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EN

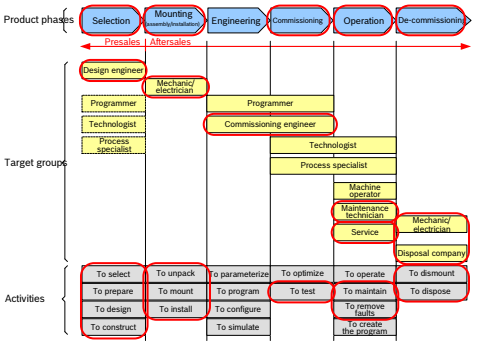
Instructions

NYA04.1-LMS-MUX2-10VTT-5V-NY4960/10
NYA04.1-LMS-MUX2-10VTT-15V-NY4960/20

1 About this documentation

1.1 Overview – target groups & product phases

The target groups, product phases and activities that can refer to this document are marked in rounded boxes in the following figure.



1.2 Intended audience

This document explains *technical and service personnel of the machine builder* how to safely install the LMS MUX unit mechanically and electrically. This document is not the usage manual.

1.3 Availability

These Instructions are part of the LMS MUX unit product delivery and must always be available for the user.
If the LMS MUX unit is handed over to another person, these Instructions must be handed over as well.

1.4 Included parts

Type code	Material number	Description
NYA04.1-LMS-MUX2-10VTT-5V-NY4960/10 -- or -- NYA04.1-LMS-MUX2-10VTT-15V-NY4960/20	R911320451 R911320453	LMS MUX for 2 axes +/-5V power supply LMS MUX for 2 axes +/-15V power supply
DOK-NY4000-LMSMUX*4960-IT01-EN-P	R911341589	Instructions

1.5 Variations

These Instructions apply to the LMS MUX units with the following Type codes:

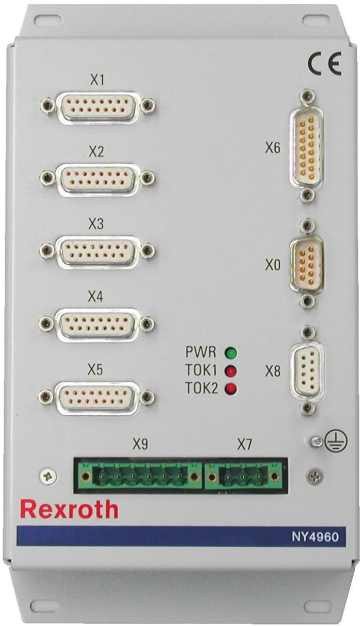
- NYA04.1-LMS-MUX2-10VTT-5V-NY4960/10
- NYA04.1-LMS-MUX2-10VTT-15V-NY4960/20

1.6 Further available documentation

Title and type code	Material number
Rexroth NYCe 4000 Hardware System Manual DOK-NY4000-HW***SYSTEM-PRRS-EN-E	R911337671
Rexroth NYCe 4000 Standard Housings & Accessories Manual DOK-NY4000-HOUSING*ACC-PRRS-EN-E	R911337672

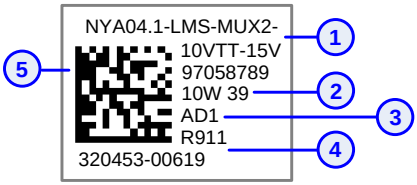
2 Product Identification and Scope of Delivery

2.1 Product identification



View of the LMS MUX unit

The NYA04.1- LMS-MUX2-10VTT-5V-NY4960/10 and NYA04.1- LMS-MUX2-10VTT-15V-NY4960/20 can be identified by the label on the unit.



LMS MUX unit label (example shows the NY4960/20 label)

1	Type code
2	Date of manufacture (YY/WW)
3	Version level and status
4	Material number and serial number
5	2D code

2.2 Scope of delivery

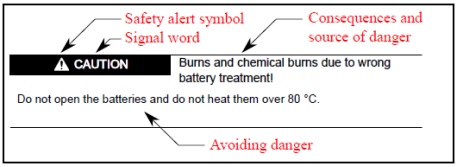
The LMS MUX unit product delivery consists of the following items.

- NYA04.1- LMS-MUX2-10VTT-5V-NY4960/10 LMS MUX unit, material number R911320451
  --or--
  NYA04.1- LMS-MUX2-10VTT-15V-NY4960/20 LMS MUX unit, material number R911320453
- DOK-NY4000-LMSMUX*4960-IT01-EN-P Instructions, material number R911341589.

3 Using the Safety Instructions

3.1 Safety instructions - structure

The safety instructions are structured as follows.



