

ELECTRONIC WELD HEAD CONTROL

352 Series

OPERATION MANUAL



990-925 REV F

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Revision Record

Revision	EO	Date	Basis of Revision
A	43096	02/14	None. Original edition.
B	43607	02/15	Updated to Amada Miyachi America name and logo and updated technical information.
C	43785	06/15	Added EC Declaration of Conformity.
D	43838	08/15	Updated to Amada Miyachi America format.
E	44255	05/16	Updated technical information.
F	44457	05/17	Added RS-232 Communications syntax

Models Described In This Manual

CONTROL UNIT	
Model	Description
352	Single, opposed, inline, 200 – 2200 gm. Includes 3mm dia elect holder (can accept 3mm dia, 1/8” dia electrode holders).
SERIES 320 WELDHEADS	
Model	Description
321	Single, opposed, inline, 200 – 2200 gm. Includes 3mm dia elect holder (can accept 3mm dia, 1/8” dia electrode holders).
322	Single, opposed, offset, 200 – 2200 gm. Includes 3mm dia elect holder (can accept 3mm dia, 1/8” dia electrode holders).
323	Single, series, inline, 200 – 2200 gm. Includes <i>Unibond</i> elect holder (can accept <i>Unitip</i> , <i>Unibond</i> , microjoin electrode holders).
324	Single, series, offset, 200-2200gm. Includes 1/8” dia electrode holder (can accept 3mm dia, 1/8” dia electrode holders).

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CONTACT US

Thank you for purchasing a Miyachi Unitek™ Series 352 Weld Head and Control Unit.

Upon receipt of your equipment, please thoroughly inspect it for shipping damage *before* installing it. If there is any damage, please contact the shipping company immediately to file a claim, *and* notify us at:

Amada Miyachi America
1820 South Myrtle Avenue
Monrovia, California 91016
Phone: (626) 303-5676
FAX: (626) 358-8048
E-mail: info@amadamiyachi.com

The purpose of this manual is to provide the information required for proper and safe operation and maintenance of the Series 352 Weld Head and Control Unit.

We have made every effort to ensure that information in this manual is both accurate and adequate. If you have any questions or suggestions to improve this manual, please contact us at the phone number or addresses above.

Amada Miyachi America is not responsible for any loss or injury due to improper use of this product.

SAFETY PRECAUTIONS

Before using this equipment, read the **SAFETY PRECAUTIONS** carefully to understand the correct usage of the equipment.

- These precautions are given for safe use of the Inverter Weld Head and for prevention of injury to operators or others.
- Be sure to read each of the instructions, as they are all important for safe operation.
- The meanings of the words and symbols are as follows:



	<p>These symbols denote PROHIBITION. They are warnings about actions that should <i>not</i> be performed because they can damage the equipment and will void the warranty.</p>
	<p>These symbols denote actions which operators <i>must</i> take.</p>
	<p>Each symbol with a triangle denotes that the contents gives notice of DANGER, WARNING, or CAUTION to the operator.</p>





WARNING



Do NOT put your hands or fingers between the electrodes.

When welding, keep your hands and fingers away from the electrodes.



Do NOT touch any welded part or electrode during, or just after welding.

The welded parts and electrodes are very *hot*. If you touch them you will be burned.



Only use specified cables.

A cable with insufficient capacity or loose connections can cause electric shock or fire.



Only apply the specified power.

Application of a voltage or current out of the specified range can cause electric shock or fire.



Do NOT use a damaged connecting cables, or plugs.

Do *not* step on, twist, or tense any cable. Connecting cables may be damaged which can cause electric shock, short circuit, or fire. If any part needs to be repaired or replaced, consult Amada Miyachi America or your distributor.



Stop operation if any trouble occurs.

If you detect a burning smell, abnormal sounds, abnormal heat, smoke, etc., turn power OFF immediately to prevent fire or electric shock. Contact Amada Miyachi America or your distributor for help.



People with pacemakers MUST stay away from the Weld Head.

When the Weld Head is operating, it generates a magnetic field, which adversely affects pacemakers. People who use a pacemaker must *not* approach the Weld Head, or walk around the welding shop while the Weld Head is operating, *unless* their medical doctor has deemed it safe to do so.



Wear protective gear.

Put on protective gear such as protective gloves, long sleeved jacket, and leather apron to avoid being burned.



CAUTION



Keep water and water containers away from the Weld Head.

Water spilled on the Weld Head can cause a short circuit, electrical shock, or fire.



Use proper tools (wire strippers, pressure wire connectors, etc.) for terminations of the connecting cables.

Do **not** nick the wire conductor. Doing so can cause a short circuit, electric shock, or fire.



Do NOT damage connecting cables or connectors during use.

Do **not** step on, twist, or tense any cable. Connecting cables may be damaged which can cause electric shock, short circuit, or fire. If any part needs to be repaired or replaced, consult Amada Miyachi America or your distributor.



