

SERIAL COMMUNICATIONS INTERFACE

SL-300A

USER MANUAL



990-116 REV L

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Revision Record

Revision	EO	Date	Basis of Revision
A	16835	02/95	Release document
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D	19146	01/02	1. Add Unitek Peco™ name. 2. Update manual.
E	42861	11/13	Updated to Miyachi America name and logo.
F	43105	07/14	Remove references to Datacom software.
G	43481	12/14	Updated to Amada Miyachi America name and logo.
H	44255	05/16	Update contact information
J	44889	10/19	Update warranty. See ECO for details.
K	45789	04/20	Update Company Name (Amada Weld Tech) + Model Names
L	47209	01/24	Update Manual Title

FOREWORD

Thank you for purchasing an Amada Weld Tech - SL-300A Electronic Weld Head Controller.

Upon receipt of your equipment, please thoroughly inspect it for shipping damage prior to its installation. Should there be any damage, please immediately contact the shipping company to file a claim, and notify us at:

Amada Weld Tech Inc.
1820 South Myrtle Avenue
Monrovia, California 91016
Phone: (626) 303-5676
FAX: (626) 358-8048
E-mail: info@amadaweldtech.com

The purpose of this manual is to supply operating and maintenance personnel with the information needed to properly and safely operate and maintain the SL-300A Electronic Weld Head Controller via Serial Communications.

We have made every effort to ensure that the information in this manual is accurate and adequate.

Should questions arise, or if you have suggestions for improvement of this manual, please contact us at the above location/numbers.

Amada Weld Tech is not responsible for any loss due to improper use of this product.

SAFETY NOTES

This instruction manual describes how to operate, maintain and service the SL-300A via the Serial Communications Interface, and provides instructions relating to its SAFE use. Procedures described in this manual **MUST** be performed, as detailed, by **QUALIFIED** and **TRAINED** personnel.

For **SAFETY**, and to effectively take advantage of the full capabilities of the tester, please read these instruction manuals before attempting to use the workstation.

Procedures other than those described in this manual or not performed as prescribed in it, may expose personnel to electrical hazards.

After reading this manual, retain it for future reference when any questions arise regarding the proper and **SAFE** operation of the tester.

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LIMITED WARRANTY

GENERAL TERMS AND CONDITIONS FOR THE SALE OF GOODS

1. Applicability.

(a) These terms and conditions of sale (these “**Terms**”) are the only terms which govern the sale of the goods (“**Goods**”) by Amada Weld Tech Inc. (“**Seller**”) to the buyer identified in the Sales Quotation and/or Acknowledgment (as each defined below) to which these Terms are attached or incorporated by reference (“**Buyer**”). Notwithstanding anything herein to the contrary, if a written contract signed by authorized representatives of both parties is in existence covering the sale of the Goods covered hereby, the terms and conditions of said contract shall prevail to the extent they are inconsistent with these Terms.

(b) The accompanying quotation of sale (the “**Sales Quotation**”) provided to Buyer, and/or sales order acknowledgement (“**Acknowledgement**”) and these Terms (collectively, this “**Agreement**”) comprise the entire agreement between the parties, and supersede all prior or contemporaneous understandings, agreements, negotiations, representations and warranties, and communications, both written and oral. For clarification, after the Acknowledgement is received by Buyer, the order for Goods is binding and cannot be cancelled by Buyer for any reason and the full purchase price amount set forth in the Acknowledgement shall be due and payable by Buyer to Seller pursuant to the payment schedule set forth in the Acknowledgement unless otherwise agreed to in writing by Seller. All terms and conditions contained in any prior or contemporaneous oral or written communication which are different from, or in addition to, the terms and conditions in this Agreement are hereby rejected and shall not be binding on Seller, whether or not they would materially alter this Agreement. These Terms prevail over any of Buyer’s terms and conditions of purchase regardless whether or when Buyer has submitted its purchase order or such terms. Fulfillment of Buyer’s order does not constitute acceptance of any of Buyer’s terms and conditions and does not serve to modify or amend these Terms. Notwithstanding anything herein to the contrary, all orders for Goods must be for a minimum purchase price of \$100 or such orders will be rejected by Seller.

2. Delivery.

(a) The Goods will be delivered within a reasonable time after Seller provides Buyer the Acknowledgment, subject to availability of finished Goods. Seller will endeavor to meet delivery schedules requested by Buyer, but in no event shall Seller incur any liability, consequential or otherwise, for any delays or failure to deliver as a result of ceasing to manufacture any product or any Force Majeure Event. Delivery schedules set forth in the Acknowledgment are Seller’s good faith estimate on the basis of current schedules. In no event shall Seller be liable for special or consequential damages resulting from failure to meet requested delivery schedules.

(b) Unless otherwise agreed in writing by the parties in the Acknowledgment, Seller shall deliver the Goods to the Seller’s plant in Monrovia, CA, USA (the “**Shipping Point**”) using Seller’s standard methods for packaging and shipping such Goods. Buyer shall take delivery of the Goods within three (3) days of Seller’s written notice that the Goods have been delivered to the Shipping Point. Buyer shall be responsible for all loading costs (including freight and insurance costs) and provide equipment and labor reasonably suited for receipt of the Goods at the Shipping Point. Seller shall not be liable for any delays, loss or damage in transit.

(c) Seller may, in its sole discretion, without liability or penalty, make partial shipments of Goods to Buyer, if applicable. Each shipment will constitute a separate sale, and Buyer shall pay for the units shipped whether such shipment is in whole or partial fulfillment of Buyer’s purchase order.

(d) If for any reason Buyer fails to accept delivery of any of the Goods on the date fixed pursuant to Seller’s notice that the Goods have been delivered at the Shipping Point, or if Seller is unable to deliver the Goods at the Shipping Point on such date because Buyer has not provided appropriate instructions, documents, licenses or authorizations: (i) risk of loss to the Goods shall pass to Buyer; (ii) the Goods shall be deemed to have been delivered; and (iii) Seller, at its option, may store the Goods until Buyer picks them up, whereupon Buyer shall be liable for all related costs and expenses (including, without limitation, storage and insurance).

3. Non-delivery.

(a) The quantity of any installment of Goods as recorded by Seller on dispatch from Seller’s place of business is conclusive evidence of the quantity received by Buyer on delivery unless Buyer can provide conclusive evidence proving the contrary.

(b) Seller shall not be liable for any non-delivery of Goods (even if caused by Seller’s negligence) unless Buyer gives written notice to Seller of the non-delivery within three (3) days of the date when the Goods would in the ordinary course of events have been received.

(c) Any liability of Seller for non-delivery of the Goods shall be limited to (in Seller’s sole discretion) replacing the Goods within a reasonable time or adjusting the invoice respecting such Goods to reflect the actual quantity delivered.

4. Shipping Terms. Unless indicated otherwise in the Acknowledgment, Delivery shall be made EXW (Incoterms 2010), Shipping Point, including without limitation, freight and insurance costs. If no delivery terms are specified on the Acknowledgment, the method of shipping will be in the sole discretion of Seller. Unless directed in writing otherwise by Buyer, full invoice value will be declared for all shipments.

5. Title and Risk of Loss. Title and risk of loss passes to Buyer upon delivery of the Goods at the Shipping Point. As collateral security for the payment of the purchase price of the Goods, Buyer hereby grants to Seller a lien on and security interest in and to all of the right, title and interest of Buyer in, to and under the Goods, wherever located, and whether now existing or hereafter arising or acquired from time to time, and in all accessions thereto and replacements or modifications thereof, as well as all proceeds (including insurance proceeds) of the foregoing. The security interest granted under this provision constitutes a purchase money security interest under the California Commercial Code.

