SIEMENS

Data sheet

3RM1102-2AA04



fail-safe direct-on-line starter, 3RM1, 500 V, 0.09 - 0.75 kW, 0.4 - 2 A, 24 V DC, spring-loaded terminal (push-in)

product brand name	SIRIUS
product category	Motor starter
product designation	Fail-safe direct starter
design of the product	With electronic overload protection and safety-related disconnection
product type designation	3RM1
General technical data	
equipment variant according to IEC 60947-4-2	3
product function	fail-safe direct starter
 intrinsic device protection 	Yes
 for power supply reverse polarity protection 	Yes
suitability for operation device connector 3ZY12	Yes
power loss [W] for rated value of the current	
 at AC in hot operating state per pole 	0.1 W
 without load current share typical 	1.37 W
insulation voltage rated value	500 V
overvoltage category	III
surge voltage resistance rated value	6 kV
maximum permissible voltage for protective separation	
 between main and auxiliary circuit 	500 V
 between control and auxiliary circuit 	250 V
shock resistance	6g / 11 ms
operating frequency maximum	1 1/s
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	03/01/2017
SVHC substance name	Blei - 7439-92-1 Bleimonoxid (Bleioxid) - 1317-36-8 2,2',6,6'-Tetrabrom-4,4'-isopropylidendi - 79-94-7
product function	
• direct start	Yes
reverse starting	No
product function short circuit protection	No
Electromagnetic compatibility	
EMC emitted interference according to IEC 60947-1	class A
EMC immunity according to IEC 60947-1	Class A
conducted interference	
 due to burst according to IEC 61000-4-4 	3 kV / 5 kHz
 due to conductor-earth surge according to IEC 61000-4-5 	4 kV signal lines 2 kV
• due to conductor-conductor surge according to IEC 61000-4-5	2 kV
 due to high-frequency radiation according to IEC 61000- 4-6 	10 V

field based interference according to IEC (1000-1-2	10.1//m
field-based interference according to IEC 61000-4-3	10 V/m
electrostatic discharge according to IEC 61000-4-2 conducted HF interference emissions according to	6 kV contact discharge / 8 kV air discharge Class B for the domestic, business and commercial environments
CISPR11	Class B for the domestic, business and commercial environments
field-bound HF interference emission according to CISPR11	Class B for the domestic, business and commercial environments
Safety related data	
diagnostics test interval by internal test function maximum	600 s
safe state	Load circuit open
function test interval maximum	1a
stop category according to EN 60204-1	0
failure rate [FIT] at rate of recognizable hazardous failures	1 400 FIT
(λdd)	
failure rate [FIT] at rate of non-recognizable hazardous	16 FIT
failures (λdu)	2 500 000
B10d value	2 500 000
average diagnostic coverage level (DCavg) MTTFd	99 % 75 a
SIL Claim Limit (subsystem) according to EN 62061	SILCL 3
performance level (PL) according to EN ISO 13849-1	e 4
category according to EN ISO 13849-1	4 Туре В
safety device type according to IEC 61508-2	99.4 %
Safe failure fraction (SFF) hardware fault tolerance according to IEC 61508	99.4 % 1
T1 value for proof test interval or service life according to	20 a
IEC 61508	200
protection class IP on the front according to IEC 60529	IP20
touch protection on the front according to IEC 60529	finger-safe
hardware fault tolerance according to IEC 61508 relating to ATEX	0
PFDavg with low demand rate according to IEC 61508 relating to ATEX	0.0005
PFHD with high demand rate according to EN 62061 relating to ATEX	5E-8 1/h
Safety Integrity Level (SIL) according to IEC 61508 relating to ATEX	SIL2
T1 value for proof test interval or service life according to IEC 61508 relating to ATEX	3 a
Main circuit	
number of poles for main current circuit	3
design of the switching contact	Hybrid
adjustable current response value current of the current- dependent overload release	0.4 2 A
minimum load [%]	20 %; from set rated current
type of the motor protection	solid-state
operating voltage rated value	48 500 V
relative symmetrical tolerance of the operating voltage	10 %
operating frequency 1 rated value	50 Hz
operating frequency 2 rated value	60 Hz
relative symmetrical tolerance of the operating frequency	10 %
operational current	2.4
at AC at 400 V rated value	2 A 2 A
• at AC-3 at 400 V rated value	2 A 2 A
at AC-53a at 400 V at ambient temperature 40 °C rated value	2 A 16 A
ampacity when starting maximum	16 A
operating power for 3-phase motors at 400 V at 50 Hz Inputs/ Outputs	0.09 0.75 kW
 input voltage at digital input at DC rated value 	24 V
• with signal <0> at DC	24 V 0 5 V
• for signal <1> at DC	15 30
input current at digital input	
• for signal <1> at DC	
	8 mA
• with signal <0> at DC	8 mA 1 mA