Install the Weld Head on a firm, level surface.

Injury may result if the Weld Head falls over or drops from an uneven surface.



Keep combustible matter away from the Weld Head.

Spatter can ignite combustible materials. If you cannot remove all combustible materials, cover them with a non-combustible material.



Do NOT cover the Weld Head with a blanket, cloth, etc.

Heat generated by the operating Weld Head may ignite a blanket or cover.



Wear ear protectors.

Loud noises can damage hearing.



Keep a fire extinguisher nearby.

Make sure there is a fire extinguisher in or near the welding shop in case of fire.



Regularly inspect and maintain the Weld Head.

Regular inspection and maintenance is essential to safe operation and long life of the equipment. If you see any damage, make necessary repairs before operation.

Installation Precautions

Do **not** install this Weld Head in **any** of the following:

- Damp places where humidity is 90% or higher.
- Dusty places.
- Places where chemicals are handled.
- Places near a high-frequency noise source.
- Hot or cold places where temperatures are above 40°C or below 0°C, or places where water will condense.



CAUTION

Do **not** modify the electrode holders or attach additional mechanisms to the moving parts of the head. Doing so may hurt welding performance, damage the head, and **void the warranty**.

Operating Precautions

- Do **not** put anything other than a workpiece (tool, screw, coin, etc.) between the electrodes or on the Weld Head or you may damage the Weld Head or cause a short circuit or fire.
- Operate the Welding Head **only** according to the instructions in this manual.
- Operate the button carefully **by hand**. If it is operated roughly or with the tip of a tool you may damage the Weld Head.

Disposal Precaution

The Motor Controller photo-coupler contains **GaAs**. Follow **all** local environmental regulations for disposal.

EC Declaration of Conformity

In accordance with EN ISO 17050-1: 2004

We,
of
Amada Miyachi America, Inc.
1820 S Myrtle Avenue
Monrovia, CA 91016

In accordance with the following Directive(s):

2004/108/EC **The Electromagnetic Compatibility Directive**

hereby declare that:

Equipment Function: Model 352 Controller with Series 320 Low Force Weld Head
Equipment Class: Electrical Equipment Measurement, Control, & Laboratory Use - Industrial
Model Number: 2-32x-yy where x and yy are configurable per unit specification
Serial Number: See Individual Unit Label

is in conformity with the applicable requirements of the following documents

Ref No:

EN61326-1, EN61010-1, EN55011 Class A Group 1, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11

We hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications and is in accordance with the requirements of the Directive(s)

In accordance with the following Directive(s):

2006/95/EC **Low Voltage Directive**

hereby declare that:

Equipment Function: Model 352 Controller with Series 320 Low Force Weldhead
Model Number: 2-32x-yy where x and yy are configurable per unit specification
Serial Number: See Individual Unit Label

is in conformity with the applicable requirements of the following documents


Ref No:

EN61010-1:2010

We hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications and is in accordance with the requirements of the Directive(s)

We undertake to transmit, in response to a reasoned request by the appropriate national authorities, relevant information on the partly completed machinery identified above. The method of transmission shall be at the discretion of Amada Miyachi America, Inc.

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Signed by: 

Name: Matthew Green
Position: Project Manager, Standard Product R&D
Done at: 1820 S. Myrtle Ave
 Monrovia, CA 91016
On: 6/2015

The technical documentation for the machinery is available from:

Name: Dieter Kemmerer-Fleckenstein
 Amada Miyachi Europe GmbH
 Lindberghstrasse 1; D-82178 Puchheim; Deutschland / Germany

MODEL 352 ELECTRONIC WELD HEAD

LIMITED WARRANTY

1. **(a)** Subject to the exceptions and upon the conditions set forth herein, Seller warrants to Buyer that for a period of one (1) year from the date of shipment (“**Warranty Period**”), that such Goods will be free from material defects in material and workmanship.

(b) Notwithstanding the foregoing and anything herein to the contrary, the warranty set forth in this Section 1 shall be superseded and replaced in its entirety with the warranty set forth on **Exhibit A** hereto if the Goods being purchased are specialty products, which include, without limitation, laser products, fiber markers, custom systems, workstations, Seller-installed products, non-catalogue products and other custom-made items (each a “**Specialty Products.**”

(c) EXCEPT FOR THE WARRANTY SET FORTH IN SECTION 1(A), SELLER MAKES NO WARRANTY WHATSOEVER WITH RESPECT TO THE GOODS (INCLUDING ANY SOFTWARE) OR SERVICES, INCLUDING ANY (a) WARRANTY OF MERCHANTABILITY; (b) WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE; (c) WARRANTY OF TITLE; OR (d) WARRANTY AGAINST INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS OF A THIRD PARTY; WHETHER EXPRESS OR IMPLIED BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE.