6. Amendment and Modification. These Terms may only be amended or modified in a writing which specifically states that it amends these Terms and is signed by an authorized representative of each party.

7. Inspection and Rejection of Nonconforming Goods.

(a) Buyer shall inspect the Goods within two (2) days of receipt (“**Inspection Period**”). Buyer will be deemed to have accepted the Goods unless it notifies Seller in writing of any Nonconforming Goods during the Inspection Period and furnishes such written evidence or other documentation as required by Seller. “**Nonconforming Goods**” means only the following: (i) product shipped is different than identified in Buyer’s Acknowledgement; or (ii) product’s label or packaging incorrectly identifies its contents. Notwithstanding the foregoing, for shipped Goods that require field installation, the “re-verification” terms in the Acknowledgement shall apply and for custom installations, the inspection and verification shall take place at Buyer’s site immediately after the installation is completed.

(b) Seller will only accept Nonconforming Goods that are returned under Seller’s Return Material Authorization procedures then in effect (“**RMA**”). Buyer shall obtain a RMA number from Seller prior to returning any Nonconforming Goods and return the Nonconforming 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 for the examination to take place there. If Seller reasonably verifies Buyer’s claim that the Goods are Nonconforming Goods and that the nonconformance did not developed by use from Buyer, Seller shall, in its sole discretion, (i) replace such Nonconforming Goods with conforming Goods, or (ii) credit or refund the Price for such Nonconforming Goods pursuant to the terms set forth herein. Notwithstanding the foregoing, the only remedy for Nonconforming Goods that are custom systems is repair (not refund or replacement). No returns for Nonconforming Goods are allowed after thirty (30) days from the original shipping date.

(c) Buyer acknowledges and agrees that the remedies set forth in Section 7(a) are Buyer’s exclusive remedies for the delivery of Nonconforming Goods. Except as provided under Section 7(a) and Section 14, all sales of Goods to Buyer are made on a one-way basis and Buyer has no right to return Goods purchased under this Agreement to Seller.

8. Price.

(a) Buyer shall purchase the Goods from Seller at the prices (the “**Prices**”) set forth in Seller’s published catalogue literature in force as of the date of the Sales Quotation. However, the Prices shown in such catalogue literature or any other publication are subject to change without notice. Unless specifically stated to the contrary in the Sales Quotation, quoted Prices and discounts are firm for thirty (30) days from the date of the Sales Quotation. Unless otherwise stated, prices are quoted EXW (Incoterms 2010), Shipping Point. Unless otherwise stated in the Acknowledgement, if the Prices should be increased by Seller before delivery of the Goods to a carrier for shipment to Buyer, then these Terms shall be construed as if the increased prices were originally inserted herein, and Buyer shall be billed by Seller on the basis of such increased prices.

(b) All Prices are exclusive of all sales, use and excise taxes, and any other similar taxes, duties and charges of any kind imposed by any governmental authority on any amounts payable by Buyer. Buyer shall be responsible for all such charges, costs and taxes (present or future); provided, that, Buyer shall not be responsible for any taxes imposed on, or with respect to, Seller’s income, revenues, gross receipts, personnel or real or personal property or other assets.

9. Payment Terms.

(a) Unless otherwise provided in the Acknowledgement, if Buyer has approved credit with Seller, Buyer shall pay all invoiced amounts due to Seller within thirty (30) days from the date of Seller’s invoice. If Seller does not have Buyer’s financial information and has not provided pre-approved credit terms for Buyer, the payment must be made in cash with order or C.O.D. in US dollars. If Buyer has approved credit terms, the payment may be made by cash with order, wire transfer of immediately available funds, or check in US dollars. Certain products require a down payment. Any payment terms other than set forth above will be identified in the Acknowledgement. Notwithstanding anything herein to the contrary, all prepaid deposits and down payments are non-refundable. If a deposit is not received when due, Seller reserves the right to postpone manufacturing of Goods until payment is received. Seller will not be responsible for shipment delays due to deposit payment delays.

(b) In Seller’s sole discretion, Seller may access Buyer interest on all late payments at the lesser of the rate of 1.5% per month or the highest rate permissible under applicable law, calculated daily and compounded monthly. Buyer shall reimburse Seller for all costs incurred in collecting any late payments, including, without limitation, attorneys’ fees. In addition to all other remedies available under these Terms or at law (which Seller does not waive by the exercise of any rights hereunder), Seller shall be entitled to suspend the delivery of any Goods if Buyer fails to pay any amounts when due hereunder and such failure continues for ten (10) days following written notice thereof.

(c) Buyer shall not withhold payment of any amounts due and payable by reason of any set-off of any claim or dispute with Seller, whether relating to Seller’s breach, bankruptcy or otherwise.

10. Intellectual Property; Software License.

(a) To the extent that any Goods provided under this Agreement contains software, whether pre-installed, embedded, in read only memory, or found on any other media or other form (“**Software**”), such Software and accompanying documentation are licensed to Buyer, not sold and shall remain the sole and exclusive property of Seller or third party licensors of Seller. Seller grants Buyer a non-exclusive license to use the Software solely as provided in and in connection with the use of the Goods in which such Software is contained and in accordance with any applicable user documentation provided with such Goods and subject to the provisions of this Agreement. Certain of Seller’s Goods may include third party software such as computer operating systems. Licenses to such third party software are subject to the terms and conditions of any applicable third party software license agreements. Unless identified in the Acknowledgement, no license is granted by Seller with respect to such third party software products that may be provided with the Goods (if any). Seller makes no warranties regarding any third party software that may accompany the Goods or otherwise and such software is explicitly included in the definition of Third Party Products below.

(b) Buyer shall not copy, modify, or disassemble, or permit others to copy, modify, or disassemble, the Software, nor may Buyer modify, adapt, translate, reverse assemble, decompile, or otherwise attempt to derive source code from the Software. Buyer shall not transfer possession of the Software except as part of, or with, the Goods, and each such transfer shall be subject to the restrictions contained herein. Buyer may not sublicense, rent, loan, assign or otherwise transfer the Software or documentation, and Buyer shall retain on all copies of the Software and documentation all copyright and other proprietary notices or legends appearing therein or thereon. Seller may terminate this license upon written notice for any violation of any of the terms of this license

or any material breach of any provision of this Agreement. Buyer shall immediately discontinue use of the Software upon any termination of this license or Agreement. This license shall terminate upon any termination of the Agreement.

(c) All patents, trademarks, copyrights or other intellectual property rights embodied in the Goods, including without limitation the Software, are owned by Seller and its licensors. Seller and its licensors retain all right, title and interest in such intellectual property rights. Except as expressly set forth herein, no license rights or ownership in or to any of the foregoing is granted or transferred hereunder, either directly or by implication. ALL RIGHTS RESERVED.

(d) If Buyer is the United States Government or any agency thereof, each of the components of the Software and user documentation are a “commercial item,” and “computer software” as those terms are defined at 48 C.F.R. 2.101, consisting of “commercial computer software” and “commercial computer software documentation,” as such terms are used in 48 C.F.R. 12.212. Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4, all United States government Buyers acquire only those rights in the Software and user documentation that are specified in this Agreement.

11. Installation and Other Services. Seller shall provide installation services (“**Installation Services**”) to Buyer if set forth in the Acknowledgment. If Installation Services are provided for in the Acknowledgment, Buyer will prepare the location for the installation consistent with Buyer’s written specifications and Buyer will install necessary system cable and assemble any necessary equipment or hardware not provided by Seller, unless agreed otherwise in writing by the parties. For Goods that will be operated on or in connection with Buyer supplied hardware or software, Buyer is responsible for ensuring that its hardware and software conform with Seller minimum hardware and software requirements as made available to Buyer. Seller shall provide other field services, such as maintenance visits and field repairs (the “**Other Services**” and together with the Installation Services, the “**Services**”) if set forth in the Acknowledgment.

