



## 9105-CUSTOM-253

### Manual Addendum



Document #: 9610-05-1029

August 2010

*Engineered Products for Robotic Productivity*

Pinnacle Park • 1031 Goodworth Drive • Apex, NC 27539 • Tel: 919.772.0115 • Fax: 919.772.8259 • [www.ati-ia.com](http://www.ati-ia.com) • Email: [info@ati-ia.com](mailto:info@ati-ia.com)

## Foreword

Information contained in this document is the property of ATI Industrial Automation, Inc. and shall not be reproduced in whole or in part without prior written approval of ATI Industrial Automation, Inc. The information herein is subject to change without notice and should not be construed as a commitment of ATI Industrial Automation, Inc. This manual is periodically revised to reflect and incorporate changes made to the F/T system.

ATI Industrial Automation, Inc. assumes no responsibility for any errors or omissions in this document.

Copyright © by ATI Industrial Automation, Inc., Apex, North Carolina USA. All Rights Reserved. Published in the USA.

In consideration that ATI Industrial Automation, Inc. (ATI) products are intended for use with robotic and/or automated machines, ATI does not recommend the use of its products for applications wherein failure or malfunction of an ATI component or system threatens life or makes injury probable. Anyone who uses or incorporates ATI components within any potentially life-threatening system must obtain ATI's prior consent based upon assurance to ATI that a malfunction of ATI's component does not pose direct or indirect threat of injury or death, and (even if such consent is given) shall indemnify ATI from any claim, loss, liability, and related expenses arising from any injury or death resulting from use of ATI components.

*All trademarks belong to their respective owners.*

*Windows™ is a registered trademark of Microsoft Corporation.*

### **Note**

Please read the manual before calling customer service. Before calling, have the following information available:

1. Serial number (e.g., FT01234)
2. Transducer model (e.g., Nano17, Gamma, Theta, etc.)
3. Calibration (e.g., US-15-50, SI-65-6, etc.)
4. Accurate and complete description of the question or problem
5. Computer and software information. Operating system, PC type, drivers, application software, and other relevant information about your configuration.

If possible, be near the F/T system when calling.

## How to Reach Us

**Sales, Service and Information about ATI products:**

**ATI Industrial Automation**

1031 Goodworth Drive

Apex, NC 27539 USA

[www.ati-ia.com](http://www.ati-ia.com)

Tel: +1.919.772.0115

Fax: +1.919.772.8259

E-mail: [info@ati-ia.com](mailto:info@ati-ia.com)

**Technical support and questions:**

**Application Engineering**

Tel: +1.919.772.0115, Option 2, Option 2

Fax: +1.919.772.8259

E-mail: [ft\\_support@ati-ia.com](mailto:ft_support@ati-ia.com)

# 1. Safety

## 1.1 General

The customer should verify that the transducer selected is rated for maximum loads and moments expected during operation. Refer to F/T Transducer Manual (*9620-05-Transducer Section—Installation and Operation Manual*) found in Net F/T Installation and Operation Manual (*9610-05-1022*) or contact ATI Industrial Automation for assistance. Particular attention should be paid to dynamic loads caused by robot acceleration and deceleration. These forces can be many times the value of static forces in high acceleration or deceleration situations.

## 1.2 Explanation of Warnings

The warnings included here are specific to the product(s) covered by this manual. It is expected that the users heed all warnings from the robot manufacturer and/or the manufacturers of other components used in the installation.



Danger indicates that a situation could result in potentially serious injury or damage to equipment.



Caution indicates that a situation could result in damage to the product and/or the other system components.

## 1.3 Precautions



**DANGER:** Do not attempt to disassemble the transducer. This will damage the instrumentation.



**DANGER:** Do not probe any openings in the transducer. This will damage the instrumentation.



**DANGER:** Take care to prevent excessive forces or moments from being applied to the transducer during handling or installation. The small Nano series is easily overloaded during rough handling and may be damaged.

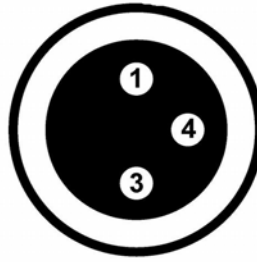
## **2. Overview**

The 9105-CUSTOM-253 has the same connections and operates like a standard Net F/T sensor system with the exceptions listed in this document.

## **3. Exceptions**

Section about the threshold relay, the threshold connector, and the circuit operation do not apply to the 9105-CUSTOM-253.