number of CO contacto for cuviliany contacto	1
number of CO contacts for auxiliary contacts operational current of auxiliary contacts at AC-15 at 230 V	1 3 A
maximum	38
operational current of auxiliary contacts at DC-13 at 24 V	1 A
maximum	
Control circuit/ Control	
type of voltage of the control supply voltage	DC
control supply voltage at DC rated value	19.2 30 V
relative negative tolerance of the control supply voltage at DC	20 %
relative positive tolerance of the control supply voltage at DC	25 %
control supply voltage 1 at DC rated value	24 V
operating range factor control supply voltage rated value at DC	
initial value	0.8
full-scale value	1.25
control current at DC	
 in standby mode of operation 	13 mA
during operation	57 mA
inrush current peak	
• at 24 V	0.28 A; values at 25 °C
 at DC at 24 V at DC at 24 V at switching on of motor 	300 mA
duration of inrush current peak	130 mA
• at 24 V	85 ms
• at DC at 24 V	80 ms
 at DC at 24 V at DC at 24 V at switching on of motor 	20 ms
power loss [W] in auxiliary and control circuit	20110
• in switching state OFF	
— with bypass circuit	0.35 W
• in switching state ON	
— with bypass circuit	1.37 W
Response times	
ON-delay time	65 76 ms
OFF-delay time	30 43 ms
Power Electronics	
operational current	
• at 40 °C rated value	2 A
● at 50 °C rated value	2 A
● at 55 °C rated value	2 A
● at 60 °C rated value	2 A
Installation/ mounting/ dimensions	
mounting position	vertical, horizontal, standing (observe derating)
fastening method	screw and snap-on mounting onto 35 mm DIN rail
height	100 mm
width	22.5 mm
depth	141.6 mm
 required spacing with side-by-side mounting 	
with side-by-side mounting — forwards	0 mm
— backwards	0 mm
— upwards	50 mm
— downwards	50 mm
— at the side	0 mm
• for grounded parts	
— forwards	0 mm
— backwards	0 mm
— upwards	50 mm
— upwards — at the side	50 mm 3.5 mm
•	
— at the side	3.5 mm

