ABB KPM Sheet Break Detector – KB2 Ranger
Testing and industry-specific instruments

Ensure highest sheet break detection reliability with the KPM Sheet Break Detector – KB2 Ranger model. The long detection reach provides trouble-free operations in all paper machine applications. The KB2 Ranger is immune to changes of paper colors or grades thanks to its unique RGB profiling detection method. This coupled with a long detection reach minimizes paper machine downtime due to sheet breaks, with minimal care needs.

Extension of our industry-leading portfolio
As an addition to our industry-leading KPM Sheet Break Detector portfolio, ABB's KB2 Ranger model delivers enhanced features for even more robust sheet break detection.

Long detection distance from side of the paper web
The KB2 Ranger's adjustable sensor head is equipped with an optimized lens packet and can be positioned to the side of the paper web. Even with challenging paper on felt applications, the KB2 Ranger ensures effective long detection distance of up to 1.5 meters.

Fast break detection
The KB2 Ranger's digital signal processing technology measures all signals at a 1,000 times per second, making it immune to ambient light changes by measuring the backlight intensity. The break detection delay is a minimum of 15 milliseconds, and thanks to the digital filtration, the user can select how many measurement cycles are used for the break alarm.

KPM non-contact optical measurement
The KB2 Ranger is designed to monitor sheet breaks from the side of the paper web and works with all machine set-ups; against felt/wire/cylinder and open draw. The non-contact, adjustable sensor head can be positioned with free angle towards the paper web, making it the most flexible sensor available on the market. The air-purged sensor head remains clean as it is not affected by dirt, steam, or high temperatures. It is also immune to all colors, grades, ambient light changes and high-intensity LED camera lights.

One button calibration for all grades and colors and automatic break profile update
The unit's large display and logical user interface allows easy setup of the sheet break detection. The single, one-button calibration during startup removes the need for complicated, grade-specific settings. The KB2 Ranger's proprietary software looks for changes in the RGB profile during a sheet break and updates the profile automatically. 4-20 mA current outputs for the signal levels are available as an option.

Electronics located outside harsh environment
While the sensor head can be exposed to high temperatures, the electronics unit is mounted outside of the paper machine hood, ensuring reliability - even in a 100% humidity environment. The fiber optic cables can be supplied in various lengths, up to 12 meters.

Features
- Monitors sheet breaks up to 1.5 meters from side of the paper web
- Freely adjustable sensor head for flexible sensor positioning
- Immune to all paper colors or grades with one button calibration

- One button initial calibration and automatic break profile update during operation
- Digital filtration with built-in redundancy offers high reliability with one sensor –no chaining of multiple sensors is needed to call break reliably
- Optional easy machine mount for easy installation on paper machine

Benefits
- Accurate, reliable and fast sheet break detection
- Continuous, trouble-free operation
- No calibration needed for grade changes
- Enables minimal cleaning and maintenance with air-purged sensor and side assembly

Specifications

Ambient temperature	Sensor head and fiber optic cable: -10 to 180 ºC (15 ºF to 356 ºF)
Electronics unit: -10 to 60 ºC (15 ºF to 140 ºF)	3233
Fiber optic cable	KB2/6: 6 m (20'), KB2/9: 9 m (30') or KB2/12: 12m (40')
Fiber optic cable	1790
conduit	Requires flexible airtight conduit 19 mm (3/4") ID min.
Conduit connection	19 mm (3/4 ") BSP
Installation	Sensor distance from the web 50...150 cm (20...60")
Led pulse frequency	1 kHz
Power supply	90 - 264 VAC, 50/60 Hz or 24 VDC
Power consumption	15 W
Enclosure class	IP 66 (Nema 4X)
Purge air connection	Dry instrument air, 6/4 mm (1/4") connector, normal consumption 80 l/min
Digital outputs	2 x closing or opening contact max. 250 VAC, 2A; 220 VDC, 2 A for break signal and maintenance alarm
Alarm output delay	Min. 15 ms from the actual break
Analog outputs	Optional 3 pcs 4 - 20 mA max 600 ohm, isolated
Dimensions (L x H x D) and weight	Electronics unit 323 x 237 x 70 mm (12.7 x 9.3 x 2.8"), 3 kg (6.6 lbs)
Sensor head Ø 33 mm (11/4 ") SS316, pipe 1500 mm (59") long, 4 kg (9 lbs)	