	OFF	OFF	OFF
2E	OFF	OFF	OFF	ON
3E	OFF	OFF	ON	OFF
4E	OFF	OFF	ON	ON
2T	OFF	ON	OFF	OFF
3T	OFF	ON	OFF	ON
4T	OFF	ON	ON	OFF
5T[1]	ON	ON	OFF	OFF
6T[1]	ON	ON	OFF	ON
2E2T	OFF	ON	ON	ON
2E3T[1]	ON	ON	ON	OFF
3E2T[1]	ON	ON	ON	ON
Independent	ON	OFF	ON	ON

Time-Share Shutter Selection for Independent Mode:

SW1	Function	ON	OFF (default)
1	Time-Share Shutter 1	Installed	Not Installed
2	Time-Share Shutter 2	Installed	Not Installed
3	Time-Share Shutter 3	Installed	Not Installed
4	Time-Share Shutter 4	Installed	Not Installed
5	Time-Share Shutter 5	Installed	Not Installed
6	**Start Delay / Laser Accept Time Setting**		
7			
8			

Note: *Depending on the firmware revision, the Laser Accept Times may be adjusted on MSW3 soft switch instead.*

Laser Accept Times	SW1-6	SW1-7	SW1-8
16mS (default)	OFF	OFF	OFF
8mS	ON	OFF	OFF
4mS	OFF	ON	OFF
1mS	ON	ON	OFF
0.1mS	X	X	ON

Branch Shutter Selection for Independent Mode:

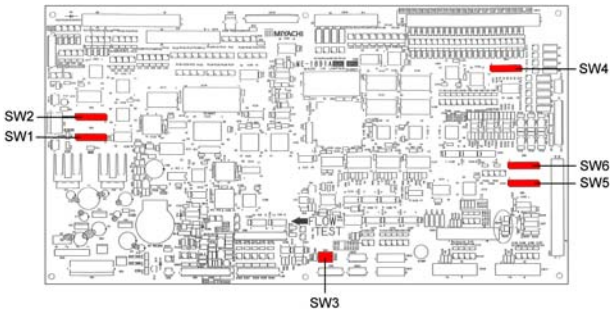
SW2	Function	ON	OFF (default)
1	Branch Shutter 1	Installed	Not Installed
2	Branch Shutter 2	Installed	Not Installed
3	Branch Shutter 3	Installed	Not Installed
4	Branch Shutter 4	Installed	Not Installed
5	Branch Shutter 5	Installed	Not Installed
6	Branch Shutter 6	Installed	Not Installed
7	*Factory use only (leave switch position OFF)*		
8	*Factory use only (leave switch position OFF)*		

Fiber Breakage Emission Indicator:

SW5	Function	Default
1	Fiber Sensor 1 LED (OFF: active)	ON
2	Fiber Sensor 2 LED (OFF: active)	ON
3	Fiber Sensor 3 LED (OFF: active)	ON
4	Fiber Sensor 4 LED (OFF: active)	ON
5	Fiber Sensor 5 LED (OFF: active)	ON
6	Fiber Sensor 6 LED (OFF: active)	ON
7	*Unused (leave switch position OFF)*	
8	*Unused (leave switch position OFF)*	

Fiber Breakage Contact Switch:

SW6	Function	Default
1	Fiber Sensor 1 Contact Switch (OFF: active)	ON
2	Fiber Sensor 2 Contact Switch (OFF: active)	ON
3	Fiber Sensor 3 Contact Switch (OFF: active)	ON
4	Fiber Sensor 4 Contact Switch (OFF: active)	ON
5	Fiber Sensor 5 Contact Switch (OFF: active)	ON
6	Fiber Sensor 6 Contact Switch (OFF: active)	ON
7	*Unused (leave switch position OFF)*	
8	*Unused (leave switch position OFF)*	



ME-1891 Memory Soft Switch Settings (MSW)

The Memory Soft Switches (MSW) are used to control Laser options. The MSW are available through the Initialization Screen on the MLE-115A:

MLE-115A	With the Power & Keyswitch OFF, press and hold the MENU button while powering ON. Release the MENU button once the Initialization Screen appears.

Note: The Factory default position for all MSW Switches is: **OFF**.

