TESCO METERING

OPERATIONS MANUAL

ARTIFICIAL RESISTIVE LOAD

PRODUCT:

326P

ARTIFICIAL RESISTIVE LOAD OPERATIONS MANUAL

CATALOG NO. 326P

TESCO METERING

Revision: V 1.0.0

TESCO – The Eastern Specialty Company

925 Canal Street Bristol, PA, 19007

Phone: 215.228.0500

support@tescometering.com

tescometering.com

LIMITED WARRANTY & LIMITATION OF LIABILITY

TESCO warrants to the original purchaser that it will correct all defects in material and/or workmanship in the Instrument, test equipment or software covered by this warranty (herein called **"PRODUCT"**), provided that TESCO is notified of such defect within the warranty period (set forth below) in accordance with paragraph four of this warranty.

WARRANTY PERIOD. The warranty period shall begin on the date of shipment of the PRODUCT or the date of the issuance of this warranty certificate, whichever is later. If no warranty period is specified below and signed by an authorized DISTRIBUTOR of TESCO, the warranty period shall be one (1) year. In no event shall this warranty remain in effect for more than the stated warranty period plus two (2) months after the date of shipment. TESCO's sole obligation and the purchaser's sole remedy under this warranty is limited to repair or replacement, at TESCO's option, free of charge, F.O.B. TESCO's factory at Bristol, PA of any workmanship and/or part which in TESCO's sole judgment displays evidence of defect. On-site warranty repairs will be made when in TESCO's judgment the PRODUCT cannot practically be shipped to TESCO's factory. Any modifications, additions or upgrades made to the PRODUCT or control software after this warranty becomes effective shall not extend the term of this warranty.

COVERAGE. The warranty set forth above shall be applicable only if the PRODUCT:

1. Is used for the specific purpose for which it was intended;
2. Is operated in accordance with instructions, if any, supplied by TESCO;
3. Has not been modified, neglected, altered, tampered with, vandalized, abused or misused, or subjected to accident, fire, flood or other casualties;
4. Has not been repaired by unauthorized persons;
5. Has not had its serial number altered, defaced or removed;
6. Has not been connected, installed or adjusted other than in accordance with the instructions, if any, furnished by TESCO.

The warranty set forth herein DOES NOT APPLY to defects resulting from ordinary wear, tear and usage, or any cause, similar or dissimilar, not resulting solely from defective material and/or workmanship.

The warranty set forth herein shall NOT be effective unless:

1. Notice of defect is given to TESCO by phone, fax, email, or mail as soon as the defect is discovered.
2. Notice of defect contains the following information: PRODUCT serial number, PRODUCT model number, date of original installation, and an accurate and complete description of the defect including the exact circumstances leading to the defect.
3. The defective PRODUCT or part is returned only upon authorization from TESCO as evidenced by the issuing of a Return Merchandise Authorization (RMA) number, and that the transportation charges are prepaid (except that TESCO may, at its option, appoint a qualified DISTRIBUTOR to make field inspections of the PRODUCT for which purpose the purchaser shall permit such DISTRIBUTOR to enter upon its premises and examine the PRODUCT).
4. The Return Merchandise Authorization (RMA) number is written on the shipping label and all paperwork defective PRODUCT or part.
5. The defective PRODUCT or part is returned in the original packing or packing approved by TESCO

TESCO is not responsible for drayage charges, damages, or labor costs incurred in conjunction with failure, removal, or reinstallation of any PRODUCT, all of which shall be at the purchaser's expense. TESCO is not responsible for special, incidental, or consequential damages, whether resulting from breach of warranty, negligence, or any other reason.

TESCO manufactured parts will be available for a minimum period of at least two years after the manufacture of a PRODUCT has been discontinued.

TESCO will provide original purchaser during the warranty period, unlimited telephone consulting time for the purpose of PRODUCT trouble shooting/servicing and for the first thirty (30) days of the warranty period, unlimited telephone consulting time for the purpose of PRODUCT/software application.

THE WARRANTY CONTAINED HEREIN IS IN LIEU OF ALL OTHER WARRANTIES AND TESCO MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OR CONDITION, DESIGN, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ANY OTHER MATTER.

No other warranty, express or implied, is authorized by TESCO, and no DISTRIBUTOR of TESCO or any other person has any authority to amend, extend, modify, enlarge, or otherwise alter the foregoing warranty and disclaimers in any way whatsoever, except as provided for in an Extended Limited PRODUCT warranty agreement.

