



Fail-safe digital module DM-F local, for fail-safe shutdown via hardware signal Us: 110...240 V AC/DC 2 relay enabling circuits, 2 relay outputs, safety function can be set via DIP switch, maximum achievable SIL IEC 61508: 3, maximum achievable PL ISO 13849-1: E

product brand name	SIRIUS
product designation	Fail-safe digital module
design of the product	for emergency off and safety doors
product type designation	DM-FL

General technical data

product function	
• EMERGENCY OFF function	Yes
• automatic start	Yes
• light barrier monitoring	Yes
• light array monitoring	Yes
• protective door monitoring	Yes
• magnetically operated switch monitoring NC-NO	Yes
• magnetically operated switch monitoring NC-NC	Yes
• pressure-sensitive mat monitoring	Yes
• monitored start-up	Yes
product feature cross-circuit-proof	Yes
product component	
• input for thermistor connection	No
• digital input	Yes
• input for analog temperature sensors	No
• input for ground fault detection	No
• relay output	Yes
apparent power consumption	9.5 VA
consumed active power	4.5 W
insulation voltage with degree of pollution 3 at AC rated value	300 V
surge voltage resistance rated value	4 000 V
protection class IP	IP20
shock resistance according to IEC 60068-2-27	15g / 11 ms
vibration resistance according to IEC 60068-2-6	1 ... 6 Hz: 15 mm, 6 ... 500 Hz: 2g
operating frequency maximum	360 1/h
switching capacity current of the NO contacts of the relay outputs at AC-15	
• at 24 V	3 A
• at 120 V	3 A
• at 240 V	1.5 A
switching capacity current of the NO contacts of the relay outputs at DC-13	
• at 24 V	4 A
• at 60 V	0.55 A
• at 125 V	0.22 A
• at 250 V	0.11 A

switching capacity current of relay enabling circuits at AC-15

- at 24 V
- at 120 V
- at 240 V

3 A
3 A
1.5 A

switching capacity current of relay enabling circuits at DC-13

- at 24 V
- at 60 V
- at 125 V
- at 250 V

4 A
0.55 A
0.22 A
0.11 A

mechanical service life (operating cycles) typical

electrical endurance (operating cycles) typical

10 000 000

buffering time in the event of power failure

100 000

make time with automatic start

200 ms

- typical
- maximum
- at DC maximum
- at AC maximum
- after power failure typical
- after power failure maximum

50 ms
100 ms
100 ms
100 ms
8 000 ms
8 200 ms

backslide delay time after opening of the safety circuits typical

50 ms

backslide delay time in the event of power failure

- typical
- maximum

220 ms
320 ms

reference code according to IEC 81346-2

F

type of input characteristic

Type 2 in accordance with EN 61131-2

Substance Prohibitance (Date)

05/01/2012

certificate of suitability according to ATEX directive 2014/34/EU

BVS 06 ATEX F001

explosion device group and category according to ATEX directive 2014/34/EU

II (2) G, II (2) D, I (M2)

Electromagnetic compatibility

EMC emitted interference according to IEC 60947-1

class A

EMC immunity according to IEC 60947-1

corresponds to degree of severity 3

conducted interference

- due to burst according to IEC 61000-4-4
- due to conductor-earth surge according to IEC 61000-4-5
- due to conductor-conductor surge according to IEC 61000-4-5
- due to high-frequency radiation according to IEC 61000-4-6

2 kV network connection / 1 kV control connection
2 kV
1 kV
10 V

field-based interference according to IEC 61000-4-3

10 V/m

electrostatic discharge according to IEC 61000-4-2

6 kV contact discharge / 8 kV air discharge

conducted HF interference emissions according to CISPR11

corresponds to degree of severity A

field-bound HF interference emission according to CISPR11

corresponds to degree of severity A

Inputs/ Outputs**product function**

- parameterizable inputs
- parameterizable outputs

Yes
Yes

number of inputs

5

input version with safety-related function

2 sensor inputs 24 V DC, 1 start signal input 24 V DC, 1 cascading input 24 V DC, 1 feedback circuit input 24 V DC

design of input

- cascading input/functional switching
- feedback input
- start input

Yes
Yes
Yes

pulse duration

- of the sensor input minimum
- of the ON pushbutton input minimum
- of the cascading input minimum

