

OMRON  
型号 G9SX-LM224-F10-□

低速检测单元  
Chinese 使用说明书

感谢您此次购买型号G9SX-LM□低速检测单元。  
本使用说明书描述了型号G9SX使用上所需的功能、性能、使用方法等信息。  
请遵循以下几点，使用G9SX产品。  
·型号G9SX需由懂电气知识的专门人员操作。  
·请务必仔细阅读本说明书正确使用。  
·妥善保管以备随时参阅。

欧姆龙株式会社 2166129-D-B

EU符合性宣言

欧姆龙声明G9SX-LM□符合以下EU指令要求。  
EMC指令 2004/108/EC  
机械指令 2006/42/EC

规格

型号G9SX-LM□是根据以下规格要求，设计/制造的产品。  
EN954-1 安全等级3。  
EN ISO13849-1:2008 安全等级3 PL d。  
IEC/EN61508 SIL3, IEC/EN62061 SIL3。  
IEC/EN61000-6-2, UL508, CAN/CSA C22.2 No. 142

安全注意事项

- 警告标识的含义
如果处理不当，则有可能对人身造成轻度或中度伤害。
严重情况下，甚至会导致重伤和死亡。
另外可能会造成重大损伤。
●表示非特定、一般的禁止通告。
●表示非特定、指示一般使用者行为的图案符号。

- 警告标识
输出故障可能造成重大人身伤害。
切勿使用超出安全输出额定值的负载。
安全功能损坏可能造成重大人身伤害。
为了避免供电电源以及负载电源短路请妥善进行接线。
输出故障可能造成重大人身伤害。
在安全输出中连接接近传感器时，请加装反电动势保护电路。
安全功能损坏可能造成重大人身伤害。
当接近传感器用于检测旋转体时，请使用指定的接近传感器。
另外，按照所使用的接近传感器的型号，根据“被检测体的齿轮形状与连接传感器安装相关内容”设计并安装齿轮。
安全功能损坏可能造成重大人身伤害。
为了避免接近传感器周围金属以及相互干扰的影响，请根据“被检测体的齿轮形状与连接传感器安装相关内容”和接近传感器的使用说明书，采用适当的设计和安装。
安全功能损坏可能造成重大人身伤害。
请使用合适的控制设备。

Table with 2 columns: Control equipment and Required items. Rows include: Safety switch, Enable switch, Safety sensor, Proximity sensor, Safety stop sensor, Interlocking, Emergency stop switch, Other control devices.

安全上的要点

- (1) 将型号G9SX-LM□放置于防护等级IP54 (IEC/EN60529) 以上的控制箱中使用。
(2) 输入输出端子请正确接线并在进行前运行动作确认。
(3) G9SX-LM□的电源输入，请不要连接额定值以上的DC或AC电源输出。
(4) 有电的危险。
(5) DC电源装置请满足以下各项内容。
(6) 安全输入以及使能输入(Enable Input)请分别正确连接安全输入设备。
(7) 接触输出。
(8) G9SX-LM□外部输出发生故障时，会损坏安全功能。
此外，逻辑连接输出不能作为G9SX-LM□的逻辑连接之外的用途使用。

- (8) 型号G9SX-LM□的安装、点检、维护是否正确执行。请务必与“责任人”进行确认。
(9) 对于模式切换输入的切换，应由此安装机械非常熟悉的“责任人”进行。
(10) G9SX-LM□必须进行日常点检以及六个月一次的点检。
(11) G9SX-LM□必须按照以下方法进行日常点检。
(12) 请按照修理、改造本产品。
(13) IEC/EN61508 SIL3, IEC/EN62061 SIL3, ISO13849-1 PL d.
(14) 对于系统的性能、安全等级等的符合性，需要对其进行评价。
(15) 安全等级符合性判定相关要求。
(16) 接线时，请务必在断电状态下进行。
(17) 请按照在基本操作时，危险源的最大旋转数和安装齿轮的齿数来设定接近传感器。

