

Correvit SFx-F1

Type 2067A...

Non-contact optical sensors

Correvit SFx-F1 sensors are designed to measure longitudinal-, lateral speed and slip angle in racing applications.

- Developed for measurement of slip angle
- Speed range: 0.1 ... 400 km/h
- Small and lightweight
- Measurement accuracy of speed: $<\pm 0.5\%$
- Measurement accuracy of angle: $<\pm 0.2^\circ$
- Adjustable filter time (unfiltered, mov. avg. 8 ... 512 ms)
- Standard filter time is 128 ms
- Improved signal processing

Description

Correvit SFx-F1 sensors are an evolution of the Formula-1 proven Correvit SF-II sensor, with its long-life, vibration-resistant, infrared LED illumination. Consistent miniaturization and a low weight enable universal mounting positions, e.g. below the vehicle near the center of gravity. The applied state-of-the-art technology delivers improved performance, even under harsh environmental conditions. Equipped with CAN bus, SFx-F1 sensors permit simultaneous measurement of longitudinal-, lateral speed, and angle. Thanks to high-speed data transfer via CAN Bus, the SFx-F1 sensors can be used with all common data acquisition systems.

Application

High-precision, slip-free measurement of distance, longitudinal and lateral speed as well as angle for vehicle dynamics testing.

Technical data

Performance specifications

| | | |
|------------------------------------|------|---------------------|
| Speed | km/h | $\pm 0.1 \dots 400$ |
| Distance resolution | mm | ≤ 5 |
| Measurement accuracy ¹⁾ | %FSO | $<\pm 0.5$ |
| Angle | ° | ± 30 |
| Angle resolution | ° | $<\pm 0.01$ |
| Meas. accuracy angle ¹⁾ | | |
| Typical | ° | $<\pm 0.1$ |
| Guaranteed | ° | $<\pm 0.2$ |
| Measurement frequency | Hz | 250 |
| Working distance / range 2067A1xxx | mm | 180 \pm 50 |
| Working distance / range 2067A2xxx | mm | 270 \pm 50 |



Interfaces

| | | |
|----------------------|--|------|
| CAN (Motorola/Intel) | | 2.0B |
|----------------------|--|------|

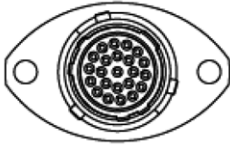
System specifications

| | | |
|--------------------------------------|-------|-------------------|
| Power supply | V | 10 ... 28 |
| Power consumption max. (at 12 V) | W | ≈ 20 |
| Temperature range | | |
| Operation | °C | -25 ... 50 |
| Storage | °C | -40 ... 85 |
| Relative humidity (non condensing) | % | 5 ... 80 |
| Degree of protection (cable mounted) | | |
| Sensor head | | IP67 |
| Electronics | | IP67 |
| Dimensions (LxWxH) | | |
| Sensor head 2067A1xxx | mm | 88x44x28 |
| Sensor head 2067A2xxx | mm | 88x49x28 |
| Electronics | mm | 128x106x22 |
| Weight | | |
| Sensor head | grams | 150 |
| Electronics | grams | 330 |
| Shock | | |
| g | | 50 half-sine |
| ms | | 6 |
| Vibration | | |
| g | | 10 |
| Hz | | 10 ... 150 |
| Illumination | | |
| | | LED-IR 850 nm |
| | | Lamp risk group 1 |

¹⁾ Determined on test surface with distance >200 m at constant temperature (+/-2K)

2067A_003-607e-01.23

Pin assignments



| ECU Plug: 55249551 Connector: ASDD010-23SN | |
|---|---------------|
| Pin | Signal |
| 1 | LED_ILLU_VOUT |
| 2 | LED_ILLU_VOUT |
| 3 | GND_ILLU |
| 4 | GND_ILLU |
| 5 | +8V |
| 6 | -8V |
| 7 | Diode 1+ |
| 8 | Diode 1- |
| 9 | Diode 2+ |
| 10 | Diode 2- |
| 11 | AGND |
| 12 | DGND |
| 13 | COM_MOSI+ |
| 14 | COM_MOSI- |
| 15 | COM_MISO+ |
| 16 | COM_MISO- |
| 17 | DGND Spare |
| 18 | NC |
| 19 | NC |
| 20 | NC |
| 21 | NC |
| 22 | NC |
| 23 | NC |



| Sensor head plug: 55184814 Connector: 19p m EDS.2M.319.XLB | |
|---|---------------|
| Pin | Signal |
| 1 | LED_ILLU_VOUT |
| 2 | LED_ILLU_VOUT |
| 3 | GND_ILLU |
| 4 | GND_ILLU |
| 5 | +8V |
| 6 | -8V |
| 7 | Diode 1+ |
| 8 | Diode 1- |
| 9 | Diode 2+ |
| 10 | Diode 2- |
| 11 | AGND |
| 12 | DGND |
| 13 | COM_MOSI+ |
| 14 | COM_MOSI- |
| 15 | COM_MISO+ |
| 16 | COM_MISO- |
| 17 | DGND Spare |
| 18 | NC |
| 19 | NC |



