



**ProAct™ Actuator with Integrated Speed  
Control and Throttle Body (PISC ITB)**

**PISC 85/95/105/120/135 mm ITB**

**Installation and Operation Manual**

## IMPORTANT



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

## DEFINITIONS

- **DANGER**—Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
- **WARNING**—Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
- **CAUTION**—Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
- **NOTICE**—Indicates a hazard that could result in property damage only (including damage to the control).
- **IMPORTANT**—Designates an operating tip or maintenance suggestion.

## WARNING

The engine, turbine, or other type of prime mover should be equipped with an overspeed shutdown device to protect against runaway or damage to the prime mover with possible personal injury, loss of life, or property damage.

The overspeed shutdown device must be totally independent of the prime mover control system. An overtemperature or overpressure shutdown device may also be needed for safety, as appropriate.



Read this entire manual and all other publications pertaining to the work to be performed before installing, operating, or servicing this equipment. Practice all plant and safety instructions and precautions. Failure to follow instructions can cause personal injury and/or property damage.



This publication may have been revised or updated since this copy was produced. To verify that you have the latest revision, be sure to check the *publications page* on the Woodward website:

[www.woodward.com/searchpublications.aspx](http://www.woodward.com/searchpublications.aspx)

The current revision and distribution restriction of all publications are shown in manual **26311**.

The latest version of most publications is available on the *publications page*. If your publication is not there, please contact your customer service representative to get the latest copy.



Any unauthorized modifications to or use of this equipment outside its specified mechanical, electrical, or other operating limits may cause personal injury and/or property damage, including damage to the equipment. Any such unauthorized modifications: (i) constitute "misuse" and/or "negligence" within the meaning of the product warranty thereby excluding warranty coverage for any resulting damage, and (ii) invalidate product certifications or listings.

## NOTICE

To prevent damage to a control system that uses an alternator or battery-charging device, make sure the charging device is turned off before disconnecting the battery from the system.

## NOTICE

To prevent damage to electronic components caused by improper handling, read and observe the precautions in Woodward manual **82715**, *Guide for Handling and Protection of Electronic Controls, Printed Circuit Boards, and Modules*.

■ Revisions—Text changes are indicated by a black line alongside the text.

Woodward reserves the right to update any portion of this publication at any time. Information provided by Woodward is believed to be correct and reliable. However, no responsibility is assumed by Woodward unless otherwise expressly undertaken.

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## Regulatory Compliance

**Note**—Refer to the ProAct ISC Integrated Speed Control Manual (26246) for actuator compliance.

European Compliance for CE Marking:

**Pressure Equipment Directive:** Certified to Pressure Equipment Directive 97/23/EC of 29 May 1997 on the approximation of the laws of the Member States concerning pressure equipment, Category II, Moody International Certificate 90 174.

### IMPORTANT

Some sizes of the throttle body (85, 95) are exempt from the Pressure Equipment Directive per Article 1, 3.10.

Other European Compliance:

Compliance with the following European Directive does not qualify this product for application of the CE Marking:

**Machinery Directive:** Compliance as a component with 98/37/EC COUNCIL DIRECTIVE of 23 July 1998 on the approximation of the laws of the Member States relating to machinery.

### General Installation and Operation Notes and Requirements:

Refer to the ProAct™ ISC Integrated Speed Control manual (26246) for actuator compliance and regulatory requirements.

### WARNING

**EXPLOSION HAZARD**—Do not remove covers or connect/disconnect electrical connectors unless power has been switched off or the area is known to be non-hazardous.

Substitution of components may impair suitability for Class I, Division 2.

### AVERTISSEMENT

**RISQUE D'EXPLOSION**—Ne pas enlever les couvercles, ni raccorder / débrancher les prises électriques, sans vous en assurer auparavant que le système a bien été mis hors tension; ou que vous vous situez bien dans une zone non explosive.

La substitution de composants peut rendre ce matériel inacceptable pour les emplacements de Classe I, Division 2.

## Electrostatic Discharge Awareness

All electronic equipment is static-sensitive, some components more than others. To protect these components from static damage, you must take special precautions to minimize or eliminate electrostatic discharges.

Follow these precautions when working with or near the control.

