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Strip Guiding System

Technical Documentation

weber

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Strip Guiding System

The following Documentation for System 1 consists of:

Item	Description	Page	Drawing
1	System I: Strip Guiding System, 2 coils	1/1	737011.KAT, REV:AB
2 Gen	eral Description	1/1	737012.KAT, REV:AB
3 Pr	actical Example	1/3 2/3 3/3	737013.KAT, REV:AD 00136.TAB, REV:AA 00135.TAB, REV:AA
4	Analog Coil Type 2863 S101 (Example)	1/1	73660.KAT
5	Signal Conditioner Type 2601.31	1/1	736513-1.KAT, REV:AE
6	Master Control Module Type ZEH	1/1	73703.KAT, REV: AC
7	Tigger Module Type STK/CD Analog Module Type AWK/DC Center Module Type JK/DC,JK-RGA/DC	1/1 73	7041.KAT, REV:AC
8	Power Supply Unit, Type 8090	1/1	73711.KAT REV: AA
9	Customer Specifications (Example)	1/1	REV:AA

General Notes:

1. This Strip Guiding System has been built according to "System I".
It should be used whenever the distance between strip and coils can be held constant
2. Best constant distance between strip and coils would be 50 to 75 mm (2" to 3")
 - b. Min. distance between the 2 coils: 4"
 - c. No metal around the coils higher than the coil surface
 - d. Any metal at the sides of the coils shall have a min. distance about 4"
3. Response time to get the output signals: ≤ 25 ms.
4. Total System Power Consumption: approx. 20 VA
5. Analog Output Signals available:
 - a. Analog Module (AWK): max. span 20 V,
zero point is adjustable down to - 10 V
range adjustment from 0 V to + 20 V (standard)
to - 10 V to + 10 V
 - b. Difference Signal with 2 AWK`s: max. - 10 V to + 10 V
 - c. Center Module (JK): max. - 10 V to + 10 V
 - d. Center Module (JK-RGA): 0 V to + 20 V max.
(voltage minus = zero point)

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Page 1/1

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Strip Guiding System for Galvanizing and Pickling Lines

General Description

Brief Description

Weber's strip guiding system for pickling and galvanizing lines consists of 2 sensing coils, 2 RF-conditioners and a master control module. The coils provide an output signal proportional to the coverage of the coil by the strip being detected, and show a linear course over the greater part of the curve.

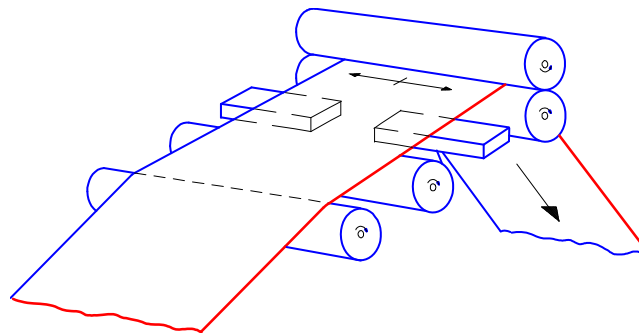
Principle of Operation

The high frequency oscillator is periodically triggered for damped oscillation. The amplitude and duration of oscillation are over the greater part of the gradient in proportion and linear to the degree of attenuation. The RF-signals are integrated and fed by the appropriate circuitry to an output amplifier. Zero point and sensitivity are adjustable.

Application

This system consists of two independent sensor systems: the coils and the RF-signal conditioner forming separate units, and the master control module. The analog outputs are linked, the difference between the 2 signals is the input signal for the controller to effect alignment of the strip.

Two coils, which generate the analog output signal, are positioned symmetrically in a roller table. Each analog output signal is derived proportional to the degree to which the coils are covered by the strips. When alignment is 100% both systems give the same signal, i.e. voltage difference is zero and no process of regulation is carried out. Should a misalignment occur a difference signal will be produced which then initiates regulation and conveyor alignment. The strip has to be kept at a constant measuring distance above the coils.



