rexroth
A Bosch Company

Frequency Converter

Multi-Ethernet Card

Product Insert
R912007956

Edition 03

EN Frequency Converter Multi-Ethernet Card

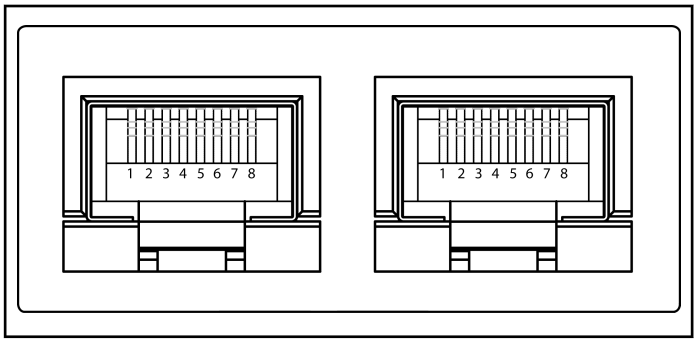
ZH 变频器Multi-Ethernet卡

Communication Module
Multi-Ethernet Card
Interface, LED Indication

Product Insert

R912006847
Edition 03

Multi-Ethernet Interface

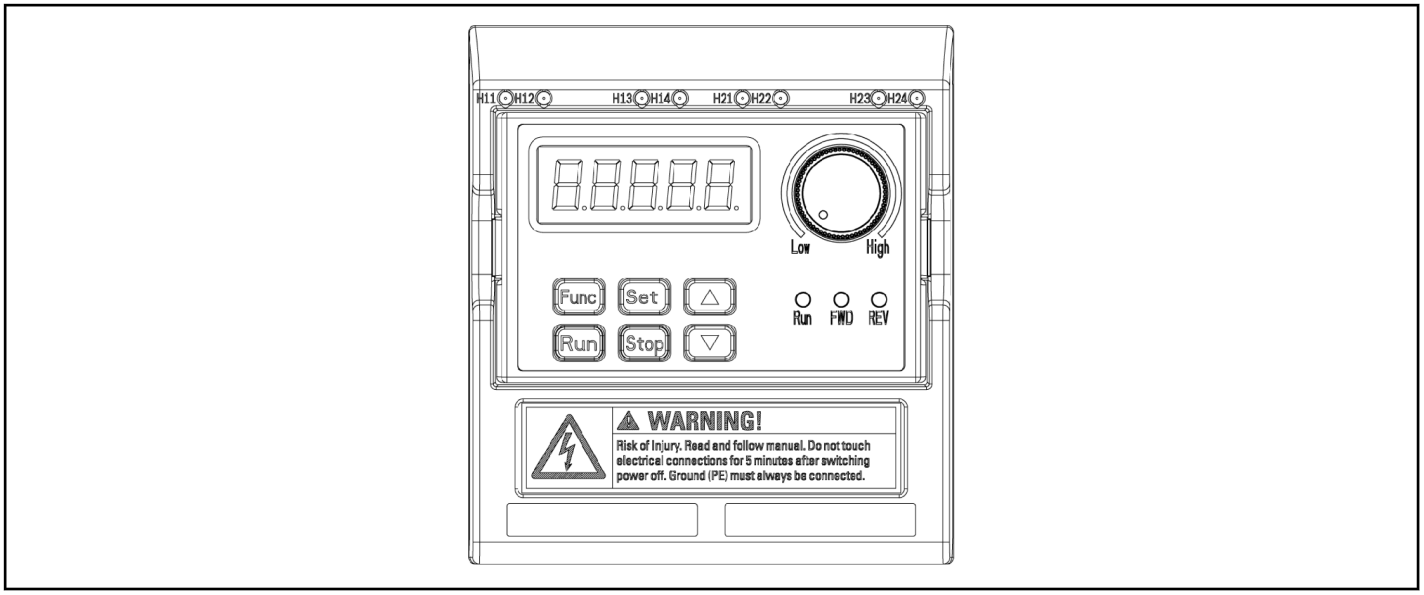


Multi-Ethernet RJ45 interface

Pin	Terminal sign	Function description
1	RX+	Data receiving terminal (+)
2	RX-	Data receiving terminal (-)
3	TX+	Data transmission terminal (+)
4	NC	Not used
5	NC	Not used
6	TX-	Data transmission terminal (-)
7	NC	Not used
8	NC	Not used