MSW1	Function	ON	OFF (default)
1	Automatic High Voltage start-up	HV will **not** turn on during start-up	HV will turn on during start-up
2	Enable Start Input on EXT-I/O(1)-20 when in Panel Control Mode	Start Input enabled	Start Input disabled
3	*Factory use only (leave switch position OFF)*		
4	*Factory use only (leave switch position OFF)*		
5	*Factory use only (leave switch position OFF)*		
6	Energy Measurement resolution	00.00J (x10) (Pk Pwr ≤ 0.10kW)	000.0J (x1)
7	Time Setting resolution	0.05mS steps (max setting ≤ 5mS)	0.1mS steps
8	*Factory use only (leave switch position OFF)*		

MSW2	RS-485 Function	ON	OFF (default)
1	Data Bit Length	7 bits	8 bits
2	Parity Bit	No Parity	With Parity
3	Parity Mode	Odd Parity	Even Parity
4	Stop Bit	1 Stop Bit	2 Stop Bits
5	**RS-485 Communication Baud Rate**		
6			
7	*Factory use only (leave switch position OFF)*		
8	*Factory use only (leave switch position OFF)*		

RS-485 Communications Baud Rate:

Baud Setting	MSW2-5	MSW2-6
9,600 bps (default)	OFF	OFF
19,200 bps	OFF	ON
38,400 bps	ON	OFF
9,600 bps	ON	ON

MSW3	Function	ON	OFF (default)
1	*Factory use only (leave switch position OFF)*		
2	*Factory use only (leave switch position OFF)*		
3	*Factory use only (leave switch position OFF)*		
4	*Factory use only (leave switch position OFF)*		
5	*Factory use only (leave switch position OFF)*		
6	**Start Delay / Laser Accept Time Setting**		
7			
8			

Note: *Depending on the firmware revision, the Laser Accept Times may be adjusted on hardware switch SW1 instead.*

Laser Accept Times	MSW3-6	MSW3-7	MSW3-8
16mS (default)	OFF	OFF	OFF
8mS	ON	OFF	OFF
4mS	OFF	ON	OFF
1mS	ON	ON	OFF
0.1mS	X	X	ON

The LW50A(C)(E)/70A(E)/300A(E)/400A(E) Laser Welders can be converted to operate on the ME-1958 or ME-3024 Main PCB. Conversion details are presented in Manufacturing Document MFG-281.

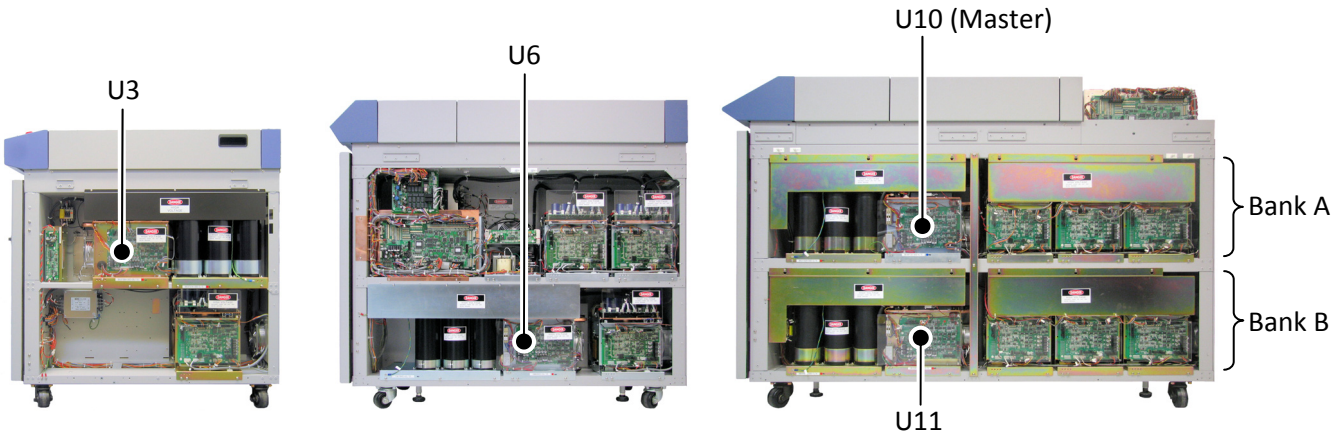
A-Series Discharge Units – Configuration:

There are no adjustments necessary on the A-Series Laser Welder Discharge Units.