1. Before doing maintenance on the electronic control, discharge the static electricity on your body to ground by touching and holding a grounded metal object (pipes, cabinets, equipment, etc.).
2. Avoid the build-up of static electricity on your body by not wearing clothing made of synthetic materials. Wear cotton or cotton-blend materials as much as possible because these do not store static electric charges as much as synthetics.
3. Keep plastic, vinyl, and Styrofoam materials (such as plastic or Styrofoam cups, cup holders, cigarette packages, cellophane wrappers, vinyl books or folders, plastic bottles, and plastic ash trays) away from the control, the modules, and the work area as much as possible.
4. Do not remove the printed circuit board (PCB) from the control cabinet unless absolutely necessary. If you must remove the PCB from the control cabinet, follow these precautions:
  - Do not touch any part of the PCB except the edges.
  - Do not touch the electrical conductors, the connectors, or the components with conductive devices or with your hands.
  - When replacing a PCB, keep the new PCB in the plastic antistatic protective bag it comes in until you are ready to install it. Immediately after removing the old PCB from the control cabinet, place it in the antistatic protective bag.

### **NOTICE**

To prevent damage to electronic components caused by improper handling, read and observe the precautions in Woodward manual 82715, *Guide for Handling and Protection of Electronic Controls, Printed Circuit Boards, and Modules*.

## PISC ITB Specifications

Operating Temperature Range:	(-40 to +85) °C / (-40 to +185) °F
Flow Medium Temperature Range:	(-40 to +85) °C / (-40 to +185) °F
High Temperature Flow:	(-40 to +205) °C / (-40 to +400) °F for designated models
Storage Temperature Range	(-55 to +125) °C / (-67 to +257) °F
Vibration Qualification Test Spec	Woodward RV2 (0.1 G <sup>2</sup> /Hz Random, 10 Hz to 2000 Hz, 12.8 Grms – 3 hours per axis)
Shock Qualification Test Spec	40 G, 11 ms sawtooth pulse
Weight	See table under mounting section of manual
Nominal Diameter	120 mm (4.7 inches)
Maximum Working Pressure/Standard Models:	414 kPa/4.1 bar (60 psig) – Gage 515 kPa/5.2 bar.a (75 psia) – Absolute
Maximum Working Pressure/High-Pressure Models:	711 kPa/7.1 bar (103 psig) – Gage 812 kPa/8.1 bar.a (118 psia) – Absolute

# Chapter 1.

## General Information

### Introduction

The ProAct™ Actuators with Integrated Speed Control and Throttle Body (PISC ITBs) are electrically actuated butterfly valves to control flow output. The 85/95/105/120/135 designation corresponds to the bore size in mm. This manual should be used in conjunction with the ProAct Integrated Speed Control Actuator manual 26246.

This manual is intended to assist the engine designer/retrofitter in properly applying the PISC ITBs. This manual is not intended to be a substitute for consultation with a Woodward application engineer.

### Application

The PISC ITBs are throttle valves with integrated electric actuators designed to throttle air or air/fuel for gaseous engines. As stated above, the PISC ITBs offer an integrated speed control. For applications where the end user has its own speed control, the PISC ITBs can be configured as proportional actuators having the speed control functionality disabled. This feature is set at the factory and is reflected in table 1-2 in the part number selection section.

This system is designed for direct replacement of traditional throttle valves, and requires no linkage between valve and actuator. These sizes are designed to cover a wide range of engines and should be selected using the sizing procedure described below.

#### **IMPORTANT**

**The ProAct ITBs are designed to minimize external leakage of the charge air/fuel mixture. No overboard drain feature has been provided. Proper venting of the escaped mixture is the responsibility of the end user.**

### Determining the Proper Valve Size

The proper size valve can be determined using the equation below. The required Cv (flow coefficient) should be calculated for both the minimum and maximum flows expected on the application. This design allows for a nominal travel of 75 degrees of rotation.

Using the graph and table below, select the closest valve that has a Cv equal to or greater than the calculated maximum flow value at approximately 80 % opening (60 degrees) to ensure reasonable flow margin. For further assistance, consult the Woodward engineering department.

$$C_v = \frac{Q * 0.00976}{P_1 * S_g} \sqrt{\frac{(T + 460) * P_1 * S_g}{P_1 - P_2}}$$

where:

- Cv = Flow Coefficient
- Q = Mass Flow (PPH [pounds/hour]) [1 pound = 0.45 kg]
- Sg = Specific Gravity of Gas (use 1.0 for air)
- T1 = Upstream Gas Temperature (°F) [°F = 1.8 \* °C + 32]
- P1 = Inlet Pressure (psia) [1 psi = 6.895 kPa = 0.06895 bar]
- P2 = Downstream Pressure (psia)

**IMPORTANT** P2 must be greater than 0.528 \* P1 or flow becomes choked. If P2 is less than 0.528 \* P1, then use P2= 0.528 \* P1.

