# Datasheet - FWS 2106C

Fail-safe standstill monitors / FWS 2106


(Minor differences between the printed image and the original product may exist!)

- Detects standstill using 2 impulse sensor(s)
- 1 safety contact
- 2 Signalling outputs

## Ordering details

| | |
|---|---|
| Product type description | FWS 2106C |
| Article number | 101181692 |
| EAN Code | 4030661327006 |
| eCl@ss | 27-37-19-01 |

## Approval

| | |
|---|---|
| Approval | BG<br>USA/CAN<br>EAC |

## Classification

| | |
|---|---|
| Standards | EN ISO 13849-1, IEC 61508 |
| PL | up d |
| Control category | up 3 |
| PFH value | 1.0 x 10-7/h |
| SIL | up 2 |
| Mission time | 20 Years |

## Global Properties

| | |
|---|---|
| Permanent light | FWS 2106 |
| Standards | IEC/EN 60204-1, EN ISO 13849-1, BG-GS-ET-20 |
| Compliance with the Directives (Y/N) CE | Yes |
| Climatic stress | EN 60068-2-3, BG-GS-ET-14 |
| Mounting | snaps onto standard DIN rail to EN 60715 |
| Terminal designations | IEC/EN 60947-1 |
| Materials | |
| - Material of the housings | Plastic, glass-fibre reinforced thermoplastic, ventilated |
| - Material of the contacts | Ag-Ni + Au |
| Weight | 285 |
| Start input (Y/N) | No |
| Feedback circuit (Y/N) | Yes |
| Reset after disconnection of supply voltage (Y/N) | No |
| Automatic reset function (Y/N) | No |
| Reset with edge detection (Y/N) | Yes |

## Mechanical data

| | |
|---|---|
| Connection type | Screw connection |
| Cable section | |
| - Min. Cable section | 0,2 |
| - Max. Cable section | 2.5 |
| Pre-wired cable | rigid or flexible |
| Tightening torque for the terminals | 0,6 |
| Detachable terminals (Y/N) | No |
| Mechanical life | 50.000.000 operations |
| Electrical lifetime | 100.000 operations for 230 VAC, 6 A (cos φ = 1) |
| hysteresis | 10 % of standstill frequency |
| restistance to shock | 30 g / 11 ms |
| Resistance to vibration To EN 60068-2-6 | 10…55 HZ, Amplitude 0,35 mm |
| Standstill frequency | Inputs X2 / X4: 1 / 1 |

## Ambient conditions

| | |
|---|---|
| Ambient temperature | |
| - Min. environmental temperature | 0 |
| - Max. environmental temperature | +55 |
| Storage and transport temperature | |
| - Min. Storage and transport temperature | −25 |
| - Max. Storage and transport temperature | +70 |
| Protection class | |
| - Protection class-Enclosure | IP40 |
| - Protection class-Terminals | IP20 |
| - Protection class-Clearance | IP54 |
| Air clearances and creepage distances To IEC/EN 60664-1 | |
| - Rated impulse withstand voltage $U_{imp}$ | 4.8 kV |
| - Overvoltage category | III To VDE 0110 |
| - Degree of pollution | 2 To VDE 0110 |

## Electromagnetic compatibility (EMC)

| | |
|---|---|
| EMC rating | 10 V/m |

## Electrical data

| | |
|---|---|
| Rated DC voltage for controls | |
| - Max. rated DC voltage for controls | 20.4 |
| - Max. rated DC voltage for controls | 253 |
| Rated AC voltage for controls, 50 Hz | |
| - Min. rated AC voltage for controls, 50 Hz | 20.4 |
| - Max. rated AC voltage for controls, 50 Hz | 253 |
| Rated AC voltage for controls, 60 Hz | |
| - Min. rated AC voltage for controls, 60 Hz | 20.4 |
| - Max. rated AC voltage for controls, 60 Hz | 253 |
| Contact resistance | max. 100 mΩ |
| Power consumption | < 5 |
| Type of actuation | AC/DC |
| Rated operating voltage $U_e$ | 24 … 230 VAC/DC |
| Operating current $I_e$ | 0,4 A |
| Electronic protection (Y/N) | No |

## Inputs

| | |
|---|---|
| **Monitored inputs** | |
| - Short-circuit recognition (Y/N) | No |
| - Wire breakage detection (Y/N) | Yes |
| - Earth connection detection (Y/N) | No |
| Input frequency | 4000 |
| min. pulse duration | 125 |
| Input resistance | approx. 4000 Ω at GND |
| Input signal "1" | 10 … 30 VDC |
| Input signal "0" | 0 … 2 VDC |
| Cable length | 100 m with 0,75 mm² (for Rated voltage) |

