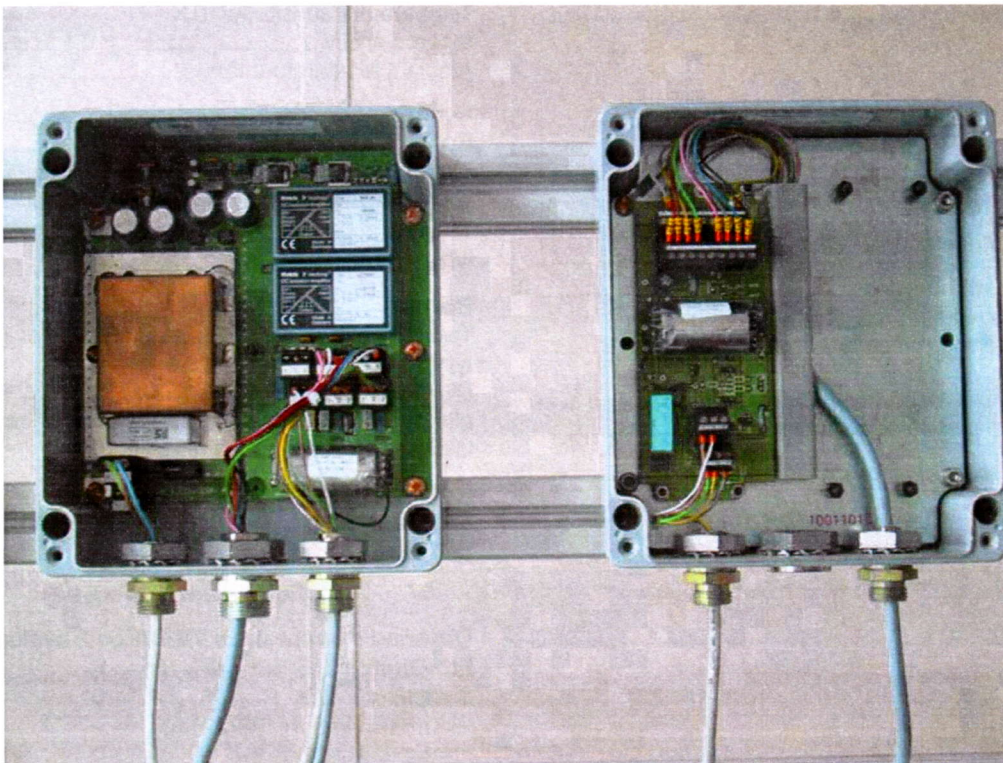


VV-B/ECO 2

Dual-channel strain gauge (SG) voltage supply/measuring amplifier system in two field boxes. Direct dual-channel or sum and / or differential signal output.



Purpose

Feeding and balancing of SG transducer pairs close to measuring points; signal amplification and processing.

Application

Continuous strip and web tension measuring systems located on deflector rolls in process lines; also for other force and weight measuring applications, if requested.

Design

The electronic measuring components are housed in two encapsulated field boxes, of protection class IP 65. One box accommodates the one-channel voltage supply/measuring pre-amplifier VV-B, the other the one-channel voltage supply/measuring pre- and post-amplifier VV-B/Eco. The latter is designed to process the pre-amplified signal coming from the VV-B.

Moreover, the VV-BEco box houses the power pack for both electronic units, the final amplifiers and, depending on the respective configuration, a summation and/or differential

stage as well as one or two output isolation amplifiers. On the drive side (A) and on the operator side (B) the boxes are arranged in the immediate vicinity of the transducers. The cable connection is effected via terminals. On the input and output side combined cable gland and flexible tubing connections of G 1/2" resp. G 3/4" male thread are provided.

Functioning

The SG bridge supply voltage is derived from the primary voltage. The bridge measuring voltage is amplified and output in a scaled and normalized fashion either individually (side A or B), as sum and/or difference of A and B.

Advantages

Loadfree testing of the entire signal path and measuring point specific calibration by means of a built-in calibration standard. Excellent immunity to noise and long-term stability even when operated under arduous conditions. The maximum cable length between amplifier output and process bus node is 500 m.