12. Limited Warranty.

(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 12 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 Product**”).

(c) **EXCEPT FOR THE WARRANTY SET FORTH IN SECTION 12(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 12(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 12(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 12(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 12(e) and Section 12(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 12(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 12(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.

13. Limitation of Liability.

(a) **IN NO EVENT SHALL SELLER BE LIABLE FOR ANY CONSEQUENTIAL, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR PUNITIVE DAMAGES, LOST PROFITS OR REVENUES OR DIMINUTION IN VALUE, LOSS OF INFORMATION OR DATA, OR PERSONAL INJURY OR DEATH ARISING IN ANY WAY OUT OF THE MANUFACTURE, SALE, USE, OR INABILITY TO USE ANY GOODS, SOFTWARE OR SERVICE, OR ARISING OUT OF OR RELATING TO ANY BREACH OF THESE TERMS, WHETHER OR NOT THE POSSIBILITY OF SUCH DAMAGES HAS BEEN DISCLOSED IN ADVANCE BY BUYER OR COULD HAVE BEEN REASONABLY**

FORESEEN BY BUYER, REGARDLESS OF THE LEGAL OR EQUITABLE THEORY (CONTRACT, TORT OR OTHERWISE) UPON WHICH THE CLAIM IS BASED, AND NOTWITHSTANDING THE FAILURE OF ANY AGREED OR OTHER REMEDY OF ITS ESSENTIAL PURPOSE.

(b) IN NO EVENT SHALL SELLER'S AGGREGATE LIABILITY ARISING OUT OF OR RELATED TO THIS AGREEMENT, WHETHER ARISING OUT OF OR RELATED TO BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE) OR OTHERWISE, EXCEED THE TOTAL OF THE AMOUNTS PAID TO SELLER FOR THE GOODS SOLD HEREUNDER.

(c) ALL WARRANTIES SET FORTH HEREIN, DIRECT OR IMPLIED, ARE VOIDED IF THE INITIAL INSTALLATION AND START-UP OF THE SUBJECT GOOD IS NOT SUPERVISED BY AN AUTHORIZED REPRESENTATIVE OF SELLER. AFTER INSTALLATION, ANY RE-ALIGNMENT, RE-CLEANING, OR RE-CALIBRATION, PROVIDED THEY ARE NOT RELATED TO A PROVEN DEFECT IN MATERIALS OR WORKMANSHIP, SHALL BE PERFORMED BY AN AUTHORIZED REPRESENTATIVE OF SELLER AT THE CURRENT SERVICE RATES.

(d) WHERE GOODS ARE SUBJECT TO A MOVE TO ANOTHER LOCATION AFTER THE ORIGINAL INSTALLATION HAS BEEN MADE, THE WARRANTY MAY BE MAINTAINED ONLY IF SUPERVISED BY AN AUTHORIZED REPRESENTATIVE OF SELLER. SELLER, FOR A SERVICE CHARGE, WILL ARRANGE FOR AND SUPERVISE THE DISCONNECTION, TRANSPORTATION, REINSTALLATION AND START-UP OF THE EQUIPMENT. CLAIMS FOR DAMAGE IN SHIPMENT ARE THE RESPONSIBILITY OF BUYER AND SHALL BE FILED PROMPTLY WITH THE TRANSPORTATION COMPANY.

14. Return Goods Policy. Seller's products may be returned to Seller for credit within sixty (60) days of shipment subject to the following conditions.

(a) In order to return products for credit, Buyer must obtain a RMA number from Seller. Upon receipt, it must be executed by an authorized person and then returned with the Goods. Goods returned to Seller without a RMA will be returned at Buyer's expense.

(b) Goods are to be returned to Seller at 1820 South Myrtle Avenue, Monrovia, CA 91016 with Freight Prepaid. Seller will not accept collect shipments.

(c) Restocking fees will be assessed in accordance with the following schedules: (i) Goods returned within the first thirty (30) days from shipment date will be restocked less twenty percent (20%) of the amount billed on the original invoice. (ii) Goods returned over thirty (30) days of shipment but less than sixty (60) days will be restocked less thirty percent (30%) of the amount billed on the original invoice. (iii) No returns are allowed after sixty (60) days from the original shipping date.

(d) The restocking fees set forth above are the minimum fees. If a returned Good requires rework to restore it to a saleable condition, further charges will be assessed. Seller's quality assurance department will document the condition of the Goods when received by Seller and report their findings to Buyer.

(e) Notwithstanding the foregoing provisions of this Section 14, the following Goods cannot be returned, are not eligible for any credit and cannot be restocked: (i) custom or modified products and (ii) any expendable product(s) that have been used.

15. Compliance with Law and Indemnification. Buyer shall comply with all applicable laws, regulations and ordinances. Buyer shall maintain in effect all the licenses, permissions, authorizations, consents and permits that it needs to carry out its obligations under this Agreement. Buyer shall comply with all export and import laws of all countries involved in the sale of the Goods under this Agreement or any resale of the Goods by Buyer. Goods, Services and technical data delivered by Seller shall be subject to U.S. export controls. Buyer shall, and shall cause its customers to, obtain all licenses, permits and approvals required by any government and shall comply with all applicable laws, rules, policies and procedures of the applicable government and other competent authorities. Buyer will indemnify and hold Seller harmless for any violation or alleged violation by Buyer of such laws, rules, policies or procedures. Buyer shall not transmit, export or re-export, directly or indirectly, separately or as part of any system, the Goods or any technical data (including processes and Services) received from Seller, without first obtaining any license required by the applicable government, including without limitation, the U.S. government. Buyer also certifies that none of the Goods or technical data supplied by Seller under this Agreement will be sold or otherwise transferred to, or made available for use by or for, any entity that is engaged in the design, development, production or use of nuclear, biological or chemical weapons or missile technology. No Buyer information will be deemed "technical data" unless Buyer specifically identifies it to Seller as such. Buyer assumes all responsibility for shipments of Goods requiring any government import clearance. Seller may terminate this Agreement if any governmental authority imposes antidumping or countervailing duties or any other penalties on Goods. For all international shipments, Seller requires that all required Export Control documentations, including Form BIS-711 Statement by Ultimate Consignee and Purchases, are submitted by Buyer along with the purchase order. Seller reserves the right to postpone shipment until all documentations are completed and submitted to Seller. Seller will not be responsible for shipment delays due to non-compliance by Buyer of the foregoing two sentences.

16. Termination. In addition to any remedies that may be provided under these Terms, Seller may terminate this Agreement with immediate effect upon written notice to Buyer, if Buyer: (i) fails to pay any amount when due under this Agreement and such failure continues for ten (10) days after Buyer's receipt of written notice of nonpayment; (ii) has not otherwise performed or complied with any of these Terms, in whole or in part; or (iii) becomes insolvent, files a petition for bankruptcy or commences or has commenced against it proceedings relating to bankruptcy, receivership, reorganization or assignment for the benefit of creditors.

17. Waiver. No waiver by Seller of any of the provisions of this Agreement is effective unless explicitly set forth in writing and signed by Seller. No failure to exercise, or delay in exercising, any rights, remedy, power or privilege arising from this Agreement operates or may be construed as a waiver thereof. No single or partial exercise of any right, remedy, power or privilege hereunder precludes any other or further exercise thereof or the exercise of any other right, remedy, power or privilege.

