Practicon
PRODUCTS

Other Versions

- *Trade Approved Weight Indication*

- *Ten-Product Memory*

- *Big Bag Emptying*

- *RS485 Serial Link*

See back page for more details.

Features

- Ideal for Jar, Carton, Sack and Bulk Container Filling

- Load Cell Weighing accurate to 16,000 divisions (65,000 divisions internal resolution)

- Weighing-in, Weighing-out, & Through-put modes

- Two Speed Feed Control plus either Discharge if Weighing-in or Top-up if Weighing-out

- Automatic In-Flight compensation

- Pushbutton Calibration

- Printer or PC/PLC serial communications output

Description

The PR444S connects with a single set of 1 to 4 strain gauge load cells. It supplies 10V DC excitation and amplifies and conditions the resultant return signal. From this signal and from stored control and calibration data it accurately controls the repetitive weighing-in or weighing-out of target quantities of material. Access to the control and calibration data is pass-number protected.

The PR444S can be started, stopped and when necessary reset, by using the three digital inputs either under automatic control from other equipment or from external pushbuttons.

Digital inputs can operate from 110V - 240V AC nominal control supplies , or 18 - 30V DC in the case of the DC powered version PR444S-D.

Digital Outputs are volt - free relay contacts with one common connection and can switch up to 240V AC or 30V DC loads.

The RS232 Serial link can be configured to produce formatted batch reports on a 24 column (minimum) printer or for two way communication with a computer or PLC.

Technical Data

Model No:
PR444S   AC Powered.
Add suffix 'D' for DC powered option.

Power Supply:
Universal fused power supply 85-264V AC or 18-30V DC. Internal Mains Fuse fitted. Power consumption 10VA.

Load Cell Excitation:
10V DC @ 125mA max, 1 to 4 x 350 ohm load cells may be connected in parallel, 4 or 6 wire for volt drop compensation in long cables.

Load Cell Input Range:
0-20mv min,0-2.5v max.
Filter adjustable 0.2 to 20Hz

Accuracy:
Up to 16,000 +/- 0.5 divisions.
16 bit 1:65,000 internal resolution.

Display:
14mm high character green LED.
Selectable update rate and minimum increment.

Digital Inputs:
110-240V AC @ 10-25mA 50/60Hz, or 18-30V DC in the case of the DC powered version PR444S-D.

Relay Outputs:
Max. 240V AC or 30V DC 5A rated contacts.

Serial Interface:
RS232 Full Duplex

Enclosure:
Panel mounting DIN case, IP65 sealed front.
144mm wide x 96mm high x 132mm deep.
Panel cut-out 138mm wide x 92mm high

Environment:
Operate 0-50°C, 20-80% RH non-condensing.
Storage -40 to 80°C

Operation

Three modes of operation are available:
Weighing-in, Weighing-Out, and Throughput.

Weighing-in Mode

Fully automatic weighing control of a single ingredient with provision for two speed feeding, jogging and discharge.

Weighing-in Cycle

| STEPS	ACTION
READY	Display NET/GROSS Weight
ZERO CHECK	Checks Gross Weight with +/- Zero margin.
FAST FEED	Fast and Slow Outputs on until Net Weight above Fast Feed Cut-Off margin.
SLOW FEED	Slow output on until Net Weight within the IFC margin (Inflight Compensation)
SETTLE	Wait until weight settled then adjust IFC for subsequent weighments.
JOG	If final weight below the target less the Underweight Margin, slow output comes on again for the Jog Time. Jogging continues until weight is correct or max Jog Quantity reached.
WEIGH COMPLETE	Final Net weight is registered, the Batch No. is incremented, the Total is updated and Discharge output is set on.
DISCHARGE	Discharge output remains on until Gross weight falls below the Max. Zero margin for the specific Discharge Time.

Weighing-out Mode

Fully automatic control of the loss in weight of material within a vessel with provision for automatic top-up. The Top-Up control is interleaved with weighing control so that a weigh cycle will be inhibited until the gross weight is above the Max. Zero + Target.