30 ms
0.2 s
0.2 s

number of digital inputs

0

<ul style="list-style-type: none"> with a common reference potential 	4
digital input version	
<ul style="list-style-type: none"> type 1 acc. to IEC 61131 type 2 acc. to IEC 61131 	No Yes
number of analog inputs	0
number of sensor inputs	
<ul style="list-style-type: none"> 1-channel or 2-channel 2-channel 	1 1
number of outputs	2
number of semiconductor outputs	0
number of outputs	
<ul style="list-style-type: none"> as contact-affected switching element as contact-affected switching element as NO contact safety-related instantaneous contact 	2 2
number of analog outputs	0
switching behavior	monostable
property of contacts of the relay outputs	Fail-safe NO contacts
wire length for digital signals maximum	1 500 m

Product Function

suitability for use	
<ul style="list-style-type: none"> position switch monitoring EMERGENCY-OFF circuit monitoring valve monitoring opto-electronic protection device monitoring tactile sensor monitoring magnetically operated switch monitoring proximity switch monitoring safety switch safety-related circuits 	Yes Yes No Yes No Yes No Yes Yes Yes

Installation/ mounting/ dimensions

mounting position	any
fastening method	screw and snap-on mounting
height	106 mm
width	45 mm
depth	124 mm
required spacing	
<ul style="list-style-type: none"> top bottom left right 	40 mm 40 mm 0 mm 0 mm

Connections/ Terminals

product component removable terminal for auxiliary and control circuit	Yes
type of connectable conductor cross-sections	
<ul style="list-style-type: none"> solid finely stranded with core end processing at AWG cables solid at AWG cables stranded 	1x (0.5 ... 4.0 mm ²), 2x (0.5 ... 2.5 mm ²) 1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1.5 mm ²) 1x (20 ... 12), 2x (20 ... 14) 1x (20 ... 14), 2x (20 ... 16)
tightening torque with screw-type terminals	0.8 ... 1.2 N·m
tightening torque [lbf·in] with screw-type terminals	7 ... 10.3 lbf·in

Ambient conditions

installation altitude at height above sea level	
<ul style="list-style-type: none"> 1 maximum 2 maximum 3 maximum 	2 000 m 3 000 m; max. +50 °C (no protective separation) 4 000 m; max. +40 °C (no protective separation)
ambient temperature	
<ul style="list-style-type: none"> during operation during storage during transport 	-25 ... +60 °C -40 ... +80 °C -40 ... +80 °C
environmental category	
<ul style="list-style-type: none"> during operation according to IEC 60721 during storage according to IEC 60721 	3K6 (no formation of ice, no condensation, relative humidity 10 ... 95%), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6 1K6 (no condensation, relative humidity 10 ... 95%), 1C2 (no salt mist), 1S2 (sand must not get into the devices), 1M4

<ul style="list-style-type: none"> during transport according to IEC 60721 	2K2, 2C1, 2S1, 2M2
relative humidity during operation	5 ... 95 %
contact rating of auxiliary contacts according to UL	B300 / R300

Short-circuit protection

design of the fuse link for short-circuit protection of relay enabling circuits required	gL/gG: 4 A
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Safety related data

safety device type according to IEC 61508-2	Type B
type of the safety-related wiring of the inputs	single-channel and two-channel
Safety Integrity Level (SIL)	
<ul style="list-style-type: none"> at single-channel evaluation according to IEC 61508 	1
<ul style="list-style-type: none"> at two-channel evaluation according to IEC 61508 	3
SIL Claim Limit (subsystem)	
<ul style="list-style-type: none"> at single-channel evaluation according to IEC 62061 	1
<ul style="list-style-type: none"> at two-channel evaluation according to IEC 62061 	3
performance level (PL)	
<ul style="list-style-type: none"> at single-channel evaluation according to ISO 13849-1 	d
<ul style="list-style-type: none"> at two-channel evaluation according to ISO 13849-1 	e
category	
<ul style="list-style-type: none"> at two-channel evaluation according to ISO 13849-1 	4
<ul style="list-style-type: none"> at single-channel evaluation according to ISO 13849-1 	2
stop category according to EN 60204-1	0
average diagnostic coverage level (DCavg)	
<ul style="list-style-type: none"> at single-channel evaluation 	90 %
<ul style="list-style-type: none"> at two-channel evaluation 	99 %
diagnostics test interval by internal test function maximum	28 800 s
failure rate [FIT]	
<ul style="list-style-type: none"> at rate of recognizable hazardous failures (λ_{dd}) 	879.12 FIT
<ul style="list-style-type: none"> at rate of non-recognizable hazardous failures (λ_{du}) 	7.17 FIT
PFDavg with low demand rate	
<ul style="list-style-type: none"> at single-channel evaluation according to IEC 61508 	0.00065
<ul style="list-style-type: none"> at two-channel evaluation according to IEC 61508 	2E-5
hardware fault tolerance	
<ul style="list-style-type: none"> at single-channel evaluation according to IEC 61508 	0
<ul style="list-style-type: none"> at two-channel evaluation according to IEC 61508 	1
safe state	Safety outputs switched off
touch protection against electrical shock	finger-safe
contact reliability	0.1 million operating cycles (AC15, 230 V, 2 A)

