

User Manual

Triple-IN GmbH
Experts in Laser Distance Measurement

INvention
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RT360 ROTARY TABLE



Document changes

Version	Date	Authors	Last changes
1.00.00	2018-07-07	SC	Initial version
1.00.01	2018-08-09	SC	Small errata
1.00.02	2018-11-16	SC	Updated for firmware 1.22/04.00.20
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1 About this document

Triple-IN's RT360 Rotary Table is a rotary device developed for outdoor automation, industrial applications, security and surveying.

- 360° rotation field;
- From very slow to fast rotation speeds;
- High precision;
- Robust, IP67;
- Real time data through Ethernet.

RT360 Rotary Table provide rapidly and efficiently accurate and detailed 3D data. RT360 Rotary Table is suitable for both indoor and outdoor applications, ensuring also goals achievement for existing systems integration.

This document describes the RT360 Rotary Table. It is updated to the firmware version:

RT360 Version 04.01.27

This User Manual is part of a set of documents:

Manual	Targeted persons	Content
User's Manual	Technical personnel	Transport, mounting and installation Wiring and maintenance Operating means, system configuration Technical data
Programmer's Manual	Software developers	Data formats Commands and responses
Sensor User's Manual	Technical personnel	The User's manual of the connected sensor
Sensor Programmer's Manual	Software developers	The Programmer's manual of the connected sensor

If you or your colleagues have any comments on this manual, we would be grateful to hear from you. Please write to:

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2 Safety Instructions

2.1 General warnings



Caution

Before using the RT360 Rotary Table the user manual must be read and all the instructions must be carefully observed.
The RT360 Rotary Table must be installed, configured and serviced only by qualified personnel.
National and international rules and regulations must be applied according to the field of application and usage.
RT360 Rotary Table cannot be used as safety device.



Caution



To avoid the risk of electric shock, do not remove the cover. Device contains high voltage components!
Connect and disconnect electrical linkages only under de-energized conditions.



Warning

Do not open the RT360 Rotary Table.
If opened, the mechanical adjustment will be damaged, and warranty will get void!

2.2 Limited warranty

Triple-IN's General Condition of Sales grants limited warranty for defects in material or workmanship in the RT360 Rotary Table.



Limited Warranty

The limited warranty does not cover:

- (a) Any problem that is caused by accident, abuse, neglect, shock, electrostatic discharge, degaussing, heat or humidity beyond product specifications, improper installation, operation, maintenance or modification;
- (b) Any use contrary to the instructions in this and other related manuals;
- (c) Lost firmware passwords;
- (d) Malfunctions caused by other equipment;
- (e) Damage resulting during shipment (Claim must be presented and examined by the shipper);
- (f) Damages resulting from modifications or alterations to the product in any way, including any alterations or removal of its identification marks and labels.

2.3 Handling precautions

RT360 Rotary Table is a delicate mechanical instrument. Such equipment must be handled with special care to protect the it from possible damage.



Caution



Don't exert any pressure on the device.
Do not open the device.

3 Operating features

3.1 System parts



Figure 1: RT360 Rotary Table with sensor front/right side

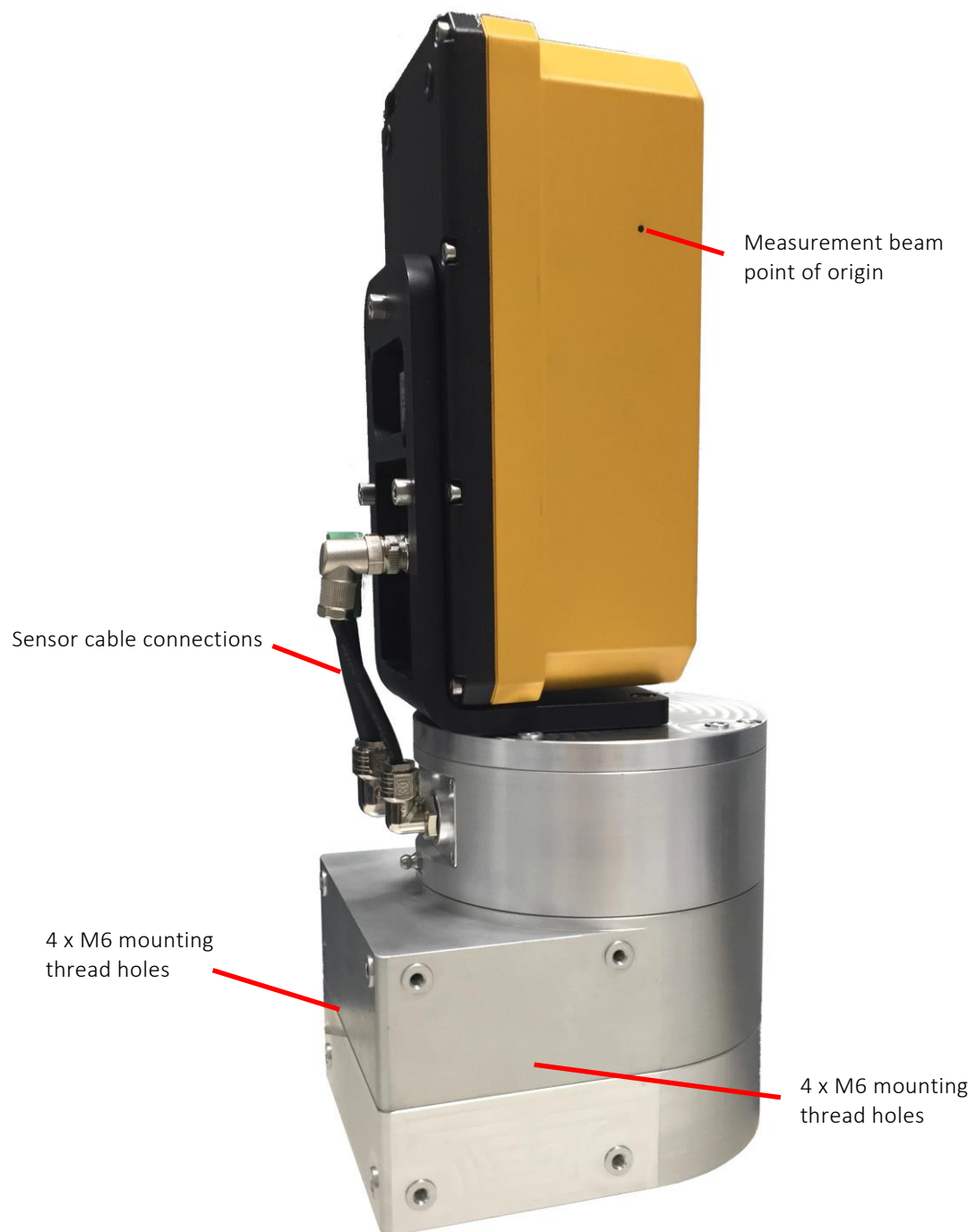


Figure 2: RT360 Rotary Table with sensor left/rear side



Caution

Do not ever remove the two plastic caps on the back plate!