3.2 Explaining signal words and safety alert symbol

The safety instructions in this documentation contain specific signal words (danger, warning, caution, notice) and, if necessary, a safety alert symbol (according to ANSI Z535.6-2006).

The signal word is meant to draw the reader's attention to the safety instruction and signifies the degree of danger.
The safety alert symbol (a triangle with an exclamation point), which precedes the signal words danger, warning and caution is used to alert the reader to personal injury hazards.

⚠ DANGER

In case of non-compliance with this safety instruction, death or serious injury **will** occur.

⚠ WARNING

In case of non-compliance with this safety instruction, death or serious injury **can** occur.

⚠ CAUTION

In case of non-compliance with this safety instruction, minor or moderate injury could occur.

NOTICE

In case of non-compliance with this safety instruction, property damage could occur.

4 Intended Use

The LMS MUX unit is for indoor use only, may only be used with parts indicated in this document. Not explicitly mentioned parts may not be installed or connected. Usage is only allowed in explicitly indicated configurations and combinations of parts.

Do not install or use this LMS MUX unit before you have read all relevant documents. You must read the safety instructions and all other directions for use before you start any work or activity with this LMS MUX unit.

The LMS MUX unit has no certified functional safety on board. This means that all precautions for a safe operation must be ensured by external components.

5 Accessories, Spare Parts and Wear Parts

The LMS MUX unit has no accessories nor any replaceable or wear parts. In case of failure, the entire LMS MUX unit must be replaced.

6 Ambient Conditions

	Operating	Storage and transport
Maximum environment temperature	+5 ... +55 °C	-40 °C … +85 °C
Relative Humidity	10 % … 90 % (non-condensing)	5 % … 95 % (non-condensing)
Mechanical Strength	Vibration: IEC 60068-2-6:2007 Vibration, broadband: IEC 60068-2-64:2008	Shock: IEC 60068-2-27:2008
Pollution degree	2	2
Overvoltage category	II	-
Maximum altitude	4000 m	

7 Technical Data

7.1 LMS MUX unit ratings

LMS MUX unit	Power supply Voltage and input current
NYA04.1-LMS-MUX2-10VTT-5V-NY4960/10 NYA04.1- LMS-MUX2-10VTT-15V-NY4960/20	24V DC +/-25% / 1A max

8 Standards

8.1 Used standards

The LMS MUX unit corresponds to the following standards.

- EN61010-1:2010 (IEC61010-1:2010) (Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements)
- EN61000-6-2:2005 (IEC61000-6-2:2005) (Immunity for industrial environments)
- EN61000-6-4:2007/A1:2011 (IEC61000-6-4:2006/A1:2010) (Emission for industrial environments)

8.2 CE marking

Declaration of Conformity

CE

The LMS MUX units described in the present instructions, comply with the requirements and the target of the following EU directive and with the following harmonized European standards:

- Low Voltage Directive 2006/95/EC

This product is a built-in unit which, owing to its installation characteristics, is not able to comply with the regulations for complete apparatus, machines or installations from the outset. For this reason, it may only be used for built-in purposes. The product may only be assessed with regard to its electrical and mechanical safety as well as to environmental effects (foreign bodies, moisture) after it has been installed in the product intended for the final user. After the product has been installed, its EMC properties may change. Hence the product intended for the final user (complete apparatus, machines or installations) should be inspected with regard to its EMC properties by the manufacturer of the product intended for the final user.

9 Interfaces

9.1 Overview

Designation on base plate	Connection (base plate)	Connection (cable)
X1	sub-D 15-pin female with M3 nut	sub-D 15-pin male with M3 screw
X2	sub-D 15-pin female with M3 nut	sub-D 15-pin male with M3 screw
X3	sub-D 15-pin female with M3 nut	sub-D 15-pin male with M3 screw
X4	sub-D 15-pin female with M3 nut	sub-D 15-pin male with M3 screw
X5	sub-D 15-pin female with M3 nut	sub-D 15-pin male with M3 screw
X6	sub-D 15-pin male with M3 nut	sub-D 15-pin female with M3 screw
X0	sub-D 9-pin male with M3 nut	sub-D 9-pin female with M3 screw
X8	sub-D 9-pin female with M3 nut	sub-D 9-pin male with 4-M3 screw
X9	Phoenix Contact 6-pin male MSTBV 2,5/ 6-GF-5,08 AU	Phoenix Contact 6-pin female
X7	Phoenix Contact 3-pin male MSTBV 2,5/ 3-GF-5,08 AU	Phoenix Contact 3-pin female
Protective Earth	M4 threaded screw	Faston with 4 mm eye

9.2 X7 +24V Power supply connection

The header ‘X7’ connects the +24V power supply to the LMS MUX unit.