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1.0 INTRODUCTION

1.1 Introduction

The TESCO 326P Artificial Resistive Load is a lightweight, portable, and cost-effective artificial load designed for modern field testing, training, and equipment verification. Built with durable components and engineered to TESCO's long-standing quality standards, the 326P supports a wide range of input voltages and selectable load taps for both full load and light load conditions.

Weighing only 16.8 lbs and housed in a compact, rugged case, the 326P is ideal for technicians who require a reliable resistive load solution that is easy to transport an intuitive to operate.

This Instrument is designed for stable, repeatable operation in a variety of field environments.

1.2 Contacting TESCO

For Technical Support or Calibration/Repair, please call 215.228.0500.

You can also send an email to **support@tescometering.com** with any questions.

To view, print, or download the latest manual supplement, visit **tescometering.com**.

1.3 General Safety Summary

This manual contains information and warnings that must be observed to ensure safe operation and keep the Instrument in a safe condition. Operation or service in conditions or in a manner other than specified could compromise safety. For the correct and safe use of this device, it is essential that both operating and service personnel follow accepted safety procedures in addition to the safety precautions specified.

In this manual, a **WARNING** identifies conditions and actions that pose hazard(s) to the user, while a **CAUTION** identifies conditions and actions that may damage the Instrument or the test equipment.

WARNING 

To avoid electrical shock, personal injury, or fire hazard:

- **The device must not be switched ON if it is damaged or suspected to be faulty.**
- **Do not operate the device in wet, condensing, dusty, or explosive gas conditions.**
- **If the equipment is used in a manner not specified in this manual, the protection provided by the Instrument may be impaired.**
- **Whenever it is likely that safety protection has been impaired, the device must be made inoperative and be secured against any unintended operation. Inform qualified maintenance or repair personnel.**

- **Safety protection is likely to be impaired if, for example, the Instrument displays visible damage or fails to operate normally.**
- **Use of any fuse other than specified may cause damage.**
- **Defeating any safety devices may result in electric shock and potential death.**

1.4 Description of Safety-related Icons

ICONS	DESCRIPTION
	Risk of danger. Important information. See manual.
	Hazardous voltage. Risk of electrical shock.

1.5 Grounding

WARNING 

To avoid electrical shock or personal injury, do not intentionally or unintentionally interrupt the protective ground conductor inside or outside the Instrument. Interrupting the protective ground conductor is likely to make the Instrument dangerous. Intentional interruption is prohibited.

1.6 Product Features

The 326P provides a stable resistive load with selectable taps for both light load and full load operation. Its lightweight construction, reinforced mounting, and clearly labeled terminals make it ideal for routine field testing.

1.6.1 Key Features

- Lightweight 16.8 lb portable design
- Supports 69V (optional), 120V, 240V, 277V, and 480V input applications
- Selectable light load taps: 0.25A, 0.5A, 1.5A, 3A. 5A
- Compact case with reinforced internal supports
- Efficient ventilation and cooling system
- Panel-mounted fuse for protection
- Designed for rugged daily field use

1.6.2 Standard Features

- Multi-tap full and light load resistor network
- High-stability resistors for repeatable load performance
- Clearly labeled terminal panel for voltage and load selection
- Carrying case designed for transport and field durability
- Optional external ammeter capability
- Ventilation filter and cooling opening

1.7 General Specifications

The following specification apply to the 326P artificial resistive load. These values reflect the certified product information and verified internal assembly details.

1.7.1 Input Characteristics

PARAMETERS	DATA
Supported Voltages	69 V, 120 V, 240 V, 277 V, 480 V (69 V optional)
Load Type	Artificial resistive load
Current Range	Amperes (external ammeter optional)

1.7.2 Dimensions

PARAMETERS	DATA
Width	11” (27.94 cm)
Depth	7” (17.78 cm)
Height	10” (25.40 cm)
Weight	16.8 lbs (7.62 kg)

1.7.3 Load Taps

PARAMETERS	DATA
Full Load Taps	2.5A, 5A, 15A, 30A, 50A
Light Load Taps	0.25A, 0.5A, 1.5A, 3A, 5A

1.8 About this Operations Manual

This manual provides instructions for installation, safe operation, maintenance, and troubleshooting of the 326P Artificial Resistive Loaf. It is intended for qualified personnel familiar with field electrical equipment.

2.0 INSTALLATION

2.1 Introduction

This section outlines the proper unpacking, placement, and preparation of the 326P for use. Read all steps before energizing the Instrument.