| ECU power plug: 55065924 Connector: ASL006-05PN-HE | |
|---|--------|
| Pin | Signal |
| 1 | +12V |
| 2 | +12V |
| 3 | NC |
| 4 | 0V |
| 5 | 0V |



| ECU communication plug: 55065923 Connector: ASL006-05SN-HE | |
|---|-----------|
| Pin | Signal |
| 1 | RS 232 Rx |
| 2 | RS 232 Tx |
| 3 | GND |
| 4 | CAN-L |
| 5 | CAN-H |

Dimensions

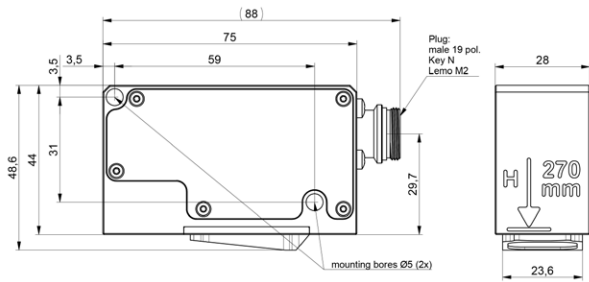


Fig. 1: Correvit SFx-F1 sensor head dimensions 2067A2xxx

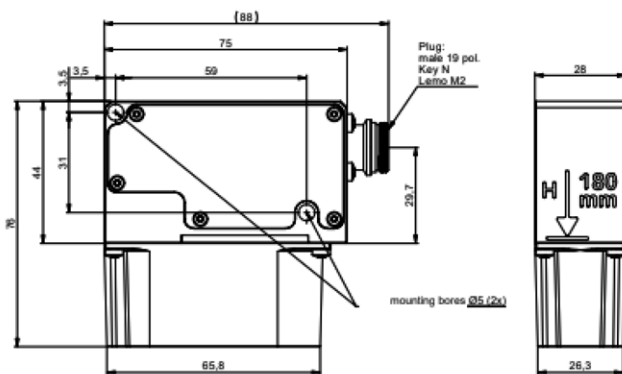


Fig. 2: Correvit SFx-F1 sensor head dimensions 2067A1xxx

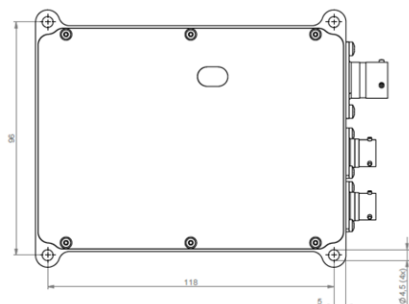
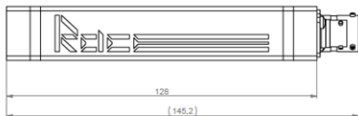
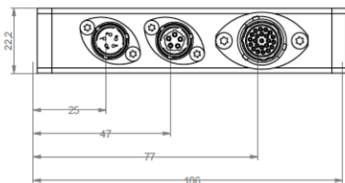


Fig. 3: Correvit SFx-F1 electronics dimension

Included accessories

- Cable set
 - Sensor cable, l = 0.5 m or
 - Sensor cable, l = 2 m
 - Power cable, l = 2 m
 - RS 232 cable, l = 2 m
 - CAN cable, l = 2 m
 - USB/serial adapter 0.8 m

Type/Mat. No.

- 55254119
- 55249549
- 18012480
- 18012475
- 18012476
- 55065718

- USB stick software + manuals (including KiCenter)
- Screw set for SF
- Screw set
- Mini folding rule
- Transport case complete

- 55158846
- 55086107
- 55082183
- 55064207
- tbd

Ordering key

Type 2067A

Working distance

| | |
|-------------|---|
| 180 ± 50 mm | 1 |
| 270 ± 50 mm | 2 |

Sensor cable

| | |
|---------------------------|---|
| Without sensor cable | 0 |
| With sensor cable (0.5 m) | 1 |
| With sensor cable (2 m) | 2 |

Filter

| | |
|------------------------------------|---|
| Without IR filter glass | 0 |
| With IR filter glass (not mounted) | 1 |

Spray guard

| | |
|---------------------|---|
| Without spray guard | 0 |
| With spray guard | 1 |

Ordering example

Type 2067A1011

SFx-F1 sensor, 180 ± 50 mm, without sensor cable, with IR Filter glass, with spray guard

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