LW5A(M)/15A/25A: ME-1928

There are no adjustments or configuration options on the LW15A Series Discharge Units. The included Cap Bank voltage is set on the ME-1926/ME-3010 Charge Control PCB.

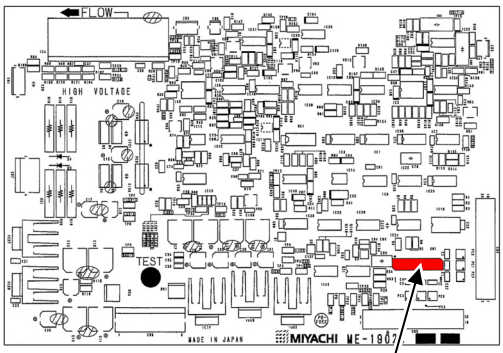
LW50A-500A: ME-1902 Discharge Control PCB



LW50A(C)/70A(C)/150A LW300A(H)/400A LW500A/600A

ME-1902-0x Configuration:		LW50A(C) LW70A(C) LW150A	LW300A(H) LW400A	LW500A LW600A	
Switch	**Signal**	**U3**	**U6**	**U10**	**U11**
SW1-1	Current error	ON	ON	OFF	ON
SW1-2	Temperature error	ON	ON	OFF	ON
SW1-3	Control error	ON	ON	OFF	ON
SW1-4	Integration error	ON	ON	ON	ON
SW1-5	Slave PCB present	ON	ON	OFF	ON
SW1-6	Slave PCB present	ON	ON	OFF	ON
SW1-7	Master enable	ON	ON	ON	OFF
SW1-8	Ref Signal Magnification	OFF	OFF	ON	OFF

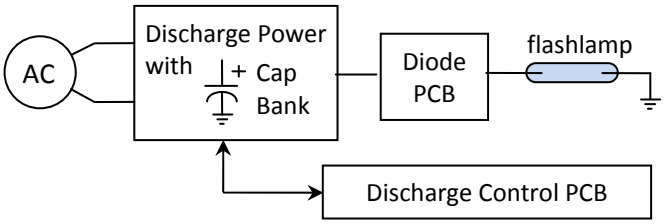
Notes:
1. Depending on the year of production the layout of the LW300A/400A Discharge Unit may be different.
2. The Master Discharge Units in the LW500A/600A Laser Welder is U10 (Cap Bank A).



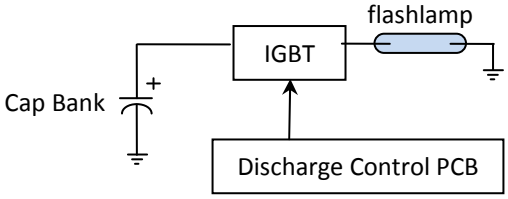
ME-1902-0x

Discharge Unit Identification/Compatibility:

Discharge Block Diagrams:



LW5A(M)/15A/25A



LW50A(C) through LW600A

LW5A(M)/15A/25A Laser Welders:

Mfg Date	Discharge Unit Assembly	Discharge Control PCB	Discharge Power PCB	Discharge Diode PCB	Flashlamp[1] (MAC Pt #)
1st Edition	A-03594-001	ME-1928-00	ME-1929-00	ME-1931-00	435-195
06/30/04	A-05819-001	ME-1928-00	ME-1929-00	ME-2004-00	

LW50A(C)/70A(C) Laser Welders:

Mfg Date	Discharge Unit Assy	Discharge Control PCB	Flashlamp[2] (MAC Pt #)
1st Edition	MLU-0697-00	ME-1902-00	4-62325-01
09/19/02	A-05125-001	ME-1902-02	
12/17/03	A-05125-002	ME-1902-02	

LW150A Laser Welders:

Mfg Date	Discharge Unit Assy	Discharge Control PCB	Flashlamp[2] (MAC Pt #)
1st Edition	A-05125-002	ME-1902-02	4-62325-01

LW300A(H)/400A Laser Welders:

Mfg Date	Discharge Unit Assy	Discharge Control PCB	Flashlamp[3] (MAC Pt #)
1st Edition	A-04276-001	ME-1902-01	435-138
10/01/03	A-05150-001	ME-1902-03	

LW500A/600A Laser Welders (2 discharge units per Laser):

Mfg Date	Discharge Unit Assy	Discharge Control PCB	Flashlamp[3] (MAC Pt #)
1st Edition	A-05150-001	ME-1902-03	435-138