3.2 RT360 terms and parts

Microprocessor unit

Contains an ARM microcontroller and manages all the peripherals and communications between them and the outside

Motor unit

Drives the rotary table rotating part and allows a precise positioning.

Horizontal angle Encoder

It is an encoder with a resolution of 32000 coder counts.

Zero position

It's the position in which the Rotary Table stops the rotating part after the initialization process. It is always as shown in Figure 1.

RT360 power cable

Gives power to the Rotary Table and the connected sensor (24V DC).

RT360 Ethernet cable

Allow communications between the Rotary Table and an external computer.

Short Sensor Multifunction Interface cable

Connects the Multifunction Interface connector of the PS Laser Scanner with the Rotary Table.

Short Sensor data cable

Connects the data connector of the PS Laser Scanner with the Rotary Table.

3.3 Connected sensor terms and parts

Please check the connected sensor User Manual for more information.

3.4 Point of origin and Scan Area

RT360 Rotary Table 3D point of origin is on the bottom part, where the plane intersects the axis of rotation.

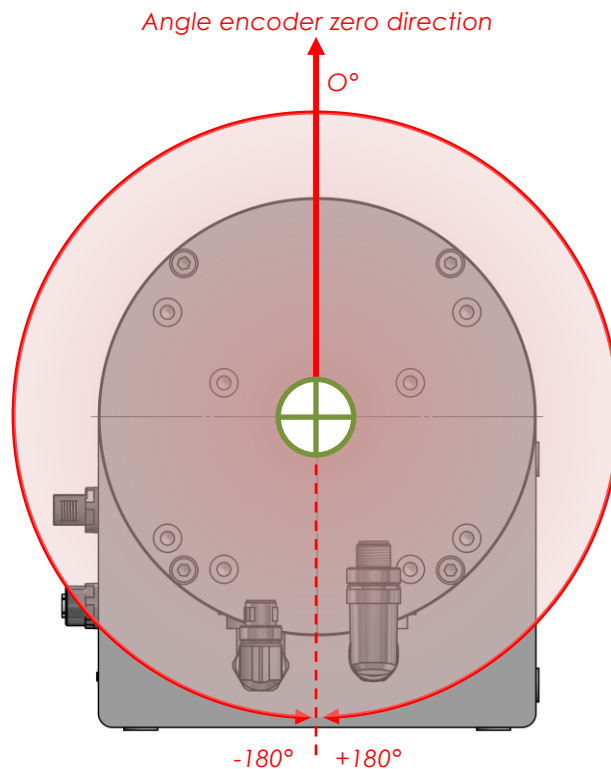


Figure 3: RT360 scan area and point of origin

For Triple-IN PS sensors:

- The angle encoder zero-direction is pointed by the vertical axis of the sensor.
- The scan field starts at angle encoder position 45° and ends after 90° at encoder position 135°.

On the connected sensor, the zero point (origin of the measurements) is marked on the casing with a black dot and the laser source is located with a parallax of 17 mm beside the vertical axis.

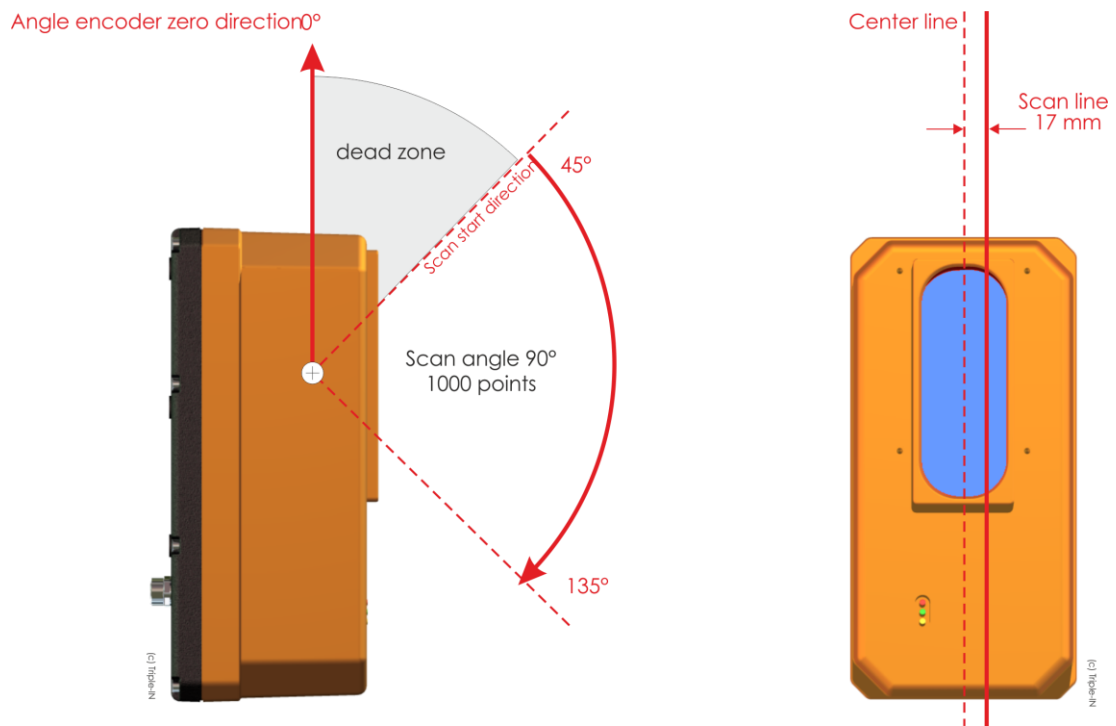


Figure 4: Triple-IN PS sensors scan area and point of origin

3.5 Power supply

3.5.1 Rotary table and connected sensor

Power supply is attached to the four pins power connector (see POWER CONNECTOR paragraph).

The supply for the Rotary Table must provide:

24 Volt, 0.5 Ampere, 12 Watts

The supply for the Rotary Table and a connected Triple-IN PS Sensor must provide:

24 Volt, 1.8 Ampere, 45 Watts










Important

It is strongly recommended to use a power supply with proper earth grounding!

3.6 LED indicators on the RT360

The RT360 Rotary Table supports 3 LEDs:

- Green LED: Power indicator.
- Yellow LED: Rotary table movement indicator.
- Red LED: Error indicator.

Indicator	Operating Mode	LED state
	Power off	
	Start up	All LEDs are on
	Self-test	All LEDs are blinking+
	System is ready	Green LED is on, Yellow and Red LEDs are off
	Firmware update	Green, yellow and red are alternatively lit by a fast blink pattern
	RT360 is working sensorless	Green and yellow LEDs are steady on. Red LED is off
	System error	Red LED is steady on. An error occurred and the device is stopped..

4 Transport, installation and maintenance

4.1 General handling instructions

- Ensure during the installation that the entire system is disconnected from power supply.
- Mount the device at a location where it is protected from damages, pollution and high humidity.
- Mount the RT360 Rotary Table in a way that it is not exposed to direct sunlight.
- Route cables such that danger is excluded for persons and all cables are protected from damages.
- Follow the safety instructions in [Chapter 2](#).