Pin definition of Multi-Ethernet RJ45 interface

Multi-Ethernet Card LED



Multi-Ethernet card LED

LED	Function	Supported protocol	Status	Description
H11[1]	Multi-Ethernet card and fieldbus status	▶ PROFINET ▶ EtherNet/IP ▶ Modbus/TCP	Continuous off	Multi-Ethernet card ▶ does not have a valid IP address ▶ has not seen an ethernet link ▶ powered off ▶ an MEP firmware update process is running
			Blinking green	Does have a valid IP address, but no cyclic connection was established
			Continuous green	Cyclic connection is established and it is free of errors
			Blinking red	Cyclic connection was terminated unexpectedly
			Continuous red	Duplicate IP address in network detected
			Blinking green/red	Multi-Ethernet card is in power up mode and is conducting a self-test
		▶ Sercos III	Continuous off	NRT state (no Sercos III communication)
			Continuous orange	Communication phase 0
			Orange with 1 green pulse	Communication phase 1
			Orange with 2 green pulses	Communication phase 2
			Orange with 3 green pulses	Communication phase 3
			Continuous green	Communication phase 4
			Blinking green/orange	Hotplug phase 0
			Green with 1 orange pulse	Hotplug phase 1
			Green with 2 orange pulses	Hotplug phase 2
			Blinking green	Switched from Fast-Forward to Loopback (e.g. due to link loss at one port)
			Blinking red/orange	Application error
			Blinking green/red	Warning for MST losses exceeded half of tolerable losses
			Continuous red	Communication error
			Blinking orange	Identification
			Blinking red	Firmware watchdog error
		▶ EtherCAT	Continuous off	Status INIT
			Blinking green	Status PRE-OPERATIONAL
			Green light blinking once	Status SAVE-OPERATIONAL
			Green light steady on	Status OPERATIONAL
			Blinking red	Configuration error
			Red light blinking once	Synchronization error
			Red light blinking twice	Timeout – watchdog

LED	Function	Supported protocol	Status	Description
H12①	Frequency converter application status		Continuous off	Frequency converter is powered off or no communication between fieldbus platform and base drive system
			Blinking green	Frequency converter is in STOP state, no errors pending
			Continuous green	Frequency converter is in RUN state, no errors pending
			Blinking red	Frequency converter is in RUN state, a warning is pending
			Continuous red	Frequency converter is in STOP state, an error is pending
			Blinking green/red	N/A
H13/H14①	Ethernet line status	▶ PROFINET ▶ EtherNet/IP ▶ Sercos III ▶ Modbus/TCP	Continuous off	No Ethernet link established at the appropriate Ethernet port
			Green	Ethernet link was established
			Flickering yellow	Activity on Ethernet line (telegram transmission)
		▶ EtherCAT	Continuous off	No Ethernet link established at the appropriate Ethernet port
			Green	Ethernet link was established
			Flickering green	Activity on Ethernet line (telegram transmission)

Multi-Ethernet card LED

Note①:

- H11, H12 and H13/H14 are available when the Multi-Ethernet card is installed on the left card slot
- H21, H22 and H23/H24 are available when the Multi-Ethernet card is installed on the right card slot

Details for parameter settings, application and security notes, see **Instruction Manual** of Multi-Ethernet card.

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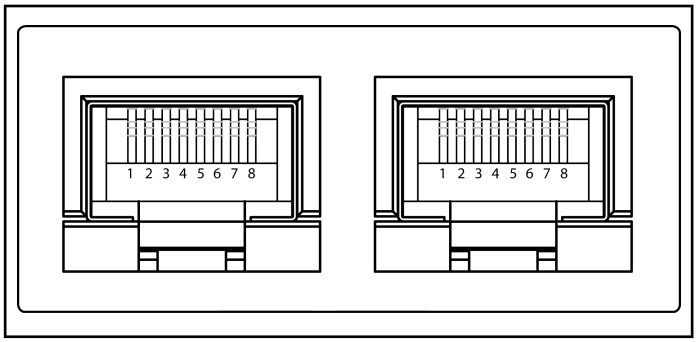
通讯模块
Multi-Ethernet 卡
接口, LED 指示

