

# Installation Guide

## ROQSTAR Fast Ethernet Switches

Order Nr.	Product code	Description
006-130-100	ROQ-08F-U-LV-IP54	8-Port Fast Ethernet Unmanaged M12 Switch
006-130-102	ROQ-08F-F-LV-IP54	8-Port Fast Ethernet Full Managed M12 Switch
006-130-104	ROQ-08F-E-LV-IP54	8-Port Fast Ethernet Expandable M12 Switch
006-130-106	ROQ-08F-U-LP-IP54	8-Port Fast Ethernet Unmanaged M12 PoE Switch
006-130-109	ROQ-08F-F-LP-IP54	8-Port Fast Ethernet Managed M12 PoE Switch
006-130-112	ROQ-08F-E-LP-IP54	8-Port Fast Ethernet Expandable M12 PoE Switch
006-130-113	ROQ-10F-U-LV-IP54	10-Port Fast Ethernet Unmanaged M12 Switch
006-130-114	ROQ-10F-U-LP-IP54	10-Port Fast Ethernet Unmanaged M12 PoE Switch

© 2019 TRONTEQ Electronic

All rights are reserved. The contents of this manual are protected by copyright. Their use is allowed as part of use of TRONTEQ products. Any other use which goes beyond in particular copying, reproduction, translation requires written consent of TRONTEQ Electronic.

TRONTEQ Electronic reserves the right to modify the contents of this manual. In addition, we refer to the conditions of use specified in the license agreement. The latest version of this manual is available online at [www.tronteq.de](http://www.tronteq.de).

## Content

<b>1. Safety Instructions</b> .....	<b>5</b>
1.1. Information about this operation instructions .....	5
1.2. Warning information system .....	5
1.3. Qualified Personnel.....	6
1.4. Intended use .....	6
1.5. Liability Limitation.....	6
1.6. Recycling.....	6
<b>2. ROQSTAR Fast Ethernet Switch</b> .....	<b>7</b>
2.1. Models.....	8
2.2. Interfaces non PoE Model.....	10
2.3. Interfaces PoE Model.....	11
<b>3. Installation</b> .....	<b>12</b>
3.1. Installation Guidelines .....	12
3.2. Power Port Connection .....	13
3.3. USB Port Connection.....	13
3.4. Ethernet Port Connection.....	13
3.5. Factory Settings .....	14
<b>4. First Time Setup Unmanaged Type</b> .....	<b>15</b>
<b>5. First Time Setup Managed Type</b> .....	<b>15</b>
<b>6. PoE Operation</b> .....	<b>16</b>
6.1. General Information .....	16
6.2. Power Budgeting.....	16
6.2.1. PoE Class .....	16
6.2.2. PoE Current Limit .....	16
<b>7. Notes on Line-Topology</b> .....	<b>17</b>
7.1. PoE .....	17
7.2. DHCP .....	17
<b>8. LED Indicators</b> .....	<b>18</b>
8.1. System LED .....	18
8.2. Port LED.....	18
<b>9. Technical Data</b> .....	<b>19</b>
9.1. Electrical.....	19
9.2. Switching.....	20
9.3. Boot time .....	20
9.4. Mechanical .....	20
9.5. Environmental .....	21
9.6. MTBF .....	21
9.7. Standards and approvals .....	21
<b>10. Wiring diagrams</b> .....	<b>22</b>
10.1. Power cable.....	22
10.2. Ethernet M12 to RJ45 cable.....	22
10.3. Ethernet M12 to M12 cable .....	22
10.4. USB Adapter.....	22
<b>11. Ordering information</b> .....	<b>23</b>
11.1. ROQSTAR Ethernet Switch .....	23
11.2. Accessories .....	23
<b>12. Contact</b> .....	<b>24</b>
12.1. Sales support.....	24
12.2. Technical support .....	24



## 1. Safety Instructions

### 1.1. Information about this operation instructions

This operating instruction describes the application of the ROQSTAR Switches. It allows the safe and efficient handling of the device. The operating instruction is a part of the device and must be available for the users at any time.

Before the beginning of any work the user has to read carefully and understand these instructions. The foundation for safe working is the compliance with all specified safety and handling instructions in this operating instruction. In addition, the local accident prevention regulations and general safety regulations apply for the handling with electrical energy and communications equipment.

The schemes and illustrations of this instruction are provided for basic understanding and may differ from the actual design.

### 1.2. Warning information system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.



Indicates that death or severe personal injury **will** result if proper precautions are not taken.



Indicates a potentially dangerous situation that **may** result in death or serious injury if it is not avoided.



Indicates a potentially dangerous situation due to hot surfaces, which **may** result in minor or light injuries if it is not avoided.



Indicates that minor personal injury can result if proper precautions are not taken.



Hint for useful tips and recommendations for efficient and trouble-free operation.

### **1.3. Qualified Personnel**

The user must ensure that only qualified personnel will work with the device. The product/system described in this documentation may be operated only by personnel qualified for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

### **1.4. Intended use**

Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that TRONTEQ products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

### **1.5. Liability Limitation**

All information and instructions in this operating instruction has been compiled in accordance with current standards and regulations, state of the art as well as the knowledge and experience of the applications in the field. In the following cases the manufacturer is not liable for damages:

- ▶ Disregard of the operating instructions in this manual.
- ▶ Improper use.
- ▶ Employment of non-qualified personnel.
- ▶ Unauthorized technical modification or reconstruction.
- ▶ Use of other connectors as delivered.