18. Confidential Information. All non-public, confidential or proprietary information of Seller, including, but not limited to, specifications, samples, patterns, designs, plans, drawings, documents, data, business operations, customer lists, pricing, discounts or rebates, disclosed by Seller to Buyer, whether disclosed orally or disclosed or accessed in written, electronic or other form or media, and whether or not marked, designated or otherwise identified as "confidential," in connection with this Agreement is confidential, solely for the use of performing this Agreement and may not be disclosed or copied unless authorized in advance by Seller in writing. Upon Seller's request, Buyer shall promptly return all documents and other materials received from Seller. Seller shall be entitled to injunctive relief for any violation of this Section 18. This Section 18 does not apply to information that is: (a) in the public domain through no fault of Buyer; (b) known to Buyer at the time of disclosure without restriction as evidenced by its records; or (c) rightfully obtained by Buyer on a non-confidential basis from a third party.

SL-300A SERIAL COMMUNICATIONS INTERFACE

19. Force Majeure. Seller shall not be liable or responsible to Buyer, nor be deemed to have defaulted or breached this Agreement, for any failure or delay in fulfilling or performing any term of this Agreement when and to the extent such failure or delay is caused by or results from acts or circumstances beyond the reasonable control of Seller including, without limitation, acts of God, flood, fire, earthquake, explosion, governmental actions, war, invasion or hostilities (whether war is declared or not), terrorist threats or acts, riot, or other civil unrest, national emergency, revolution, insurrection, epidemic, lock-outs, strikes or other labor disputes (whether or not relating to either party's workforce), or restraints or delays affecting carriers or inability or delay in obtaining supplies of adequate or suitable materials, materials or telecommunication breakdown or power outage (each a "Force Majeure Event"), provided that, if the event in question continues for a continuous period in excess of thirty (30) days, Buyer shall be entitled to give notice in writing to Seller to terminate this Agreement.

20. Assignment. Buyer shall not assign any of its rights or delegate any of its obligations under this Agreement without the prior written consent of Seller. Any purported assignment or delegation in violation of this Section 20 is null and void. No assignment or delegation relieves Buyer of any of its obligations under this Agreement.

21. Relationship of the Parties. The relationship between the parties is that of independent contractors. Nothing contained in this Agreement shall be construed as creating any agency, partnership, joint venture or other form of joint enterprise, employment or fiduciary relationship between the parties, and neither party shall have authority to contract for or bind the other party in any manner whatsoever.

22. No Third-Party Beneficiaries. This Agreement is for the sole benefit of the parties hereto and their respective successors and permitted assigns and nothing herein, express or implied, is intended to or shall confer upon any other person or entity any legal or equitable right, benefit or remedy of any nature whatsoever under or by reason of these Terms.

23. Governing Law. All matters arising out of or relating to this Agreement is governed by and construed in accordance with the internal laws of the State of California without giving effect to any choice or conflict of law provision or rule (whether of the State of California or any other jurisdiction) that would cause the application of the laws of any jurisdiction other than those of the State of California.

24. Dispute Resolution.

(a) If Buyer is an entity formed under the laws of the United States of America, or any of its states, districts or territories ("**U.S. Law**"), then any dispute, legal suit, action or proceeding arising out of or relating to this Agreement shall be adjudicated and decided in the federal courts of the United States of America or the courts of the State of California in each case located in the City of Los Angeles and County of Los Angeles, California and each party irrevocably submits to the exclusive and personal jurisdiction of such courts in any such dispute, suit, action or proceeding.

(b) If Buyer is an entity formed under the laws of any country, state, district or territory other than U.S. Law, then the parties irrevocably agree that any dispute, legal suit, action or proceeding arising out of or relating to this Agreement shall be submitted to the International Court of Arbitration of the International Chamber of Commerce ("**ICC**") and shall be finally settled under the Rules of Arbitration of the ICC. The place and location of the arbitration shall be in Los Angeles, California, pursuant to the ICC's Rules of Arbitration and shall be finally settled in accordance with said rules. The arbitration shall be conducted before a panel of three arbitrators. Each party shall select one arbitrator and the two arbitrators so selected shall select the third arbitrator, who shall act as presiding arbitrator. Notwithstanding the foregoing, if the matter under dispute is \$500,000 or less, there shall only be one arbitrator who shall be mutually selected by both parties. If the party-selected arbitrators are unable to agree upon the third arbitrator, if either party fails to select an arbitrator, or in the case that only one arbitrator is required and the parties are unable to agree, then the International Court of Arbitration shall choose the arbitrator. The language to be used in the arbitral proceeding shall be English. The arbitrator(s) shall have no authority to issue an award that is contrary to the express terms of this Agreement or the laws of the State of California or applicable US Federal Law, and the award may be vacated or corrected on appeal to a court of competent jurisdiction for any such error. The arbitrator(s) shall be specifically empowered to allocate between the parties the costs of arbitration, as well as reasonable attorneys' fees and costs, in such equitable manner as the arbitrator(s) may determine. The arbitrator(s) shall have the authority to determine issues of arbitrability and to award compensatory damages, but they shall not have authority to award punitive or exemplary damages. Judgment upon the award so rendered may be entered in any court having jurisdiction or application may be made to such court for judicial acceptance of any award and an order of enforcement, as the case may be. In no event shall a demand for arbitration be made after the date when institution of a legal or equitable proceeding based upon such claim, dispute or other matter in question would be barred by the applicable statute of limitations. Notwithstanding the foregoing, either party shall have the right, without waiving any right or remedy available to such party under this Agreement or otherwise, to seek and obtain from any court of competent jurisdiction any interim or provisional relief that is necessary or desirable to protect the rights or property of such party, pending the selection of the arbitrator(s) hereunder or pending the arbitrator(s)' determination of any dispute, controversy or claim hereunder.

25. Notices. All notices, request, consents, claims, demands, waivers and other communications hereunder (each, a "**Notice**") shall be in writing and addressed to the parties at the addresses set forth on the face of the Acknowledgement or to such other address that may be designated by the receiving party in writing. All Notices shall be delivered by personal delivery, nationally recognized overnight courier (with all fees pre-paid), facsimile (with confirmation of transmission) or certified or registered mail (in each case, return receipt requested, postage prepaid). Except as otherwise provided in this Agreement, a Notice is effective only (a) upon receipt of the receiving party, upon confirmation of delivery by nationally recognized overnight courier or upon forty-eight (48) hours after being sent by certified or registered mail (as applicable), and (b) if the party giving the Notice has complied with the requirements of this Section 25.

26. Severability. If any term or provision of this Agreement is invalid, illegal or unenforceable in any jurisdiction, such invalidity, illegality or unenforceability shall not affect any other term or provision of this Agreement or invalidate or render unenforceable such term or provision in any other jurisdiction.

