

fact that the electronics vary due to component tolerances. The component tolerances may be much greater than the necessary precision of the meter verification results.

Aspects of the Invention

In one aspect of the invention, a field service device for facilitating a processing system replacement in a vibratory flowmeter comprises:

a field service device processor configured to interface with one or more vibratory flowmeter processing systems; and

a storage system coupled to the field service device processor and configured to store pre-replacement operationally-derived values, post-replacement operationally-derived values, and one or more scaling factors;

with the field service device processor being configured to obtain pre-replacement operationally-derived values of the vibratory flowmeter, obtain post-replacement operationally-derived values from the vibratory flowmeter after an old processing system has been replaced with a replacement processing system, generate the one or more scaling factors as a ratio of one or more pre-replacement operationally-derived values to one or more post-replacement operationally-derived values, and download the one or more scaling factors into one or more of the replacement processing system or a monitoring computer, wherein the one or more scaling factors can be used to process operationally-derived values.

Preferably, further comprising retaining the one or more scaling factors in the storage system of the field service device.

Preferably, the storage system further stores a data upload routine for uploading the pre-replacement operationally-derived values from the old processing system, a scaling factor routine for generating the one or more scaling factors, and a data download routine for downloading the one or more scaling factors into the replacement processing system.

Preferably, obtaining the pre-replacement operationally-derived values comprises obtaining the pre-replacement operationally-derived values from the old processing system.

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There is a need for a field service device for facilitating a processing system replacement in a vibratory flowmeter. International Patent Publication No.:

- 5 WO 2004/034037 discloses an input and output apparatus that is suitable to store data, for adjusting a first electronic device in order to transfer those data to at least a second electronic device after the input and output apparatus has been mounted on the second electronic device. However, this device fails to meet the particular needs of flowmeter-related systems. Similarly, patent publication no. EP 1108992 similarly discloses a data
- 10 transfer device, but it is designed for explosion proof applications, and fails to address the needs of flowmeter applications. Similarly, application no. US 2006/0123915 discloses a device for combination vacuum gages wherein correction factors unique to each individual sensor of a combination vacuum gauge are determined at the factory and provided to a particular vacuum gage through a memory module that can be plugged
- 15 into the controller electronics. Again, such a device describes the generalities of the art, but fails to work for flowmeter-related applications.

Aspects of the Invention

In one aspect of the invention, a field service device for facilitating a processing system replacement in a vibratory flowmeter comprises:

- 20 a field service device processor configured to interface with one or more vibratory flowmeter processing systems; and
- a storage system coupled to the field service device processor and configured to store pre-replacement operationally-derived values, post-replacement operationally-derived values, and one or more scaling factors;
- 25 with the field service device processor being configured to obtain pre-replacement operationally-derived values of the vibratory flowmeter, obtain post-replacement operationally-derived values from the vibratory flowmeter after an old processing system has been replaced with a replacement processing system, generate the one or more scaling factors
- 30 as a ratio of one or more pre-replacement operationally-derived values to one or more post-replacement operationally-derived values, and download

the one or more scaling factors into one or more of the replacement processing system or a monitoring computer, wherein the one or more scaling factors can be used to process operationally-derived values.

5 Preferably, further comprising retaining the one or more scaling factors in the storage system of the field service device.

10 Preferably, the storage system further stores a data upload routine for uploading the pre-replacement operationally-derived values from the old processing system, a scaling factor routine for generating the one or more scaling factors, and a data download routine for downloading the one or more scaling factors into the replacement processing system.

Preferably, obtaining the pre-replacement operationally-derived values comprises obtaining the pre-replacement operationally-derived values from the old processing system.