4.2 Packaging and transport

The device must be transported with special caution and sufficient packaging to protect it from possible damage.

Please use original Triple-IN packing material to transport the RT360 Rotary Table.



Warning

Your warranty may be voided if returned device is received with inadequate packaging. Please always use the same package you received from Triple-IN for sending the device back.

At the time of delivery, the user should examine the shipment for loss or damage. If there is evidence of loss or damage, note it on the delivery receipt; this will be used as evidence to back up the claim. Do not use or install a defective device.

4.3 Condensation avoidance

If the RT360 Rotary Table are suddenly brought in from the cold into a warm room, condensation may form on the internal parts. To prevent condensation, first put the sensor in the transport box, then in a sealed plastic bag and let it adjust to the warmer temperature before taking it out of the bag.

Do not use the device if condensation forms on it. This is to avoid damages to the electronics. If there is condensation, remove the power supply from the sensor, and wait until the condensation has evaporated.

4.4 Cleaning

RT360 Rotary Table are mainly free of maintenance.
For lubrication, K-L 2k fat is used. For sealing, sealing cords of silicone basis are used.



Warning

Don't use abrasives, household cleaners, or other aggressive liquids.

4.5 Mechanical integration

RT360 Rotary Table can be fixed on 3 sides of the fixed part. See *Figure 15: RT360 Rotary Table rev.01 outlines* on Page 37 for Dimensions and Thread Specifications.

Use M6 screws with a strength class of 6.8 and above only. For tightening, use 7,6Nm of torque. It is highly recommended to use washers.

The RT360 must be fixed to the holding structure with at least four mounting screws.
Any load on the rotating part must be fixed to the RT360 with at least four screws.



Caution

Observe the maximum screw-in depth for the screw holes. The device will be mechanically destroyed if the maximum screw-in depth is exceeded!

Maximum load torque	$M_{x,y}$ [Nm]	15
Maximum load	F_z [N]	150
Maximum load	$F_{x,y}$ [N]	50

RT360 Rotary Table can be operated in

- horizontal rotational axis when mounted on the back side
- vertical rotational axis when mounted on the bottom side



Caution

RT360 Rotary Table is not designed to take additional torque on the z-Axis. Do not apply eccentric load on it when operated in horizontal rotational axis.

5 Connectors

5.1 Phoenix SPEEDCON® quick locking system



Warning

Before attaching the connectors, make sure the sealing rubber rings in the sockets are all in place.

Always fit sealing connector caps onto plugs which are not used.

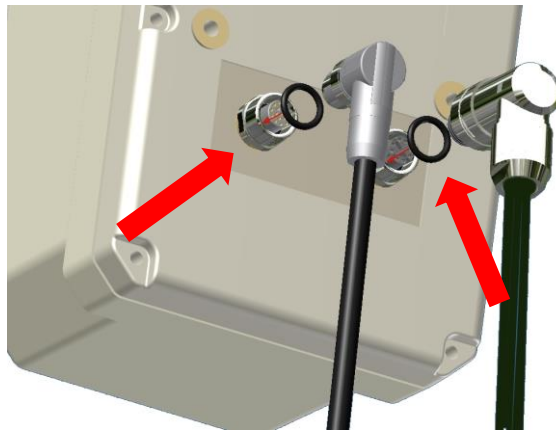


Figure 5: Connector rubber gasket

RT360 Rotary Table and PS Sensors are equipped with Phoenix SPEEDCON® M12 quick locking connectors.

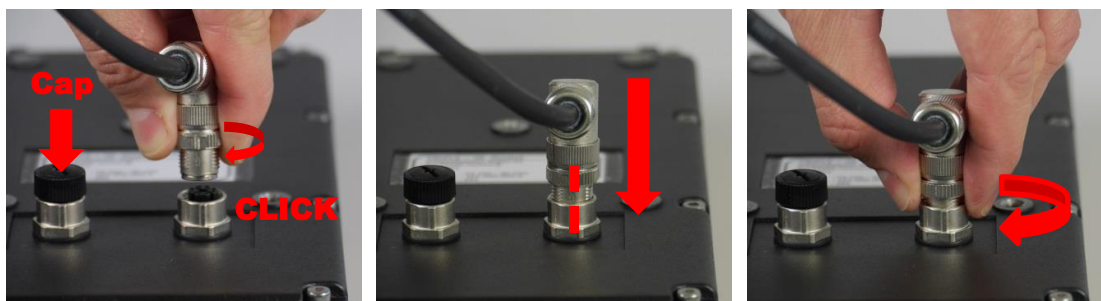


Figure 6: Using the quick locking connectors

1. Make sure the rubber gaskets in the sockets are in place.
2. Turn the retainer ring until you notice a distinct “click”.
3. Align marks at the retainer ring and the socket.
4. Push the connector into the socket.
5. Turn the retainer ring to secure the connection.

5.2 Power connector

The connector is type M12 connector/Phoenix Contact 1436434.

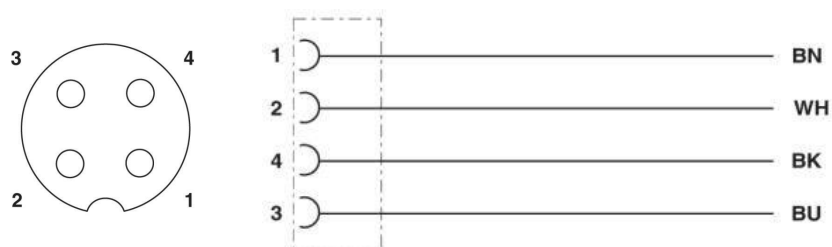


Figure 7: RT360 power connector pinout

Pin	Colour	Colour code	Signal	Comment
1	Brown	BN	Extra +VDC	Extra supply voltage
2	White	WH	+24 VDC	Device supply voltage
3	Black	BK	Extra -VDC	Extra supply ground
4	Blue	BU	-24 VDC	Device supply ground

Pins 2 and 4 are used to give power to the RT360 and to the connected sensor.
Pins 1 and 3 are used to give power to an extra connected device.



Important

In the standard RT360 there is no connector to bring the Extra power line to the rotating part.

This feature is used on the Triple-IN VMS system to power the cleaning blower.

5.3 Data connector

5.3.1 Layout of the Data Connector

The Data Connector connects the device with the local network.

- M12 connector/ IP67/CAT6 connector
- Type Phoenix Contact
"Flush-type socket - SACC-CI-M12FS-8CON-L180-10G - 1402457"
- Adapter type reference is Phoenix Contact
" Bus system plug connector - VS-08-M12MR-10G-P SCO - 1417443".

The pin/pair assignment conforms with the T568B standard.

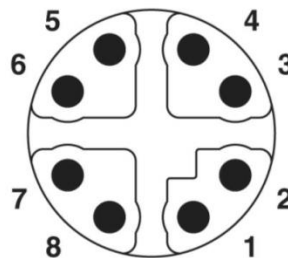


Figure 8: M12 Data and PoE scheme (plug side view)

Pin	Colour	Signal	Purpose
1	White/Orange	TX+	Transmit
2	Orange	TX-	Transmit
3	White/Green	RX+	Receive
4	Blue	n.c.	
5	White/Blue	n.c.	
6	Green	RX-	Receive
7	White/Brown	n.c.	
8	Brown	n.c.	

