

Isolation amplifier - MACX MCR-SL-NAM-R-SP - 2924252

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid (<http://phoenixcontact.com/download>)




NAMUR isolation amplifier for operating proximity sensors and switches. The signals are transferred to the control level using relay output (PDT). Line fault detection (LFD), galvanic 3-way isolation, SIL 2, with push-in connection.

Your advantages

- ✓ Power supply and error indication possible via DIN rail connector
- ✓ Installation in zone 2, protection type "n" (EN 60079-15) permitted
- ✓ Up to SIL 2 according to EN 61508
- ✓ Line fault detection (LFD), can be activated/deactivated, error indicated by red flashing LED with de-excitation of output relay
- ✓ Direction of operation can be selected (operating or closed circuit current behavior)
- ✓ 3-way electrical isolation
- ✓ LED indicators for supply voltage, switching state, and malfunction according to NAMUR NE 44
- ✓ Relay signal output (PDT)
- ✓ Input for NAMUR proximity sensors (EN 60947-5-6), floating contacts or contacts with resistance circuit



Key Commercial Data

Packing unit	1 pc
GTIN	
GTIN	4046356478908

Technical data

Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
-------------------------	---

Dimensions

Width	12.5 mm
Height	116.9 mm
Depth	113.7 mm

Ambient conditions

Isolation amplifier - MACX MCR-SL-NAM-R-SP - 2924252

Technical data

Ambient conditions

Ambient temperature (operation)	-20 °C ... 60 °C (Any mounting position)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Maximum altitude	≤ 2000 m
Permissible humidity (operation)	10 % ... 95 % (non-condensing)
Permissible humidity (storage/transport)	5 % ... 95 % (non-condensing)
Degree of protection	IP20 (not assessed by UL)
Noise immunity	EN 61000-6-2 EN 61326

Input data

Non-load voltage	~ 8 V DC
Switching points (attenuated)	< 1.2 mA (blocking)
Switching points (unattenuated)	> 2.1 mA (conductive)
Available input sources	NAMUR proximity sensors (EN 60947-5-6)
Short-circuit current	~ 8 mA
Switching hysteresis	< 0.2 mA
Line fault detection	Break 0.05 mA < IIN < 0.35 mA
	Short circuit 100 Ω < RSensor < 360 Ω

Output data

Switching output	Relay output
Contact type	1 PDT
Contact material	AgSnO ₂ , hard gold-plated
Maximum switching voltage	250 V AC (2 A)
	120 V DC (0.2 A)
	30 V DC (2 A)
Maximum switching capacity	500 VA
Mechanical service life	10 ⁷ cycles
Switching frequency	≤ 20 Hz (without load)

Power supply

Nominal supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (24 V DC -20%...+25%)
Max. current consumption	21 mA (24 V DC)
Power dissipation	< 650 mW
Power consumption	< 650 mW

Connection data

Connection method	Push-in connection
Stripping length	8 mm
Conductor cross section solid	0.2 mm ² ... 1.5 mm ²
Conductor cross section flexible	0.2 mm ² ... 1.5 mm ²
Conductor cross section AWG	24 ... 16

Isolation amplifier - MACX MCR-SL-NAM-R-SP - 2924252

Technical data

General

No. of channels	1
Status display	Green LED (supply voltage) LED yellow (switching state) Red LED (line errors)
Electromagnetic compatibility	Conformance with EMC directive
Interference emission	EN 61000-6-4
Housing material	PA 6.6-FR
Color	gray
Designation	Input/output
Electrical isolation	375 V (Peak value in accordance with IEC/EN 60079-11)
Designation	Input/output/supply, DIN rail connector Output/input, supply, TBUS Input/supply, DIN rail connector
Electrical isolation	375 V (Peak value in accordance with IEC/EN 60079-11)

Safety characteristic data

Integrity requirement	IEC 61508 - Low demand
Designation	Non-inverted operation
Equipment type	Type A
Safety Integrity Level (SIL)	2
Safe Failure Fraction (SFF)	78 %
λ_{SU}	2.49×10^{-7} (249 FIT)
λ_{SD}	6×10^{-9} (6 FIT)
λ_{DU}	6.4×10^{-8} (64 FIT)
λ_{DD}	7×10^{-9} (7 FIT)
Probability of a hazardous failure on demand (PFD _{AVG})	3.09×10^{-4} (1 year) 6.17×10^{-4} (2 years) 1.54×10^{-3} (5 years)
Diagnostic coverage (DC)	DC _S = 2.4 %, DC _D = 9 %
Integrity requirement	IEC 61508 - Low demand
Designation	Inverted operation
Equipment type	Type A
Safety Integrity Level (SIL)	2
Safe Failure Fraction (SFF)	78 %
λ_{SU}	2.48×10^{-7} (248 FIT)
λ_{SD}	1×10^{-9} (1 FIT)
λ_{DU}	6.2×10^{-8} (62 FIT)
λ_{DD}	6×10^{-9} (6 FIT)
Probability of a hazardous failure on demand (PFD _{AVG})	3.01×10^{-4} (1 year)