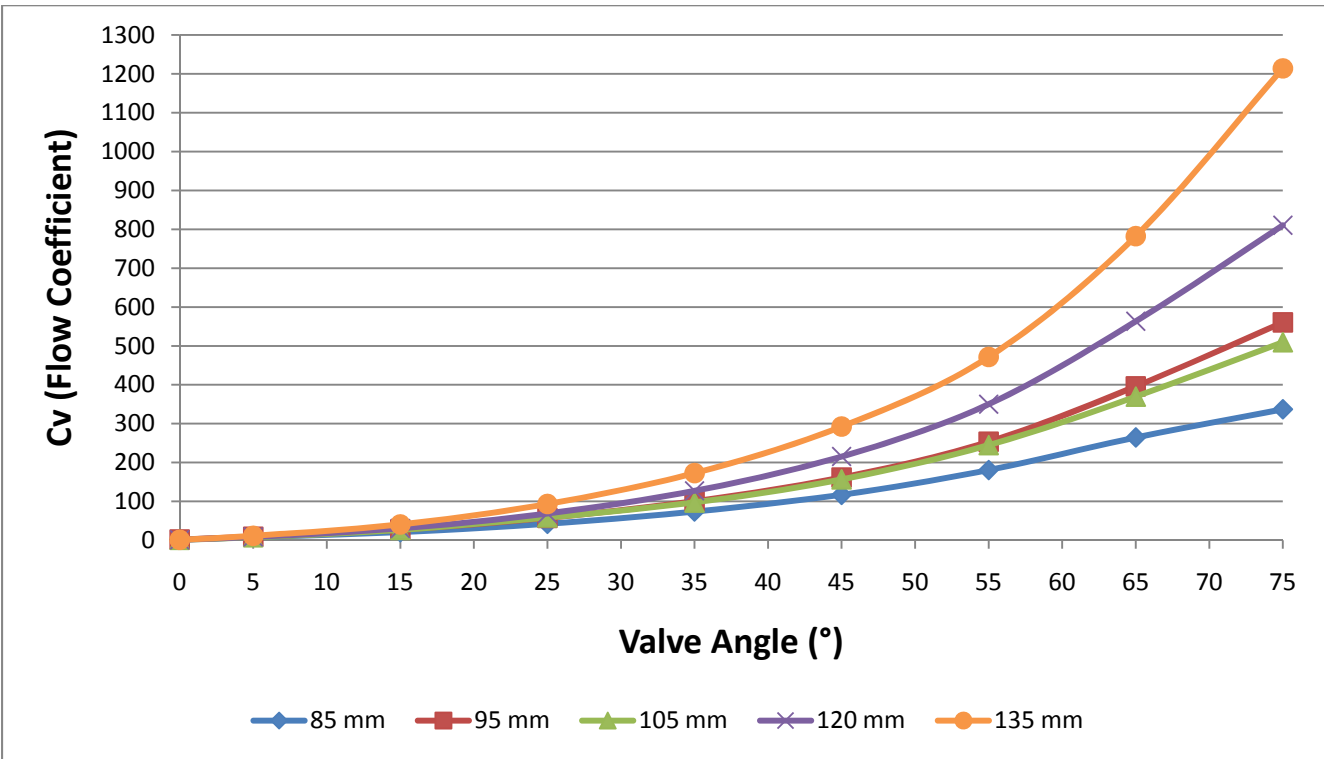


Figure 1-1. Cv vs Angle for PISC ITBs

**IMPORTANT** These flow coefficients were determined using the test setup described in ANSI/ISA-S75.02-1996 “Control Valve Capacity Test Procedure”.

The 95 mm ITB has a greater Cv than the 105 mm version. The reason is that the 85 mm and 95 mm versions are newer valve configurations that have less restrictive valve plates than the design used on the 105 mm and 120 mm versions. Given this, for new applications, the 95 mm may be preferred over the 105 mm version. However, the 105 mm will still be offered to end users who prefer this diameter or do not want to switch to the 95 mm.



## Part Number Selection

After determining the proper valve size, the part number of the assembly can be determined from the table below.