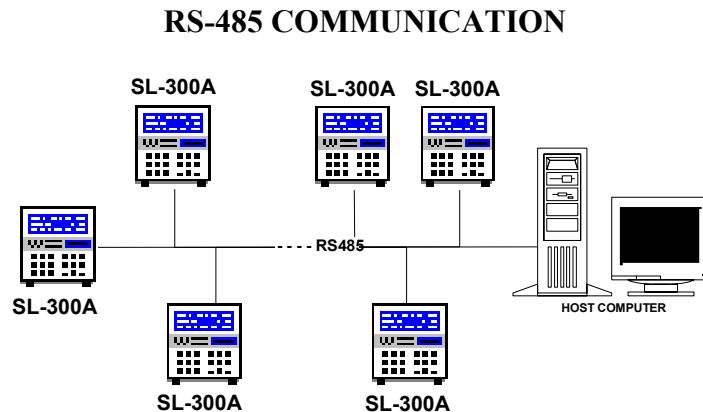
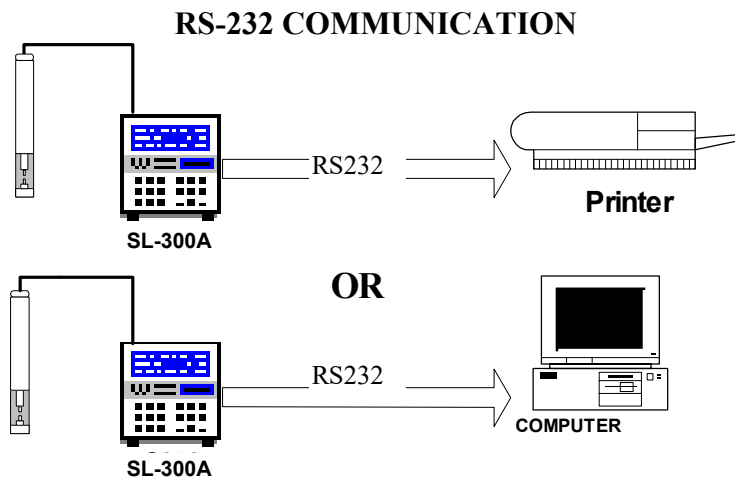
27. Survival. Provisions of these Terms which by their nature should apply beyond their terms will remain in force after any termination or expiration of this Order including, but not limited to, the following provisions: Compliance with Laws, Confidentiality, Governing Law, Dispute Resolution, Survival, and the restrictions on Software in Sections 10(b), (c) and (d).

SL-300A SERIAL COMMUNICATIONS INTERFACE

Section I. SL-300A Data Communications

Purpose

The purpose of the SL-300A Weld Head Controller serial port is to enable remote data collection via a serial communications line between the SL-300A Weld Head Controller(s) and a serial data collecting device or host computer. The SL-300A Weld Head Controller has two ways of reporting weld information; RS-232 and RS-485. The RS-232 communication provides a simple way of reporting weld information from a SL-300A Weld Head Controller to a computer or a serial printer. To use the RS-232 communication, refer to RS-232 Data Communication Operation in Chapter 2. The RS-485 communication provides a way of collect weld reports from one or more SL-300A Weld Head Controllers using one host computer. To use the RS-485 communication, refer to RS-485 Data Communication Operation in Chapter 3.



OPERATING INSTRUCTIONS

Communication Speed and Format

Baud Rates: The baud rate of the SL-300A Weld Head Controller can be configured at 1200, 2400, 4800, 9600, 14.4K, 19.2K, or 28.8K. The baud rate is set using the COMMUNICATIONS menu listed under the MAIN MENU. The default setting is 9600.

Parity: The SL-300A always communicates in 8 bits with no parity and 1 stop bit.

I.D.: Communication I.D. is the number used to identify a slave unit.

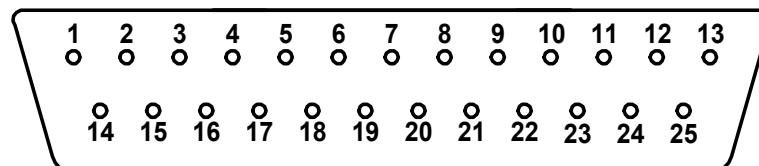
ROLE: Set the ROLE option in the SL-300A Weld Head Controller COMMUNICATIONS menu to “**MASTER**” to use with a printer. Set the ROLE option to “**SLAVE**” to use with a computer.

Serial Connector Information

The serial port pin assignment is as follows:

Pin	Name	Description
1	CGND	Chassis Ground
2	TXD	RS-232 Transmit Data
3	RXD	RS-232 Receive Data
4	RTS	Request to Send
5	CTS	Clear to Send
6	DSR	Data Set Ready
7	SGND	Signal Ground
20	DTR	Data Terminal Ready
12	TX +	RS-485 Transmit Data (+)
13	TX -	RS-485 Transmit Data (-)
24	RX +	RS-485 Receive Data (+)
25	RX -	RS-485 Receive Data (-)

Diagram illustrating the pin assignments for RS-232 and RS-485 communication. The table lists pins 1 through 25 with their respective names and descriptions. Pins 1 through 7 are grouped as RS-232, and pins 12 through 25 are grouped as RS-485.



Serial connector on the back panel of the SL-300A

Jumper Setting

	RS-232	RS-422	RS-485
E6	RS-232	RS-422	RS-422
E7	n/a	IN ¹	IN ¹
E8	n/a	None	RS-485 ²
E9	CTS ³	n/a	n/a
E10	DCE ⁴	n/a	n/a

¹ Set to IN for 100 Ω terminator.

² Two jumpers.

³ Set to CTS for CTS handshaking. Set to DTR for DTR handshaking.

⁴ To connect to a computer set to DCE. To connect to a printer set to DTE.

Section II. RS-232 Data Communication Operation

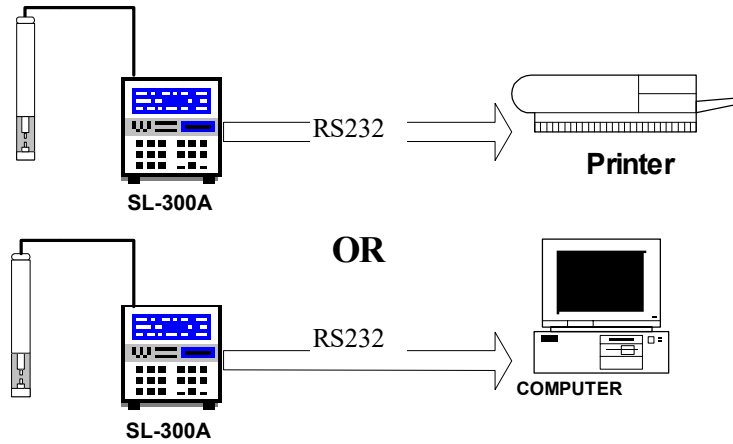
Purpose

The purpose of the RS-232 port is to enable remote data collection via a RS-232 serial communications line from one SL-300A Weld Head Controller to a serial data collecting device or host computer. This protocol provides a simple way of reporting weld information from a SL-300A Weld Head Controller to a computer or a serial printer.

Making RS-232 Connections

To implement RS-232 communications, use the following steps:

1. Turn off the SL-300A Weld Head Controller.
2. The factory setting of serial communication selector jumper (E6) is RS-232 Communication. Open the cover of the SL-300A Weld Head Controller if it was changed. Check that the serial communication select jumper (E6) is set to RS-232.
3. To connect the SL-300A to a printer, set E10 as DTE. To connect the SL-300A to a computer set E10 as DCE. The E10 factory setting is DCE.
4. Close the cover of SL-300A Weld Head Controller if it was opened.
5. Connect the serial connector on the rear panel of the SL-300A Weld Head Controller to the RS-232 connector on a host computer or a serial printer. A standard 25 pin female-to-male connector can be used.
6. Turn on the SL-300A Weld Head Controller.
7. Set the baud rate of the SL-300A Weld Head Controller and the host computer or the printer to the same baud rate. The SL-300A serial communication baud rate setting is listed under the SL-300A Weld Head Controller COMMUNICATIONS menu.
8. Set the ROLE option in the SL-300A Weld Head Controller COMMUNICATIONS menu to “**MASTER**” to use with a printer. Set the ROLE option to “**SLAVE**” to use with a computer.
9. Set the unit ID number in the SL-300A Weld Head Controller COMMUNICATIONS menu. Use the same I.D. number in the data communication software.



