NEPTUNE TECHNOLOGY GROUP

ARB® UTILITY MANAGEMENT SYSTEMS™ WATER | GAS | ELECTRIC

HP PROTECTUS® III
Installation and Maintenance Guide

NEPTUNE
TECHNOLOGY GROUP

ARB® UTILITY MANAGEMENT SYSTEMS™ WATER | GAS | ELECTRIC

HP PROTECTUS® III
Installation and Maintenance Guide

Trademarks Used in this Manual

Neptune Technology Group Inc.
1600 Alabama Highway 229
Tallassee, AL 36078
USA
Tel: (800) 645-1892
Fax: (334) 283-7299

Neptune Technology Group (Canada) Ltd.
7275 West Credit Avenue
Mississauga, Ontario
L5N 5M9
Canada
Tel: (905) 858-4211
Fax: (905) 858-0428

Neptune Technology Group Inc.
Ejército Nacional No. 418
Piso 12, Desp. 1201-1202
Col. Chapultepec Morales
Delegación Miguel Hidalgo
11570 México, Distrito Federal
Tel: (525) 55203 5294 / (525) 55203 5708
Fax: (525) 55203 6503

HP PROTECTUS INSTALLATION AND MAINTENANCE GUIDE
Literature No. IM PROTIII 08.09

NOTES

CHAPTER 1 OVERVIEW

The High Performance PROTECTUS® III is designed to measure both domestic and fire service water usage. This unit is intended for installation where one water line serves both domestic and fire services. In order to achieve maximum performance in actual service, it is essential that these installation and maintenance instructions be followed.

CONTACTING TECHNICAL SUPPORT

If you encounter any problems with the installation or operation of your HP PROTECTUS III, please call Neptune at (334) 283-6555 and ask to speak with an Applications Engineer.

NOTES

CHAPTER 2 INSTALLING HP PROTECTUS III

This chapter is designed to take you through the installation process for the HP PROTECTUS III.

INSTALLATION INSTRUCTIONS

The HP PROTECTUS III will operate more accurately and reliably if installed and maintained properly. HP PROTECTUS III meter performance is directly related to the flow conditions of the water entering the turbine portion of the meter. The entering flow is properly conditioned by a strainer installed immediately upstream of the turbine portion of the meter.

The HP PROTECTUS III Meter Assembly includes the required UL Listed and FM Approved basket-type strainer in front of the fire service turbine and bypass. The strainer, in addition to protecting the meter from debris in the line, also corrects the velocity profile of the flow to the turbine meter and virtually eliminates the effects of upstream piping variations. Proper service and cleaning of the strainer is important for long term reliability and performance of the turbine measuring element.

When installing Neptune meters with a strainer, a minimum of four (4) pipe diameters of straight run pipe (can include components that are fully open in their normal operating position) is required upstream and downstream of the meter/strainer assembly.

If a Neptune meter is installed without a strainer, a minimum of eight (8) to ten (10) pipe diameters of straight run pipe (can include components that are fully open in their normal operating position) is required upstream of the meter inlet and four (4) diameters downstream.

RECOMMENDED INSTALLATION

The HP PROTECTUS III Meter Assembly should be lowered into the meter vault and positioned in the setting via chains or straps through the lifting hooks on the top of both the strainer and DC valve. No attempt should be made to lift the assembly by a single center strap around the meter body, or by either end alone. The recommended installation of the HP PROTECTUS III is in a horizontal position with its arrow pointing in the direction of the water flow. The bypass meter may be installed on either side of mainline meter. Prior to installation, inspect the valve clapper on the detector and check for freedom of movement. A full size bypass around the assembly is recommended as it provides uninterrupted service capability during meter servicing periods.

RECOMMENDED INSTALLATION (CONTINUED)

As indicated previously, the required UL Listed and FM Approved strainer provides protection against meter damage from rocks and debris in the lines and virtually eliminates the effects of variations in upstream piping.

A test port is provided on the top of the detector check valve section to allow a means to field test the meter without removing it from the line. An optional method of testing the meter is available with the use of a bypass plug located on the side of the detector check valve. Access to this plug may be limited depending on which side of the detector check valve you trim the bypass and the bypass plug's proximity to the vault wall.

When installing an HP PROTECTUS III Meter Assembly, normal good piping practice should always be followed. In particular, all gaskets should be centrally located on their flanges with no overlap or interference with the pipe diameter.

The HP PROTECTUS III Meter Assembly must operate in a completely filled line at all times. The downstream piping must always provide sufficient back pressure to maintain a full line at the meter.

BEFORE OPERATION

Before putting the HP PROTECTUS III Meter Assembly into service, follow these steps:

1. Close all valves (mainline and bypass).

2. Turn air bleed screw on detector check valve and strainer cover counter-clockwise one to two turns.

3. Slowly open mainline inlet side gate valve to pressurize meter.

4. Close air bleed screws (clockwise) when air is completely vented and no "spitting" occurs.

5. Slowly open outlet side gate valve until downstream line is pressurized.

6. Slowly open upstream ball valve on bypass to pressurize bypass meter.

7. Slowly open downstream ball valve on bypass.

After installation, it is important that the upstream (inlet) valve be put in the "full open" position during service. All throttling should be done only on the downstream (outlet) side of the meter.