The general terms and conditions are valid as well as the delivery terms of the manufacturer and the legal regulations which were taken when the contract was concluded.

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

### **1.6. Recycling**

After usage, this device must be disposed in accordance with the current disposal regulations as electronic waste.

## **2. ROQSTAR Fast Ethernet Switch**

ROQSTAR Ethernet Switches are for use in industrial production environments as well as on public transport vehicles. They allow the interconnection of Ethernet devices on an Ethernet network and facilitate the IP based communication on the machine or on vehicle.

### **Characteristics**

The ROQSTAR Ethernet switches are designed for applications with tough EMC and environmental requirements. The robust housing allows the use in extreme conditions. The M12 connectors provide a locked connection and withstand vibration and mechanical shock. The electronic components are designed according to common railway standards. This ensures functionality even under severe EMC and environmental conditions.

### **ROQSTAR Unmanaged**

These devices are characterized by their simplicity. The devices do not need to be configured and are immediately ready for operation after power up as Plug & Play and very easily replaceable. They are mainly suitable for simple, smaller networks or serve as a local extension of the network.

### **ROQSTAR Expandable**

The expandable switches have the capability to be upgraded from unmanaged to managed Ethernet switch. They are initially delivered as pure unmanaged switches and can later be extended during operation by a software update to a managed switch. In this way unforeseen requirements can be covered in advance. In addition, investment protection is guaranteed.

### **ROQSTAR Managed**

These devices provide numerous configuration and diagnostic capabilities for the network. They are suitable for larger and more complex networks in which, for example, automatic IP address assignment, logical separation of the subscribers or redundant communication is required. In addition, ROQSTAR Managed offers numerous diagnostic features. This helps to locate faults faster and simplify operation of the networks.

### **ROQSTAR PoE**

Power over Ethernet (PoE) makes it possible to supply the network devices connected to the switch with power through data cable. The PoE functionality can provide both ROQSTAR managed and unmanaged switches. All ROQSTAR PoE devices have an integrated, isolated power supply. Thus, a 24V power supply to the switches is possible and a PoE voltage does not have to be supplied externally.

## 2.1. Models

- supported



Order No.	006-130-100	006-130-106	006-130-113	006-130-114
Part Code	ROQ-8F-U-LV-IP54	ROQ-8F-U-LP-IP54	ROQ-10F-U-LV-IP54	ROQ-10F-U-LP-IP54
Type	Unmanaged	Unmanaged PoE	Unmanaged	Unmanaged PoE
Speed per Port	10/100 Mbit/s	10/100 Mbit/s	10/100 Mbit/s	10/100 Mbit/s
Number of Ethernet Ports	8	8	10	10
Ethernet Connectors	M12 d-coded	M12 d-coded	M12 d-coded	M12 d-coded
Power Supply Range	DC: 8...60 V	DC: 16...52 V	DC: 8...60 V	DC: 16...52 V
Operating Temperature	-40° ... + 70°C	-40° ... + 70°C	-40° ... + 70°C	-40° ... + 70°C
PoE / PoE+ Ports	-	8	-	8
PoE Voltage / Total Power Budget	-	53V / 62W	-	53V / 62W
Boot time	< 2s	< 2s	< 2s	< 2s
auto negotiation, auto polarity, auto crossing	•	•	•	•