## Outputs

| | |
|---|---|
| Stop category | 0 |
| Number of safety contacts | 1 |
| Number of auxiliary contacts | 0 |
| Number of signalling outputs | 2 |
| Switching capacity | |
| - Switching capacity of the safety contacts | min. 10 mA, max. 6 A |
| - Switching capacity of the signaling/diagnostic outputs | Y1, Y2: max. 100 mA |
| Fuse rating | |
| - Protection of the safety contacts | 6 A gG D-fuse |
| - Fuse rating for the signaling/diagnostic outputs | short-circuit proof |
| Signalling output | Y1: Authorized operation, safety contacts on;<br>Y2: Error, high signal |
| Utilisation category To EN 60947-5-1 | AC-15: 230 V / 3 A<br>DC-13: 24 V / 2 A |
| Number of undelayed semi-conductor outputs with signaling function | 2 |
| Number of undelayed outputs with signaling function (with contact) | 0 |
| Number of delayed semi-conductor outputs with signaling function. | 0 |
| Number of delayed outputs with signalling function (with contact). | 0 |
| Number of secure undelayed semi-conductor outputs with signaling function | 0 |
| Number of secure, undelayed outputs with signaling function, with contact. | 0 |

| | |
|---|---|
| Number of secure, delayed semi-conductor outputs with signaling function | 0 |
| Number of secure, delayed outputs with signaling function (with contact). | 0 |

## LED switching conditions display

| | |
|---|---|
| LED switching conditions display (Y/N) | Yes |
| Number of LED´s | 1 |

## Integral system diagnosis $missingShortName$

Integral system diagnosis ISD

- The following faults are registered by the safety monitoring modules and indicated by ISD
- Interruption of the connections to the inductive proximity switches
- Failure of the safety relay to pull-in or drop-out
- Fault on the input circuits or the relay control circuits of the safety monitoring module
- Failure of the proximity switches
- Failure of one channel being evaluated

## Miscellaneous data

| | |
|---|---|
| Applications |  safe standstill monitoring |

## Dimensions

| | |
|---|---|
| Dimensions | |
| - Width | 45 mm |
| - Height | 100 mm |
| - Depth | 121 mm |

## notice

Inductive loads (e.g. contactors, relays, etc.) are to be suppressed by means of a suitable circuit.

## notice - Wiring example

To monitor one guard door at plants with dangerous run-on movements up to PL d and Category 3

Standstill monitoring for unlocking solenoid interlocks

The solenoid interlock can be opened, when the fail-safe standstill monitor has detected the end of the run-on movement by means of two inductive proximity switches. When the button (E) is actuated, the coil of the solenoid interlock is energised.

If only one inductive proximity switch is connected to the standstill monitor, the standstill frequencies must be identical and inputs X2 and X4 must be bridged.

For suitable IFL range p-type inductive proximity switches, refer to "Schmersal Catalogue Automatisierungstechnik".

The wiring diagram is shown with guard doors closed and in de-energised condition.

The ISD tables (Intergral System Diagnostics) for analysis of the fault indications and their causes are shown in the appendix.

## Documents

**Operating instructions and Declaration of conformity** (pl) 291 kB, 07.03.2018

Code: mrl_fws2106-2506_pl

**Operating instructions and Declaration of conformity** (pt) 282 kB, 24.01.2018

Code: mrl_fws2106-2506_pt

**Operating instructions and Declaration of conformity** (en) 275 kB, 13.11.2017
Code: mrl_fws2106-2506_en

**Operating instructions and Declaration of conformity** (jp) 622 kB, 10.11.2011
Code: mrl_fws2106-2506_jp

**Operating instructions and Declaration of conformity** (it) 278 kB, 02.02.2018
Code: mrl_fws2106-2506_it

**Operating instructions and Declaration of conformity** (de) 236 kB, 13.11.2017
Code: mrl_fws2106-2506_de

**Operating instructions and Declaration of conformity** (cs) 264 kB, 25.11.2015
Code: mrl_fws2106-2506_cs

**Operating instructions and Declaration of conformity** (nl) 277 kB, 02.08.2018
Code: mrl_fws2106-2506_nl

**Operating instructions and Declaration of conformity** (es) 278 kB, 10.01.2018
Code: mrl_fws2106-2506_es

**Operating instructions and Declaration of conformity** (fr) 279 kB, 07.03.2018
Code: mrl_fws2106-2506_fr

**Wiring example** (99) 30 kB, 20.08.2008
Code: kfws2l03

**ISD tables (Intergral System Diagnostics)** (de) 49 kB, 29.07.2008
Code: i_fwsp01

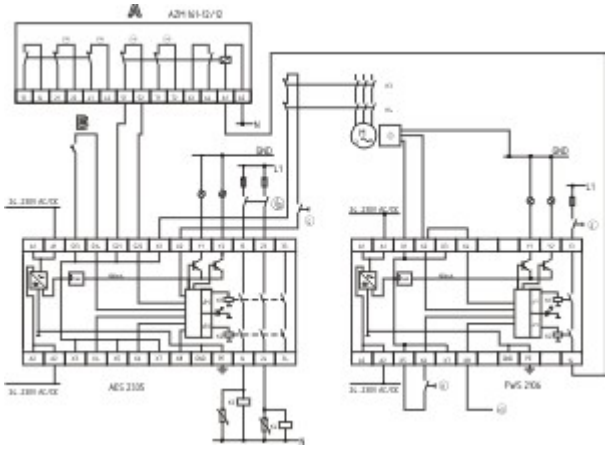
**ISD tables (Intergral System Diagnostics)** (en) 30 kB, 29.07.2008
Code: i_fwsp02

**BG-test certificate** (en) 767 kB, 16.05.2017
Code: z_f05p02

**BG-test certificate** (de) 780 kB, 16.05.2017
Code: z_f05p01

**EAC certification** (ru) 1 MB, 15.03.2018
Code: q_aesp01

## Images



Wiring example

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The data and values have been checked throroughly. Technical modifications and errors excepted.
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