2.2 Unpacking and Inspection

- Remove the Instrument from its container.
- Inspect for damage to the case, terminals, and ventilation areas.
- Ensure the load taps and voltage terminals match the ordered configuration.
- Report any damage before operation.

Figure 2.2.1 326P Load Box Pelican Case

2.3 Setup and Placement

Place the unit on a stable, level surface with unobstructed access to:

- Voltage terminals
- Load tap terminals
- Fuse holder
- Ventilation openings

Avoid heat sources, moisture, and dust.

2.4 Airflow and Cooling

To maintain safe operating temperature:

- Keep ventilation openings clear.
- Do not block the sides or bottom of the case.
- Ensure adequate airflow during extended load operation.

Figure 2.4.1 Cooling fan on the side of the unit.

2.5 Voltage Input Connections

Supported input voltages: 69V (optional), 120V, 240V, 277V, 480V.

Only trained personnel should connect voltage.

Before connecting:

- Verify the voltage source matches a supported input.
- Use cables rated for the voltage and load.
- Ensure the Instrument is stable and de-energized.

Connect voltage per standard safety procedures.

Figure 2.5.1 Voltage Input Connections on the unit.

3.0 FUNCTIONALITY

3.1 Introduction

This section explains how to operate the 326P Artificial Resistive Load. Only qualified personnel should perform these procedures. Before applying voltage or load, ensure that all safety information in this manual has been reviewed and understood.

The 326P is designed to provide a stable resistive load when connected to approved voltage sources. The Instrument supports multiple voltage inputs and delivers a consistent 50-amp full load when engaged.

3.2 Front Panel Overview

The front panel includes:

1. Voltage input terminals
2. Load tap terminals
3. Load application switch
4. Panel fuse
5. Indicator light
6. Wire holders for routing leads

Figure 3.2.1 326P Front Panel

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3.3 Connecting Voltage

Before connecting:

- Verify voltage level
- Confirm cable ratings
- Check grounding
- Ensure clear access to terminals

Connect voltage to the appropriate terminal markings.

3.4 Applying the Load

The 326P provides multiple selectable load taps for both full and light load operation.

To apply load:

1. Confirm voltage is applied at the input terminals.
2. Select the desired load tap (light or full load).
3. Ensure connections are secure.
4. Flip the load switch to ON.

The selected tap will draw the corresponding current under the applied voltage.

To remove load, set the switch to OFF.

3.5 Understanding Load Operation

During load operation:

- Heat will be generated in the resistor network.
- Airflow must remain unobstructed.
- The case may warm during extended use.

If abnormal heat, noise, or smell occurs, disconnect voltage immediately.

4.0 MAINTENANCE

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4.1 Introduction

This section provides recommended maintenance procedures for the 326P to ensure long-term reliability and safe operation.

Regular inspection is important, especially for units used frequently in field environments where dust, temperature fluctuations, and mechanical handling may affect performance.

WARNING:

Always disconnect all voltage from the Instrument before performing any service or inspection. Allow the unit to cool fully before touching internal or external components, as the resistor network and terminals may be hot after load operation.

Proper maintenance helps:

- Ensure accurate load performance
- Prevent overheating
- Extend the life of internal components
- Maintain safe operation in field conditions

Only qualified service personnel should perform maintenance involving electrical components.

4.2 Fuse Replacement

The 326P includes a panel-mounted fuse that protects the load network and internal wiring from overcurrent conditions.

A fuse replacement may be necessary if:

- The indicator light does not illuminate when voltage is applied
- The load does not engage despite voltage being present
- The unit experienced a voltage spike or incorrect connection

To replace the fuse:

1. Disconnect all voltage
2. Allow the unit to cool
3. Remove the fuse holder cap on the front panel
4. Replace the fuse with the same rating and type
5. Secure the cap and verify proper operation

If a new fuse fails immediately, inspect voltage connections and wiring before continuing use.

Figure 4.2.1 Panel Mounted Fuse

4.3 Cleaning the Unit

Routine cleaning helps maintain airflow and prevent overheating.

- Wipe the case with a dry or lightly damp cloth
- Do not use solvents or abrasive cleaners
- Keep moisture away from ventilation openings, terminals, and switches

Cleaning frequency should increase in dusty or outdoor environments.

4.4 Fan/Airflow Care

The 326P cools through passive ventilation.