Isolation amplifier - MACX MCR-SL-NAM-R-SP - 2924252

Technical data

Safety characteristic data

	6.02 x 10 ⁻⁴ (2 years)
	1.5 x 10 ⁻³ (5 years)
Diagnostic coverage (DC)	DC _S = 0.4 %, DC _D = 8 %
Safety Integrity Level (SIL)	1

Standards and Regulations

Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4
Conformance	CE-compliant, additionally EN 61326-1
ATEX	# II 3 G Ex nA nC IIC T4 Gc X
UL, USA/Canada	UL 508 Listed
	UL 61010 Listed
	Class I, Div. 2, Groups A, B, C, D T4
	Class I, Zone 2, Group IIC T4
DNV GL-Temperature	B
DNV GL-Humidity	B
DNV GL-Vibration	A
DNV GL-EMC	B
DNV GL-Enclosure	Required protection according to the Rules shall be provided upon installation on board

Conformance/approvals

Designation	CE
Identification	CE-compliant
Additional text	and EN 61326-1
Designation	ATEX
Identification	# II 3 G Ex nA nC IIC T4 Gc X
Designation	UL, USA/Canada
Identification	UL 508 Listed
	UL 61010 Listed
	Class I, Div. 2, Groups A, B, C, D T4
	Class I, Zone 2, Groups IIC, IIB, IIA T4
Designation	UL, USA/Canada
Identification	UL 508 Listed
	UL 61010 Listed
	Class I, Div. 2, Groups A, B, C, D T4
	Class I, Zone 2, Group IIC T4
Designation	Shipbuilding approval
Certificate	DNV GL TAA00000AG
Designation	Safety Integrity Level (SIL, IEC 61508)
Identification	2
Temperature	B

Isolation amplifier - MACX MCR-SL-NAM-R-SP - 2924252

Technical data

Conformance/approvals

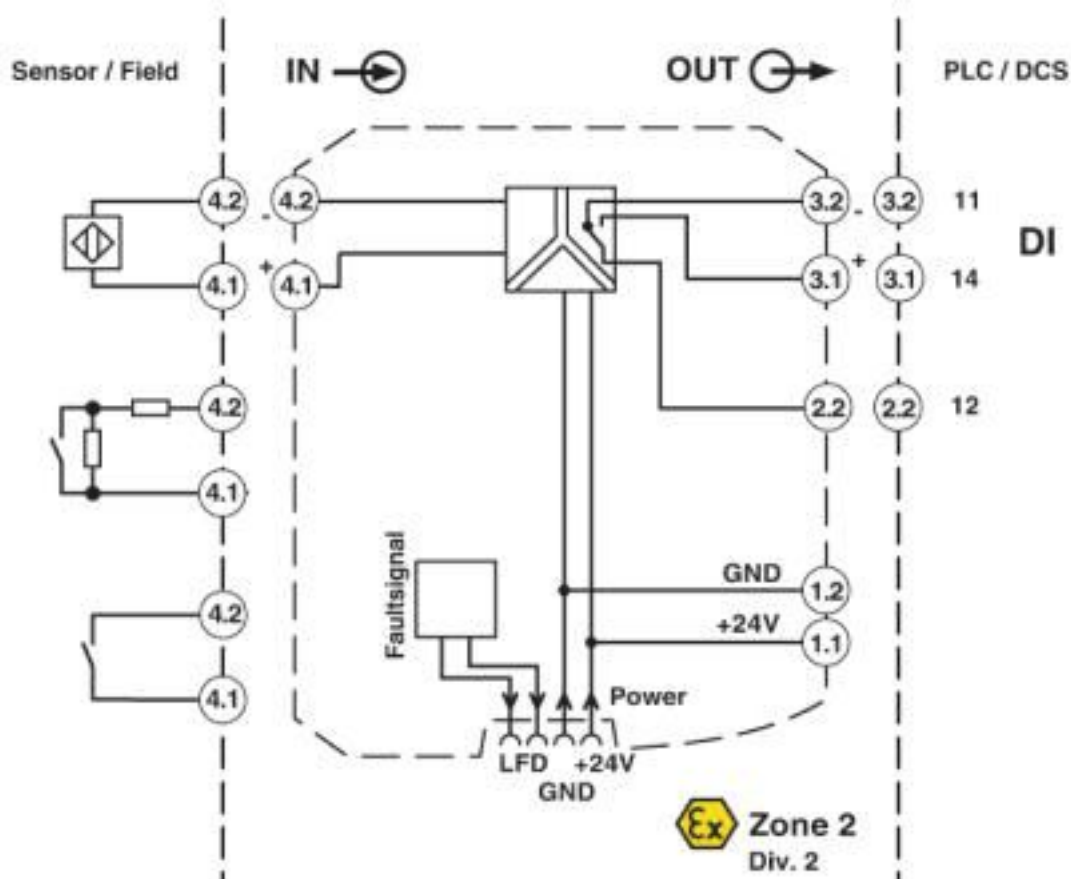
Humidity	B
Vibration	A
EMC	B
Enclosure	Required protection according to the Rules shall be provided upon installation on board

Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

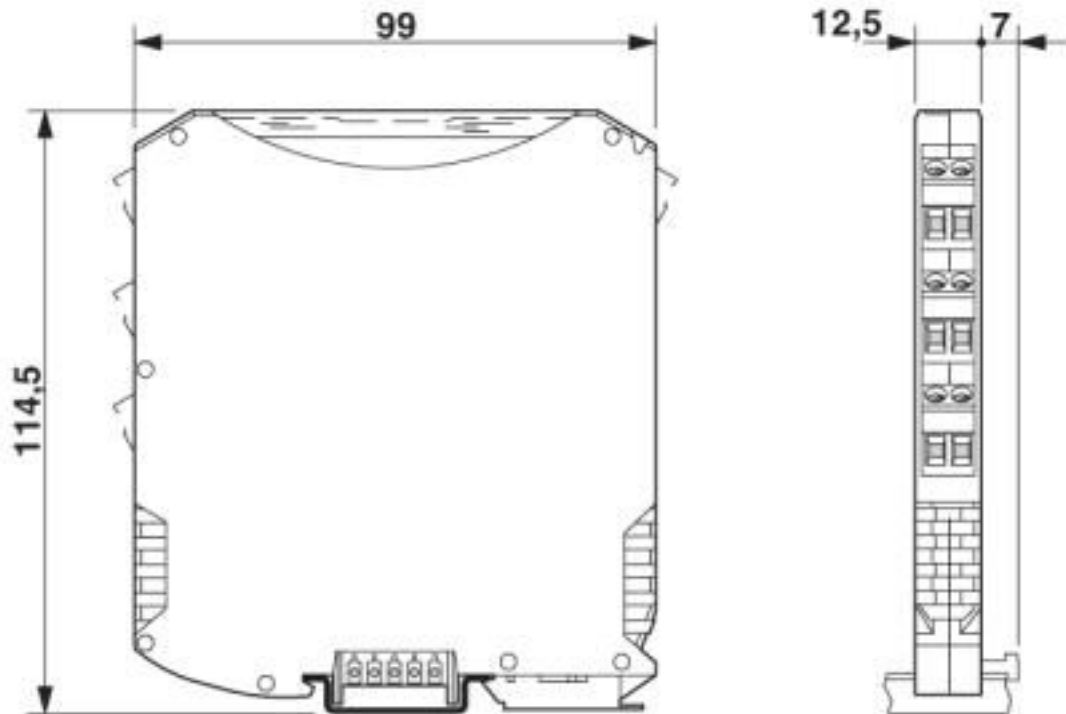
Drawings

Block diagram

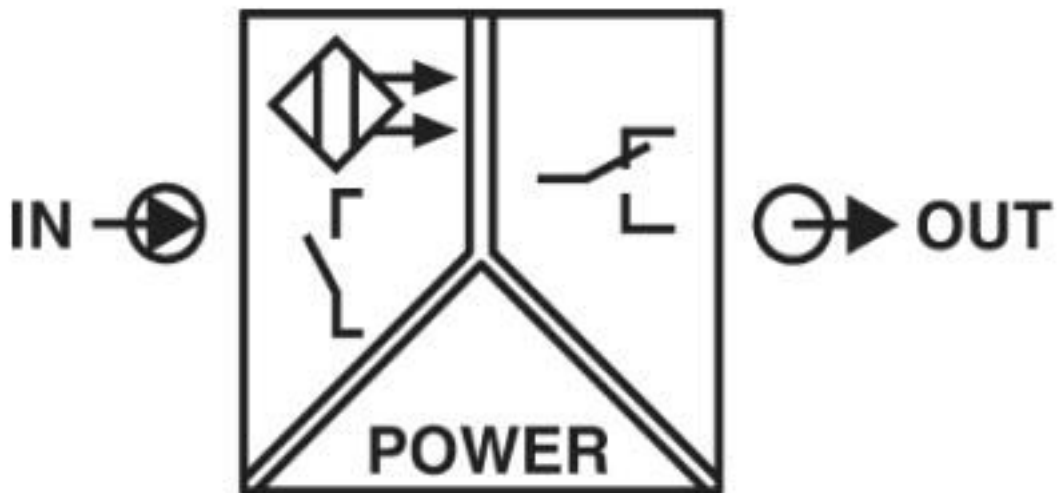


Isolation amplifier - MACX MCR-SL-NAM-R-SP - 2924252

Dimensional drawing



Pictogram



Classifications

eCl@ss

eCl@ss 10.0.1	27210121
eCl@ss 4.0	27210100
eCl@ss 4.1	27210100

Isolation amplifier - MACX MCR-SL-NAM-R-SP - 2924252

Classifications

eCl@ss

eCl@ss 5.0	27210100
eCl@ss 5.1	27210100
eCl@ss 6.0	27210100
eCl@ss 7.0	27210121
eCl@ss 8.0	27210121
eCl@ss 9.0	27210121

ETIM

ETIM 2.0	EC001485
ETIM 3.0	EC001485
ETIM 4.0	EC001485
ETIM 5.0	EC001485
ETIM 6.0	EC001485
ETIM 7.0	EC001485

UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008
UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	39121008
UNSPSC 18.0	39121008
UNSPSC 19.0	39121008
UNSPSC 20.0	39121008
UNSPSC 21.0	39121008

Approvals

Approvals

Approvals

DNV GL / UL Listed / cUL Listed / Functional Safety / cULus Listed

Ex Approvals

ATEX / UL Listed / cUL Listed / EAC Ex / cULus Listed

Approval details

DNV GL		https://approvalfinder.dnvgl.com/	TAA00000AG
--------	---	---	------------

Isolation amplifier - MACX MCR-SL-NAM-R-SP - 2924252

Approvals

UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 330267
-----------	--	---	---------------

cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 330267
------------	--	---	---------------

Functional Safety			07-06-39 R005 V2R2
-------------------	--	--	--------------------

cULus Listed			
--------------	--	--	--

Accessories

Accessories

Component terminal block