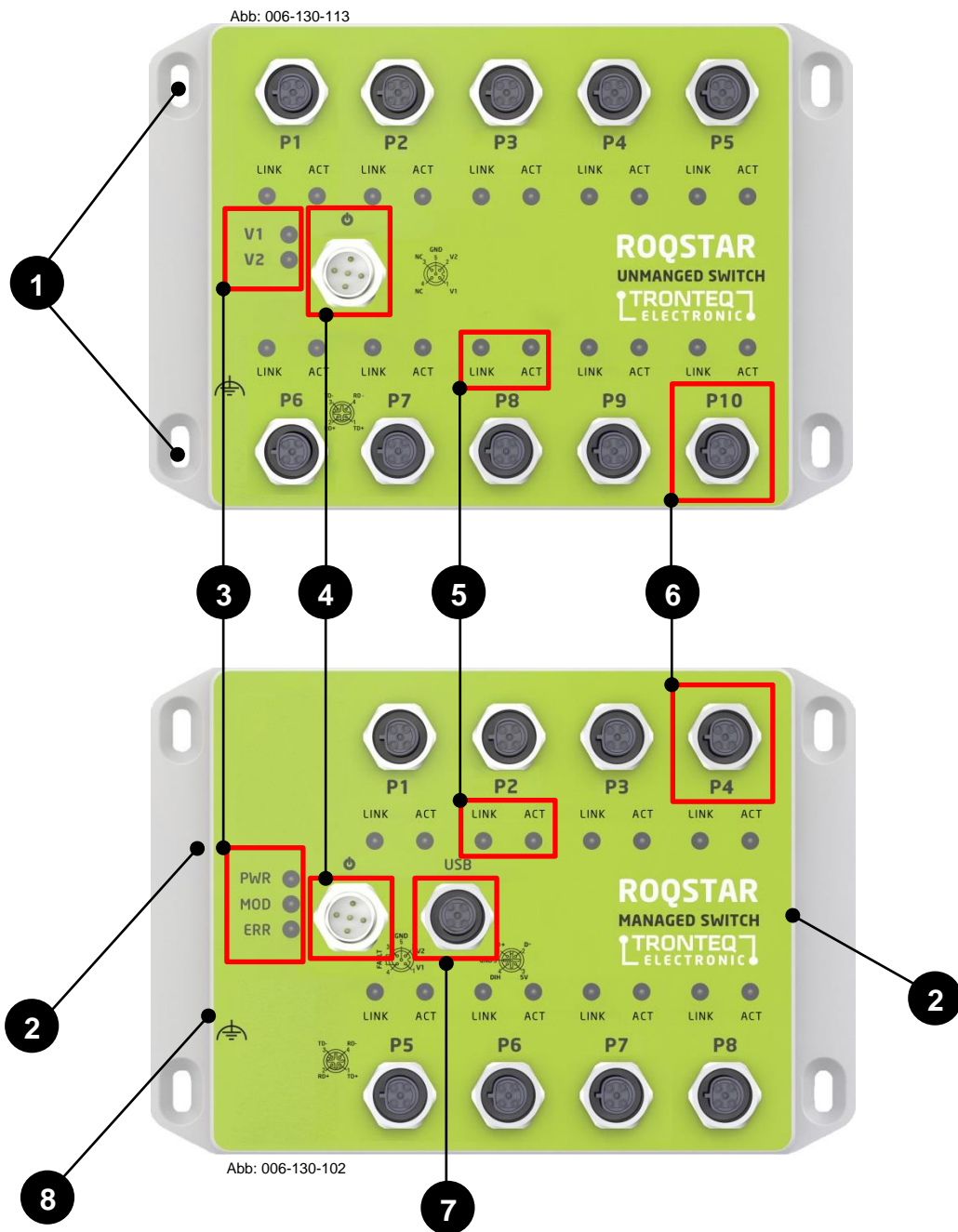
● supported

○ available per software upgrade



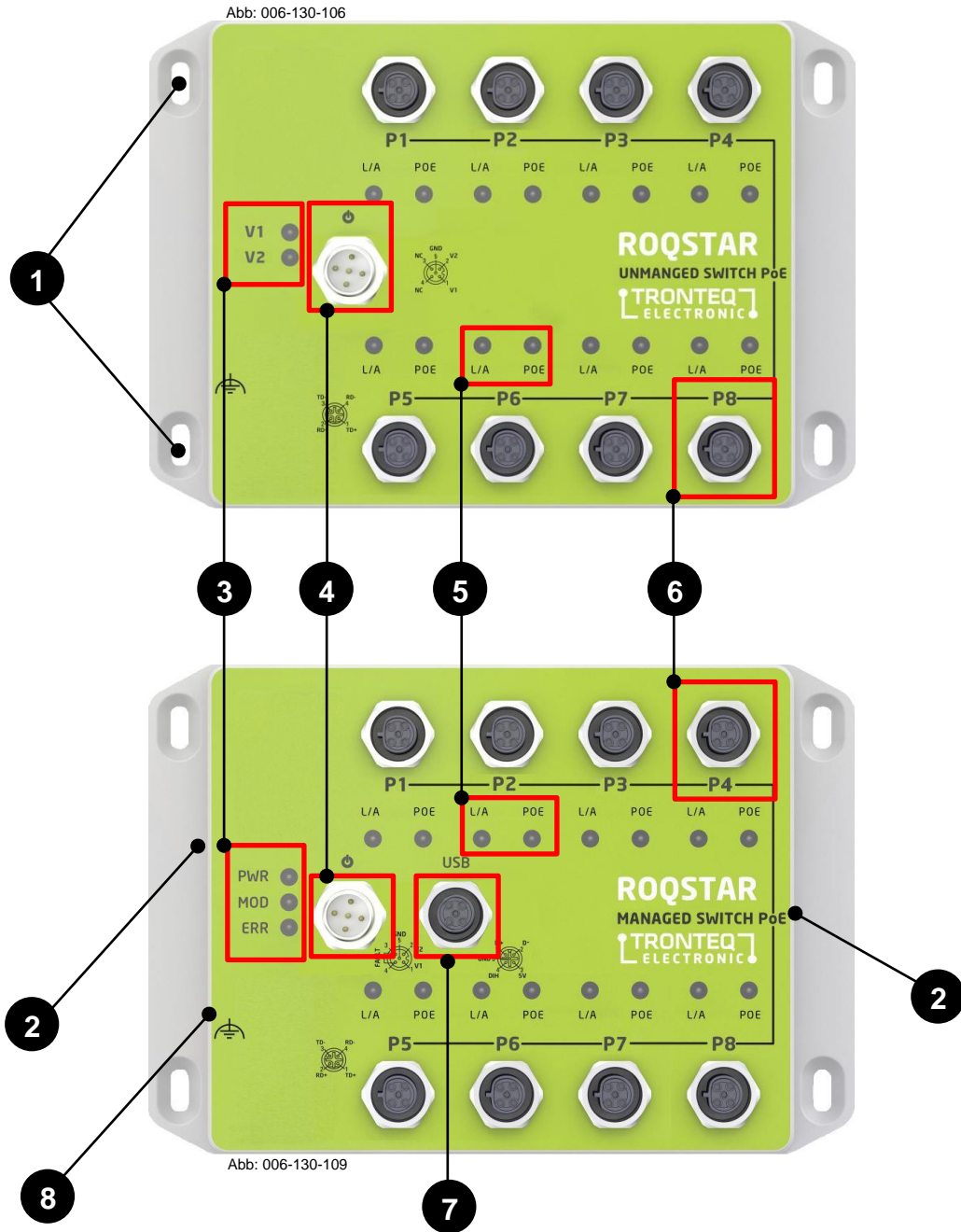
Order No.	006-130-104	006-130-112	006-130-102	006-130-109
Part Code	ROQ-8F-E-LV-IP54	ROQ-8F-E-LP-IP54	ROQ-8F-F-LV-IP54	ROQ-8F-F-LP-IP54
Type	Expandable	Expandable PoE	Full Managed	Full Managed PoE
Speed per Port	10/100 Mbit/s	10/100 Mbit/s	10/100 Mbit/s	10/100 Mbit/s
Number of Ethernet Ports	8	8	8	8
Ethernet Connectors	M12 d-coded	M12 d-coded	M12 d-coded	M12 d-coded
Power Supply Range	DC: 8...60 V	DC: 16...52 V	DC: 8...60 V	DC: 16...52 V
Operating Temperature	-40° ... + 70°C	-40° ... + 70°C	-40° ... + 70°C	-40° ... + 70°C
PoE / PoE+ Ports	-	8	-	8
PoE Voltage / Total Power Budget	-	53V / 62W	-	53V / 62W
Boot time	< 10s	< 10s	< 20s	< 20s
auto negotiation, auto polarity, auto crossing	●	●	●	●
USB Interface for configuration and updates	○	○	●	●
Configuration via User Web Interface	○	○	●	●
Relay Output Contact, configurable	○	○	●	●
QoS, VLAN, SNMP, LLDP, Port Mirroring, Link Aggregation, broadcast storm protection	○	○	●	●
RSTP, NTP, DHCP, DHCP Option 82	○	○	●	●