To maintain proper airflow:

- Keep all ventilation openings clear.
- Ensure cables, tools, or bags do not block the sides or bottom of the case.
- Remove dust or debris from ventilation areas as needed

Do not operate the unit if airflow is restricted

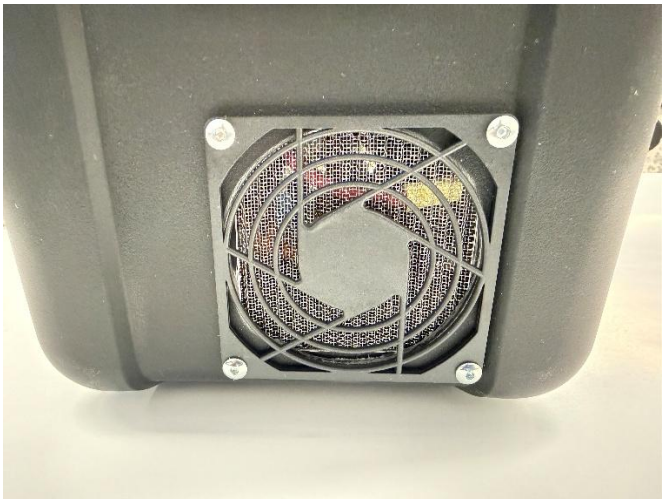

Figure 4.4.1 Cooling Fan for the 326P

4.5 Terminal Inspection

Inspect the voltage terminals and load wire holders regularly

- Confirm that all terminals are free of damage or corrosion
- Tighten any loose hardware
- Inspect wiring for discoloration or wear
- Ensure all terminal labels remain clear and readable

Proper terminal condition ensures stable operation and prevents unsafe conditions.

5.0 FREQUENTLY ASKED QUESTIONS

5.1 Introduction

This section addresses common questions regarding the operation, load behavior, and compatibility of the 326P Artificial Resistive Load. For additional support, see section 1.2 Contacting TESCO.

5.2 Electrical and Load Questions

What voltages does the 326P support?

The 326P supports 69 V (optional), 120 V, 240 V, 277 V, and 480 V input levels. Custom voltages are available.

What load currents are available?

The unit provides selectable full load taps at 2.5 A, 5 A, 15 A, 30 A, and 50 A. Light load taps include 0.25 A, 0.5 A, 1.5 A, 3 A, and 5 A.

Do I need a 69 V tap?

No. 69 V is optional and not required for general operation.

Can I measure current with an external ammeter?

Yes. You may use an external ammeter if you want to monitor the load current.

5.3 Operation and Usage

How do I know the load is active?

The load becomes active when voltage is applied to the selected terminals, and the load switch is in the ON position.

Does the 326P require warm-up time?

No. The load is available immediately when engaged.

Can the 326P be used for extended operation?

Yes. Ensure ventilation openings are unobstructed and monitor the unit for abnormal heat or smell.

Is the 326P suitable for training and demonstrations?

Yes. Its multiple tap options and stability make it a good tool for instructional scenarios.

5.4 Accessories and Compatibility

The following accessories are available for the 326P:

- Make-to-Order Cable Sets
- Click Switch (CAT No. 995A)
- Field Bag (CAT No. 1048)
- Test Plug (CAT No. 1077)
- Test Switch Protectors (6441 & 6441-C)
- Test Switch Isolator (1076)
- Load-to-Line Jumpers (CAT No. 200)

All accessories are compatible with the 326P and commonly used with field setups.

6.0 TROUBLESHOOTING

6.1 Troubleshooting

6.1 Troubleshooting

The following table outlines common issues and recommended actions. Only qualified personnel should perform troubleshooting involving electrical components

No indicator light:

- Check the panel-mounted fuse.
- Confirm voltage is present at the input terminals.
- Inspect cables for damage or loose connections.

Load not activating

- Ensure the load switch is in the ON position.
- Verify the selected load tap is connected properly.
- Make sure the input voltage matches one of the supported levels.
- Inspect terminals for looseness or corrosion.

Unit overheating or unusually hot case:

- Ensure ventilation openings are not blocked.
- Allow cooling before resuming use.
- Inspect connections for signs of heat discoloration.

Unusual smell, sound, or visible smoke:

- Immediately disconnect voltage.
- Allow the unit to cool.
- Do not resume operation until the cause is identified and corrected.

Incorrect load current:

- Verify the correct load tap is selected.
- Confirm stable input voltage.
- Use an external ammeter to validate measurements if needed.