Part Number	Nominal Piping Size (DN)	Flow Medium Max Temperature	Max Working Pressure (Absolute)	Actuator	O-rings for grooves on flanges	Mass of Valve and Actuator	Approx. Location of CG from valve bore centerline
8235-360	135	85 °C	5.2 BAR.A	PISC III	Parker 2-255	19.7 kg (43.4 lb)	178 mm (7.0")
8235-350	120	85 °C	5.2 BAR.A	PISC III	Parker 2-255	20.0 kg (44.1 lb)	180 mm (7.1")
8235-305	120	85 °C	5.2 BAR.A	PISC II	Parker 2-255	16.4 kg (36.1 lb)	139 mm (5.5")
8235-198	105	85 °C	5.2 BAR.A	PISC II	Parker 2-250	16.5 kg (36.3 lb)	137 mm (5.4")
8235-361	105	205 °C	5.2 BAR.A	PISC II	Parker 2-250	16.5 kg (36.3 lb)	137 mm (5.4")
8235-337	95	205 °C	5.2 BAR.A	PISC II	Parker 2-244	14.5 kg (32.0 lb)	154 mm (6.1")
8235-339	85	205 °C	5.2 BAR.A	PISC II	Parker 2-241	14.6 kg (32.2 lb)	152 mm (6.0")
8235-351	85	100 °C	8.1 BAR.A	PISC III	No groove	19.1 kg (42.0 lb)	169 mm (6.7")

Table 1-1. Part Numbers











## Chapter 2. Installation

### Unpacking

Be careful when unpacking the device. Check the driver for signs of damage, such as bent or dented panels, scratches, and loose or broken parts. Notify the shipper and Woodward if damage is found.

### Mounting

For wiring, and thermal considerations regarding the actuator, refer to the installation procedure in the ProAct™ Integrated Speed Control Actuator manual 26246.

#### **WARNING**

**EXPLOSION HAZARD—Do not connect or disconnect while circuit is live, unless area is known to be non-hazardous.**

**Substitution of components may impair suitability for Class I, Division 2.**

#### **NOTICE**

**To prevent damage to electronic components caused by improper handling, read and observe the precautions in Woodward manual 82715, *Guide for Handling and Protection of Electronic Controls, Printed Circuit Boards, and Modules.***

The PISC ITBs with model I and model II actuators are designed to be mounted on the valve flange. However, the end-user may also want to support the actuator to minimize the loads on their piping. The PISC ITBs with model III and model IV actuators are designed to be base-mounted due to the higher mass of the actuator and the increased lever arm between the center of the bore and the center of gravity.

Flange mounting of model III may be allowed, but the vibration level must be assessed together with Woodward in order to ensure a low level of stress on the component.

The bracket and attaching hardware for all models must be designed to hold the weight of the throttle assembly and to withstand the vibration associated with engine mounting. Four M8 tapped holes are located in the base of the actuator for this purpose. For reference, the mass of the ITB along with the location of its center of gravity (CG) is listed in the following table:

Part Number	Nominal Piping Size (DN)	Flow Medium Max Temperature	Max Working Pressure (Absolute)	Actuator	O-rings for grooves on flanges	Mass of Valve and Actuator	Approx. Location of CG from valve bore centerline
8235-360	135	85 °C	5.2 BAR.A	PISC III	Parker 2-255	19.7 kg (43.4 lb)	178 mm (7.0")
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8235-339	85	205 °C	5.2 BAR.A	PISC II	Parker 2-241	14.6 kg (32.2 lb)	152 mm (6.0")
8235-351	85	100 °C	8.1 BAR.A	PISC III	No groove	19.1 kg (42.0 lb)	169 mm (6.7")

[Table 1-1 repeated]

**NOTICE**

A minimum gap of 0.5 mm must be maintained between the support bracket and electronics enclosure (see Figure 2-1). This is necessary because the enclosure is supported on vibration isolators to filter out high-frequency vibrations from reaching the electronics. If the enclosure contacts the bracket, the isolation is defeated and may reduce the electronics operating life.

If spacers are used to achieve the necessary gap, Woodward recommends maximizing the surface contact area of the spacers to maximize heat transfer between the ProAct and mounting bracket.