- Indigenerative - Control - Contro	installation altitude at height above sea level maximum	4 000 m; For derating see manual
• during speration -26+60 °C • during stranged -40+70 °C • during transport -40+70 °C • PROFINET IO protocol No • PROFINET IO protocol No • PROFINET IO protocol No • for during and control durint spring-loaded terminals (push-in) for main circuit, spring-loaded terminals (push-in) for main circuit, spring-loaded terminals (push-in) for main circuit, spring-loaded terminals (push-in) • for during and control durint spring-loaded terminals (push-in) • for main circuit spring-loaded terminals (push-in) • for main circuit spring-loaded terminals (push-in) • for main circuit <t< td=""><td></td><td></td></t<>		
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• during manipot -40 -40 +70 ⁻ C environmental category during operation according to EC (66 no to formation, rely occasional condensation), 3C3 (no salt mist), 3S2 relative hundidy during operation 1085 % air pressue according to SN 3205 9001800 hPa Communication Protocol No protocol is supported No • PROFINET IO protocol No protocol is supported No • protocil supported Spring-loaded terminals (push-in) for main circuit, spring-loaded terminals (push-in) • for auxillary and control circuit spring-loaded terminals (push-in) • for auxillary and control circuit spring-loaded terminals (push-in) • for or main current circuit spring-loaded terminals (push-in) • for auxillary and control circuit spring-loaded terminals (push-in) • for auxillary and control circuit spring-loaded terminals (push-in) • for auxillary and control circuit spring-loaded terminals (push-in) • for auxillary contacts 0.54 mm ² </td <td></td> <td></td>		
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• solid or stranded 0.5 4 mm ² • finely stranded with core end processing 0.5 4 mm ² • finely stranded without core end processing 0.5 4 mm ² connectable conductor cross-section for auxiliary contacts 0.5 1.5 mm ² • solid or stranded 0.5 1.5 mm ² • finely stranded with core end processing 0.5 1.5 mm ² • finely stranded without core end processing 0.5 1.5 mm ² • for auxiliary contacts - • of or auxiliary contacts - - finely stranded with core end processing 1x (0.5 1.5 mm ²) - finely stranded with core end processing 1x (0.5 1.0 mm ²), 2x (0.5 1.0 mm ²) - finely stranded without core end processing 1x (0.5 1.0 mm ²), 2x (0.5 1.0 mm ²) - finely stranded without core end processing 1x (0.5 1.0 mm ²), 2x (0.5 1.0 mm ²) - finely stranded without core end processing 1x (0.5 1.0 mm ²), 2x (0.5 1.0 mm ²) - finely stranded without core end processing 1x (0.5 1.0 mm ²), 2x (0.5 1.5 mm ²) - finely stranded without core end processing 1x (0.5 1.0 mm ²), 2x (0.5 1.0 mm ²) - finely stranded without core end processing 1x (0.5 1.0 mm ²) - finely stranded without core end proc		
 finely stranded with core end processing 0.5 2.5 mm² finely stranded without core end processing 0.5 4 mm² connectable conductor cross-section for auxiliary contacts solid or stranded finely stranded with core end processing 0.5 1.5 mm² finely stranded with core end processing 0.5 1.5 mm³ type of connectable conductor cross-sections for auxiliary contacts a solid 1x (0.5 1.5 mm³), 2x (0.5 1.5 mm³) finely stranded with core end processing 1x (0.5 1.5 mm³), 2x (0.5 1.5 mm³) finely stranded with core end processing 1x (0.5 1.5 mm³), 2x (0.5 1.5 mm³) for auxiliary contacts a solid 1x (0.5 1.5 mm³), 2x (0.5 1.5 mm³) for auxiliary contacts for AWG cables for auxiliary contacts tx (20 16), 2x (20 16) AWG number as coded connectable conductor cross section for main contacts gouther contacts <l< td=""><td></td><td>0.5 4 mm²</td></l<>		0.5 4 mm ²
• finely stranded without core end processing 0.5 4 mm ² connectable conductor cross-section for auxiliary contacts 0.5 15 mm ² • solid or stranded 0.5 1 mm ² • finely stranded with core end processing 0.5 1 mm ² • finely stranded with core end processing 0.5 1 mm ² • finely stranded without core end processing 0.5 1.5 mm ² • for auxiliary contacts - solid - solid 1x (0.5 1.5 mm ²), 2x (0.5 1.5 mm ²) - finely stranded with core end processing 1x (0.5 1.5 mm ²), 2x (0.5 1.0 mm ²) - finely stranded with core end processing 1x (0.5 1.5 mm ²), 2x (0.5 1.5 mm ²) - finely stranded with core end processing 1x (0.5 1.5 mm ²), 2x (0.5 1.5 mm ²) - finely stranded without core end processing 1x (2.5 1.5 mm ²), 2x (0.5 1.5 mm ²) - finely stranded conductor cross sections 1x (2.0 16), 2x (2.0 16) AWG number as coded connectable conductor cross section - for main contacts • for axiliary contacts 20 16 UL/CSA ratings 20 16 yielded mechanical performance [hp] - for single-phase AC motor - at 200 Z0 V rated value 0.125 hp - at 200/208 V rated value 0.333 hp - at 200/208 V rated value 0.75 hp operational current a		
connectable conductor cross-section for auxiliary contacts • solid or stranded 0.5 1.5 mm² • finely stranded with core end processing 0.5 1 mm² • finely stranded without core end processing 0.5 1.5 mm² • for auxiliary contacts 0.5 1.5 mm² - solid 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - finely stranded with core end processing 1x (0.5 1.0 mm²), 2x (0.5 1.0 mm²) - finely stranded with core end processing 1x (0.5 1.0 mm²), 2x (0.5 1.0 mm²) - finely stranded with core end processing 1x (0.5 1.0 mm²), 2x (0.5 1.5 mm²) - finely stranded with core end processing 1x (0.5 1.0 mm²), 2x (0.5 1.5 mm²) - finely stranded with core end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - finely stranded with core end processing 1x (0.5 1.0 mm²), 2x (0.5 1.5 mm²) - finely stranded with core end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - finely stranded with core end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - finely stranded with core end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - finely stranded without core end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - finely stranded without core end processing 1x (0.5 1.5		
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• finely stranded with core end processing 0.5 1 mm² • finely stranded without core end processing 0.5 1.5 mm² type of connectable conductor cross-sections - solid • for auxiliary contacts 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - finely stranded with core end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - finely stranded without core end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - finely stranded without core end processing 1x (20 10 mm²), 2x (0.5 1.5 mm²) - finely stranded without core end processing 1x (20 16), 2x (20 16) AWG number as coded connectable conductor cross sections 20 12 • for main contacts 20 12 • for auxiliary contacts 20 16 UL/CSA ratings 20 16 yielded mechanical performance [hp] • for 3-phase AC motor - at 200/208 V rated value 0.125 hp • for 3-phase AC motor - at 220/230 V rated value - at 200/208 V rated value 0.333 hp - at 480/480 V rated value 0.75 hp operational current at AC at 480 V according to UL 508 2 A Certificates/ approvals 2 A	-	$0.5 \pm 1.5 \text{ mm}^2$