Electrical Data

Supply voltage Equipment ID Digit..... I

115 VAC, 50...60 Hz, 100 VA Selection... 1

or

230 VAC, 50...60 Hz, 100 VA 2

Rated input sensitivity..... II

0,25 mV/V..... 1

or

0,5 mV/V..... 2

or

1,0 mV/V..... 3

or

2,0 mV/V..... 4

SG bridge resistance min. 80 Ohm.

Max. bridge supply voltage 35 V.

Calibration as per..... III

Drawing of strip run geometry to output a

„strip tension“ measured variable..... 1

or

rated input sensitivity to output a

„force “ measured variable..... 2

Isolated analog outputs of..... IV

A side and B side

each 0...20 mA..... 1

or

each 4...20 mA..... 2

or

each 0...10 V..... 3

or

1 x sum signal

0...20 mA..... 4

or

4...20 mA..... 5

or

0...10 V..... 6

or

1 x sum signal, 1 x differential signal

0...20 mA 10 mA +/- 10 mA..... 7

or

4...20 mA 12 mA +/- 8 mA..... 8

or

0...10 V 5 V +/- 5 V..... 9

Burden on voltage output..... > 500 Ohm

Burden on current output..... < 500 Ohm.

Non-linearity..... < 0.02 % of nom. value

In-phase suppression at V = 1000..... > 110 db

Cutoff frequency (3 db) at V = 1000..... > 3 kHz

Temperature sensitivity/10 K

for zero and V..... < 0.1 % of nom. value

Ambient temperature range..... 0...55°C

Ordering scope..... V

System (in boxes 1&2, with 10 m cable)..... 0

VV-B only (e.g. for replacements)..... 1

VV-BEco only (e.g. for replacements)..... 2

Mechanical Data

Boxes

Two encapsulated cast aluminum boxes of IP 65 type of enclosure.

Dimensions WxHxD = 230x200x110 mm. Cable glands with additional male thread G 1/2" resp. G 3/4" for flexible tubing union nut.

Note:

System orders to be placed are based on a so-called

Equipment ID (EID)

Ordering example of a VV-B/Eco 2 system:

EID Digit I - II - III - IV - V

Selection 2 - 2 - 1 - 4 - 0

⇒ Order number: 173/22140

Where:

I / 2 = Mains voltage 230 VAC

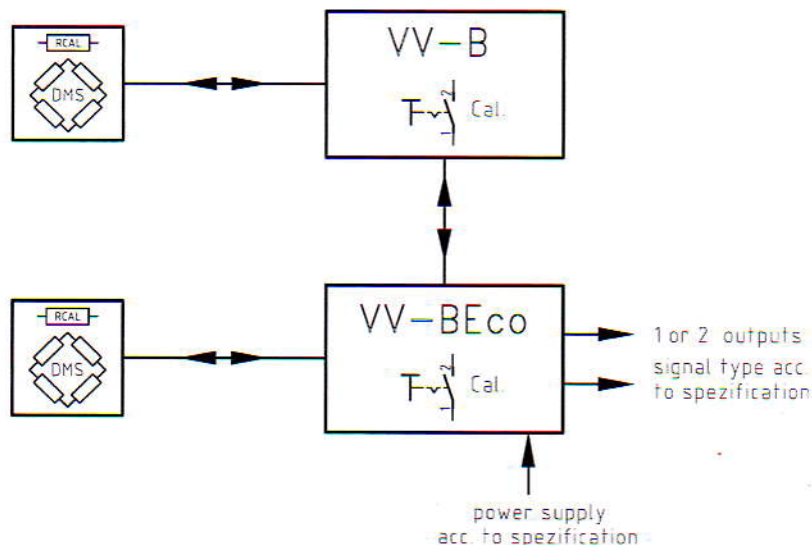
II / 2 = Input sensitivity 0.5 mV/V

III / 1 = Calibrated for a strip run situation acc. to drawing No. M xx xxx xx.

IV / 4 = One isolated total signal, 0...20 mA

V / 0 = Complete system (in 2 boxes, with 10 m interconnection cable).

Data sheet E17.3 Page 2 (08/2003)



system block diagram