## 4. Substitute Information



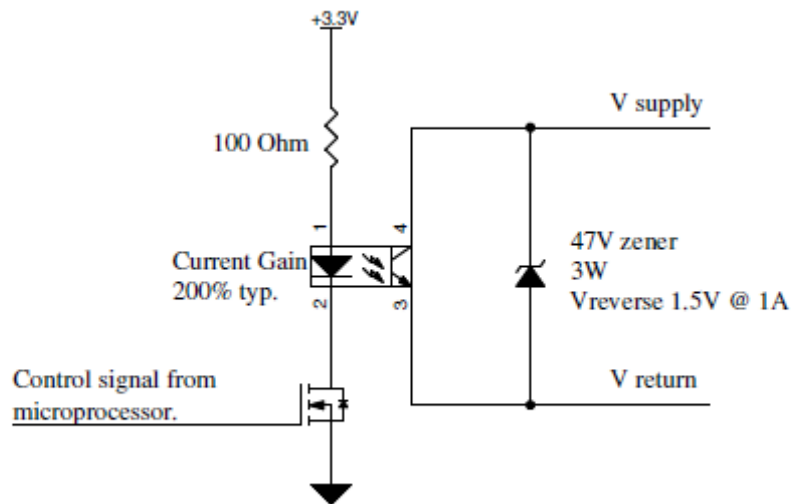
**Figure 4.1—Threshold Connector**

Pin 1 – Vreturn

Pin 4 – NC

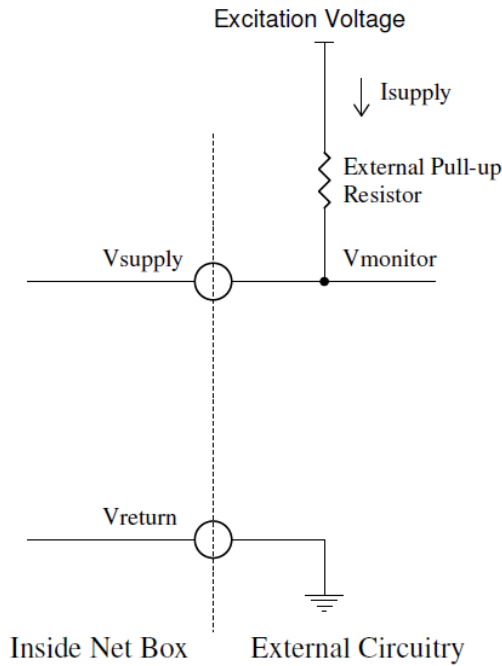
Pin 3 – Vsupply

**\*WARNING—Output is polarity dependant.**



**Figure 4.2—New Internal Circuitry**

Maximum parameters are 30 VDC across Vsupply and Vreturn and 35 mA supply current. Maximum delay from fault condition to photocoupler turn on is 500  $\mu$ Seconds. Output is voltage clamped at 47V and reverse polarity protected up to 1 Amp.



**Figure 4.3—Recommended External Circuit.**

Isupply (mA)	5	7.5	10	15	20	30	35
Vsupply - Vreturn (V)	0.20	0.25	0.30	0.80	1.57	3.60	5.03

**Table 4.1—Typical Operating Conditions.**

	Value	Unit
Excitation Voltage	24	V
Isupply	10	mA

**Table 4.2—Recommended Operating Conditions.**

## **5. Terms and Conditions of Sale**

The following Terms and Conditions are a supplement to and include a portion of ATI's Standard Terms and Conditions, which are on file at ATI and available upon request.

ATI warrants to Purchaser that force torque sensor products purchased hereunder will be free from defects in material and workmanship under normal use for a period of one year from the date of shipment. This warranty does not cover components subject to wear and tear under normal usage or those requiring periodic replacement. ATI will have no liability under this warranty unless: (a) ATI is given written notice of the claimed defect and a description thereof with thirty (30) days after Purchaser discovers the defect and in any event, not later than the last day of the warranty period and (b) the defective item is received by ATI not later than (10) days after the last day of the warranty period. ATI's entire liability and Purchaser's sole remedy under this warranty is limited to repair or replacement, at ATI's election, of the defective part or item or, at ATI's election, refund of the price paid for the item. The foregoing warranty does not apply to any defect or failure resulting from improper installation, operation, maintenance, or repair by anyone other than ATI.

ATI will in no event be liable for incidental, consequential, or special damages of any kind, even if TI has been advised of the possibility of such damages. ATI's aggregate liability will in no event exceed the amount paid by the purchaser for the item which is the subject of claim or dispute. ATI will have no liability of any kind for failure of any equipment or other items not supplied by ATI.

No action against ATI, regardless of form, arising out of or in any way connected with products or services supplied hereunder, may be brought more than one year after the cause of action accrued.

No representation or agreement varying or extending the warranty and limitation of remedy provisions contained herein is authorized by ATI, and may not be relied upon as having been authorized by ATI, unless in writing and signed by an executive officer of ATI.

Unless otherwise agreed in writing by ATI, all designs, drawings, data, inventions, software, and other technology made or developed by ATI in the course of providing products and services hereunder, and all rights therein under any patent, copyright, or other law protecting intellectual property, shall be and remain ATI's property. The sale of products or services hereunder does not convey any expressed or implied license under any patent, copyright, or other intellectual property right owned or controlled by ATI, whether relating to the products sold or any other matter, except for the license expressly granted below.

In the course of supplying products and services hereunder, ATI may provide or disclose to Purchaser confidential and proprietary information of ATI relating to the design, operation, or other aspects of ATI's products. As between ATI and Purchaser, ownership of such information, including without limitation any computer software provided to Purchaser by ATI, shall remain in ATI and such information is licensed to Purchaser only for Purchaser's use in operating the products supplied by ATI hereunder in Purchaser's internal business operations.

Without ATI's prior written permission, Purchaser will not use such information for any other purpose of provide or otherwise make such information available to any third party. Purchaser agrees to take all reasonable precautions to prevent any unauthorized use or disclosure of such information.

Purchaser will not be liable hereunder with respect to disclosure or use of information which: (a) is in the public domain when received from ATI, (b) is thereafter published or otherwise enters the public domain through no fault of Purchaser, (c) is in Purchaser's possession prior to receipt from ATI, (d) is lawfully obtained by Purchaser from a third party entitled to disclose it, or (f) is required to be disclosed by judicial order or other governmental authority, provided that, with respect to such to maintain the confidentiality of such information.