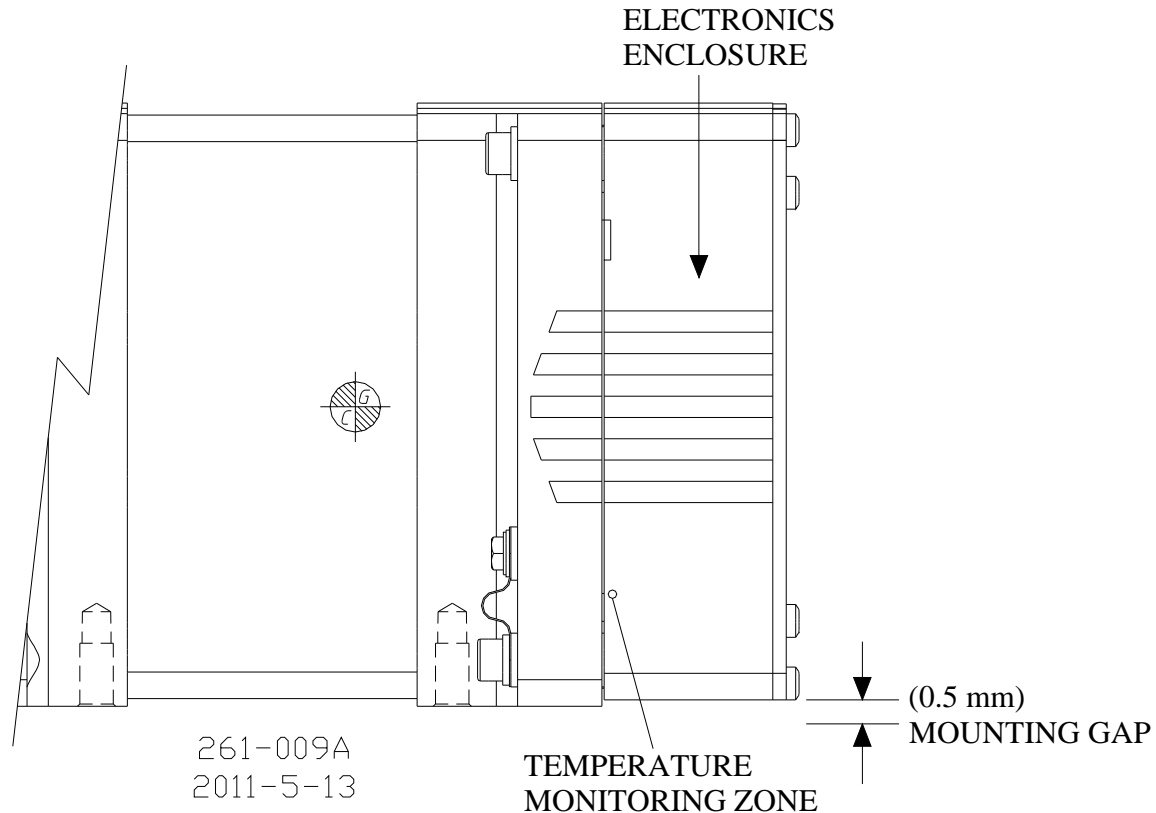


Figure 2-1. Temperature Monitoring Zone (model III shown)

Locate the appropriate O-rings (specified on the outline drawing) in the grooves on both sides of the valve body. Install the four M10 or 3/8-inch bolts on both flanges and tighten evenly to a torque recommended by the engine manufacturer. The relationship between the valve body and the actuator has been pre-set by Woodward, therefore no adjustments are required by the end user. No valve maintenance by the end user is required.

**WARNING**

**EXPLOSION HAZARD**—The surface temperature of this valve approaches the maximum temperature of the applied process media. It is the responsibility of the user to ensure that the external environment contains no hazardous gases capable of ignition in the range of the process media temperatures.



**⚠ WARNING**

External fire protection is not provided in the scope of this product. It is the responsibility of the user to satisfy any applicable requirements for their system.

**⚠ CAUTION**

Due to typical noise levels, hearing protection should be worn when working on or around the ProAct ISC ITB.

**⚠ CAUTION**

The surface of this product can become hot enough or cold enough to be a hazard. Use protective gear for product handling in these circumstances. Temperature ratings are included in the specification section of this manual.

**NOTICE**

A minimum gap of 0.5 mm must be maintained between the support bracket and electronics enclosure (see Figure 1-2). This is necessary because the enclosure is supported on vibration isolators to filter out high-frequency vibrations from reaching the electronics. If the enclosure contacts the bracket, the isolation is defeated and may reduce the electronics operating life.

If spacers are used to achieve the necessary gap, Woodward recommends maximizing the surface contact area of the spacers to maximize heat transfer between the ProAct and mounting bracket.

**NOTICE**

Do not lift or handle the valve by any wiring or conduit.