If the cable has a shield, connect the shield at the LMS MUX unit side to the shield pin of the connector, and connect the shield on the other side of the cable to the housing of the power supply.

The + side of the 24V power supply cable must include a fuse with following specifications.

- Rating: 1A fast
- UL recognized
- The fuse must open at a current of 8A within 60 s.

Maximum length of the cable is 10 m.
Make sure that the power supply cable diameter is suitable for the maximum rated current.

Connector data	minimum	maximum
Tightening torque	4,43 lbs*inch (0,5 Nm)	5,31 lbs*inch (0,6 Nm)
Wire diameter	30 AWG (0,14 mm^2)	14 AWG (1,5 mm^2)

9.3 X0 Output peer sensor

Always use twisted pair shielded cable. Connect the shield of the cable at the LMS MUX side to the connector housing.
Maximum length of the cable is 10 m.

9.4 X1, X2, X3, X4, X5 Input Hall sensor

Always use twisted pair shielded cable. Connect the shield of the cable at the LMS MUX side to the connector housing.
Maximum length of the cable is 10 m.

9.5 X6 Analog output and selection lines

Always use twisted pair shielded cable. Connect the shield of the cable at the LMS MUX side to the connector housing.
Maximum length of the cable is 10 m.

9.6 X8 MxTok signals

Always use shielded cable. Connect the shield of the cable at the LMS MUX side to the connector housing.
Maximum length of the cable is 10 m.

9.7 X9 PTC inputs

Always use twisted pair shielded cable. Connect the shield of the cable at the LMS MUX side to the connector housing.
Maximum length of the cable is 10 m.

Connector data	minimum	maximum
Tightening torque	4,43 lbs*inch (0,5 Nm)	5,31 lbs*inch (0,6 Nm)
Wire diameter	30 AWG (0,14 mm^2)	14 AWG (1,5 mm^2)

10 Installation and Removal

NOTICE **Damage to components may occur if power is applied during installation or removal.**

- Make sure power supplies are switched off before installation or removal of the LMS MUX unit.
- Do not apply power until the LMS MUX unit is installed.

Power supplies must be switched on/off with the disconnecting device installed in the cabinet.

The LMS MUX unit may only be used as build-in equipment in a cabinet, which means that the end-user must provide a suitable fire and electrical safe enclosure. The safety of any system incorporating the LMS MUX unit is the responsibility of the assembler of the system.

The LMS MUX unit may only be used in combination with external approved power supplies. The 24V supply voltage for the LMS MUX unit must be separated at least by reinforced insulation from all hazardous voltages.

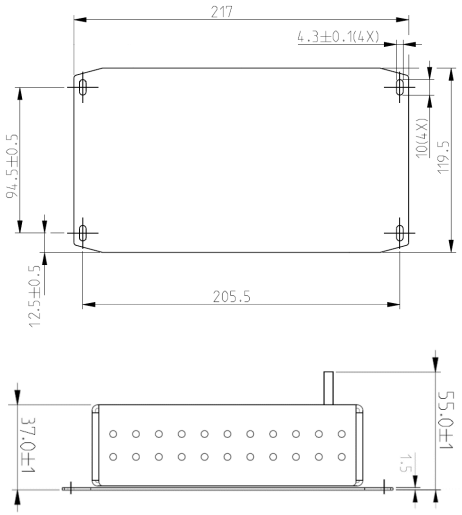
10.1 Mechanical dimensions

The dimensions of the LMS MUX unit are the following:

Type code	Width	Height	Depth
NYA04.1-LMS-MUX2-10VTT-5V-NY4960/10	119,5 mm	217,0 mm	37,0 mm
NYA04.1-LMS-MUX2-10VTT-15V-NY4960/20	119,5 mm	217,0 mm	37,0 mm

(Depth excluding the Protective Earth post)

You can see the dimensions of the LMS MUX unit in the following views.



Dimensions of the LMS MUX unit

10.2 Installation of the LMS MUX unit

Keep some clearance space around the LMS MUX unit. The distance is required for cooling. The LMS MUX unit must be installed vertically to allow free air flow from bottom to the top.

Install the LMS MUX unit on a vertical metal surface, and ensure electrical contact between the LMS MUX unit and this surface, either by means of washers under the screw heads or use the protective earth post on the LMS MUX unit with washers and nuts. Ensure that there is electrical contact between the LMS MUX unit and the mounting base of all other equipment installed on the metal frame or mounting base.

