fives north american

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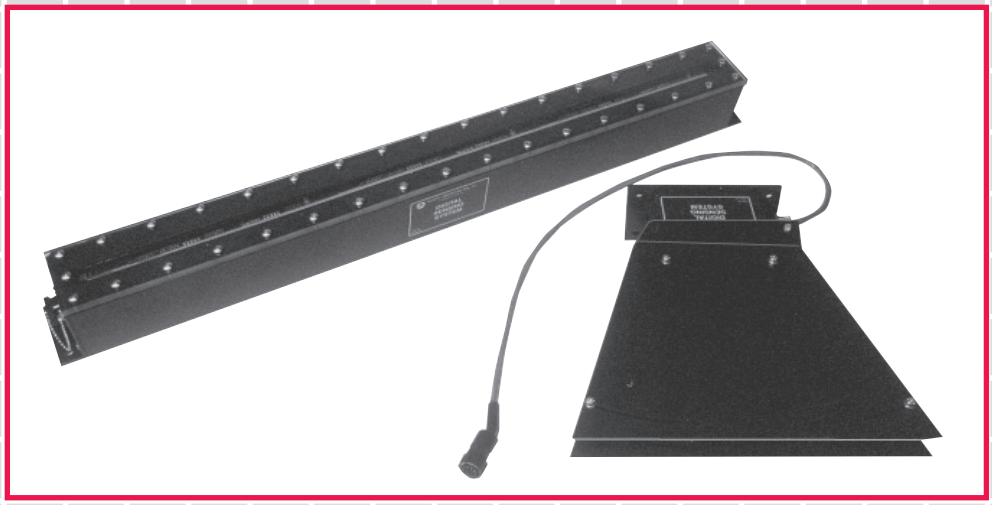
GUIDING SYSTEMS

April 1999

DSS
Digital Sensing System

H3701/3710 Detector



- **Edge or center-guide**
- **Width measurement**
- **Dust/dirt tolerant**
- **Simple operation**
- **Typical accuracy ±0.01 in. (0.25 mm)**
- **Reduced maintenance**
- **Simple plug-in connections**

Fives North American's digital detector is a non-contact, photoelectric control used to sense the process material edge or centerline in various guiding applications and can provide width measurement for the aforementioned applications or as a stand alone width measurement system.

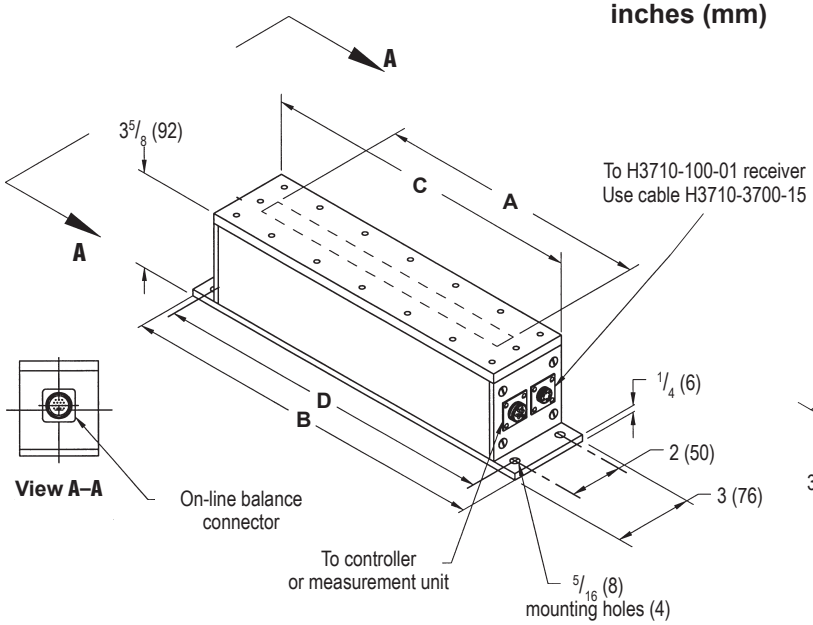
The detector scans at a rate as high as 200 times per second providing immediate response to changes in line conditions with high accuracy and linearity (see Fives North American Standards sheet H-APP-109 for details). With the new "On-Line Balance" feature, emitters can be calibrated in the field to take into account local conditions, to provide even better accuracy and also allows for one spare to be used for several different locations on a process line.