(d) Products manufactured by a third party and third party software (“**Third Party Product**”) may constitute, contain, be contained in, incorporated into, attached to or packaged together with, the Goods. Third Party Products are not covered by the warranty in Section 1(a). For the avoidance of doubt, **SELLER MAKES NO REPRESENTATIONS OR WARRANTIES WITH RESPECT TO ANY THIRD PARTY PRODUCT, INCLUDING ANY (a) WARRANTY OF MERCHANTABILITY; (b) WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE; (c) WARRANTY OF TITLE; OR (d) WARRANTY AGAINST INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS OF A THIRD PARTY; WHETHER EXPRESS OR IMPLIED BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE.** Notwithstanding the foregoing, in the event of the failure of any Third Party Product, Seller will assist (within reason) Buyer (at Buyer’s sole expense) in obtaining, from the respective third party, any (if any) adjustment that is available under such third party’s warranty.

(e) Seller shall not be liable for a breach of the warranty set forth in Section 1(a) unless: (i) Buyer gives written notice of the defect, reasonably described, to Seller within five (5) days of the time when Buyer discovers or ought to have discovered the defect and such notice is received by Seller during the Warranty Period; (ii) Seller is given a reasonable opportunity after receiving the notice to examine such Goods; (iii) Buyer (if requested to do so by Seller) returns such Goods (prepaid and insured to Seller at 1820 South Myrtle Avenue, Monrovia, CA 91016 or to such other location as designated in writing by Seller) to Seller pursuant to Seller’s RMA procedures and Buyer obtains a RMA number from Seller prior to returning such Goods for the examination to take place; and (iii) Seller reasonably verifies Buyer’s claim that the Goods are defective and that the defect developed under normal and proper use.

(f) Seller shall not be liable for a breach of the warranty set forth in Section 1(a) if: (i) Buyer makes any further use of such Goods after giving such notice; (ii) the defect arises because Buyer failed to follow Seller’s oral or written instructions as to the storage, installation, commissioning, use or maintenance of the Goods; (iii) Buyer alters or repairs such Goods without the prior written consent of Seller; or (iv) repairs or modifications are made by persons other than Seller’s own service personnel, or an authorized representative’s personnel, unless such repairs are made with the written consent of Seller in accordance with procedures outlined by Seller.

(g) All expendables such as electrodes are warranted only for defect in material and workmanship which are apparent upon receipt by Buyer. The foregoing warranty is negated after the initial use.

(h) Subject to Section 1(e) and Section 1(f) above, with respect to any such Goods during the Warranty Period, Seller shall, in its sole discretion, either: (i) repair or replace such Goods (or the defective part) or (ii) credit or refund the price of such Goods at the pro rata contract rate, provided that, if Seller so requests, Buyer shall, at Buyer's expense, return such Goods to Seller.

(i) **THE REMEDIES SET FORTH IN SECTION 1(H) SHALL BE BUYER'S SOLE AND EXCLUSIVE REMEDY AND SELLER'S ENTIRE LIABILITY FOR ANY BREACH OF THE LIMITED WARRANTY SET FORTH IN SECTION 1(A).** Representations and warranties made by any person, including representatives of Seller, which are inconsistent or in conflict with the terms of this warranty, as set forth above, shall not be binding upon Seller.

Exhibit A
Warranty for “Specialty Products”

Limited Warranty

EXCEPT FOR THE WARRANTY SET FORTH BELOW IN THIS EXHIBIT A, SELLER MAKES NO WARRANTY WHATSOEVER WITH RESPECT TO THE GOODS (INCLUDING ANY SOFTWARE) OR SERVICES, INCLUDING ANY (a) WARRANTY OF MERCHANTABILITY; (b) WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE; (c) WARRANTY OF TITLE; OR (d) WARRANTY AGAINST INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS OF A THIRD PARTY; WHETHER EXPRESS OR IMPLIED BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE.

Warranty Period: The Warranty Period for Specialty Products is for one (1) year, and the Warranty Period for laser welders and laser markers is two (2) years (unlimited hours), and the Warranty Period for the laser pump diodes or modules is two (2) years or 10,000 clock hours, whichever occurs first (as applicable, the “**Warranty Period**”). The Warranty Period begins as follows: (i) on orders for Goods purchased directly by Buyer, upon installation at Buyer’s site or thirty (30) days after the date of shipment, whichever occurs first; or (ii) on equipment purchased by a Buyer that is an OEM or systems integrators, upon installation at the end user’s site or six (6) months after the date of shipment, whichever occurs first.