## 2.2. Interfaces non PoE Model



Nr.	Description	Nr.	Description
1	Mounting holes	5	Port LED
2	Type label	6	Ethernet ports
3	State LED	7	USB port
4	Power port	8	Ground terminal

### 2.3. Interfaces PoE Model



Nr.	Description	Nr.	Description
1	Mounting holes	5	Port LED
2	Type label	6	Ethernet ports
3	State LED	7	USB port
4	Power port	8	Ground terminal

### 3. Installation



Never perform wiring electrical connections if they are under voltage!

Do not perform any installation work on the device when it is under voltage

#### 3.1. Installation Guidelines

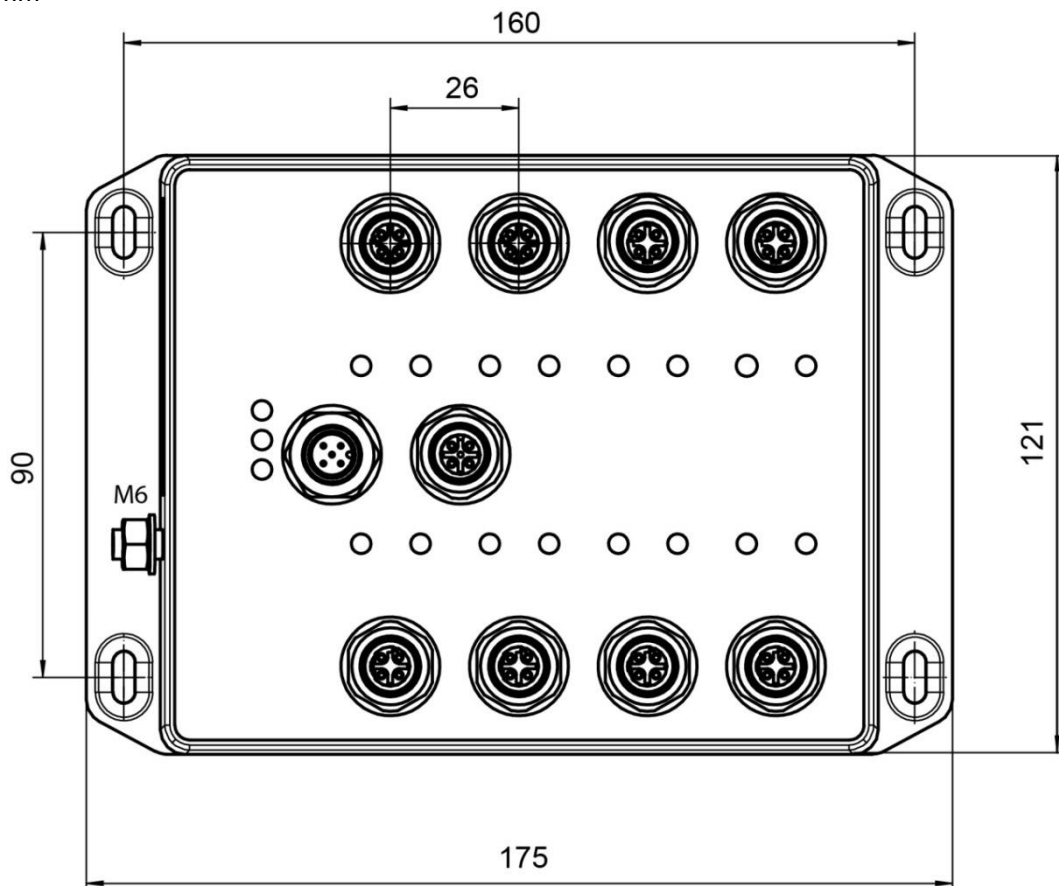
Follow the steps below to install the device