• finely stranded without core end processing 0.5 1.5 mm ² type of connectable conductor cross-sections for auxiliary contacts solid 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) finely stranded with core end processing finely stranded without core end processing finely stranded without core end processing for single-phase coded connectable conductor cross section for main contacts for auxiliary contacts 20 12 for auxiliary contacts 20 16 typelded mechanical performance [hp] for single-phase AC motor at 200/208 V rated value cot 200/208 V rated value cot 200/208 V rated value cot 4480 V according to UL 508 2A Certificates/ approvals General Product Approval		
type of connectable conductor cross-sections • for auxiliary contacts - solid 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) - finely stranded with core end processing 1x (0.5 1.0 mm²), 2x (0.5 1.0 mm²) - finely stranded without core end processing 1x (0.5 1.5 mm²), 2x (0.5 1.0 mm²) - finely stranded without core end processing 1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) • for AWG cables for auxiliary contacts 1x (20 16) AWG number as coded connectable conductor cross section 0 12 • for auxiliary contacts 20 12 • for auxiliary contacts 20 16 UL/CSA ratings 20 16 UL/CSA ratings 0.125 hp • for single-phase AC motor 0.125 hp - at 220/208 V rated value 0.333 hp - at 220/208 V rated value 0.333 hp - at 460/480 V rated value 0.75 hp • operational current at AC at 480 V according to UL 508 2 A Certificates/ approvals 2 A		
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solid1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²) finely stranded with core end processing1x (0.5 1,0 mm²), 2x (0.5 1,0 mm²) finely stranded without core end processing1x (0.5 1,5 mm²), 2x (0.5 1,5 mm²) finely stranded without core end processing1x (0.5 1,5 mm²), 2x (0.5 1,5 mm²) for AWG cables for auxiliary contacts1x (20 16), 2x (20 16)AWG number as coded connectable conductor cross section20 12 for main contacts20 12 for auxiliary contacts20 16ULCSA ratings20 16ULCSA ratings20 12 at 230 V rated value0.125 hp for 3-phase AC motor at 200/208 V rated value0.333 hp at 200/208 V rated value0.333 hp at 460/480 V rated value0.75 hp at 460/480 V rated value0.75 hp at 480 V rated value0.75 hp at 200 rated value0.333 hp at 480 V rated value0.75 hp		
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finely stranded without core end processing1x (0.5 1.5 mm²), 2x (0.5 1.5 mm²)• for AWG cables for auxiliary contacts1x (20 16), 2x (20 16)AWG number as coded connectable conductor cross section20 12• for main contacts20 12• for auxiliary contacts20 16UL/CSA ratings20 16UL/CSA ratings		
• for AWG cables for auxiliary contacts 1x (20 16), 2x (20 16) AWG number as coded connectable conductor cross section • for main contacts 20 12 • for main contacts 20 16 UL/CSA ratings UL/CSA ratings • for single-phase AC motor • for 3-phase AC motor • for 3-phase AC motor • for 3-phase AC motor • for 3-phase AC motor • at 220/208 V rated value 0.333 hp • at 220/230 V rated value • at 220/230 V rated value 0.75 hp • operational current at AC at 480 V according to UL 508 Certificates/ approvals General Product Approval • for subscription		
AWG number as coded connectable conductor cross section 20 12 • for main contacts 20 12 • for auxiliary contacts 20 16 UL/CSA ratings 0 16 yielded mechanical performance [hp] • for single-phase AC motor - at 230 V rated value 0.125 hp • for 3-phase AC motor - at 200/208 V rated value - at 200/208 V rated value 0.333 hp - at 220/230 V rated value 0.75 hp operational current at AC at 480 V according to UL 508 2 A Certificates/ approvals General Product Approval		
section • for main contacts 20 12 • for auxiliary contacts 20 16 UL/CSA ratings • for single-phase AC motor • for 3-phase AC motor 0.125 hp • for 3-phase AC motor - at 200/208 V rated value • for 3-phase AC motor 0.333 hp - at 200/208 V rated value 0.333 hp - at 220/230 V rated value 0.75 hp operational current at AC at 480 V according to UL 508 2 A Certificates/ approvals General Product Approval	· · · · · · · · · · · · · · · · · · ·	IX (20 10), 2X (20 10)
• for auxiliary contacts 20 16 UL/CSA ratings		
UL/CSA ratings yielded mechanical performance [hp] • for single-phase AC motor 0.125 hp - at 230 V rated value 0.125 hp • for 3-phase AC motor 0.333 hp - at 200/208 V rated value 0.333 hp - at 220/230 V rated value 0.333 hp - at 460/480 V rated value 0.75 hp operational current at AC at 480 V according to UL 508 Q A	for main contacts	20 12
UL/CSA ratings yielded mechanical performance [hp] • for single-phase AC motor 0.125 hp - at 230 V rated value 0.125 hp • for 3-phase AC motor 0.333 hp - at 200/208 V rated value 0.333 hp - at 220/230 V rated value 0.333 hp - at 460/480 V rated value 0.75 hp operational current at AC at 480 V according to UL 508 Q A	for auxiliary contacts	20 16
yielded mechanical performance [hp] • for single-phase AC motor - at 230 V rated value 0.125 hp • for 3-phase AC motor - at 200/208 V rated value 0.333 hp - at 220/230 V rated value 0.333 hp - at 220/230 V rated value 0.333 hp - at 460/480 V rated value 0.75 hp operational current at AC at 480 V according to UL 508 2 A Certificates/ approvals General Product Approval		
 for single-phase AC motor at 230 V rated value for 3-phase AC motor at 200/208 V rated value at 220/230 V rated value at 220/230 V rated value at 460/480 V rated value 0.75 hp operational current at AC at 480 V according to UL 508 2 A Certificates/ approvals 		
• for 3-phase AC motor - at 200/208 V rated value 0.333 hp - at 220/230 V rated value 0.333 hp - at 460/480 V rated value 0.75 hp operational current at AC at 480 V according to UL 508 2 A Certificates/ approvals General Product Approval		0.125 hp
- at 200/208 V rated value0.333 hp- at 220/230 V rated value0.333 hp- at 460/480 V rated value0.75 hpoperational current at AC at 480 V according to UL 5082 ACertificates/ approvalsGeneral Product Approval		
		0.333 hp
operational current at AC at 480 V according to UL 508 2 A Certificates/ approvals General Product Approval		
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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=3RM1102-2AA04