Acceptance Tests: Acceptance Tests (when required) shall be conducted at Amada Miyachi America, Inc., Monrovia, CA, USA (the “**Testing Site**”) unless otherwise mutually agreed in writing prior to issuance or acceptance of the Acknowledgement. Acceptance Tests shall consist of a final visual inspection and a functional test of all laser, workstation, enclosure, motion and accessory hardware. Acceptance Tests shall include electrical, mechanical, optical, beam delivery, and software items deliverable under the terms of the Acknowledgement. Terms and conditions for Additional Acceptance Tests either at Seller’s or Buyer’s facility shall be mutually agreed in writing prior to issuance or acceptance of the Acknowledgement.

Performance Warranty: The system is warranted to pass the identical performance criteria at Buyer’s site as demonstrated during final Acceptance Testing at the Testing Site during the Warranty Period, as provided in the Acknowledgement. Seller explicitly disclaims any responsibility for the process results of the laser processing (welding, marking, drilling, cutting, etc.) operations.

Exclusions: Seller makes no warranty, express or implied, with respect to the design or operation of any system in which any Seller’s product sold hereunder is a component.

Limitations: The limited warranty set forth on this Exhibit A does not cover loss, damage, or defects resulting from transportation to Buyer’s facility, improper or inadequate maintenance by Buyer, Buyer-supplied software or interfacing, unauthorized modification or misuse, operation outside of the environmental specifications for the equipment, or improper site preparation and maintenance. This warranty also does not cover damage from misuse, accident, fire or other casualties of failures caused by modifications to any part of the equipment or unauthorized entry to those portions of the laser which are stated. Furthermore, Seller shall not be liable for a breach of the warranty set forth in this Exhibit A if: (i) Buyer makes any further use of such Goods after giving such notice; (ii) the defect arises because Buyer failed to follow Seller’s oral or written instructions as to the storage, installation, commissioning, use or maintenance of the Goods; (iii) Buyer alters or repairs such Goods without the prior written consent of Seller; or (iv) repairs or modifications are made by persons other than Seller’s own service personnel, or an authorized representative’s personnel, unless such repairs are made with the written consent of Seller in accordance with procedures outlined by Seller.

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Seller further warrants that all Services performed by Seller's employees will be performed in a good and workmanlike manner. Seller's sole liability under the foregoing warranty is limited to the obligation to re-perform, at Seller's cost, any such Services not so performed, within a reasonable amount of time following receipt of written notice from Buyer of such breach, provided that Buyer must inform Seller of any such breach within ten (10) days of the date of performance of such Services.

Seller shall not be liable for a breach of the warranty set forth in this Exhibit A unless: (i) Buyer gives written notice of the defect or non-compliance covered by the warranty, reasonably described, to Seller within five (5) days of the time when Buyer discovers or ought to have discovered the defect or non-compliance and such notice is received by Seller during the Warranty Period; (ii) Seller is given a reasonable opportunity after receiving the notice to examine such Goods and (a) Buyer returns such Goods to Seller's place of business at Buyer's cost (prepaid and insured); or (b) in the case of custom systems, Seller dispatches a field service provider to Buyer's location at Buyer's expense, for the examination to take place there; and (iii) Seller reasonably verifies Buyer's claim that the Goods are defective or non-compliant and the defect or non-compliance developed under normal and proper use.

All consumable, optical fibers, and expendables such as electrodes are warranted only for defect in material and workmanship which are apparent upon receipt by Buyer. The foregoing warranty is negated after the initial use.

No warranty made hereunder shall extend to any product whose serial number is altered, defaced, or removed.

Remedies: With respect to any such Goods during the Warranty Period, Seller shall, in its sole discretion, either: repair such Goods (or the defective part). **THE REMEDIES SET FORTH IN THE FOREGOING SENTENCE SHALL BE BUYER'S SOLE AND EXCLUSIVE REMEDY AND SELLER'S ENTIRE LIABILITY FOR ANY BREACH OF THE LIMITED WARRANTY SET FORTH IN THIS EXHIBIT A.** Representations and warranties made by any person, including representatives of Seller, which are inconsistent or in conflict with the terms of this warranty, as set forth above, shall not be binding upon Seller.

Products manufactured by a third party and third party software ("**Third Party Product**") may constitute, contain, be contained in, incorporated into, attached to or packaged together with, the Goods. Third Party Products are not covered by the warranty in this Exhibit A. For the avoidance of doubt, **SELLER MAKES NO REPRESENTATIONS OR WARRANTIES WITH RESPECT TO ANY THIRD PARTY PRODUCT, INCLUDING ANY (a) WARRANTY OF MERCHANTABILITY; (b) WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE; (c) WARRANTY OF TITLE; OR (d) WARRANTY AGAINST INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS OF A THIRD PARTY; WHETHER EXPRESS OR IMPLIED BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE.** Notwithstanding the foregoing, in the event of the failure of any Third Party Product, Seller will assist (within reason) Buyer (at Buyer's sole expense) in obtaining, from the respective third party, any (if any) adjustment that is available under such third party's warranty.