# Chapter 3.

## Troubleshooting

### Introduction

Improper engine operation is often the result of factors other than governor operation. The following paragraphs are provided to give tips about engine problems, which can resemble governor problems. Make sure the engine is operating correctly before making any changes in the governor.

Attempting to correct engine or load problems with untimely governor adjustment can add to the problems involved with solving improper operation.

Most governor problems are corrected by carefully repeating the calibration procedure given in the governor manual. There are no adjustments available within the valve.

If possible, isolate the governor from the engine to determine if the problem is with the governor and not with the engine or the load on the engine.

Governor system faults are usually caused by problems in the installation. Carefully review all the wiring connections, the power supply, and the actuator before making any adjustments to the control box. The throttle valve should be considered as a possible control problem if it was not removed during installation.

Fuel supply, pressure regulators, carburetors, and ignition conditions can present problems, which resemble governor problems.

### Governor Problems

If the engine will not start, the following problems may exist:

- Verify that any “open for shutdown” contacts are closed.
- Make sure the start fuel limit is not preventing adequate airflow.
- Verify that the 24 V power supply is present at the appropriate governor terminals.

### Stability Problems

Stability problems not caused by the engine or gas pressure at the carburetor require carefully following the setup procedure provided in the governor manual. Follow every step when readjusting the control.

If the engine oscillates when cold and stabilizes when warm, make sure that the desired (usually idle) dynamics have been selected. Turn the selected dynamics gain pot slightly counterclockwise. Turn the stability pot slightly clockwise if required to maintain stability.

## Chapter 4. Service Options

### Product Service Options

If you are experiencing problems with the installation, or unsatisfactory performance of a Woodward product, the following options are available:

- Consult the troubleshooting guide in the manual.
- Contact the manufacturer or packager of your system.
- Contact the Woodward Full Service Distributor serving your area.
- Contact Woodward technical assistance (see “How to Contact Woodward” later in this chapter) and discuss your problem. In many cases, your problem can be resolved over the phone. If not, you can select which course of action to pursue based on the available services listed in this chapter.

**OEM and Packager Support:** Many Woodward controls and control devices are installed into the equipment system and programmed by an Original Equipment Manufacturer (OEM) or Equipment Packager at their factory. In some cases, the programming is password-protected by the OEM or packager, and they are the best source for product service and support. Warranty service for Woodward products shipped with an equipment system should also be handled through the OEM or Packager. Please review your equipment system documentation for details.

**Woodward Business Partner Support:** Woodward works with and supports a global network of independent business partners whose mission is to serve the users of Woodward controls, as described here:

- A **Full Service Distributor** has the primary responsibility for sales, service, system integration solutions, technical desk support, and aftermarket marketing of standard Woodward products within a specific geographic area and market segment.
- An **Authorized Independent Service Facility (AISF)** provides authorized service that includes repairs, repair parts, and warranty service on Woodward's behalf. Service (not new unit sales) is an AISF's primary mission.
- A **Recognized Engine Retrofitter (RER)** is an independent company that does retrofits and upgrades on reciprocating gas engines and dual-fuel conversions, and can provide the full line of Woodward systems and components for the retrofits and overhauls, emission compliance upgrades, long term service contracts, emergency repairs, etc.
- A **Recognized Turbine Retrofitter (RTR)** is an independent company that does both steam and gas turbine control retrofits and upgrades globally, and can provide the full line of Woodward systems and components for the retrofits and overhauls, long term service contracts, emergency repairs, etc.

You can locate your nearest Woodward distributor, AISF, RER, or RTR on our website at:

[www.woodward.com/directory.aspx](http://www.woodward.com/directory.aspx)

## Woodward Factory Servicing Options

The following factory options for servicing Woodward products are available through your local Full-Service Distributor or the OEM or Packager of the equipment system, based on the standard Woodward Product and Service Warranty (5-01-1205) that is in effect at the time the product is originally shipped from Woodward or a service is performed:

- Replacement/Exchange (24-hour service)
- Flat Rate Repair
- Flat Rate Remanufacture

**Replacement/Exchange:** Replacement/Exchange is a premium program designed for the user who is in need of immediate service. It allows you to request and receive a like-new replacement unit in minimum time (usually within 24 hours of the request), providing a suitable unit is available at the time of the request, thereby minimizing costly downtime. This is a flat-rate program and includes the full standard Woodward product warranty (Woodward Product and Service Warranty 5-01-1205).