Weighing-out Cycle

STEPS	ACTION
READY	Display GROSS Weight
TOP-UP	Whenever between weigh cycles if the Gross Weight is less than the Top-Up level - Lower Deadband level, then Top-Up output is set on.
FAST FEED	Fast and Slow Outputs on until Net Weight above Fast Feed Cut-Off margin.
SLOW FEED	Slow output on until Net Weight within the IFC margin (Inflight Compensation)
SETTLE	Wait until weight settled then adjust IFC for subsequent weighments.
JOG	If final weight below the target less the Underweight Margin, slow output comes on again for the Jog Time. Jogging continues until weight is correct or max Jog Quantity reached.
WEIGH COMPLETE	Final Net weight is registered, the Batch No. is incremented, and the Total is updated.

Weighing-In Application
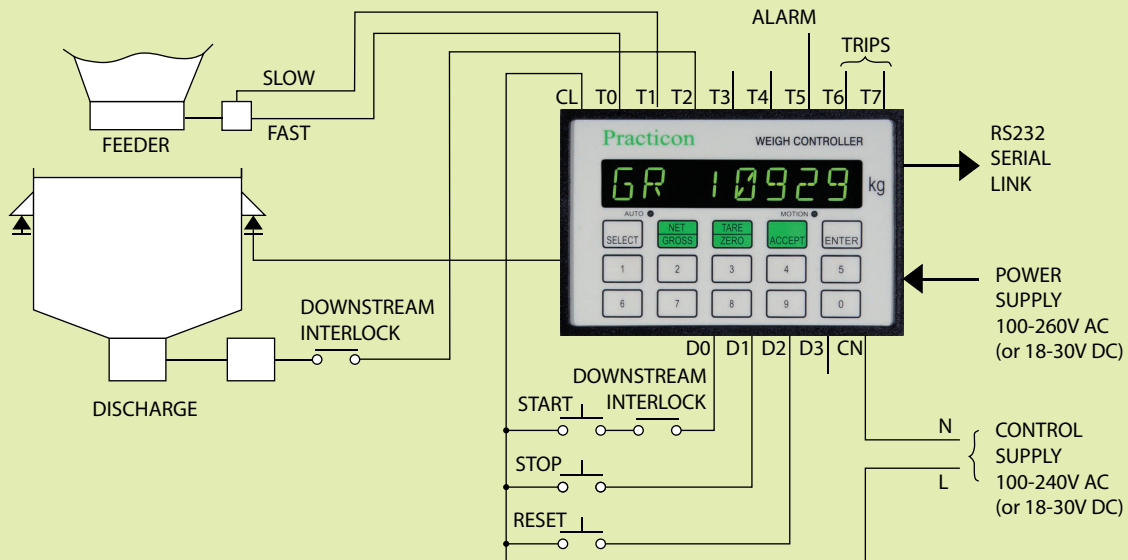
Weighing-Out Application
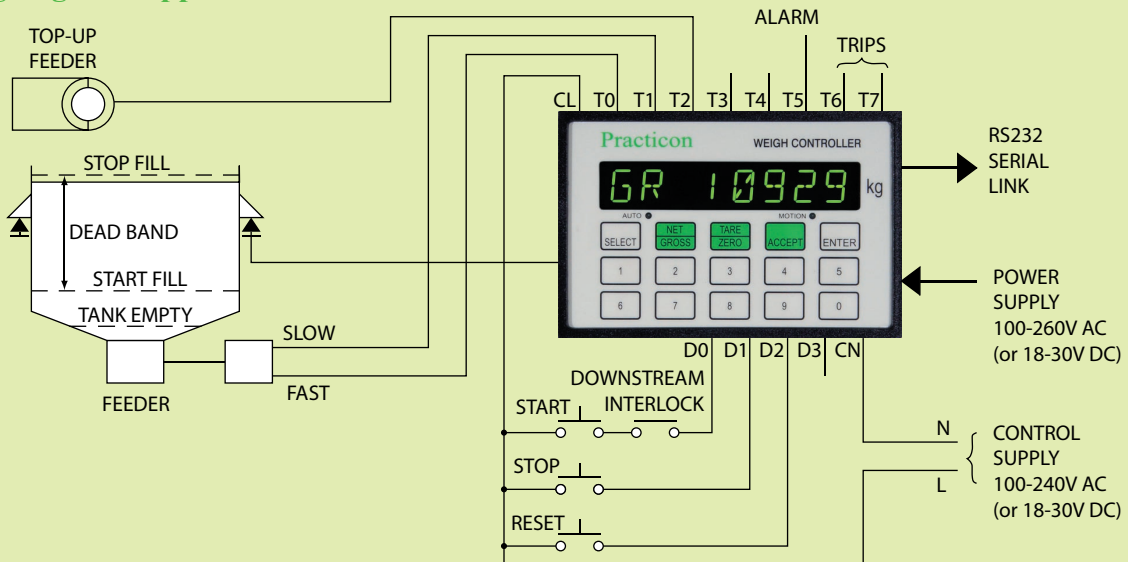
Through-put Mode

This is similar to the Weighing-In mode except that a final discharge cycle is started, if not already discharging, when the Digital Input D0 goes off. This caters for registering the last part of a run of material where otherwise the weigh hopper would remain partly full.