- ▶ For installation choose a location with a flat plane with a size of 200mm x150mm
- ▶ Prepare the drill holes at the installation location for the device mounting holes
- ▶ Make sure that all electrical connectors are volt-free
- ▶ Make sure that the device is disconnected from all connections
- ▶ Align the device on the prepared plane and fasten up with four suitable screws
- ▶ Ground the device through provided ground terminal
- ▶ For best performance use cable with Cat. 5e or better only




Make sure that the ground connection is always tightened securely. Use toothed lock washers with internal teeth to produce ideal contact.

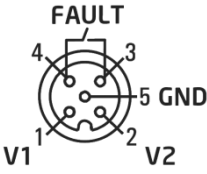
Unit: mm



### 3.2. Power Port Connection

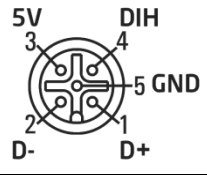
ROQSTAR Device provides two redundant power ports. For Ethernet Switch function apply power supply to V1 or V2 or to V1 and V2. For PoE function the power supply must be applied to V1.

	<p>The power supply for PoE function is V1 only</p>
---	---

Pin	Name	Description	Assignment
1	V1	power supply 1, plus pole	
2	V2	power supply 2, plus pole	
3	FAULT	Fault Contact	
4	FAULT	Fault Contact	
5	GND	power supply common minus pole	

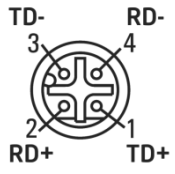
### 3.3. USB Port Connection

Part number	006-130-100	006-130-102	006-130-104	006-103-106	006-130-109	006-130-112	006-130-113	006-130-114
Applicable to		X	X		X	X		

Pin	Name	Description	Assignment
1	D+	USB-Data D+	
2	D-	USB-Data D-	
3	5V	USB-Power Supply, plus pole	
4	DIH	Not connected	
5	GND	USB-Power Supply, minus pole	

### 3.4. Ethernet Port Connection

Part number	006-130-100	006-130-102	006-130-104	006-103-106	006-130-109	006-130-112	006-130-113	006-130-114
Applicable to	X	X	X	X	X	X	X	X

Pin	Name	Description	PoE function	Assignment
1	TD+	Transmit Data +	plus pole (+)	
2	RD+	Receive Data +	minus pole (-)	
3	TD-	Transmit Data -	plus pole (+)	
4	RD-	Receive Data -	minus pole (-)	

### 3.5. Factory Settings

▶ Web interface IP-Address:	192.168.1.1
▶ Web interface Subnet	255.255.255.0
▶ Web interface user:	admin
▶ Web interface password:	password
▶ Power Supply Configuration	V1, V2
▶ Ethernet Ports, all	enabled, auto-speed, auto-duplex, flow control off
▶ VLAN	no entries, all Ports within same LAN
▶ QoS	no prioritization
▶ Fault Contact Type	Normally open
▶ Fault Contact Ack.	Auto
▶ Fault Contact Trigger Source	Power, Over Temperature, PoE
▶ Link Aggregation	disabled
▶ Port Mirroring	disabled
▶ Cable Test	disabled
▶ NTP	disabled
▶ System Time Zone	GMT
▶ SNMP	enabled
▶ SNMP Version	1-2c-3
▶ SNMP Reade Community	public
▶ SNMP Write Community	private
▶ SNMPv3 Users	no entries
▶ SNMP Traps	disabled
▶ LLDP	enabled on all ports
▶ RSTP	enabled
▶ DHCP Server	enabled
▶ DHCP Server Address Pool	192.168.1.10 - 192.168.1.254
▶ DHCP Server Net Mask	255.255.255.0
▶ DHCP Server Lease Time	10 days (865.000 seconds)
▶ DHCP Server Port Based	no entries
▶ DHCP Server Static Leases	no entries
▶ DHCP Client	disabled
▶ PoE	enabled on all Ports with PoE
▶ PoE Power Limit	PoE Class based
▶ PoE Port Priority	no port priority
▶ PoE Port Fault Contact Map	no entries

#### 4. First Time Setup Unmanaged Type

Part number	006-130-100	006-130-102	006-130-104	006-103-106	006-130-109	006-130-112	006-130-113	006-130-114
Applicable to	X		X	X		X	X	X

No settings need to be made on the Unmanaged Ethernet Switch. The device is ready for operation after the supply voltage has been applied.