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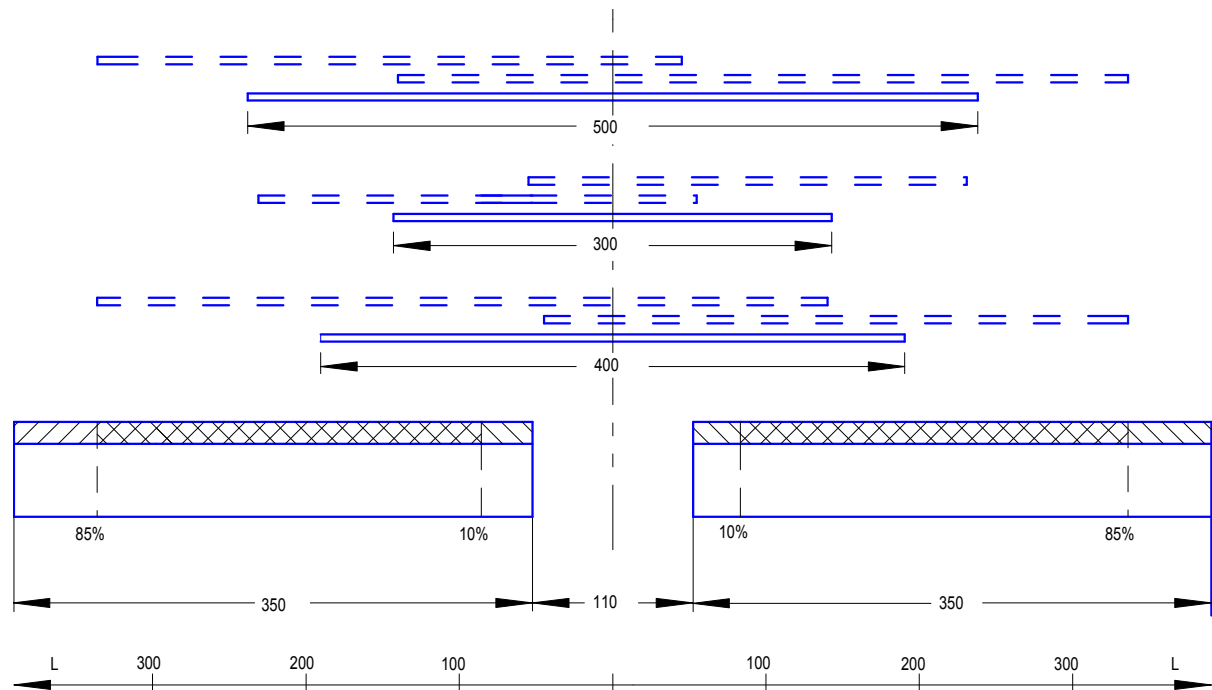
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Page 1/1

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Strip Guiding System

Practical Example



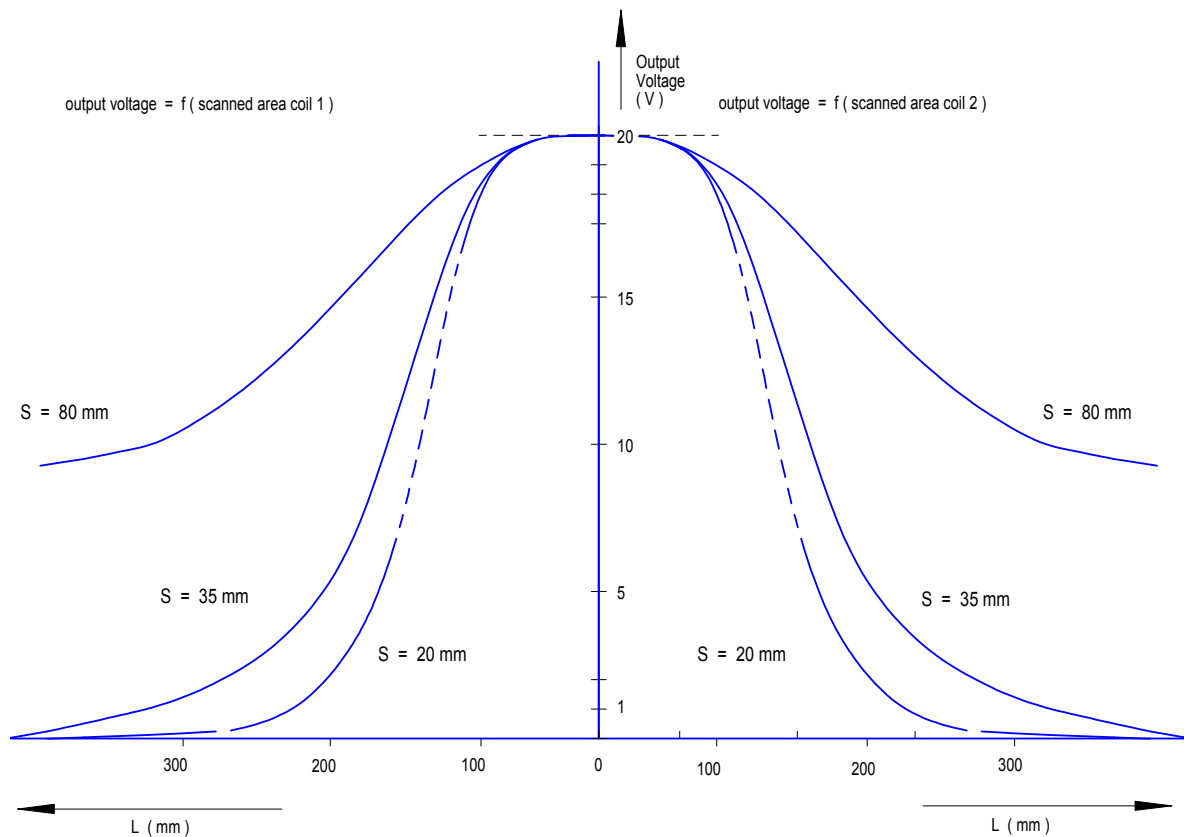
Width of strip +/- deviation allowed:

- a) 500 mm +/- 50 mm (85% limit)
- b) 300 mm +/- 65 mm (85% limit)
- c) 400 mm +/- 100 mm (85% limit)

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Strip Guiding System



Gradients

S = constant
optimal: $S_n = 35 \text{ mm}$

Figures are based on

Coils: $350 \times 160 \times 80 \text{ mm}$ (L x W x H)
Strip: 400 mm (W)

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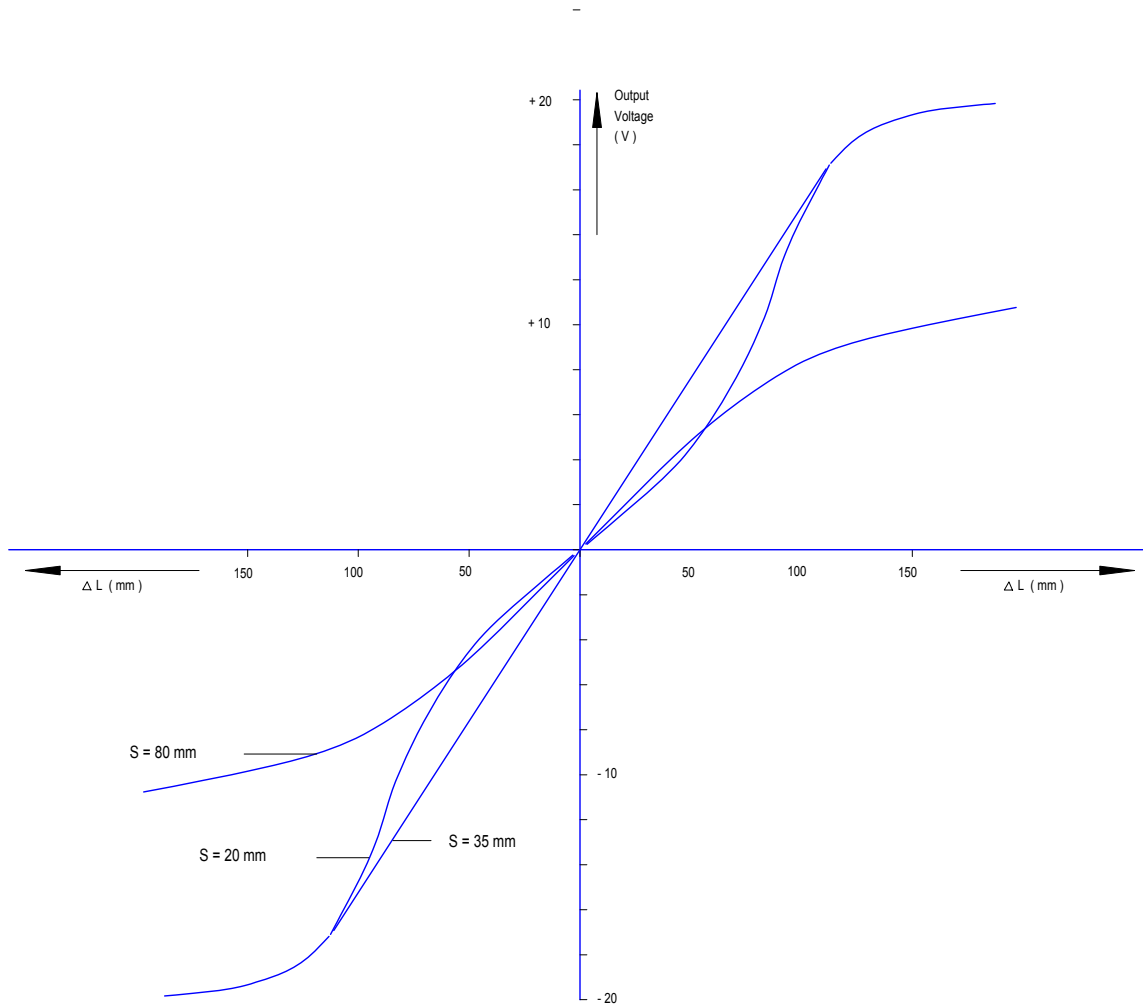
00136.TAB REV:AA