In the standard configuration, the RT360 Rotary Table has one loose cable on the rotating part which can be connected to the data connector of a PS sensor.

5.4 Multifunction Cable connector

The RT360 rotating part provide a second loose cable to be connected to a PS sensor. This cable bring power to the sensor and rout some useful signals, like the horizontal encoder.

5.4.1 Layout of the Multifunction Cable connector

The Multifunction cable connects the control computer with the RS232 interfaces of the Ethernet board and the measurement board.

The connector type is M12 connector/IEC 61076-2-101.

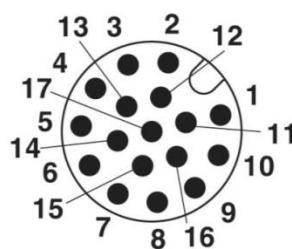


Figure 9: M12 Multifunction cable connector scheme (plug side view)

Pin	Colour	Signal	Comment	Direction
1	Brown	24 VDC-	Ground	-
2	Blue	24 VDC+	Positive power supply voltage	-
3	White	GND	RS232 ground	-
4	Green	-	Reserved for future use	Do not connect
5	Pink	ORX	RS232 RxD Application Programmable Board	
6	Yellow	OTX	RS232 TxD Application Programmable Board	
7	Black	-	Reserved for future use	Do not connect
8	Gray	-	Reserved for future use	Do not connect
9	Red	IN1	Isolated digital input	Input
10	Purple	IN2	Isolated digital input	Input
11	Gray/Pink	CH_A	External incremental encoder, channel A	Input
12	Red/Blue	CH_B	External incremental encoder, channel B	Input
13	White/Green	VCC_IO	Supply voltage for I/O, 3.3VDC to 5VDC	Input
14	Brown/Green	OUT2	Isolated digital switching output	Output
15	White/yellow	OUT1	Isolated digital switching output	Output
16	Yellow/Brown	STD_RXD	RS232 RxD Measurement Board	Input
17	White/Grey	STD_TXD	RS232 TxD Measurement Board	Output

6 Microsoft Windows Software Tools

6.1 TCP/IP Manager for managing network configurations

Triple-IN recommends the open-source Freeware “TCP/IP Manager” (author: A. C. Tundrea) to prepare the computer’s network settings for RT360 Rotary Table. With this tool, you may simply save and restore network settings for RT360 Rotary Table and standard Windows applications in different profiles.

1. Download TCP/IP Manager from Triple-IN’s web server.
2. Run the installer resp. unpack the ZIP file.
3. Start TCP/IP Manager.
4. Select in “TCP/IP Settings > Network connection name” the network adapter connected with the sensor.
5. Check if “IP address” matches the Gateway IP address as stored in the sensor. The default Gateway address is 10.0.10.0.
6. Check if “Subnet mask” matches the subnet mask as stored in the sensor. The default network mask is 255.255.0.0.
7. For later use, consider “Network profile > Create a new profile” to save the setup.
8. Choose “Apply Settings”.
9. To connect a sensor with the default settings:

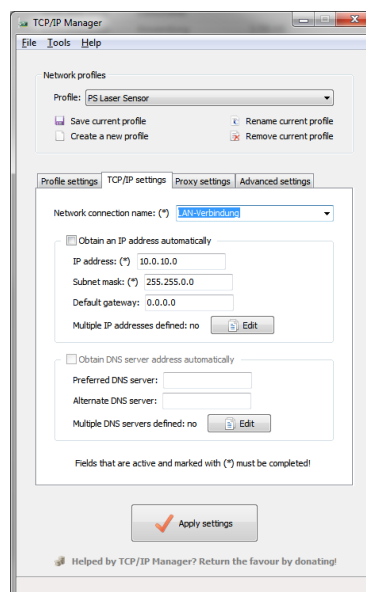


Figure 10: Network configuration with TCP/IP Manager

After disconnecting the sensor, you may use TCP/IP Manager to restore the Windows standards:

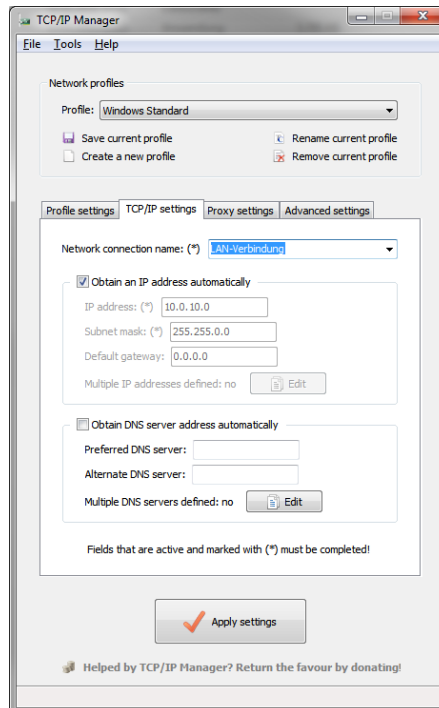


Figure 11: Restore the network configuration with TCP/IP Manager

1. Start TCP/IP Manager.
2. Select in "TCP/IP Settings > Network connection name" the network adapter connected with the sensor.
3. "Obtain an IP address automatically" should be checked.
4. For later use, consider "Network profile > Create a new profile" to save the setup.
5. Choose "Apply Settings".

6.2 Triple-IN PSControlProgram

Triple-IN's PSControlProgram is a PC application for controlling the functionality of Triple-IN Laser sensors via Ethernet connection. It makes the user able to set the user parameters of the sensor, start measurements, record the scans to files or show it on the chart or in the table.

The program is available on Triple-IN's webserver.

6.2.1 Installation

To install the application please follow the instructions:

1. Start Windows installation program.
2. Confirm that you have administrator permissions to install the program.
3. The installer inspects the version information to use it during the installation process.
4. The product information (company, product name and version) is displayed on the screen if it's found during the analysis process.
5. Confirm installation.

A full description of the program can be found in the “PSControlProgram User’s manual”. The manual is part of the program distribution.

7 Setting into operation

7.1 Startup Procedure

To start the system:

- Connect the control computer to the same network of the RT360 Rotary Table.
- Connect the power supply to the RT360 Rotary Table.
- After switching on the supply voltage, the device runs through a self-test. After few seconds, all LEDs will be flashing, and the firmware of the device will check important hardware components and parameters. Commands will respond to the control computer with a “device not ready” error.
- During the self-test, the RT360 will rotate to search the index and position itself to the so called “zero position”.
- The Red and Yellow LEDs are switched off after the self-test has passed successfully.



Important

After disconnecting the device from power supply, you must wait 30 seconds before turning it back on. Otherwise capacitors not being discharged could leave the device peripheral not fully reset.

7.2 Ethernet connection

7.2.1 Network settings

RT360 Rotary Table use the Internet Socket Interface for communications over Ethernet. The sensor socket address is a combination of the IP address (the location of the sensor) and a port (which is mapped to the application program process) into a single identity.