This option allows you to call your Full-Service Distributor in the event of an unexpected outage, or in advance of a scheduled outage, to request a replacement control unit. If the unit is available at the time of the call, it can usually be shipped out within 24 hours. You replace your field control unit with the like-new replacement and return the field unit to the Full-Service Distributor.

Charges for the Replacement/Exchange service are based on a flat rate plus shipping expenses. You are invoiced the flat rate replacement/exchange charge plus a core charge at the time the replacement unit is shipped. If the core (field unit) is returned within 60 days, a credit for the core charge will be issued.

**Flat Rate Repair:** Flat Rate Repair is available for the majority of standard products in the field. This program offers you repair service for your products with the advantage of knowing in advance what the cost will be. All repair work carries the standard Woodward service warranty (Woodward Product and Service Warranty 5-01-1205) on replaced parts and labor.

**Flat Rate Remanufacture:** Flat Rate Remanufacture is very similar to the Flat Rate Repair option with the exception that the unit will be returned to you in "like-new" condition and carry with it the full standard Woodward product warranty (Woodward Product and Service Warranty 5-01-1205). This option is applicable to mechanical products only.

## Returning Equipment for Repair

If a control (or any part of an electronic control) is to be returned for repair, please contact your Full-Service Distributor in advance to obtain Return Authorization and shipping instructions.

When shipping the item(s), attach a tag with the following information:

- return authorization number;
- name and location where the control is installed;
- name and phone number of contact person;
- complete Woodward part number(s) and serial number(s);
- description of the problem;
- instructions describing the desired type of repair.

## Packing a Control

Use the following materials when returning a complete control:

- protective caps on any connectors;
- antistatic protective bags on all electronic modules;
- packing materials that will not damage the surface of the unit;
- at least 100 mm (4 inches) of tightly packed, industry-approved packing material;
- a packing carton with double walls;
- a strong tape around the outside of the carton for increased strength.

### NOTICE

To prevent damage to electronic components caused by improper handling, read and observe the precautions in Woodward manual 82715, *Guide for Handling and Protection of Electronic Controls, Printed Circuit Boards, and Modules*.

## Replacement Parts

When ordering replacement parts for controls, include the following information:

- the part number(s) (XXXX-XXXX) that is on the enclosure nameplate;
- the unit serial number, which is also on the nameplate.

## Engineering Services

Woodward offers various Engineering Services for our products. For these services, you can contact us by telephone, by email, or through the Woodward website.

- Technical Support
- Product Training
- Field Service

**Technical Support** is available from your equipment system supplier, your local Full-Service Distributor, or from many of Woodward's worldwide locations, depending upon the product and application. This service can assist you with technical questions or problem solving during the normal business hours of the Woodward location you contact. Emergency assistance is also available during non-business hours by phoning Woodward and stating the urgency of your problem.

**Product Training** is available as standard classes at many of our worldwide locations. We also offer customized classes, which can be tailored to your needs and can be held at one of our locations or at your site. This training, conducted by experienced personnel, will assure that you will be able to maintain system reliability and availability.

**Field Service** engineering on-site support is available, depending on the product and location, from many of our worldwide locations or from one of our Full-Service Distributors. The field engineers are experienced both on Woodward products as well as on much of the non-Woodward equipment with which our products interface.

For information on these services, please contact us via telephone, email us, or use our website: [www.woodward.com](http://www.woodward.com).

## How to Contact Woodward

For assistance, call one of the following Woodward facilities to obtain the address and phone number of the facility nearest your location where you will be able to get information and service.

### Electrical Power Systems

<u>Facility</u>	<u>Phone Number</u>
Brazil	+55 (19) 3708 4800
China	+86 (512) 6762 6727
Germany	+49 (0) 21 52 14 51
India	+91 (129) 4097100
Japan	+81 (43) 213-2191
Korea	+82 (51) 636-7080
Poland	+48 12 295 13 00
United States	+1 (970) 482-5811

### Engine Systems

<u>Facility</u>	<u>Phone Number</u>
Brazil	+55 (19) 3708 4800
China	+86 (512) 6762 6727
Germany	+49 (711) 78954-0
India	+91 (129) 4097100
Japan	+81 (43) 213-2191
Korea	+82 (51) 636-7080
The Netherlands	+31 (23) 5661111
United States	+1 (970) 482-5811

### Turbine Systems

<u>Facility</u>	<u>Phone Number</u>
Brazil	+55 (19) 3708 4800
China	+86 (512) 6762 6727
India	+91 (129) 4097100
Japan	+81 (43) 213-2191
Korea	+82 (51) 636-7080
The Netherlands	+31 (23) 5661111
Poland	+48 12 295 13 00
United States	+1 (970) 482-5811