Flashlamp Specifications:

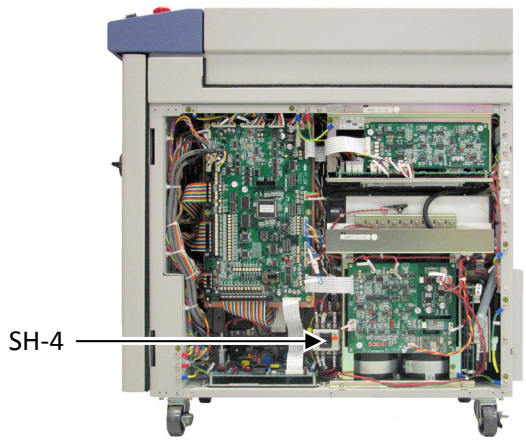
Note 1: MLD-0902
Note 2: MLD-0861
Note 3: MLD-0602

A-Series Charge Units – Adjustment & Configuration:

LW5A(M)/15A/25A: ME-1926 or ME-3010

The Charge Voltage is measured on the SH-4 Electromagnetic Contactor and adjusted via VR1 on the ME-1926 / ME-3010 Charge Control PCB (part of the A-03593-001 / AS1168369 Charge Unit Assemblies, respectively):

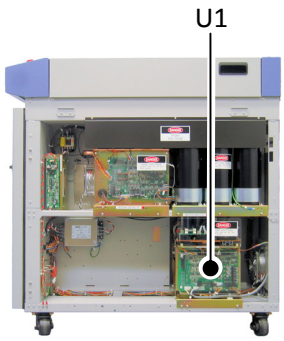
SH-4 Contactor			V_{ADJ}
DMM (-)	DMM (+)	Voltage	(PCB)
Pin 13	Pin 43	535V	VR1



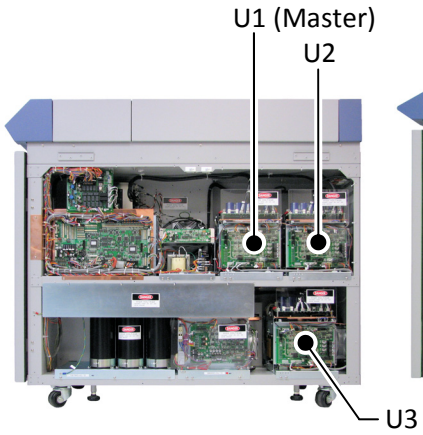
LW50A-500A: ME-1924

The Charge Voltage is measured and adjusted on the master ME-1924 Charge Control PCB. In the LW500A/600A Laser Welder, both master Charge Control PCB's need to be adjusted for their respective Capacitor Bank:

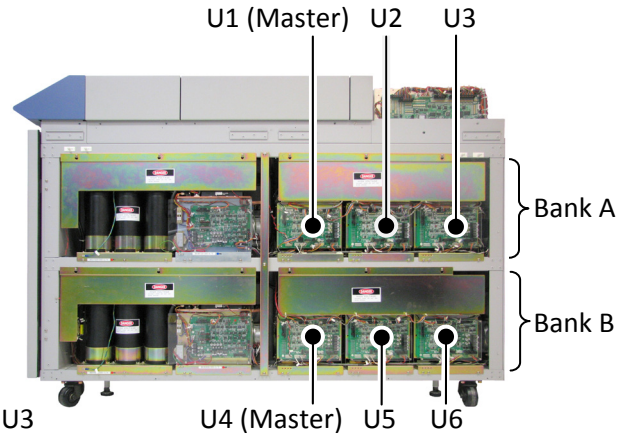
ME-1924 (Charge Control PCB)			
DMM (-)	DMM (+)	Voltage	V_{ADJ}
CN1-6	CN1-1	650V	VR1