7.2.2 UDP/IP transport protocol

The UDP transport protocol can be used to send commands to the sensor, receive responses and receive the online scan stream.

7.2.3 Why choose UDP for scan data stream

TCP was designed to be reliable in data transmission. This means that, if a packet of data is not correctly (without errors) received by the destination, the sender will try to transmit it again until it is received correctly.

In a real-time system though it is more important to have always the most recent data available even if it means to have some previous data lost.

The UDP transport protocol has a lot of advantages for this purpose:

- It is stateless, suitable for very large numbers of clients. It is used for example in streaming media applications such as IPTV
- The lack of retransmission delays makes it suitable for real-time applications such as Voice over IP, online games, and many protocols built on top of the Real Time Streaming Protocol
- It works well in unidirectional communication and is suitable for broadcast information such as in many kinds of service discovery and shared information such as broadcast time or Routing Information Protocol

All these attributes (and more) made the UDP protocol the best choice to send the scan data stream to the requesting consumers.

7.2.4 Sensor IP address, Client IP address, Gateway IP and port

In the described communication pattern, the device provides some functionalities accessible through the Ethernet. Each one of these functionalities is identified as a “Service”, and the control computer is the “Client”.

The device socket addresses are a combination of an IP address and a port (which is mapped to the application program process). Every available combination identifies a Service.

The sensor has two different IP addresses configured and exposed to the outside:

- **Predefined.** Is automatically calculated from the serial number and cannot be changed. The network mask is **255.255.0.0** and it is calculated this way:

```
IP = 10.255.(serial / 100).(serial % 100)
```

- **Custom.** This address can be modified by the user. It is initially set with a default value calculated similarly to the Predefined:

```
IP = 10.0.(serial / 100).(serial % 100)
```

The custom IP address can be set as a DHCP address.

Information

The DHCP IP address mode is available from firmware 1.22/4.00.20.

Important

For the RT340 with serial number between 130 and 255, the actual IP address is calculated as follows:

```
IP = 10.x.0.(serial)
```

7.2.5 Timeout

The command interface of the firmware has following time outs:

- for measurement requests: **5** seconds
- for measured scans: **30** seconds
- for changing parameters: **60** seconds

The sensor sends an error (**ERR\0**) response if a timeout has occurred.

7.2.6 Services

The following are the services available by default on a sensor. As an example, we list the IP addresses for a sensor with the serial number as **1234**:

Service IP/Port	Protocol	Service	Description
10.255.12.34 6999	UDP/IP	Scan and commands	Command communication line for configuration and online data stream
10.0.12.34 6999 and user defined port	UDP/IP	Scan and commands	Command communication line for configuration and online data stream. This is not available when DHCP mode is set
0.0.0.0 9996	UDP/IP	Scan and commands	Command communication line for configuration and online data stream. This is the only available commands service in DHCP mode
0.0.0.0 3007	TCP/IP	Update	Used to send firmware updates to the sensor

7.2.7 Custom Service IP and Port

The IP address set by the user cannot be the same as the Predefined.

The Port set by the user cannot be one of: 22, 80, 3007, 6999, 6996 and 9996.

7.2.8 Changing the device's network configuration using PSControlProgram

PSControlProgram is useful to change the sensors' default network settings over Ethernet:

1. Start PSControlProgram.
2. Choose button "Connect" to connect the application with a device. The IP and port dialog appears on the beginning of the connection progress.
3. Enter the device IP address and the computer's IP address (or 0.0.0.0:0). Note that, if computer's IP address is specified, both addresses must be part of the same network.

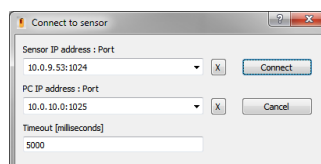


Figure 12: PSControlProgram network connection dialog

4. Once the connection has been made, all sensors parameters can be changed on the "Parameters" view.



Important

Do not change the network configuration on the connected sensor!
See the next step!

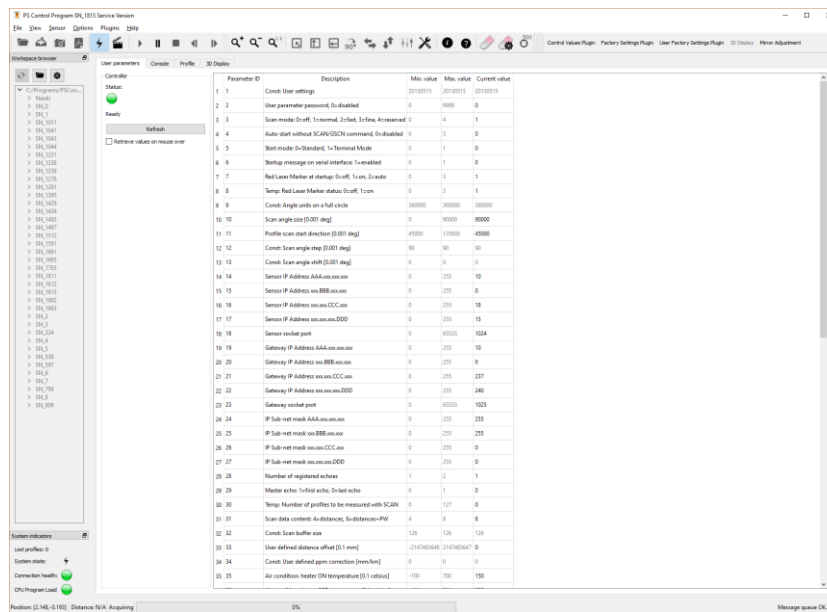


Figure 13: PSControlProgram PS sensor parameters view

- To change the network configuration of the RT360, launch the 3D Display plug-in and change the network configuration from the RT Parameters list:

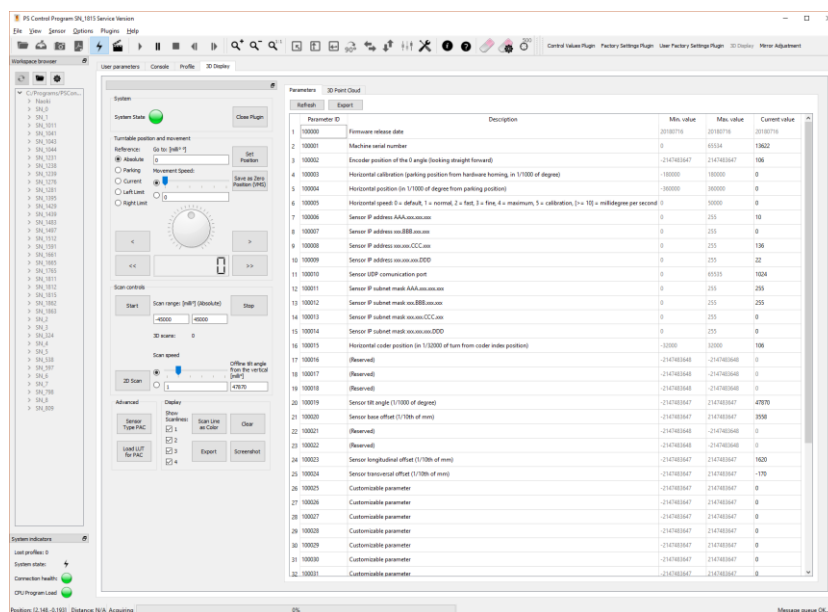


Figure 14: PSControlProgram RT parameters view

- Switch-off and restart the sensor to apply the changed network settings.