使用上的注意

- (1) 使用
(2) 保管、安装场所
(3) 相对速度范围
(4) 对于G9SX的宽度，在DIN导轨较短等情况下，可能由于振动导致产品从DIN导轨上落下。
(5) 接线时，请按照以下方式进行。
(6) 与扩展单元(G9SX-EX□)的连接
(7) 安全输入
(8) 接近传感器的接线
(9) 接近传感器的接线长度
(10) 低速检测频率数值
(11) 使用规定形状的齿线并切实固定。
(12) 安全输入的连接
(13) 安全输入的连接时间
(14) 防止控制系统的异常
(15) 防止火灾
(16) 防止静电
(17) 请务必切断电源后再进行零件更换。
(18) 常用剂
(19) 安全输入的连接

- (20) 安全输入的连接
(21) 安全输入的连接时间
(22) 安全输入的连接
(23) 安全输入的连接
(24) 安全输入的连接
(25) 安全输入的连接
(26) 安全输入的连接
(27) 安全输入的连接
(28) 安全输入的连接
(29) 安全输入的连接
(30) 安全输入的连接

使用时的承诺事项

本产品用于机械安全的Component功能，不同的使用方法有可能无法满足要求的安全。
请务必阅读安全Component的综合商品样本查看所记载的警告、注意、事项。
“O”风险评估的实行以安全策略O安全设备的作用由安全设备的警告遵守法律使用上的注意事项O设备/装置“转让”并使用。

- 联系方
1. 制造商
2. 经销商
3. 技术支持
4. 售后服务
5. 其他联系方

OMRON  
Type G9SX-LM224-F10-□

Low Speed Monitoring Unit  
English USER'S MANUAL

Thank you for purchasing G9SX Flexible Safety Unit.
Please read and understand this manual before using the products.
Keep this manual ready to use whenever needed.
Only qualified person trained in professional electrical technique should handle G9SX.
Please consult your OMRON representative if you have any questions or comments.
Make sure that information written in this document are delivered to the final user of the product.

OMRON Corporation 2166129-D-B

EU Declaration of Conformity

OMRON declares that G9SX-LM□ is in conformity with the requirements of the following EU Directives:
EMC Directive 2004/108/EC
Machinery Directive 2006/42/EC

Standards

G9SX-LM□ is designed and manufactured in accordance with the following standards:
EN954-1 Category 3,
EN ISO13849-1:2008 Category 3 PL d,
IEC/EN61508 SIL3, IEC/EN62061 SIL3,
IEC/EN61000-6-2, IEC/EN61000-6-4,
UL508,
CAN/CSA C22.2 No. 142

Precautions for Safe Use

Means of Signal Words
The following signal words are used in this manual.
! WARNING
Indicates a potentially hazardous situation which, if not avoided, will result in minor or moderate injury, or may result in serious injury or death.
Additionally there may be significant property damage.

Meaning of Alert Symbols

- Indicates prohibited actions.
Indicates mandatory actions.

Alert Statements

- ! WARNING
Serious injury may possibly occur due to breakdown of safety outputs.
Do not connect loads beyond the rated value to the safety outputs.
Serious injury may possibly occur due to loss of required safety functions.
Serious injury may possibly occur due to damages of safety inputs.
Serious injury may possibly occur due to loss of required safety functions.
Serious injury may possibly occur due to loss of safety functions.

Table with 2 columns: Controlling Devices and Requirements. Rows include: Door interlocking switch, Safety sensor, Proximity sensor, Relay with forcibly guided contacts, Emergency stop switch, Other devices.

Precautions for Safe Use

- (1) Use G9SX-LM□ within an enclosure with IP54 protection or higher according to IEC/EN60529.
(2) Incorrect wiring may lead to loss of safety function.
(3) Do not apply DC voltages exceeding the rated voltages, nor any AC voltages to G9SX-LM□.
(4) Use DC supply satisfying requirements below to prevent electric shock.
(5) Apply properly specified voltages to G9SX-LM□ circuits.
(6) Be sure to connect contact safety input devices to safety input and enable input to ensure proper operation of the safety function.