LW50A(C)/70A(C)/150A



LW300A(H)/400A

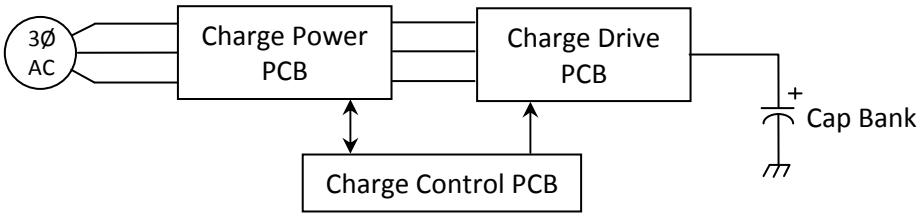


LW500A/600A

ME-1924-0x Configuration:		LW50A(C) LW70A(C)	LW150A	LW300A(H) LW400A			LW500A LW600A					
Switch	Signal	U1	U1	U1	U2	U3	U1	U2	U3	U4	U5	U6
SW1-1	I_{SET} test	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
SW1-2	NV	OFF	OFF	OFF	ON	ON	OFF	ON	ON	OFF	ON	ON
SW2-1	NI	ON	ON	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	ON
SW2-2	NTH	ON	ON	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	ON

Notes:
1. Depending on the year of production the layout of the LW300A/400A Charge Units may be different.
2. The Master Charge Units in the LW500A/600A Laser Welder are U1 (Cap Bank A) & U4 (Cap Bank B).
3. On 2/22/13, R37 was changed from 680kΩ to 820kΩ on the ME-1924 to allow for longer charge rate ($^{dv}/_{dt}$).
4. The LW50A/70A Laser Welders use the ME-1924-00 Charge Control PCB.
5. The LW150A-600A Laser Welders use the ME-1924-02 Charge Control PCB (older systems use ME-1924-01).

Charge Unit Identification/Compatibility:



LW5A(M)/15A/25A Laser Welders:

Mfg Date	Charge Unit Assy	Charge Control PCB	Charge Power PCB	Charge Drive PCB	Cap Bank
1st Edition	A-03593-001	ME-1926-00	ME-1927-00	Located in the Discharge Unit	
04/25/12	AS1168369	ME-3010	ME-1927-00		

Note: The LW5A/15A/25A capacitor bank is part of the Discharge Unit Assembly.

LW50A(C) Laser Welders:

Mfg Date	Charge Unit Assy	Charge Control PCB	Charge Power PCB	Charge Drive PCB	Cap Bank
1st Edition	MLU-0696-00	ME-1924-00	ME-1904-00	ME-1905-00	MLU-0698-00
09/19/02	MLU-0696-00	ME-1924-00	ME-1904-00	ME-1905-00	A-05146-001
12/17/03	A-05433-001	ME-1924-00	ME-1904-00	ME-1990-00	A-05146-001

LW70A(C) Laser Welders:

Mfg Date	Charge Unit Assy	Charge Control PCB	Charge Power PCB	Charge Drive PCB	Cap Bank
1st Edition	MLU-0696-01	ME-1924-00	ME-1904-00	ME-1905-00	MLU-0698-01
09/19/02	MLU-0696-01	ME-1924-00	ME-1904-00	ME-1905-00	A-05146-002
12/17/03	A-05433-001	ME-1924-00	ME-1904-00	ME-1990-00	A-05146-002

LW150A Laser Welders:

Mfg Date	Charge Unit Assy	Charge Control PCB	Charge Power PCB	Charge Drive PCB	Cap Bank
01/20/03	A-04274-003	ME-1924-01	ME-1831-02	ME-1834-01	A-05146-002

LW300A(H)/400A Laser Welders (3 charge units per Laser):

Mfg Date	Charge Unit Assy	Charge Control PCB	Charge Power PCB	Charge Drive PCB	Cap Bank
1st Edition	A-04274-001	ME-1924-01	ME-1831-00	ME-1834-00	A-04275-001
10/01/03	A-04274-003	ME-1924-01	ME-1831-02	ME-1834-01	A-04275-001
05/23/12	A-04274-003	ME-1924-01	ME-1831-02	ME-1834-01	A-08168-001

LW500A/600A Laser Welders (6 charge units per Laser):

Mfg Date	Charge Unit Assy	Charge Control PCB	Charge Power PCB	Charge Drive PCB	Cap Bank
1st Edition	A-04274-001	ME-1924-01	ME-1831-00	ME-1834-00	A-04348-001
10/01/03	A-04274-003	ME-1924-01	ME-1831-02	ME-1834-01	A-04348-001
04/26/12	A-04274-003	ME-1924-01	ME-1831-02	ME-1834-01	A-08167-001

Note: The A-0816x-001 capacitor banks include a Load Balance Circuit PCB.