#### 5. First Time Setup Managed Type

Part number	006-130-100	006-130-102	006-130-104	006-103-106	006-130-109	006-130-112	006-130-113	006-130-114
Applicable to		X			X			

ROQSTAR Managed Ethernet Switches provide built-in web (graphical) interface for the configuration. This web interface can be accessed via a common web browser. To access the graphical user interface follow the steps below:

1. Connect your PC to one of Ethernet Ports of the ROQSTAR Managed Ethernet Switch
2. Enable in Internet Protocol (TCP/IP) properties of your PC following option:
  - ▶ **Obtain an IP address automatically**
3. Apply power to ROQSTAR Managed Ethernet Switch
4. Your PC should now establishing network connection and get a IP-Address from Switch
5. Start your web browser (e.g. Firefox or Chrome) and enter the IP-Address of the Switch:
  - ▶ **192.168.1.1**
6. Login with user: admin, password: password
7. Step through the pages and perform the configuration of the device
8. Your configuration will be automatically saved within device



Be sure to configure the Ethernet Switch before connecting into a network

## 6. PoE Operation

Part number	006-130-100	006-130-102	006-130-104	006-103-106	006-130-109	006-130-112	006-130-113	006-130-114
Applicable to				X	X	X		X

### 6.1. General Information

After applying the operating voltage to V1, the PoE function boots within 10 seconds. There is a total power budget of 62W available. The total PoE power is monitored by the device. If a Powered Device (PD) is detected, the voltage at the port will be enabled and the PoE status LED lights up permanently.

### 6.2. Power Budgeting

#### 6.2.1. PoE Class

In factory settings the PoE power budgeting is based on the PoE classes. The PoE classes are defined as follows:

Class	available power on switch port	power available on powered device
0	15.4 W	0.44 W – 12.95 W
1	4.0 W	0.44 W – 3.84 W
2	7.0 W	3.84 W – 6.49 W
3	15.4 W	6.49 W – 12.95 W
4	30.0 W	12.95 W – 25.50 W

All combinations of PoE classes with a total power budget of max. 62W are supported. If the allocation of total power reaches 62W, the power will be blocked for the PD devices which are detected after limit was reached. In this case, the PoE status LED flashes on blocked PoE ports.

#### 6.2.2. PoE Current Limit

ROQSTAR Managed PoE Switches allow the user to set PoE power budget using current limit per PoE port. This setting allows finer granularity of the power allocation than the budgeting based on the PoE classes. This type of budgeting should be used when the actual power demanded by a PD device is significantly lower than the power of its PoE class. E.g. low cost IP cameras are often delivered with PoE class 0 (13W) although their power consumption never exceeds 4W.

Power setting	current limit	available power on switch port	minimal power available on powered device
2 W	56.25 mA	2.98 W	2.86 W
4 W	93.75 mA	4.97 W	4.70 W
6 W	131.25 mA	6.96 W	6.48 W
8 W	168.75 mA	8.94 W	8.21 W
10 W	206.25 mA	10.93 W	9.87 W
12 W	243.75 mA	12.92 W	11.49 W
15 W	318.75 mA	16.89 W	14.54 W
20 W	412.50 mA	21.86 W	18.05 W
30 W	675.00 mA	35.78 W	29.40 W



The available power on the PD depends on the length and quality of the cable connection



## 7. Notes on Line-Topology

Part number	006-130-100	006-130-102	006-130-104	006-103-106	006-130-109	006-130-112	006-130-113	006-130-114
Applicable to	X	X	X	X	X	X	X	X

All ROQSTAR Ethernet switches support line topology. A direct line connection between switches can be done on any port.

### 7.1. PoE

ROQSTAR PoE switches have an isolated power supply, which ensures the absolutely necessary decoupling between supplied voltage and data line. In this case the data lines are always isolated from of cascaded switches.

### 7.2. DHCP

If several ROQSTAR Ethernet Switches with enabled DHCP server should operate within one network, please follow the instructions and configuration recommendations in the user manual.



If you are operating multiple ROQSTAR devices in the same network, be sure to pre-configure the DHCP settings in each device. Make sure that:

- ▶ Pool based IP-Address assignment is disabled
- ▶ Port based IP-Addresses are unique within ROQSTAR network
- ▶ Static Leases IP-Addresses are unique within ROQSTAR network

## 8. LED Indicators



LED indicators provide a quick diagnostics for the device and your network

### 8.1. System LED

Name	Color	Behavior	Description
V1	-	off	V1 is not connected, or voltage at V1 is too low
	green	on	Supply voltage at V1 is sufficient
V2	-	off	V2 is not connected, or voltage at V2 is too low
	green	on	Supply voltage at V2 is sufficient

Name	Color	Behavior	Description
PWR	-	off	No power applied to V1 or V2, or voltage is too low
	green	on	Sufficient power supply on both V1 and V2
	green	flashing 1Hz	Voltage on at V1 or at V2 is to low
MOD	-	off	Device is booting or not in operation
	green	on	Device in normal operation
	green	flashing 1Hz	Web interface session is active
	green	flashing 10Hz	Firmware update or configuration update
ERR	-	off	No error detected
	red	flashing 1Hz	Configuration error detected
	red	on	PoE or System error occurred

### 8.2. Port LED

Name	Color	Behavior	Description
L/A	-	off	No connection, link down
	green	on	Connection 10 Mbit/s or 100 Mbit/s established, Link up
	green	flashing	Data traffic

Name	Color	Behavior	Description
Link	-	off	No connection, link down
	green	on	Connection 10 Mbit/s or 100 Mbit/s established, Link up
Act	-	off	No data traffic
	yellow	flashing	Data traffic