7.3 Configuration

7.3.1 Ways of configuration

You can configure the RT360 Rotary Table using the commands “GPRM get parameter” and “SPRM set parameter” of the binary command/control interface. This can be done with PSControlProgram.

7.3.2 About User Parameters

The entire sensor configuration is stored in a table of user parameters. Every parameter has a number as unique parameter identification code. The user can edit the parameter over Ethernet by use of binary commands.

A list of parameters can be found in the “RT Programmers Manual”.



Important

Parameter identifiers always refer to a certain firmware version. Therefore, an individual parameter reference table exists for every firmware version.

You find the description of the binary commands for the processing of the user parameters in the “RT Programmer’s Manual”.

7.4 Taking Scans with PS Control Program

Please refer to the PS Control Program User’s manual for more information about how to drive the RT360 with a PS sensor connected.

8 Firmware update

The firmware of the RT360 Rotary Table can be updated using the Ethernet connection. Download from the Triple-IN's web server the command line utility "TISendUpdate" and decompress the content of the archive. The folder directory will look like this:

```
02/06/2015 17:09          119 822 libgcc_s_dw2-1.dll
02/06/2015 17:09          1 537 038 libstdc++-6.dll
02/06/2015 17:09              80 384 libwinpthread-1.dll
06/11/2017 14:07              456 README.txt
06/11/2017 14:28          1 043 549 tisendupd.exe
```

The firmware upgrade is performed using a reserved TCP/IP connection on the port 3007. Using the tool "tisendupd.exe" the update is easy and safe. Just open a command prompt and write the command using this format:

```
tisendupd.exe -o UPDATE_FILE -a IPADDRESS[:PORT]
```

The PORT field can be omitted, and the default port will be used (3007).


```
C:\tisendupdate>tisendupd.exe -o 20180321.ttu -a 10.255.7.98
APU-002
[APU Firmware; 1.00/111B06.3315(rc2)]
Triple-IN Ethernet Updater (c) Triple-IN GmbH 2015-2017

- Connecting to: 10.255.7.98:3007 ...
  Connected!
- The device has accepted our request.
  > 256.0 KB transferred by now...
  > 512.0 KB transferred by now...
  > 768.0 KB transferred by now...
  > 1024.0 KB transferred by now...

...

  > 7.3 MB transferred by now...
  > 7.5 MB transferred by now...
  > 7.8 MB transferred by now...
  File completely sent. 7.9 MB transferred.
  The update process may take a while. Please wait...
- The device has received the update file.
- The device has checked the update file.
- The device is processing the update file.
  System is still updating. 4 minutes until timeout

...

  System is still updating. 3 minutes until timeout
- The update process is complete.
  The device is updated.
  Please restart it if needed!
```

As soon as the tool will finish its work, the device will be restarted to complete the update.

9 Troubleshooting

The LEDs are all off

Be sure that the power cable is connected, and the correct voltage and sufficient current are provided.



Warning

A very long power cable can incur into voltage loss from the source to the device. Be sure that the correct voltage and current are available to the device side of the cable.

The LEDs continue to blink indefinitely

Check the connections between the RT360 and the PS Laser Scanner. The Rotary Table will not be able to complete the initial self-test if it is not able to communicate with the PS Laser Scanner.

The yellow LEDs is steady ON

The Rotary Table is working sensorless. If a sensor is connected, it means that the Rotary Table were not able to communicate with the sensor and it is working as the sensor was not there. The Rotary Table will work normally but all the commands related to the sensor will not be available.

Check the connection cables between and try a power cycle.

The RED LED is steady ON

An error occurred during initial self-test or during operation. The Rotary Table is now in a stopped state.

Try to perform a power cycle, waiting at least 30 seconds before powering on again.

The device does not respond

Check the LEDs status and be sure that only the green LED (and yellow in case the sensor is not connected) is on.

Sometimes the network needs some moments to make a new connected device available. If after one or two minutes the device is still not available, please try a power cycle.

Appendix

A Technical Specification

Technical Data

WORKING RANGE	
Horizontal rotation range	-180° to +180°
Horizontal resolution	0.011 degrees 0.2 mrad
ROTATION SPEED	
Minimum	0.11 °/second
Maximum	45 °/second
Predefined sensorless or with Standard PS sensors	
Fast (40 KHz PRF)	7.2 °/second
Normal (40 KHz PRF)	1.8 °/second
Fine (40 KHz PRF)	0.11 °/second
Predefined with PS Plus sensors	
Fast (60 KHz PRF)	10.8 °/second
Normal (60 KHz PRF)	2.7 °/second
Fine (60 KHz PRF)	0.165 °/second
POWER SUPPLY	
Rotary table and connected sensor power	24V DC – 1A (2A with heater)
Extra power line	Max. 24VDC, 1.5A
COMMUNICATION	
Network interface	Ethernet 100MBit/s
Communication protocol	Binary Command Interface via UDP/IP
OTHERS	
Housing	Aluminum Die Cast, Seawater resistant
Operating temperature range	-10°C to +50°C
Storage temperature range	-30°C to +80°C
Weight	< 6 Kg