Also, the Actual, Batch No., Through-put rate and Total values are not updated until the discharge is complete and then the Actual is taken as the Gross Weight before discharge minus the gross weight after discharge; thereby registering the amount actually discharged through the weigher should small amounts adhere to the weigher.

In addition, the Through-put rate (Tonnes/Hour) is available for display and access via the serial link.

Through-put Cycle

STEPS	ACTION
READY	Display NET/GROSS Weight
ZERO CHECK	Checks Gross Weight with +/- Zero margin.
FEED	Slow output on until Net Weight within the IFC margin (Inflight Compensation)
SETTLE	Wait until weight settled then adjust IFC for subsequent weighments.
WEIGH COMPLETE	Final Gross weight is registered and discharge output is set on.
DISCHARGE	Discharge output remains on until Gross weight falls below the Max. Zero margin for the specific Discharge Time.
SETTLE	Gross weight prior to discharge minus the Gross after discharge is registered as the Actual which is then added to the Total, Batch No. is incremented, and the Through-put Rate (Tonnes/Hour) is updated. The weigh cycle restarts unless the Run input D0 is off.

Calibration

The weigher may be calibrated using a single test weight; often of considerably lower weight than the weigher capacity.

The data parameters and procedures are:

ZR ZERO. Operate ENTER then ZERO and ENTER again to zero the weigher.

CA CALIBRATION. Load known test weight, operate ENTER to obtain data entry mode, use the Digit keys to enter test weight value and press ENTER again to complete the calibration.

CC CALIBRATION COUNTER. Indicates the number of calibrations completed to date.

Trip Outputs

Two trip output relays T6 & T7 are provided. These have seperate level, deadband and sense settings.

Serial Link

The serial interface may be configured to operate in one of two modes:

Printed Reports Mode

The RS232 serial output transmitts batch reports to a printer or computer, one line per batch, with usage total and new header whenever the recipe is reselected.
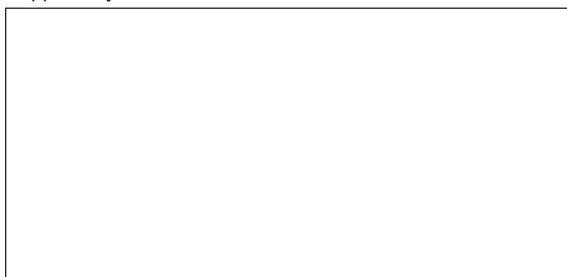
A typical batch report is shown below.


```
TARGET =     25.00
BATCH        ACTUAL      TOTAL
001          24.89       24.89
002          24.96       49.85
003          25.04       74.89
004          25.01       99.90
005          24.97       124.87
006          25.00       149.87
```

Remote Communications Mode

This setting allows a host to read Gross, Target, and Actual weights, including Batch Number, Status etc, and to write the Target; all using a simple ASCII character protocol.

Supplied by:

Other Versions

Similar applications are catered for using variants of the PR444, a selection of which is detailed in the table below.

Trade Approved Version
Model PR440 is approved in accordance with the Non-automatic Weighing Instruments Directive.
EC Type-Approval Number: UK2681 Class III - 6000 divisions
Providing that the final weight is accepted manually, a trade approved system with automatically controlled weighing can be achieved using the PR440 .

Ten-Product Memory Version
Caters for up to ten sets of target weight, inflight constant, fast cut-off, and batch counts. This allows for rapid switching between products while retaining the optimum control characteristics for each.

Big Bag Batch Emptying Version
This version of the control software is dedicated to IBC batch emptying. A pause and resume feature allows for bag replacement mid-way through a batch.

RS485 Multi-drop Serial Interface
A version is available which caters for both RS232 and RS485 serial communications.

Specials

Special versions of the control software to suit your specific application are available, each supplied with full user handbook. Please contact Practicon for more details.

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