Component terminal block - UKK 5-2R/NAMUR - 2941662



Double-level terminal block, with preassembled resistors

Device marking

Plastic label - UC-EMLP (11X9) - 0819291



Plastic label, Sheet, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 10

Plastic label - UC-EMLP (11X9) YE - 0822602



Plastic label, Sheet, yellow, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 10

Isolation amplifier - MACX MCR-SL-NAM-R-SP - 2924252

Accessories

Plastic label - UC-EMLP (11X9) SR - 0828094



Plastic label, Sheet, silver, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 10

Plastic label - US-EMLP (11X9) - 0828789



Plastic label, Card, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 135

Plastic label - US-EMLP (11X9) YE - 0828871



Plastic label, Card, yellow, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 135

Plastic label - US-EMLP (11X9) SR - 0828872



Plastic label, Card, silver, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 135

Device marker - LS-EMLP (11X9) WH - 0831678



Device marker, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 255

Isolation amplifier - MACX MCR-SL-NAM-R-SP - 2924252

Accessories

Device marker - LS-EMLP (11X9) YE - 0831732

Device marker, Sheet, yellow, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 255



Device marker - LS-EMLP (11X9) SR - 0831705

Device marker, Sheet, silver, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 255



DIN rail connector

DIN rail bus connectors - ME 6,2 TBUS-2 1,5/5-ST-3,81 GN - 2869728



DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 5-pos.