- (7) The auxiliary error output, auxiliary monitoring output are NOT safety outputs.
Such incorrect use causes loss of safety function of G9SX-LM□ and its relevant system.
(8) After installation of G9SX-LM□, qualified personnel should confirm the installation, and should conduct test operations and maintenance.
(9) Mode selector switch should be operated only by qualified personnel who is familiar to the machine in which G9SX-LM□ is to be installed.
(10) Mode selector switch should be operated only by qualified personnel who is familiar to the machine.
(11) Perform daily and 6-month inspections for the G9SX-LM□.
(12) Do not disassemble, repair, or modify G9SX-LM□.
(13) Conformity to IEC/EN 61508 SIL3, IEC/EN62061 SIL3 and ISO13849-1 PL d was assessed with G9SX-LM□ set up with specified proximity sensors.
(14) OMRON shall not be responsible for conformity with any safety standards regarding to customer's entire system.
(15) Disconnect G9SX-LM□ from power supply when wiring.
(16) Be cautious not to have your fingers caught when attaching terminal sockets to the plugs on G9SX-LM□.
(17) Do not use in combustible gases or explosive gases.
(18) Proximity sensors to be used should be selected based on the max. number of revolutions during normal operation and the number of cogwheel teeth.
(19) R: Max. number of revolutions during normal operation (rpm)
N: Number of cogwheel teeth
F: Response frequency of Proximity Sensor (Hz)

Precautions for Correct Use

- (1) Handle with care.
(2) Conditions of storage and usage.
(3) Mounting.
(4) Following spacing around G9SX should be available to apply rated current to output of G9SX and for enough ventilation and wiring.
(5) Wiring.
(6) When connecting Expansion Units (G9SX-EX□) to G9SX-LM224-F10-□.
(7) Use INOCIN contact switch as a mode selector switch.
(8) Use cables with length less than 100m to connect to Safety Inputs.
(9) Use cables with length less than 100m to connect to proximity sensor.
(10) Set the time duration of Low speed monitoring frequency preset to an appropriate value that does not cause the loss of safety function of system.
(11) When using optical proximity sensors so as to prevent the sensors from dropping off.
(12) Logical connection between Units.
(13) To determine safety distance to hazards, take into account the delay of Safety outputs caused by the following time:
(14) Start entire system after more than 5s have passed since applying supply voltage to all G9SX in the system.
(15) G9SX-LM□ may malfunction due to electro-magnetic disturbances.
(16) This is a class A product.
(17) Devices connected to G9SX-LM□ may operate unexpectedly.
(18) NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS.
(19) OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of the products in the customer's application or use of the product.

Suitability for Use

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of the products in the customer's application or use of the product.
Take all necessary steps to determine the suitability of the product for the systems, machines, and equipment with which it will be used.
NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

OMRON Corporation (Manufacturer)
Shiojiko Horikawa, Shimogyo-ku, Kyoto, 600-8530 JAPAN
OMRON EUROPE B.V. (Importer in EU)
Miegalan 67, NE-2132 JD Hoofddorp THE NETHERLANDS
PHONE 31-2356-8130 FAX 31-2356-8138
OMRON ASIA PACIFIC PTE. LTD.
438A Alexandra Road, #05-05/08,
Alexandra Technopark, Singapore 119957 SINGAPORE
PHONE 65-6-8330-3111 FAX 65-6-8330-2711
OMRON (CHINA) CO., LTD.
Room 2211, Bank of China Tower, 200 Yin Cheng Zhong Road,
Pu Dong New Area, Shanghai, 200120, China
PHONE 86-21-5037-2000 FAX 86-21-5037-2200
Note: Specifications subject to change without notice.