The detector consists of two components, an emitter (H3701) and a wide angle receiver (H3710). One emitter can be used as a single edge guide, center guide, or provide width measurement. Alternatively, two emitters can be used to center guide or provide width measurement on materials wider than the combined emitter lengths. The emitter employs a series of LED's (light emitting diodes) spaced every 0.1" that are lit sequentially at a rate of 20 kHz. The receiver is a tuned pre-amplifier and silicon photocell that measures the light intensity of each LED. This digital measurement is then sent to either a Fives North American interface (H3740) for an analog output or a width measurement unit for a width output.

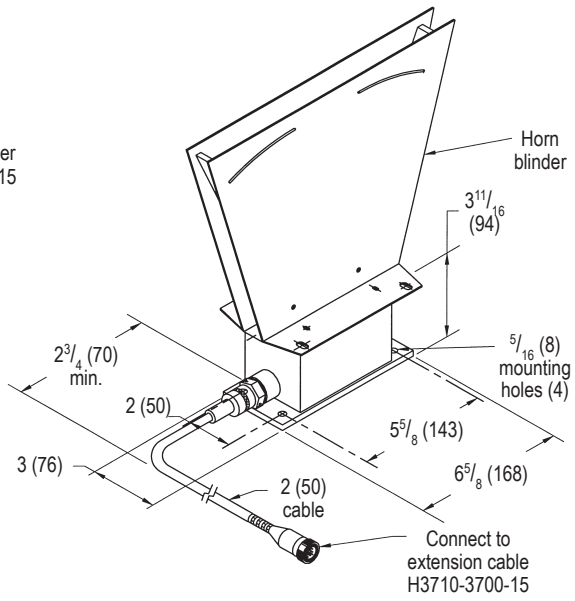
The detector is tolerant of moderate shock and vibration and is gasketed and sealed for an industrial environment.

DIMENSIONS

inches (mm)



H3701 SERIES EMITTER



H3710-200-01 RECEIVER (NOTE 4)

Model No. (gaps 60" less)	Dimensions in inches (mm) A	B	C	D	Active emitter length	Scan rate	Emitter to Receiver Gap: Recommended gap	Minimum gap (consult factory) (NOTE 2)	Max. gap H3701
H3701-10-14	10 7/8 (276.2)	14 1/4 (362)	12 1/4 (314.3)	13 1/4 (336.6)	10" (254)	200/sec.	20" (508)	20" (508)	80" (2032)
H3701-20-24	20 7/8 (530.2)	24 1/4 (616)	22 1/4 (568.3)	23 1/4 (590.6)	20" (508)	100/sec.	30" (762)	20" (508)	80" (2032)
H3701-30-34	30 7/8 (784.2)	34 1/4 (870)	32 1/4 (822.3)	33 1/4 (844.6)	30" (762)	66.7/sec.	45" (1143)	30" (762)	80" (2032)
H3701-40-44	40 7/8 (1038.2)	44 1/4 (1124)	42 1/4 (1076.3)	43 1/4 (1098.6)	40" (1016)	50/sec.	60" (1524)	40" (1016)	80" (2032)

Notes: 1. Actual gap must be specified at time of order. All emitters are factory calibrated at the specified gap.
2. The proper selection of emitter to receiver gap is crucial in optimizing performance. Larger gaps provide better insensitivity to passline change, such as edge flutter. Smaller gaps may be required if intense ambient light conditions exist; such as, strobe lights, high intensity fluorescent lights, sodium vapor lights, etc. Consult the factory when selecting a gap for critical applications.
3. Strobe lights operating within 200 ft. of a DSS System require special consideration. Please consult factory.
4. H3710-200-01 supersedes the H3710-100-01 with the incorporation of an automatic gain compensation feature, and a larger sensing area. Units can be directly interchanged to upgrade to H3710-200-01. When upgrading dual receiver systems, both receivers should be upgraded.

SPECIFICATIONS

Power input: 12 V dc at 250 mA

Signal output: digital pulse

Operating temperature range: 32-122 F (0-50 C)

Connections: plug-in from receiver and interface (cable H3720-20 from interface, H3710-3700-15 from receiver)

Lens: Lexan

Interface: Fives North American H3740

Housing: anodized; aluminum extrusion

Gasketing: closed cell neoprene and buna-N

On-Line Balance Module H3650-100: Available if on-site calibration is desired.

Cable length (receiver to emitter): Receiver has 2 feet of cable. Use 15 foot extension cable P/N H3710-3700-15. All connections are plug-in type.

Accuracy: typical ±0.01 (0.25 mm)/edge

Scan rate: see table

Emitter-Receiver gap: see table and notes

Process passline-emitter lens gap:
2"-3" recommended for measurement accuracy
1" minimum
15% of emitter-receiver gap maximum (or 12" whichever is less), however, the field of view is reduced as passline is raised.

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