CHAPTER 3 MAINTENANCE

If you find that your HP PROTECTUS III is not operating as expected when installed, use the following guidelines to try to determine the source of the problem.

MAINTENANCE INSTRUCTIONS

HP TURBINE METERS

When maintenance is necessary, the complete unitized measuring element (UME) may be quickly and easily interchanged with a factory-calibrated unit by following these steps:

1 Close all valves (mainline and bypass).

2 Remove cover bolts.

3 Remove cover and turbine measuring element from maincase.

4 Remove old maincase gasket and replace with a new gasket.

5 Install factory-calibrated UME into maincase.

6 Replace cover bolts.

7 Tighten cover bolts.

8 Follow steps 2 through 7 from "Before Operation" section above.

All UMEs have been factory calibrated and should not require field calibration.

The complete UME should be tagged and returned for service to the nearest Neptune Factory. If the customer does not have a spare unit, a factory-calibrated UME may be purchased directly from Neptune or one of its authorized distributors. Neptune encourages all customers to purchase either a spare UME or a blank cover to enable them to avoid service interruptions.

ADJUSTING THE CALIBRATION VANE

Neptune equips all new turbine meters and UMEs with a calibration vane. Should field calibration of the turbine element be required, the following steps should be followed:

1 Remove seal pin from register and twist off register.

2 Loosen lock nut on adjusting stem by turning counter clockwise.

3 Insert slotted screwdriver into slot in top of adjusting stem, and (a) turn clockwise to decrease registration, or (b) turn counter-clockwise to increase registration.

Turning the adjustment stem 15º in either direction results in approximately one percent change in registration. The full range of the calibration vane is 180°.

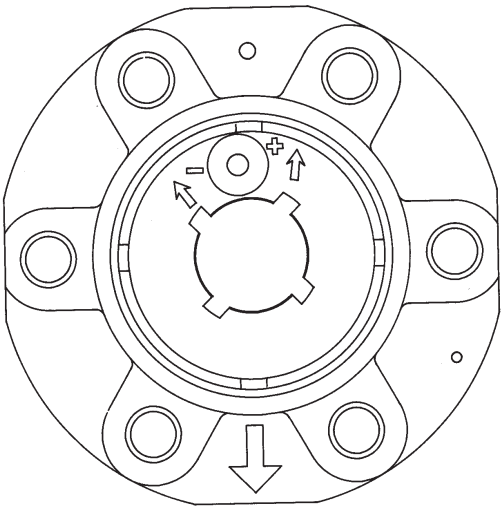

Figure 3.1 Calibration Vane

T-10 DISC METERS

Clean line before installation. Do not distort meter during installation on pipe. If thread compound is used, do not allow inside meter itself. When desired, owner maintenance is easily accomplished by replacing major components.

DETECTOR CHECK VALVES

Detector Check Valves are water lubricated and virtually maintenance free. Should the valve give indications of improper operation, including (a) leakage back to the service side of the system, or (b) valve not open fully on large volume demand, then:

1 Remove valve top cover.

2 Inspect parts for freedom of movement.

3 Inspect valve for obstructions.

4 Move clapper manually to ensure freedom of movement.

5 Replace valve top cover.

6 If further servicing is necessary, contact Neptune Customer Support.

STRAINER

For maximum efficiency, determine length of time it takes for baskets to become approximately one-third clogged. Remove top cover and clean basket. Replace basket in strainer in original position and tighten cover. Replace gasket if necessary. Spare gaskets will facilitate shorter "shut-down time." Pressure gauge installed before and after strainer in line will indicate pressure loss due to clogging and may be used as a guide to determine when cleaning is required. Strainer is equipped with a flushing port and open-bottom basket for removal of sediment. In addition, strainer may be equipped with a "blow-down valve" to facilitate easier cleaning.

NOTES

Neptune Technology Group Inc.
1600 Alabama Highway 229
Tallassee, AL 36078
USA
Tel: (800) 645-1892
Fax: (334) 283-7299

Neptune Technology Group (Canada) Ltd.
7275 West Credit Avenue
Mississauga, Ontario
L5N 5M9
Canada
Tel: (905) 858-4211
Fax: (905) 858-0428

Neptune Technology Group Inc.
Ejército Nacional No. 418
Piso 12, Desp. 1201-1202
Col. Chapultepec Morales
Delegación Miguel Hidalgo
11570 México, Distrito Federal
Tel: (525) 55203 5294 / (525) 55203 5708
Fax: (525) 55203 6503

NEPTUNE
TECHNOLOGY GROUP
TAKE CONTROL

neptunetg.com