DV-RT36-XXXn-01 dimensional drawings and outlines

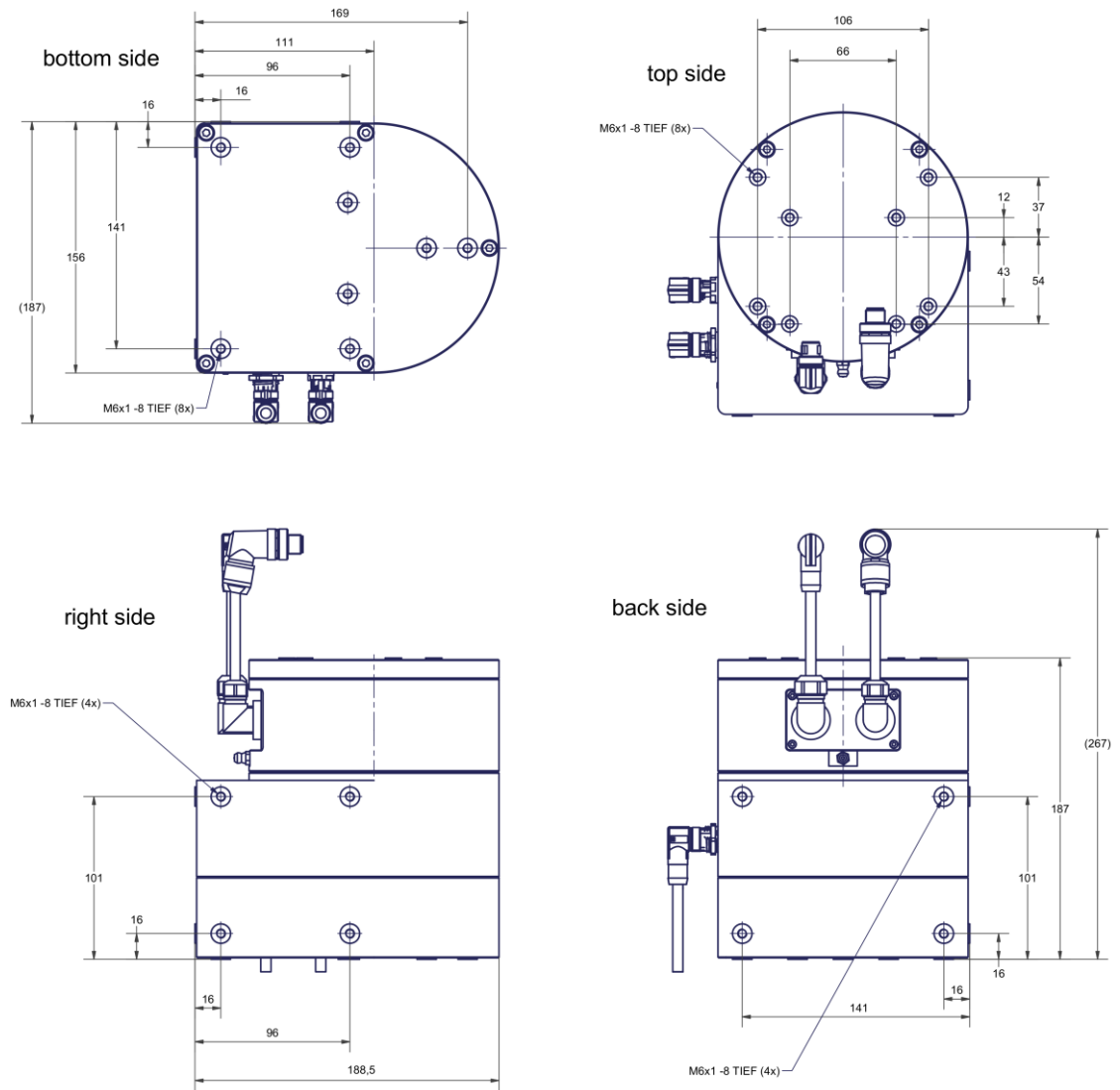


Figure 15: RT360 Rotary Table rev.01 outlines



Note

The drawings are without scale.

DV-RT36-XXXn-02 dimensional drawings and outlines

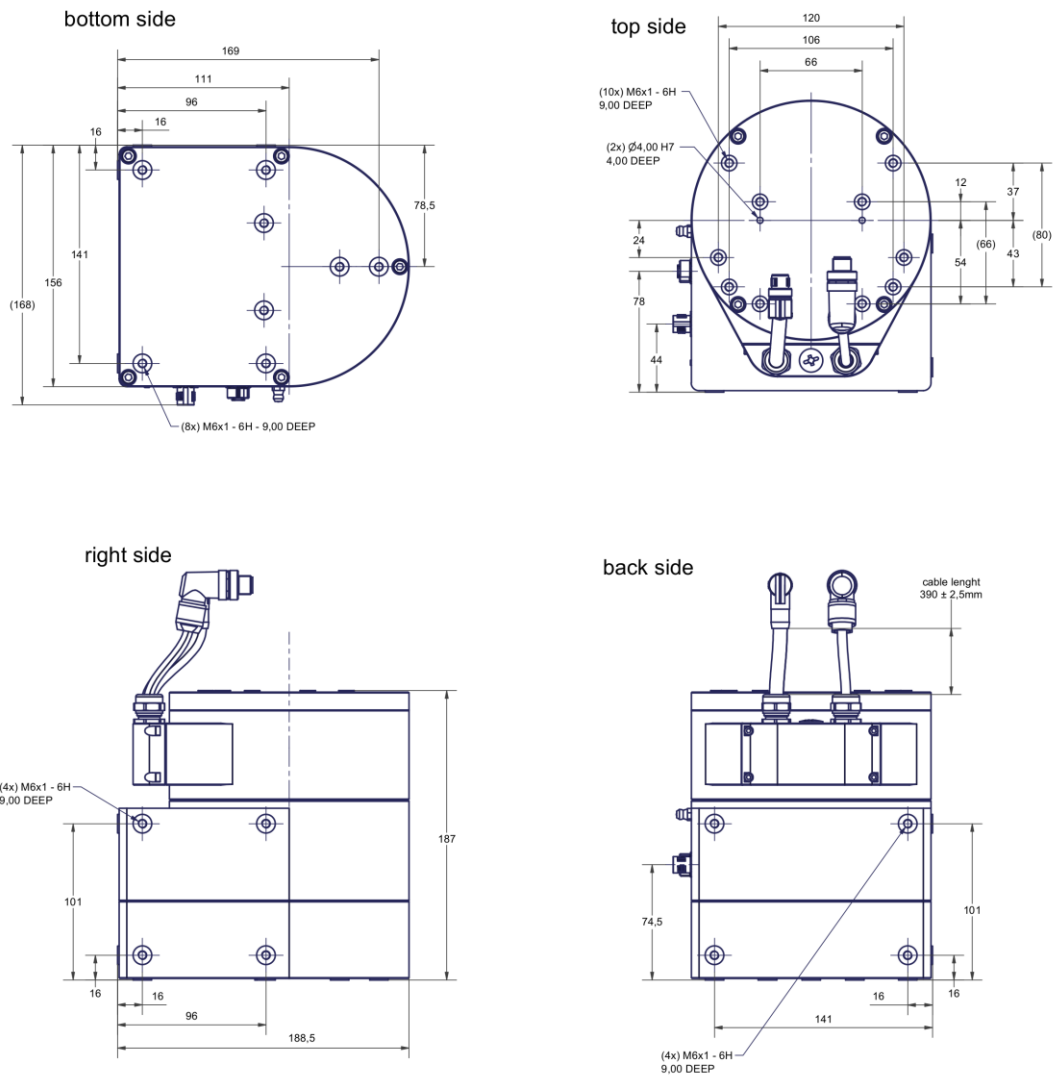


Figure 16: RT360 Rotary Table rev.02 outlines



Note

The following drawings are without scale.