Name	Color	Behavior	Description
PoE	-	off	No PoE connection
	yellow	on	PoE power released, PD is powered
	yellow	flashing	PoE port is blocked due to power budged limit
	yellow	all led flashing	Internal PoE error occurred

## 9. Technical Data

### 9.1. Electrical

Parameter Power Port - Switch Function	min.	typ.	max.	Dimension
Operating voltage (V1, V2) SELV	+9.6	+24	+60	VDC
Reverse polarity protection	- 60	-	-	VDC
Reset-Level (V1, V2)	-	8.0	-	VDC
Current consumption, full load				
V1, V2 = 9.6V	-	380	418	mA
V1, V2 = 24V	-	161	186	mA
V1, V2 = 60V	-	79	88	mA
Peak inrush current <1ms	-	10 @ 9.6V	14 @ 60V	A
Power consumption				
V1, V2 = 9.6V	-	3.6	4.0	W
V1, V2 = 24V	-	3.9	4.5	W
V1, V2 = 60V	-	4.7	5.3	W
Immunity of power interruption	10	-	-	ms
Internal fuse		2		A

Parameter Power Port - PoE Function	min.	typ.	max.	Dimension
Operating voltage SELV	+16	+24	+52	VDC
Reverse polarity protection	- 60	-	-	VDC
Reset level	-	10	-	VDC
Current consumption, (PoE load= 62W)				
V1 = 16V	-	-	5	A
V1 = 24V	-	-	3.2	A
V1 = 52V	-	-	1.5	A
Peak inrush current <1ms	-	10 @ 9.6V	14 @ 60V	A
Power consumption				
V1 = 16V, PoE load = 62W	-	-	80	W
V1 = 24V, PoE load = 62W	-	-	80	W
V1 = 52V, PoE load = 62W	-	-	80	W
PoE supply immunity of power interruption	-	0	-	ms
Internal fuse for PoE		8		A

Isolation	min.	typ.	max.	Dimension
Ethernet Port ↔ Ethernet Port	-	-	-	VDC
Ethernet Ports (PoE) ↔ Power Port	± 2250	-	-	VDC
Ethernet Ports ↔ Chassis (ground)	± 2250	-	-	VDC
Chassis (ground) ↔ Power Port	± 850	-	-	VDC

PoE Parameter	min.	typ.	max.	Dimension
Voltage	52	53	54	VDC
Current limit per port PoE class 0/3	-	290	320	mA
Current limit per port PoE class 1	-	70	90	mA
Current limit per port PoE class 2	-	130	150	mA
Current limit per port PoE class 4	-	560	660	mA
Fuse per port	-	1500	-	mA
Total PoE power	-	-	62	W

## 9.2. Switching

Parameter Ethernet-Ports	min.	typ.	max.	Dimension
Switch architecture	Store-and-Forward			
Address table size	2000 MAC-addresses			
Bitrate	-	10 / 100	-	Mbit/s
Output impedance	-	100	-	$\Omega$
Input impedance	-	100	-	$\Omega$
Latency at 90 % load	-	8 / 125	9 / 133	$\mu$ s
at 100 Mbit/s (frame size 64 / 1518 Byte)	-	8 / 125	9 / 133	$\mu$ s
at 10 Mbit/s (frame size 64 / 1518 Byte)	-	8 / 125	9 / 133	$\mu$ s
Throughput unicast packets	-	Full wire speed	-	
Frame size 64 – 1518 Byte	-	Full wire speed	-	
Throughput multicast packets	-	Full wire speed	-	
Frame size 64 – 1518 Byte	-	Full wire speed	-	
Frame size				
without VLAN Tag	64	-	1518	Byte
with VLAN Tag	64	-	1522	Byte

## 9.3. Boot time

Device type	min.	typ.	max.	Dimension
Unmanaged Switch	-	2	-	sec.
Unmanaged PoE Switch	-	5	-	sec.
Managed Switch	-	20	-	sec.

## 9.4. Mechanical

Parameter	typ.	Dimension
Dimensions (H x B x T, $\pm$ 0,5 mm)	121 x 175 x 52	mm
Mass Standard Type, net	550	g
Mass PoE Type, net	780	g
Protection Class	IP54	-
Mounting	Four M4 screws	-

## 9.5. Environmental

Parameter	min.	typ.	max.	Dimension
Ambient operating temperature	-40	-	+70	°C
Storage temperature	-40	-	+85	°C
Operating humidity (non-condensing)	10	-	95	%
Air pressure	700 (3000m)	-	-	hPa

## 9.6. MTBF

Parameter	25°C	60°C	Dimension
006-130-100	1 273 723	476 965	h
006-130-106	847 759	317 514	h
006-130-102, 006-130-104	925 549	349 255	h
006-130-109, 006-130-112	680 670	261 292	h
006-130-113	949 271	353 065	h
006-130-114	729 480	282 387	h

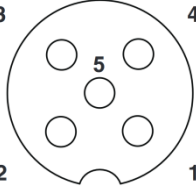

## 9.7. Standards and approvals

The device is compliant with the following test standard.