Galvanic isolation

(electrically) protective separation according to IEC 60947-1	All circuits in SIMOCODE pro are with protective separation, i.e. they are designed with doubled creepage paths and clearances. NOTICE: The information in the "Protective Separation" test report, No. 2668, must be observed.
design of the electrical isolation	Protective separation in accordance with IEC 60947-1 for all circuits, up to installation altitude of 2000 m

Control circuit/ Control

type of voltage of the control supply voltage	AC/DC
control supply voltage at AC	
<ul style="list-style-type: none"> at 50 Hz rated value 	110 ... 240 V
<ul style="list-style-type: none"> at 60 Hz rated value 	110 ... 240 V
control supply voltage frequency 1	50 ... 60 Hz
control supply voltage frequency	
<ul style="list-style-type: none"> 1 rated value 	50 Hz
<ul style="list-style-type: none"> 2 rated value 	60 Hz
control supply voltage at DC	
<ul style="list-style-type: none"> rated value 	110 ... 240 V
operating range factor control supply voltage rated value at DC	
<ul style="list-style-type: none"> initial value 	0.85
<ul style="list-style-type: none"> full-scale value 	1.1
operating range factor control supply voltage rated value at AC at 50 Hz	

<ul style="list-style-type: none"> initial value full-scale value 	0.85 1.1
operating range factor control supply voltage rated value at AC at 60 Hz	
<ul style="list-style-type: none"> initial value full-scale value 	0.85 1.1
inrush current peak	
<ul style="list-style-type: none"> at 240 V 	24 A
duration of inrush current peak	
<ul style="list-style-type: none"> at 240 V 	0.5 ms

Certificates/ approvals

General Product Approval	EMC
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[Confirmation](#)



For use in hazardous locations	Functional Safety/Safety of Machinery	Declaration of Conformity	Test Certificates
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[Type Examination Certificate](#)



[Type Test Certificates/Test Report](#)

Marine / Shipping	other
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[Confirmation](#)



Further information

Siemens has decided to exit the Russian market (see here).

<https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business>

Siemens is working on the renewal of the current EAC certificates.

Please contact your local Siemens office on the status of validity of the EAC certification if you intend to import or offer to supply these products to an EAC relevant market (other than the sanctioned EAEU member states Russia or Belarus).

Information on the packaging

<https://support.industry.siemens.com/cs/ww/en/view/109813875>

Information- and Downloadcenter (Catalogs, Brochures,...)

<https://www.siemens.com/ic10>

Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3UF7320-1AU00-0>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3UF7320-1AU00-0>