Page 2/3

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Strip Guiding System



Difference Signal Gradients

S = constant
optimal: $S_n = 35 \text{ mm}$

ΔL = strip deviation from centre line

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Page **3/3**

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Strip Guiding System

Trigger Module, Type **STK / DC**

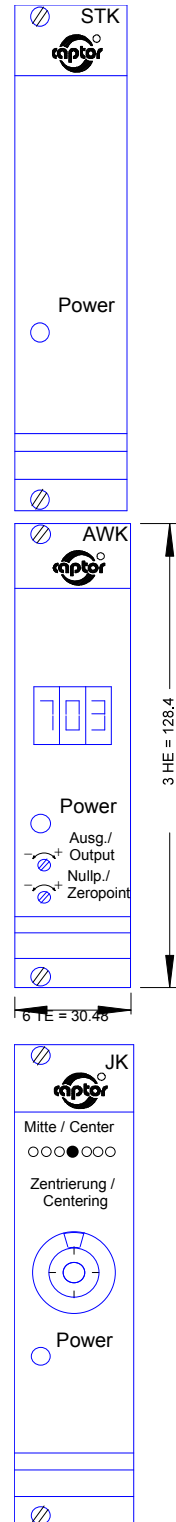
Construction	Eurocard with front plate (6TE x 3 HE)
Dimensions	128.4 x 30.5 mm (H x W)
Technics	pulse generator for a max. of 4 analog units
Operating voltage	stabelized +13 V DC, -13 V DC
Pulse repetition	25 ms
Supply voltage indicator	LED

Analog Module, Type **AWK / DC**

Construction	Eurocard with front plate (6TE x 3 HE)
Dimensions	128.5 x 30.5 mm (H x W)
Operating voltage	stabelized +13 V DC, -13 V DC, 5 V DC (display)
Supply voltage indicator	LED
Zero point and sensitivity adjustment	for each: 18 turn potentiometer
Output signal	0 - 20 V
Display	3 figs, resolution 0.1 V
Repeatability <	±1 mm within linear range
Temp. tolerance related to coil data	< ±1 mm within linear range

Center Module, Type **JK / DC, JK-RGA / DC**

Construction	Eurocard with front plate (6TE x 3 HE)
Dimensions	128.4 x 30.5 mm (H x W)
Power supply	stabelized +13 V DC, -13 V DC
Supply voltage Indicator	LED
Signal Indicator	LED display for centering control (center LED: green)
Centering	10 turn digital drive potentiometer



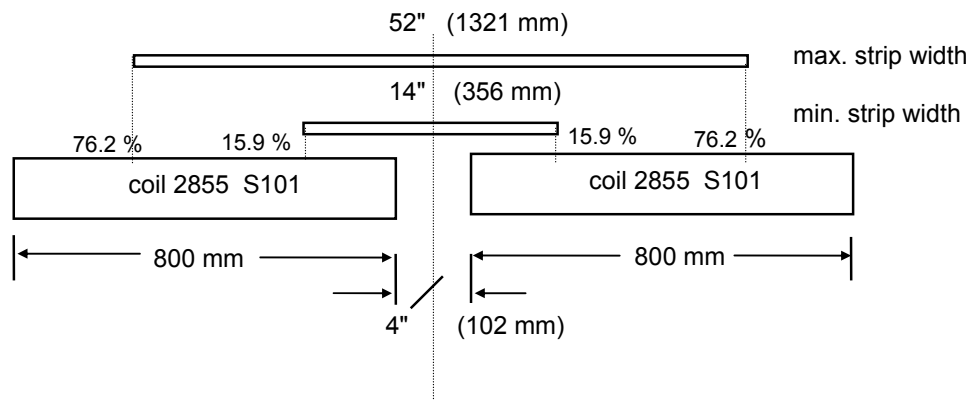
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Strip Guiding System

Example:

For Customer Specifications:



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Page 1/1