Each protective earth connection may be routed in the most convenient manner for the equipment concerned.

10.3 Protective Earth connection

For safety reasons, a protective earth connection via the threaded earth post is mandatory.

The protective earth connection must be connected before any other cables are connected to the LMS MUX unit.

The protective earth connection must be realized using an as short as possible cable, or better, a braided band, with a faston at the LMS MUX unit side.

The protective earth connection is fastened on the M4 threaded post on the LMS MUX unit using a ring, the faston with the cable or the braided band, a spring washer and a nut, in that order. Tighten the nut with a nut spanner. You must adhere to the installation requirements of your country.

10.4 Removal of the LMS MUX unit

Disconnect the power supply connector (X7). Then disconnect the other connectors.
Remove the screws that mount the LMS MUX unit on the metal surface in the machine.

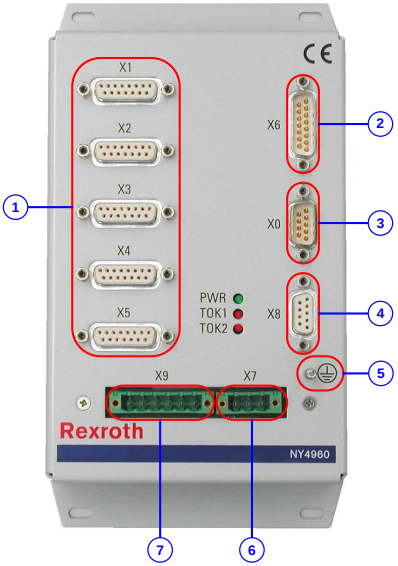
11 Commissioning

- Check that the LMS MUX unit is mechanically solid mounted in the machine.
- Verify that the protective earth connection is correctly connected.
- Check that proper cabling is used.
- Check that cables are not damaged.
- Check that the shielding of shielded cables is correctly connected.

12 Description of the LMS MUX unit

The LMS MUX unit has 3 indicators.

Indicator	Description
PWR LED	+24V power indicator
TOK1 LED	PTC1 not connected / temperature too high indicator
TOK2 LED	PTC2 not connected / temperature too high indicator



1 Input Hall sensors
2 Analog output and selection lines
3 Output peer sensor
4 MxTok signals
5 Protective Earth post
6 +24V power supply connector
7 PTC inputs

13 Diagnosis

No diagnosis is available for the LMS MUX unit.

14 Maintenance

The LMS MUX unit has no special maintenance requirements.

15 Disposal

15.1 Products

Our products can be returned to us free of charge for disposal. It is a precondition, however, that the products are free of oil, grease or other dirt. In addition, when returned the products must not contain any undue foreign matter or foreign component.
Please send the products “free domicile” to the following address:

Bosch Rexroth AG
Electric Drives and Controls
Bürgermeister-Dr.-Nebel-Straße 2
D-97816 Lohr am Main, Germany

15.2 Packaging materials

The packaging materials consist of cardboard, wood and polystyrene. They can be easily recycled. For ecological reasons you should not return the empty packages to us.

15.3 Environmental protection

- No release of hazardous substances.
  Our products do not contain any hazardous substances that they can release in the case of appropriate use. Normally there aren't any negative effects on the environment to be expected.
- Materials contained in the products.
  Electronic devices
  Electronic devices mainly contain:
  - steel
  - aluminum
  - copper
  - synthetic materials
  - electronic components and modules
- Recycling.
  Due to their high content of metal most of the product components can be recycled. In order to recycle the metal in the best possible way it is necessary to disassemble the products into individual modules. The metals contained in the electric and electronic modules can also be recycled by means of specific separation processes.
  The synthetic materials remaining after these processes can be thermally recycled.

16 Service and Addresses

16.1 Service

Our service department at our main facility

Bosch Rexroth AG
Bgm.-Dr.-Nebel-Str.2
D-97816 Lohr am Main

is always available for information and help.

You can reach us at:

- Telephone Mon. - Fri.: 7:00 - 18:00 CET **+49 (0) 9352 18 0**
- Fax : **+49 (0) 9352 18 8400**
- Email: service.svc@boschrexroth.de

Outside service office hours you can reach Service Deutschland directly at:

- **+49 (0) 171 333 88 26** or
- **+49 (0) 172 660 04 06**

Please check the internet company addresses for hotline call numbers in other countries.

16.2 Addresses

You can find the addresses of our companies on www.boschrexroth.com.

On the website you can also find additional information for service, repair (for example supplier addresses) and training.

Please contact your nearest supplier or representative in your country first before contacting Service Deutschland, if you are outside Germany.

Notes