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

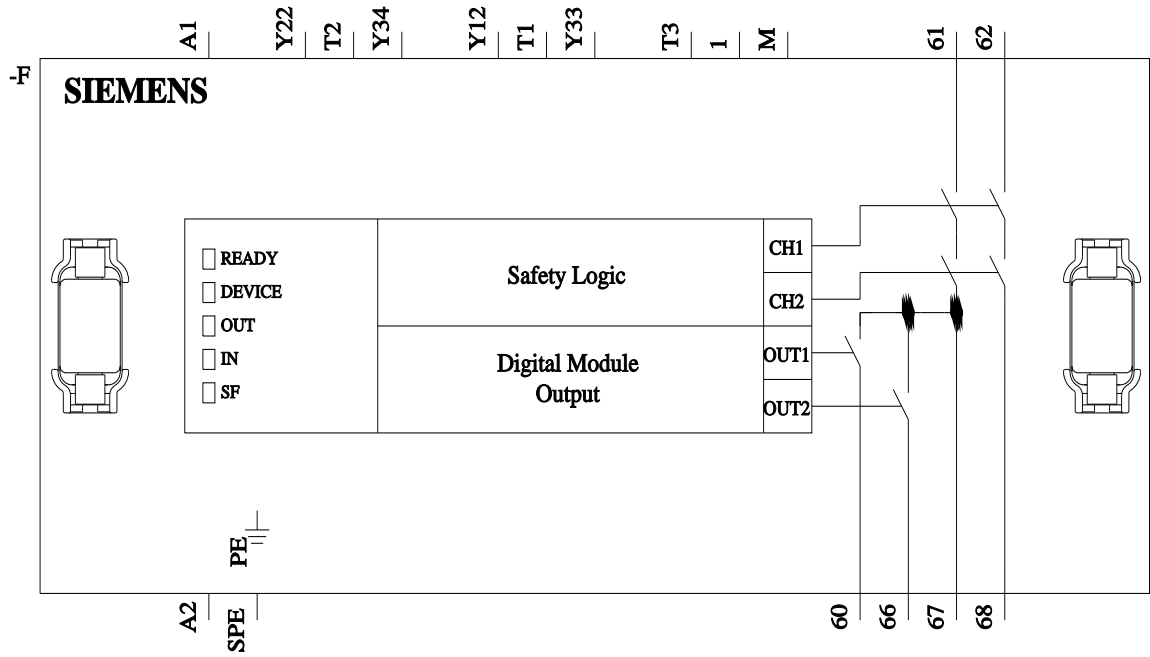
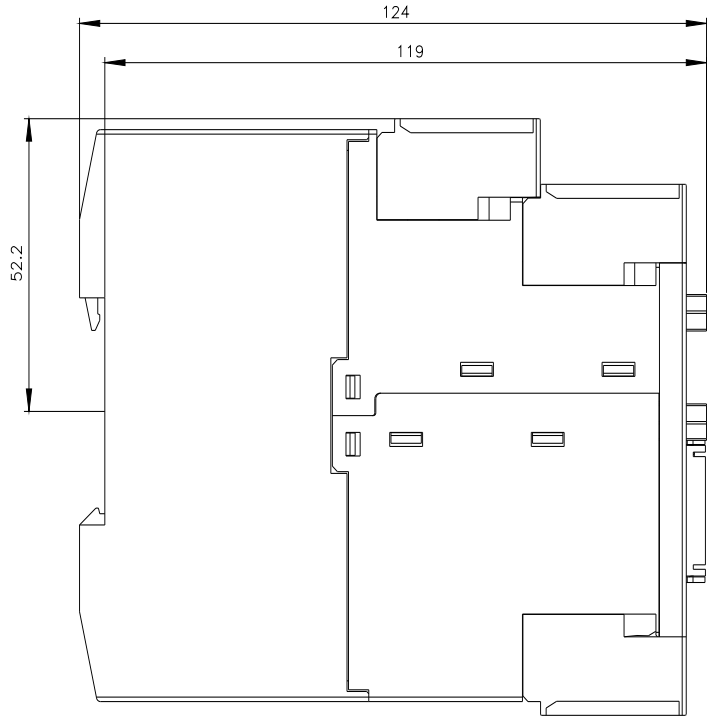
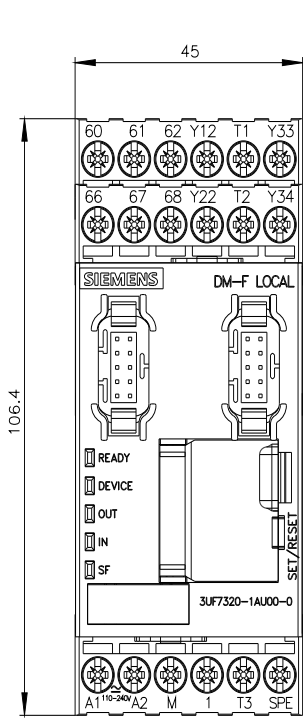
<https://support.industry.siemens.com/cs/ww/en/ps/3UF7320-1AU00-0>

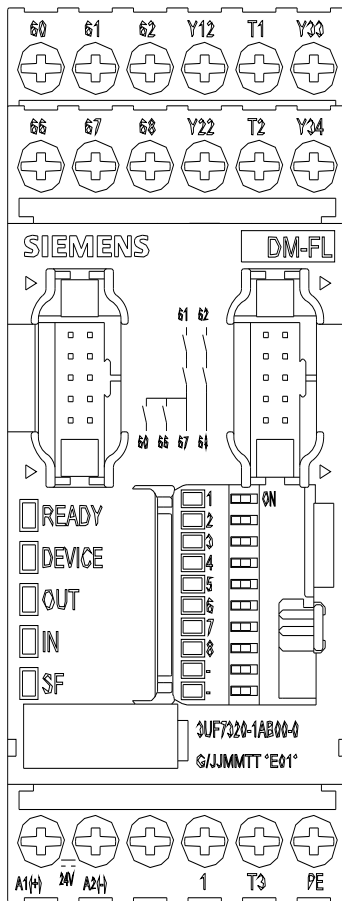
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3UF7320-1AU00-0&lang=en

Test report No. A0258, protective separation

<https://support.industry.siemens.com/cs/ww/en/view/109748152>





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