End cover

End cover - D-UKK 3/5 - 2770024



End cover, length: 56 mm, width: 2.5 mm, height: 52 mm, color: gray

End cover - D-UKK 3/5 BU - 2770105



End cover, length: 56 mm, width: 2.5 mm, height: 62 mm, color: blue

Insulating sleeve

Isolation amplifier - MACX MCR-SL-NAM-R-SP - 2924252

Accessories

Insulating sleeve - MPS-IH BK - 0201731

Insulating sleeve, color: black



Insulating sleeve - MPS-IH GY - 0201728

Insulating sleeve, color: gray



Insulating sleeve - MPS-IH GN - 0201702

Insulating sleeve, color: green



Insulating sleeve - MPS-IH YE - 0201692

Insulating sleeve, color: yellow



Insulating sleeve - MPS-IH BU - 0201689

Insulating sleeve, color: blue



Isolation amplifier - MACX MCR-SL-NAM-R-SP - 2924252

Accessories

Insulating sleeve - MPS-IH RD - 0201676

Insulating sleeve, color: red



Insulating sleeve - MPS-IH WH - 0201663

Insulating sleeve, color: white



Labeled device marker

Plastic label - UC-EMLP (11X9) CUS - 0824547

Plastic label, can be ordered: by sheet, white, labeled according to customer specifications, mounting type: adhesive, lettering field size: 11 x 9 mm



Plastic label - UC-EMLP (11X9) YE CUS - 0824548

Plastic label, can be ordered: by sheet, yellow, labeled according to customer specifications, mounting type: adhesive, lettering field size: 11 x 9 mm



Plastic label - UC-EMLP (11X9) SR CUS - 0828098

Plastic label, can be ordered: by sheet, silver, labeled according to customer specifications, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 10



Module carrier

Isolation amplifier - MACX MCR-SL-NAM-R-SP - 2924252

Accessories

Module carrier - TC-D37SUB-ADIO16-EX-P-UNI - 2924854



Universal termination carrier for connecting 16 MACX Analog Ex i signal conditioners to digital or analog I/O cards, via D-SUB connector, 37-pos. (1:1 connection)

Module carrier - TC-D37SUB-AIO16-EX-PS-UNI - 2902932



Universal termination carrier for connecting 16 MACX Analog Ex i signal conditioners to digital or analog I/O cards, via D-SUB connector, 37-pos. (1:1 connection), with HART multiplexer connection

Power module

Power and error message module - MACX MCR-PTB - 2865625



Power and fault signaling module with screw connection, including corresponding ME 17,5 TBUS 1,5/ 5-ST-3,81 GY DIN rail connector

Power and error message module - MACX MCR-PTB-SP - 2924184



Power and fault signaling module with Push-in connection, including corresponding ME 17,5 TBUS 1,5/ 5-ST-3,81 GY DIN rail connector

Test plug terminal block

Test plugs - MPS-MT - 0201744



Test plugs, with solder connection up to 1 mm² conductor cross section, color: gray

Phoenix Contact 2020 © - all rights reserved
<http://www.phoenixcontact.com>

PHOENIX CONTACT GmbH & Co. KG
Flachsmarktstr. 8
32825 Blomberg
Germany
Tel. +49 5235 300
Fax +49 5235 3 41200
<http://www.phoenixcontact.com>

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Terminal Block Interface Modules](#) category:

Click to view products by [Phoenix Contact](#) manufacturer:

Other Similar products are found below :

[73-551-6002I](#) [GCN1MX25B](#) [DIN-50P-01](#) [DIN-68H-01](#) [DIN-96DI-01](#) [2291901](#) [2295185](#) [2907794](#) [2M10FCL](#) [FLKM-2I/O](#) [FLKM-4I/O](#)
[2281759](#) [2906251](#) [2907808](#) [5601749](#) [5541962](#) [1776613-1](#) [GCN1-004A](#) [ADAM-3920R-AE](#) [060-6827-06](#) [2311030](#) [2287708](#) [XW2C-20G6-](#)
[IO16](#) [GCN1-T](#) [MACX](#) [MCR-VAC](#) [5775235](#) [ADAM-3956-BE](#) [XW6T-COM2.5X20YL](#) [XW6T-COM1.5X8BL](#) [XW6T-COM1.5X16BL](#)
[XW6T-COM1.5X20YL](#) [XW6T-COM1.5X16YL](#) [XW6T-COM1.5X20RD](#) [XW6T-COM1.5X20BL](#) [XW6T-COM2.5X8BL](#) [1976610000](#) [UM](#)
[45-D50SUB/B/ZFKDS](#) [5541234](#) [410-261](#) [902056](#) [2906243](#) [2906915](#) [2907706](#) [ADAM-3909-AE](#) [ADAM-3920-AE](#) [ADAM-3925-AE](#)
[ADAM-3937-BE](#) [ADAM-3950-AE](#) [ADAM-3951-BE](#) [ADAM-3968-AE](#)