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RM1102-2AA04

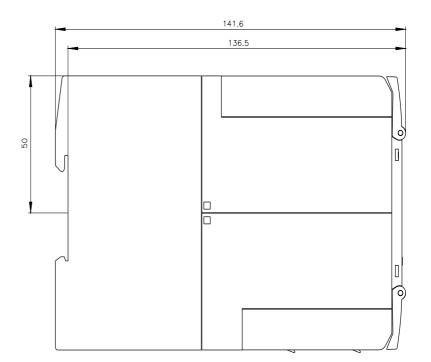
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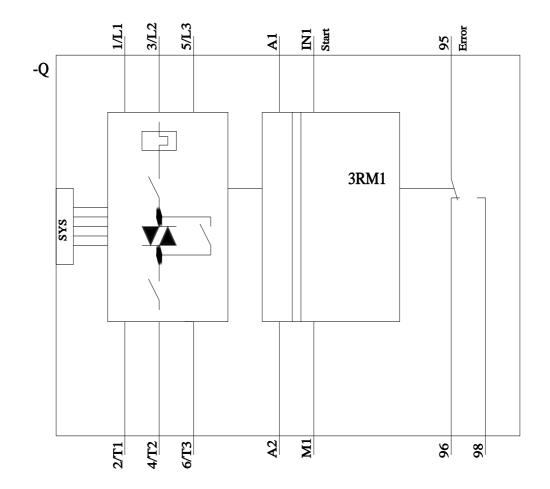
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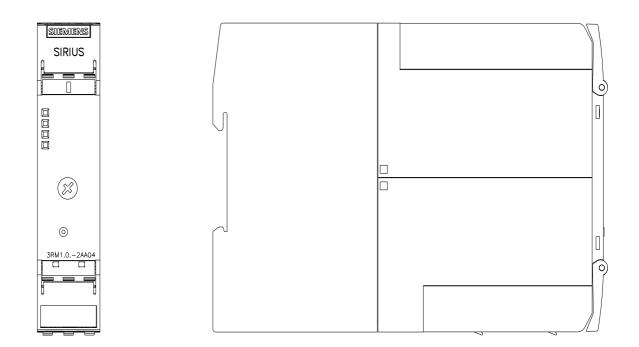
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RM1102-2AA04&lang=en









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