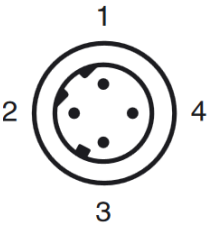
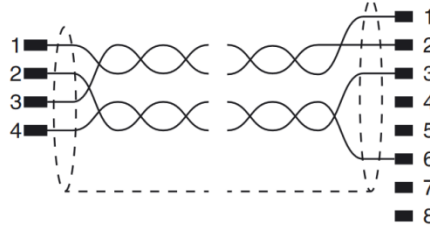
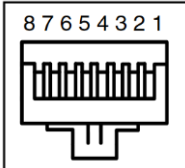
- ▶ Electromagnetic radiation:
  - ▶ EN61000-6-4
  - ▶ EN55022: Class A
  - ▶ FCC47 CFR Part 15 Class A
  
- ▶ Immunity against conducted interference and external fields:
  - ▶ EN61000-6-2
  - ▶ EN61000-4-2
  - ▶ EN61000-4-3
  - ▶ EN61000-4-4
  - ▶ EN61000-4-5
  - ▶ EN61000-4-6
  
- ▶ Specific applications
  - ▶ EN50155
  - ▶ EN50121-4
  - ▶ EN61131-2
  - ▶ UNECE (E1) R10
  - ▶ UNECE (E1) R118

## 10. Wiring diagrams

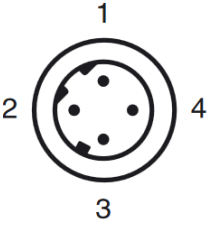
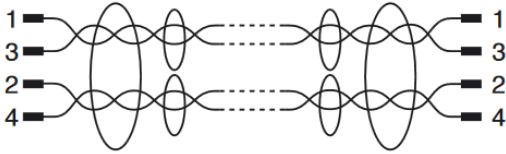
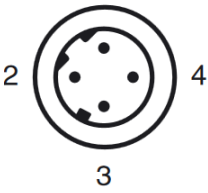
### 10.1. Power cable

Connector	Diagram	Pin assignment*															
		<table border="0"> <tr> <td>1</td> <td>brown</td> <td>V1 (+)</td> </tr> <tr> <td>2</td> <td>white</td> <td>V2 (+)</td> </tr> <tr> <td>4</td> <td>black</td> <td>Fault</td> </tr> <tr> <td>3</td> <td>blue</td> <td>Fault</td> </tr> <tr> <td>5</td> <td>yellow/green</td> <td>GND (-)</td> </tr> </table>	1	brown	V1 (+)	2	white	V2 (+)	4	black	Fault	3	blue	Fault	5	yellow/green	GND (-)
1	brown	V1 (+)															
2	white	V2 (+)															
4	black	Fault															
3	blue	Fault															
5	yellow/green	GND (-)															

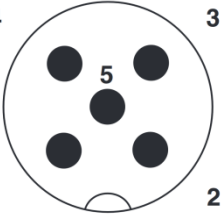
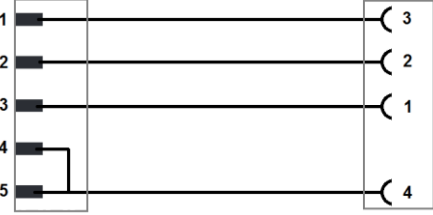
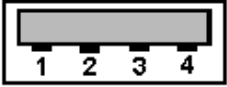
### 10.2. Ethernet M12 to RJ45 cable

M12 connector	Diagram	RJ45 connector
		

### 10.3. Ethernet M12 to M12 cable

Connector	Diagram	Connector
		

### 10.4. USB Adapter

Connector	Diagram	Connector
		

## 11. Ordering information

### 11.1. ROQSTAR Ethernet Switch

Order-No.	Product code	Description
006-130-100	ROQ-08F-U-LV-IP54	8-Port Fast Ethernet Unmanaged M12 Switch
006-130-102	ROQ-08F-F-LV-IP54	8-Port Fast Ethernet Full Managed M12 Switch
006-130-104	ROQ-08F-E-LV-IP54	8-Port Fast Ethernet Expandable M12 Switch
006-130-106	ROQ-08F-U-LP-IP54	8-Port Fast Ethernet Unmanaged M12 PoE Switch
006-130-109	ROQ-08F-F-LP-IP54	8-Port Fast Ethernet Managed M12 PoE Switch
006-130-112	ROQ-08F-E-LP-IP54	8-Port Fast Ethernet Expandable M12 PoE Switch
006-130-113	ROQ-10F-U-LV-IP54	10-Port Fast Ethernet Unmanaged M12 Switch
006-130-114	ROQ-10F-U-LP-IP54	10-Port Fast Ethernet Unmanaged M12 PoE Switch

### 11.2. Accessories

Order-No.	Description
006-000-003	M12 power supply cable, 2m, straight
006-000-011	M12 ITxPT power supply cable 1m, straight
006-000-042	Ethernet cable CAT5e, M12 to RJ45, 1m
006-000-025	Ethernet cable CAT5e, M12 to M12, 3m
006-000-007	Adapter cable M12 to USB type A female

## **12. Contact**

### **12.1. Sales support**

Please contact our sales team at **sales@tronteq.de** for further inquiries and questions regarding our products.

### **12.2. Technical support**

Please contact our support team at **support@tronteq.de** if you have any technical questions or if you need technical training.

**TRONTEQ Electronic**

HOELZLESTR.3  
72768 REUTLINGEN  
GERMANY

[www.tronteq.de](http://www.tronteq.de)