RS-232 Cabling Information

CABLE (25 PIN FEMALE TO 25 PIN MALE): (Standard 25 pin cable)
 ONE to ONE (1 ↔ 1, 2 ↔ 2, 3 ↔ 3, ... 25 ↔ 25)

CABLE (9 PIN FEMALE to 25 PIN MALE):(Standard 9 pin to 25 pin cable)

9 PIN FEMALE (PC)	25 PIN MALE (SL-300A)
1	8
2	3
3	2
4	No Connection
5	No Connection
6	6
7	No Connection
8	5
9	22

Section III. SL-300A Advanced RS-485 Data Communication Operation

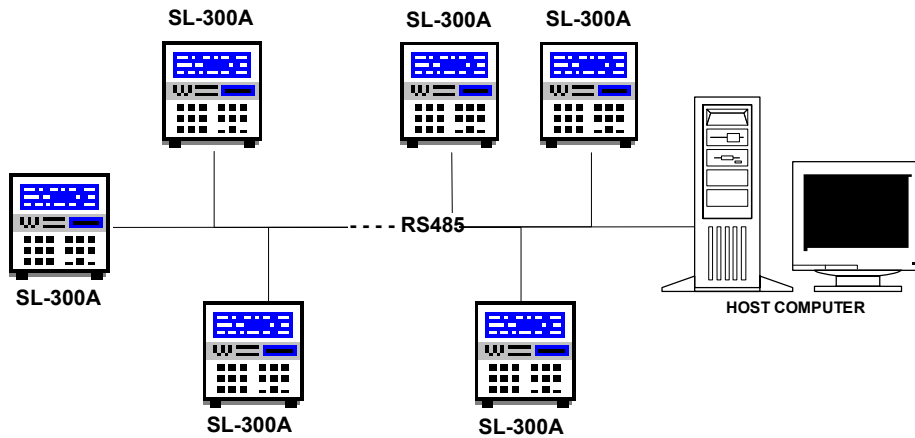
Purpose

The purpose of the RS-485 port is to enable remote data collection via a half-duplex multi-drop RS-485 communications line between SL-300A Weld Heads and a serial data collecting device or host computer. The protocol will be implemented using printable ASCII characters to allow ease of protocol translation, comprehension, and debugging in control systems development.

Making RS-485 Connections

To implement the RS-485 communications, use the following steps:

1. Turn off the SL-300A Weld Head Controller.
2. The factory setting of the serial communication selector jumper (E6) is RS-232 Communication. Open the cover of the SL-300A Weld Head Controller. Set the serial communication select jumper (E6) to RS-485.
3. To connect the SL-300A to a host computer set E10 as DCE. The E10 factory setting is DCE.
4. Close the cover of the SL-300A Weld Head Controller if it was opened.
5. Connect the serial connector on the rear panel of each SL-300A Weld Head Controller to the RS-485 connector on a host computer or a serial printer. There is no standard cable for RS-485; therefore, special cabling is required. Refer to the cabling information in RS-485 CABLING INFORMATION section. If the host computer does not have a RS-485 communication port, use the RS-232 to RS-485 converter. This information is given in the operational manual.
6. Turn on the SL-300A Weld Head Controller.
7. Set the baud rate of the SL-300A Weld Head Controller and the host computer to the same baud rate. The SL-300A serial communication baud rate setting is listed under the SL-300A Weld Head Controller COMMUNICATIONS menu.
8. Set the ROLE option in the SL-300A Weld Head Controller COMMUNICATIONS menu to "SLAVE."
9. Set the unit ID number in the SL-300A Weld Head Controller COMMUNICATIONS menu. Each SL-300A unit should have its own unique ID number to be identified by the host computer.



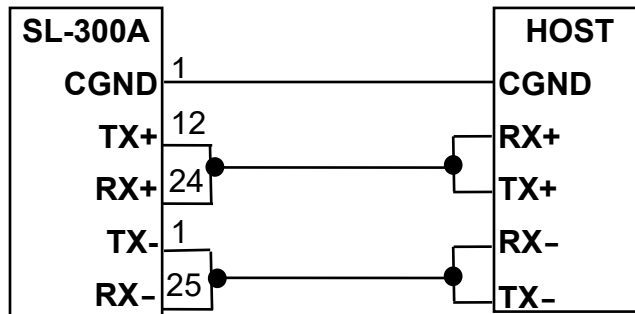
RS-485 Cabling Information

The SL-300A Weld Head Controller serial port has following pin assignments for RS-485 communication.

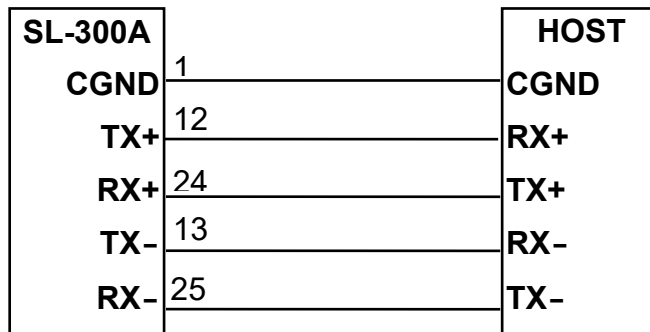
Pin	Name	Description
1	CGND	Chassis Ground
12	TX +	RS-485 Transmit Data (+)
13	TX -	RS-485 Transmit Data (-)
24	RX +	RS-485 Receive Data (+)
25	RX -	RS-485 Receive Data (-)

OPERATING INSTRUCTIONS

The RS-485 communication is based on cable sharing which is connected as follows:



The RS-422 communication is connected as followings:



Section IV. Command Format

Implementation

The portions of the protocol that include the physical layer (hardware electrical interconnect), the link layer (framing, data encoding, duplex control), the network layer (source-destination identification) and the transport layer (packet framing & token control) are implemented in the SL-300A. The SL-300A shall always be in the Slave Mode which shall output data in a polled request-response synchronous operation utilizing a packetized token-passing-like control & accepting input commands.

The multi-drop signal synchronization control utilizing a token-passing-like algorithm uses the unit identification portion of the command screen as the token, which is the pound sign (#) followed by the unit ID number. When no information is being passed, the host passes an empty token, which is a packet consisting of the token followed by the end of packet sequence (<crLf><lf>). If the SL-300A has a message to return, it returns it with the token to the host, otherwise if it has no message to return, it returns an empty token. A message consists of any command and its parameters or other data accompanying the command. Each token-message packet must conclude with an end of packet sequence. The SL-300A ignores any packet beginning with a unit ID that does not match its programmed value, up to the point that an idle line is detected. Thus, at least one character time of idle line is required between packets to wake up any and all SL-300A receiver logic on the line in order to recognize any subsequent packet that may be addressed to them.

Command Summary

Packet format:

#ID **KEYWORD** *parameters* <crLf><lf>

unit identification & token	<i>#ID</i> (<i>ID</i> is any number from 0 to 255, must be left-justified or zero-padded to left)
command keywords:	BOLD
variable to be replaced by literal:	<i>italics</i>
required parameters:	{enclosed in braces} (one required and only one parameter allowed)
optional parameters:	[enclosed in brackets] (zero or more allowed)
required/optional parameters:	{[enclosed in braces and brackets]} (one or more allowed)
choice of parameters:	separated by vertical bar " " indicates one <i>OR</i> another of choices presented.
range of parameters:	<i>low_end</i> - <i>high_end</i> (separated by hyphen)
end of parameter line:	<crLf>(carriage return followed by newline)
end of packet:	<lf>(new line - must be preceded by the end of parameter line <crLf>)

OPERATING INSTRUCTIONS

Each component (token, keyword, and parameters) will and must be separated by one or more non-printing characters (spaces or tabs) except the end of packet <lf> must follow the end of parameter line <crLf> immediately. Non-printing characters immediately preceding the end of parameter line <crLf> are ignored.