Power cable layout

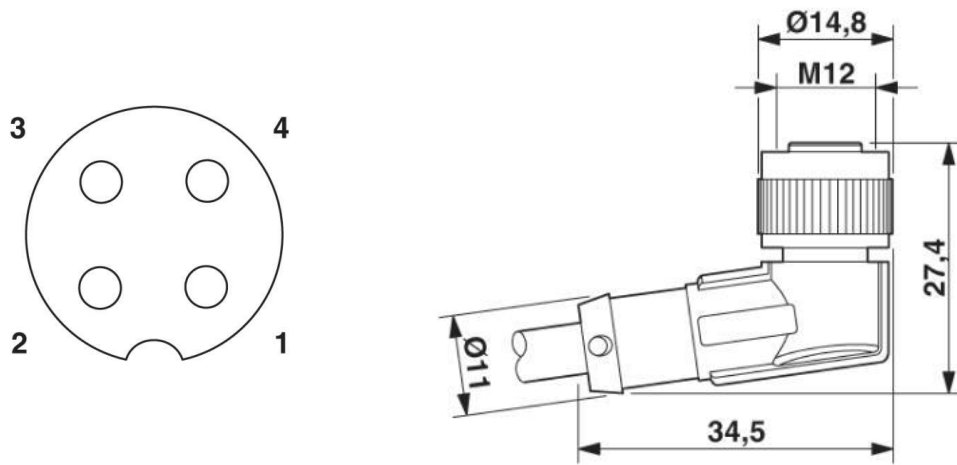


Figure 17: RT360 Rotary Table power cable

Multifunction cable layout

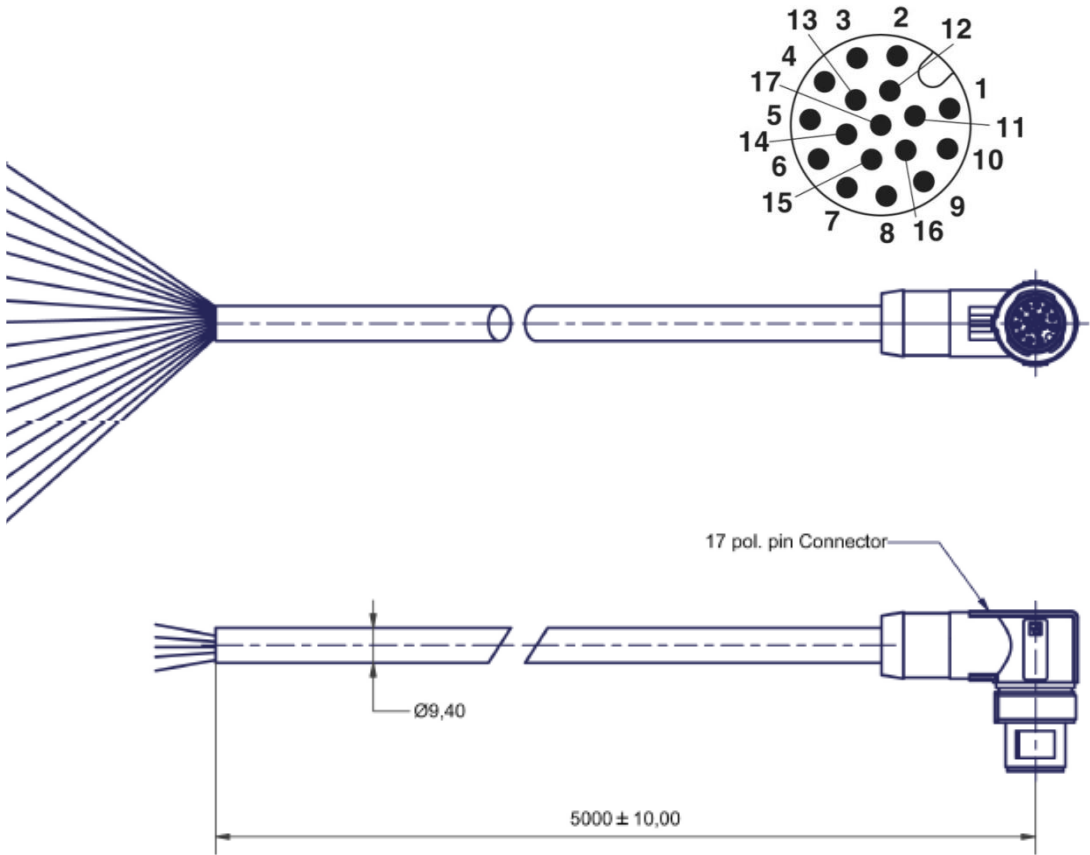


Figure 18: Multifunction cable

Ethernet cable layout

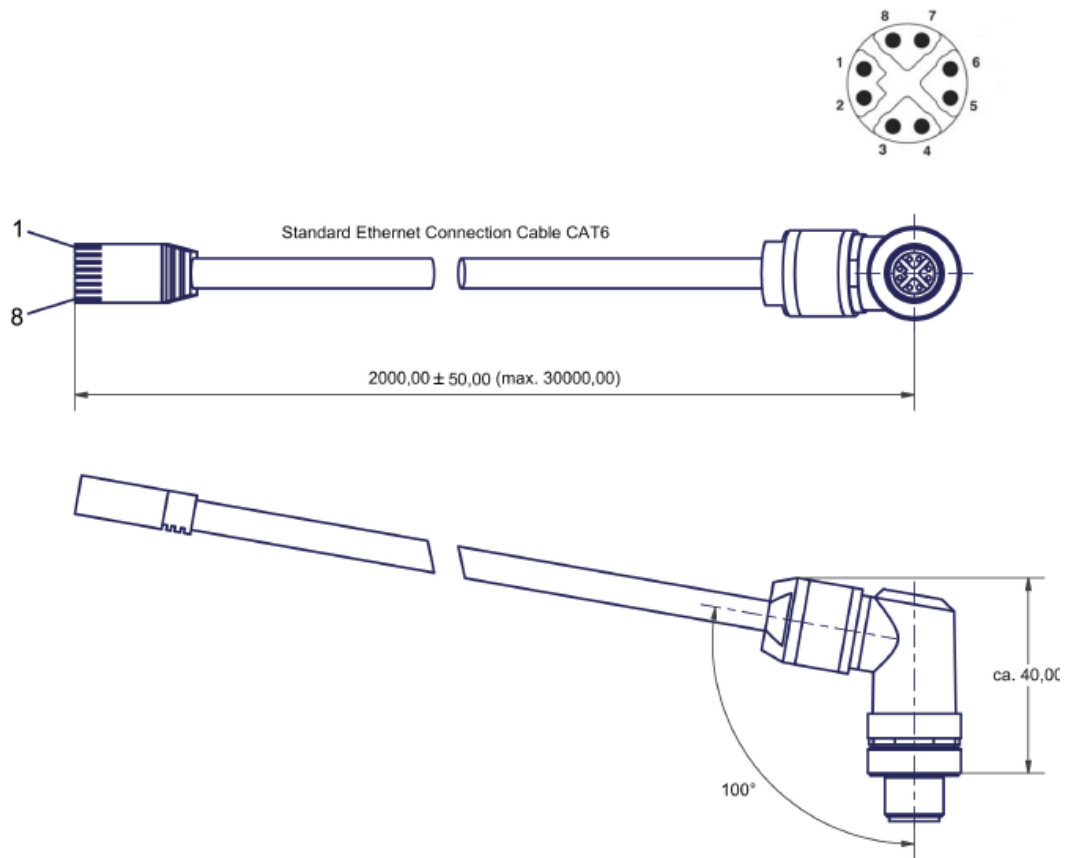


Figure 19: Ethernet and PoE cable

3D CAD Model

A 3D CAD model (STEP format) of the RT360 Rotary Table outlines are available on demand.

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