产品插页

R912006846
版本 **03**

Multi-Ethernet 接口方式

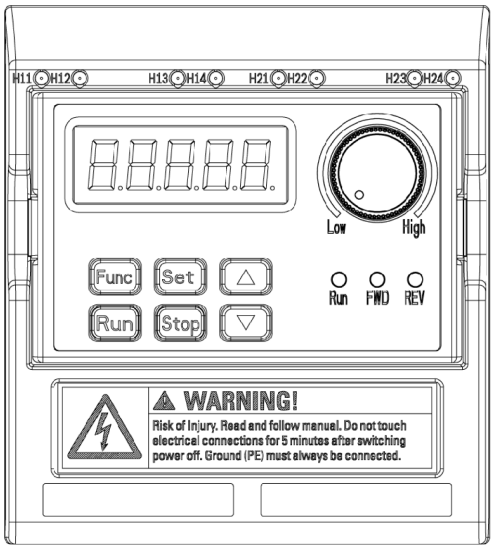


Multi-Ethernet RJ45 通讯接口

针脚	端子符号	功能说明
1	RX+	数据接收正端
2	RX-	数据接收负端
3	TX+	数据发送正端
4	NC	未使用
5	NC	未使用
6	TX-	数据发送负端
7	NC	未使用
8	NC	未使用

Multi-Ethernet RJ45 针脚定义

Multi-Ethernet 卡 LED



Multi-Ethernet 卡 LED

LED	功能	支持协议	状态	说明
H11①	网络状态指示	▶ PROFINET ▶ EtherNet/IP ▶ Modbus/TCP	熄灭	Multi-Ethernet 卡 ▶ 无有效 IP 地址 ▶ 无以太网链接 ▶ 电源关闭 ▶ 固件更新
			绿色闪烁	无通讯链接
			绿色常亮	通讯正常
			红色闪烁	通讯异常终止
			红色常亮	网络中存在重复的 IP 地址
			绿色/红色闪烁	上电自检
		▶ Sercos III	熄灭	NRT 状态(无 Sercos III 通讯)
			橙色常亮	通讯阶段 0
			橙色伴随一次绿色闪烁	通讯阶段 1
			橙色伴随两次绿色闪烁	通讯阶段 2
			橙色伴随三次绿色闪烁	通讯阶段 3
			绿色常亮	通讯阶段 4
			绿色/橙色闪烁	热插拔阶段 0
			绿色伴随一次橙色闪烁	热插拔阶段 1
			绿色伴随两次橙色闪烁	热插拔阶段 2
			绿色闪烁	从快进切换到环回(例如, 由于某个端口的链路丢失)
			红色/橙色闪烁	应用故障
			绿色/红色闪烁	MST 丢失超过可容忍丢失一半时产生的告警
			红色常亮	通讯故障
			橙色闪烁	识别
			红色闪烁	软件看门狗故障
		▶ EtherCAT	熄灭	初始化状态
			绿色闪烁	预操作状态
			绿色闪烁一次	保存操作状态
			绿色常亮	正常操作状态
			红色闪烁	配置故障
			红色闪烁一次	同步故障
			红色闪烁两次	看门狗超时

LED	功能	支持协议	状态	说明
H12[①]	变频器状态指示		熄灭	变频器未上电或内部通讯未建立
			绿色闪烁	变频器停机, 无故障
			绿色常亮	变频器运行, 无故障
			红色闪烁	变频器运行, 有告警
			红色常亮	变频器停机, 有故障
			绿色/红色闪烁	N/A
H13/H14[①]	PHY 状态指示	▶ PROFINET ▶ EtherNet/IP ▶ Sercos III ▶ Modbus/TCP	熄灭	以太网端口未建立链接
			绿色常亮	以太网端口链接已经建立
			橙色闪烁	以太网线路上数据进行传输
		▶ EtherCAT	熄灭	以太网端口未建立链接
			绿色常亮	以太网端口链接已经建立
			绿色闪烁	以太网线路上数据进行传输

Multi-Ethernet 卡 LED

注[①]:

- ▶ 当 Multi-Ethernet 卡安装在左侧卡槽时为 H11, H12 和 H13/H14
- ▶ 当 Multi-Ethernet 卡安装在右侧卡槽时为 H21, H22 和 H23/H24

关于 Multi-Ethernet 卡参数设置, 应用及安全说明等更多内容, 请参见 **Multi-Ethernet 卡《使用手册》**。

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