Host Originated Commands

Command: **STATUS** <crLf><lf>

SL-300A: Any state

Description: Requests the SL-300A to report the status of the weld data buffer. SL-300A returns **STATUS** with either “OK” or “OVERRUN.”

Command: **COUNT** <crLf><lf>

SL-300A: Any state

Description: Requests the SL-300A to report the number of weld data accumulated since the last data collection. SL-300A returns the **COUNT** even if there is no weld data available.

Command: **LOAD** *schedule_number* <crLf><lf>

SL-300A: RUN state

Description: Selects the schedule *schedule_number* as the currently loaded schedule. *schedule_number* may be any number from 0 to 127. There must be a space between **LOAD** and *schedule_number*.

Command: **SCHEDULE** <crLf><lf>

SL-300A: Any state

Description: Requests the SL-300A to return the currently selected schedule number.

Command: **COUNTER** <crLf><lf>

SL-300A: Any state

Description: Requests the SL-300A to return the SL-300A weld count.

Command: **REPORT** { **OLD** | **NEW** } *number* <crLf><lf>

SL-300A: Any state

Description: Requests the SL-300A to send the weld report.

OLD: requests to send the *number* of oldest weld reports since the last data collection. The reported weld data will be erased.

NEW: requests to send the *number* of newest weld reports. All the weld data will be erased after reported.

number: the number of weld data to be sent. If the *number* is greater than the number of weld data in the buffer, less than the *number* of weld data will be sent. There must be a space between two fields.

Command: **ERASE** <crLf><lf>

SL-300A: Any state

Description: Requests the SL-300A to erase all the weld reports.

Command: **SETDOWN** <crLf><lf>

HF2 state: Any except while welding

Description: Requests the SL-300A to send the setdown result from last weld.
This command returns SETDOWN command from the SL-300A.

Command: **SCHEDULE** {**READ** | **SET** <crLf>

parameter_name value [<crLf>

parameter_name value <crLf>

...

]} <lf>

HF2 State: Any except while welding

Description: Provides control over the SL-300A schedule parameters. When used with the "**READ**" keyword, all parameters pertaining to the currently loaded schedule are returned (see **SCHEDULE** under SL-300A ORIGINATED COMMANDS). When the "**SET**" keyword is used, the host may set (change) the value of one or more of the parameters pertaining to the currently loaded schedule. The following is a list of valid literal substitutions for the *parameter_name* and *value* variables:

ASPEED{ **FAST** | **MED** | **SLOW** }Approach speed

SSPEED{ **FAST** | **MED** | **SLOW** }Search speed

SQUEEZE{ **1 - 999** }Squeeze Time (in ms)

WELD{ **1 - 999** }Weld Time (in 0.1ms)

DELAY { **1 - 999** }Impulse Delay Time (in 0.1ms)

FOLLOWUP { **10 - 999** }Follow up Force (in 0.1ms)

UPSTOP { **5 - 999** }Up stop position (in current selected unit)

SEARCH{ **5 - 999** }Search position (in current selected unit)

WFORCE { **1 - 999** }Weld Force (in current selected unit)

FFORCE { **1 - 999** }Impulse Force (in current selected unit)

WELDSTOP { **1 - 5000** }Weld Stop position (in current selected unit)

LOWLIMIT { **1 - 5000** }Lower limit (in current selected unit)

UPLIMIT { **1 - 5000** }Upper limit (in current selected unit)

OPERATING INSTRUCTIONS

Command: **SYSTEM** {**READ** | **SET** <crLf>
[*parameter_name value* <crLf>
parameter_name value <crLf>
...
]} <If>

HF2 State: Any

Description: Provides control over HF2 system parameters. When used with the "**READ**" keyword, all system parameters are returned (see **SYSTEM** under HF2 ORIGINATED COMMANDS). When used with the "**SET**" keyword, the host may set (change) the value of one or more of the system parameters. The following is a list of valid literal substitutions for the *parameter_name* and *value* variables:

PUSCH	{ 0 - 127, 250 }	power-up schedule number
BUZZER	{ OFF ON }	end of cycle buzzer
CLICK	{ OFF ON }	key click on/off
FORCEUNIT	{ lb kg N }	Unit of measure for force
DISTANCE	{ inch mm }	Unit of measure for distance
WELDABORT	{ OFF ON }	footswitch weld abort
DEBOUNCE	{ 0 10 20 30 }	switch debounce time in ms
RELAY1	{ ALARM RUN STATE WELD PERIOD ENTIRE }	Relay 1 on condition
RELAY2	{ ALARM RUN STATE WELD PERIOD ENTIRE }	Relay 2 on condition
ROLE	{ SLAVE MASTER }	SL-300A Communication Role
BAUDRATE	{ 1200 2400 4800 9600 14.4K 19.2K 28.8K }	SL-300A Communication baud-rate
ID	{ 0 - 99 }	SL-300A Communication ID
CHECK	{ ON OFF }	No weld material check
ESTOP	{ NC NC }	Emergency Stop Operation
MAXFORCE	{ 20 - 100 }	Maximum force to use during self-check
SRCHFORCE	{ 20 - 100 1000 }	Force to search for weld material
OBJFORCE	{ 30 - 100 1000 }	

These parameters pertain to the settings of the option menus available via the front panel user interface. When the SRCHFORCE or OBJFORCE is set to 1000, it means "AUTO".

power-up schedule number is the schedule number to be selected at the power-up. Any number from 0 to 127 can be selected. To select the schedule number that was used before power down, use 250.

Command: **SAVE** *schedule_number* <crlf><lf>
HF2 state: Any
Description: Saves the modified schedule to *schedule_number*. *schedule_number* may be any number from **0** to **127**. Commanding HF2 from PROGRAM state to RUN state after making modifications without SAVEing will cause the selected schedule to be saved to *schedule_number* and *schedule_number* will be automatically loaded.

Command: **FORCE** <crlf><lf>
HF2 state: Any except welding
Description: Requests the SL-300A to send the force report. This command cause the SL-300A to send FORCE report.

SL-300A Originated Commands

Command: **STATUS** *state_name* <crlf><lf>
SL-300A: Any state
Description: Identifies the current status of the weld data buffer. May be in response with “**OK**” or “**OVERRUN.**” “**OK**” means that the SL-300A weld buffer did not over-run since the last data collection and all the data are O.K. “**OVERRUN**” means that the SL-300A weld buffer did over-run since the last data collection and only the latest 3000 weld data are available to report.

Command: **COUNT** *number* <crlf><lf>
SL-300A: Any state
Description: Returns the number of weld data available in SL-300A. The total number of weld data that the SL-300A holds in the buffer is 3000.

Command: **SCHEDULE** *schedule_number* <crlf><lf>
SL-300A: Any state
Description: Returns the current schedule number to the host. *schedule_number* may be any number from **0** to **127**.

Command: **COUNTER** *number* <crlf><lf>
SL-300A: Any state
Description: Returns the current SL-300A weld counter number.