You can also locate your nearest Woodward distributor or service facility on our website at:

[www.woodward.com/directory.aspx](http://www.woodward.com/directory.aspx)

## Technical Assistance

If you need to telephone for technical assistance, you will need to provide the following information. Please write it down here before phoning:

Your Name	_____
Site Location	_____
Phone Number	_____
Fax Number	_____
<hr/>	
Engine/Turbine Model Number	_____
Manufacturer	_____
Number of Cylinders (if applicable)	_____
Type of Fuel (gas, gaseous, steam, etc)	_____
Rating	_____
Application	_____
<hr/>	
<b>Control/Governor #1</b>	
Woodward Part Number & Rev. Letter	_____
Control Description or Governor Type	_____
Serial Number	_____
<hr/>	
<b>Control/Governor #2</b>	
Woodward Part Number & Rev. Letter	_____
Control Description or Governor Type	_____
Serial Number	_____
<hr/>	
<b>Control/Governor #3</b>	
Woodward Part Number & Rev. Letter	_____
Control Description or Governor Type	_____
Serial Number	_____

*If you have an electronic or programmable control, please have the adjustment setting positions or the menu settings written down and with you at the time of the call.*

# Revision History

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## Changes in Revision D—

- Add new high-pressure 85 mm ITB (8235-351)
- Add flange-mounting details and precautions for model III
- Add 120 mm PISC III ITB (8235-350) and 135 mm PISC III ITB (8235-360)

**DECLARATION OF CONFORMITY**

**Manufacturer's Name:** WOODWARD GOVERNOR COMPANY (WGC)  
**Manufacturer's Address:** 1000 E. Drake Rd.  
Fort Collins, CO, USA, 80525

**Model Name(s)/Number(s):** Integrated Throttle Body /  
8235-187, 8235-189, 8325-191, 213-5166, 221-3021, and  
similar

**Conformance to Directive(s):** 97/23/EC COUNCIL DIRECTIVE of 29 May 1997 on the  
approximation of the laws of the Member States concerning  
Pressure Equipment

**Applicable Standards:** ASME B31.3 Process Piping, 2004  
ASME Boiler and Pressure Vessel Code VIII, Div. 1, 2004  
ASME Boiler and Pressure Vessel Code II, Part D, 2004  
BS EN 1503-2 : 2000

**Conformity Assessment:** PED Module H – Full Quality Assurance  
Certificate 90 174

**Notified Body** Moody International Certification Limited (1277)  
**For Pressure Equipment:** Stephenson's Way, The Wyvern Business Park  
Derby DE21 6LY United Kingdom

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**We, the undersigned, hereby declare that the equipment specified above conforms to the above  
Directive(s).**

**MANUFACTURER**

Signature



Full Name

Joseph Driscoll

Position

Engineering Manager

Place

WGC, Fort Collins, CO, USA

Date

5/2/07



# Declaration of Incorporation

Woodward Governor Company  
1000 E. Drake Road  
Fort Collins, Colorado 80525  
United States of America

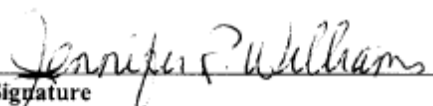
**Product: ProAct Integrated Throttles (105, 120, and 135 mm)**  
**Part Numbers: 221-3021, 8235-187, 8235-189, 8235-191 and similar**

The undersigned hereby declares, on behalf of Woodward Governor Company of Loveland and Fort Collins, Colorado, that the above-referenced product is in conformity with the following EU Directives as they apply to a component:

**98/37/EEC (Machinery)**

This product is intended to be put into service only upon incorporation into an apparatus/system that itself will meet the requirements of the above Directives and bears the CE mark.

## Manufacturer

  
Signature

Jennifer R. Williams

Full Name

Engineering Project/Process Manager

Position

WGC, Fort Collins, CO, USA

Location

4-19-02

Date

We appreciate your comments about the content of our publications.

Send comments to: [icinfo@woodward.com](mailto:icinfo@woodward.com)

Please reference publication **26265D**.



B26265:D



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Email and Website—[www.woodward.com](http://www.woodward.com)

Woodward has company-owned plants, subsidiaries, and branches,  
as well as authorized distributors and other authorized service and sales facilities throughout the world.

Complete address / phone / fax / email information for all locations is available on our website.