OPERATING INSTRUCTIONS

Command: **REPORT** *number_of_reports* <crLf>
report <crLf> *report* <crLf> *report* <crLf><lf>

SL-300A: Any state

Description: Returns the requested number of weld reports. First field is the number of reports to be sent. Then follows the packets of report. One report pack hold all the information about a weld. Each report packet is separated by <crLf> and this command ends with <crLf><lf>.

number_of_reports: This is the number of reports that shall be included in this command. If the host computer requests more weld data than is available in the weld data buffer, the SL-300A sends only the weld reports in the weld buffer and the *number_of_reports* is the number of weld reports available in the weld data buffer. After the report is sent to the host computer, the SL-300A erases the weld data sent to the host from the weld data buffer.

report: {*weld_count* , *schedule_number* , *thickness*, *setdown*, *weld_time*, *weld_status* }
The fields in the report packet are separated with a comma and all fields are in integer format. There are always 6 fields in a report packet.

weld_count:The weld counter of the weld (0 - 9999999)

schedule_number:The schedule number of the weld (0 - 127)

thickness:The thickness of the weld material before the weld starts (in inches or mm depending on the option setting) resolution: 0.001 inch

setdown:The reading of the final setdown (in inches or mm depending on the option setting) resolution: 0.0001 inch

weld_time:The actual duration of the weld signal (in 0.1ms)

weld_status:The status of the weld. The possibilities are listed in Section 1.

Command: **SCHEDULE***schedule_number*<crLf>
ASPEED{ **FAST** | **MED** | **SLOW** }<crLf> Approach speed
SSPEED{ **FAST** | **MED** | **SLOW** }<crLf> Search speed
SQUEEZE{ **1 - 999** }<crLf> Squeeze Time (in ms)
WELD{ **1 - 999** }<crLf> Weld Time (in 0.1ms)
DELAY { **1 - 999** }<crLf> Impulse Delay Time (in 0.1ms)
FOLLOWUP { **1 - 999** }<crLf> Follow up Force (in 0.1ms)
UPSTOP { **1 - 999** }<crLf> Up stop position (in current selected unit)
SEARCH{ **1 - 999** }<crLf> Search position (in current selected unit)
WFORCE { **1 - 999** }<crLf> Weld Force (in current selected unit)
FFORCE { **1 - 999** }<crLf> Impulse Force (in current selected unit)
WELDSTOP { **1 - 5000** }<crLf> Weld Stop position (in current selected unit)
LOWLIMIT { **1 - 5000** }<crLf> Lower limit (in current selected unit)
UPLIMIT { **1 - 5000** }<crLf><lf> Upper limit (in current selected unit)

HF2 State: Any

Description: Reports the settings of the currently loaded HF2 schedule parameters. The *schedule_number* variable identifies which schedule is currently loaded, and may be any value from 000 to 127. The possible value for all variables listed after their parameter name correspond to the values listed under **SCHEDULE** in the HOST ORIGINATED COMMANDS section of this document.

Command: **SYSTEM** <crLf>

PUSCH	{ 0 - 127, 250 }<crLf>	power-up schedule number
BUZZER	{ OFF ON }<crLf>	end of cycle buzzer
CLICK	{ OFF ON }<crLf>	key click on/off
FORCEUNIT	{ lb kg N }<crLf>	Unit of measure for force
DISTANCE	{ inch mm }<crLf>	Unit of measure for distance
WELDABORT	{ OFF ON }<crLf>	footswitch weld abort
DEBOUNCE	{ 0 10 20 30 }<crLf>	switch debounce time in ms
RELAY1	{ ALARM RUN STATE WELD PERIOD ENTIRE }<crLf>	Relay 1 on condition
RELAY2	{ ALARM RUN STATE WELD PERIOD ENTIRE }<crLf>	Relay 2 on condition
ROLE	{ SLAVE MASTER }<crLf>	S350 Communication Role
BAUDRATE	{ 1200 2400 4800 9600 14.4K 19.2K 28.8K }<crLf>	S350 Communication baud-rate
ID	{ 0 - 99 }<crLf>	S350 Communication ID
CHECK	{ ON OFF }<crLf>	No weld material check
ESTOP	{ NC NC } <crLf>	Emergency Stop Operation
MAXFORCE	{ 20 - 100 } <crLf>	Max force to use during self-check
SRCHFORCE	{ 20 - 100 1000}<crLf>	Force to search for weld material
OBJFORCE	{ 30 - 100 1000}<crLf>	Force to used detect any object during approach mode

<lf>

HF2 State: Any

Description: Reports the current settings of the HF2 system parameters. The possible value for all variables listed after their parameter name correspond to the values listed under **SYSTEM** in the HOST ORIGINATED COMMANDS section of this document.

OPERATING INSTRUCTIONS

Command: **SETDOWN** *number_of_data* <crLf>
data <crLf> [*data* <crLf> [. . . . *data* <crLf>]] <lf>

HF2 state: Any

Description: Returns the requested SETDOWN report of the last weld. The first field is the number of data to be sent. Then follows the list of data separated by <crLf>. This command ends with <crLf><lf>.

number_of_data: This is the number of data that shall be included in this command.

data: *data* is an ASCII number. Each data is a SETDOWN sample made at every 100 μ sec in unit of 0.0001 inches.

Command: **FORCE** *number_of_data* <crLf>
data <crLf> *data* <crLf> *data* <crLf><lf>

HF2 state: Any

Description: Returns the requested FORCE report of the last weld. The first field is the number of data to be sent. Then follows the list of data separated by <crLf>. This command ends with <crLf><lf>.

number_of_data: This is the number of data that shall be included in this command.

data: *data* is an ASCII number. Each data is a force sample made at every 100 μ sec. The unit is 0.1 lb.

APPENDIX A SPECIFICATIONS

Weld Status Number

The following is a list of the possible error numbers and their meaning.

Number	STATUS	Meaning
0	No Error	No Error
2	Search Position Error	The electrode encountered an obstacle before it reached the programmed search position. Another possibility is that the search position is set lower than the weld material thickness.
3	No Weld Material	Weld material is not detected before the head reached 0.005 in (.12 mm) above the bottom electrode. This could be because there is no weld material or the electrodes have moved relative to their calibrated position.
9	Head Not Ready	Footswitch pressed before weld head was ready.
10	Weld Aborted	User aborted the weld by lifting the footswitch.
13	Too Much Setdown	The final setdown was lower than the lower limit.
14	Too Little Setdown	The final setdown was smaller than the upper limit.

Weld Report File Format

The weld report file created by the SL-300A data communication software is text file. It can be easily imported into any spreadsheet program. Each report is separated by line feed. Within a report, the delimiter between parameter fields is a comma. The following report format is in the weld report file.

<WELD REPORT FORMAT IN WELD REPORT FILE>

id, weld_count, schedule_number, thickness, setdown, weld_time, weld_status <lf>

id: The communication I.D. of the SL-300A Control (0 - 99)

weld_count: The weld counter of the weld (0 - 9999999)

schedule_number: The schedule number of the weld (0 - 127)

thickness: The thickness of the weld material before the weld starts (in inches or mm depending on the option setting) resolution: 0.001 inch

setdown: The reading of the final setdown (in inches or mm depending on the option setting) resolution: 0.0001 inch

weld_time: The actual duration of the weld signal (in 0.1ms)

weld_status: The status of the weld.

<EXAMPLE> **1,20001,5,0.020,0.0035,150,0<lf>**

APPENDIX A: SPECIFICATIONS

In the above example:

- 1 is the Communication ID of the SL-300A for this report
- 20001 is the weld number of the weld,
- 5 is the schedule number of the weld,
- 0.020 inch is the thickness of the weld material before the weld began, assuming the unit measure distance was set to “inch”,
- 0.0035 inch is the final setdown after the weld was terminated assuming the unit of measure distance was set to “inch”,
- 15.0ms is the weld time which was the duration of the weld signal. If the weld displacement stop feature is not enabled, this will be always same as the weld time of the schedule. If the weld displacement stop is enabled, the weld time will be from the beginning of the weld time until the setdown reaches the weld displacement stop setting.
- Weld status number is 0 which means no error has occurred during this weld.

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