
QUICK START-UP GUIDE FOR ADAPTIVE SYSTEMS

CPA[I]-_____-_____-_____-P_____ -PM_-_-_-

INSTALL FIRST MARKERS

Move the object to the starting position.

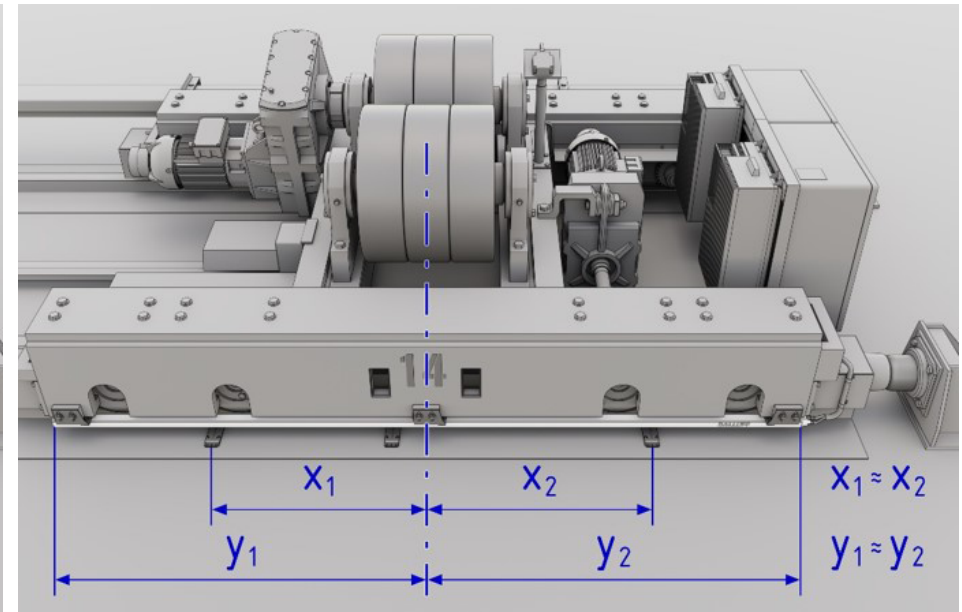
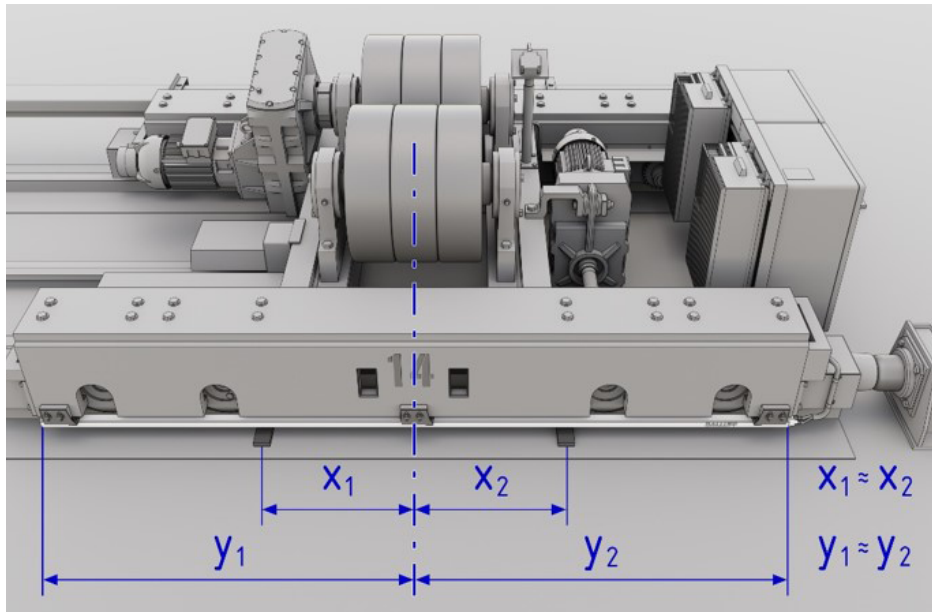
Markers scheme 2+1

Place the first two markers under the sensor so that the midpoint between the markers is approximately at the center of the sensor.

Markers scheme 3+1

Place the first three markers under the sensor so that the midpoint between the outer markers is approximately at the center of the sensor.

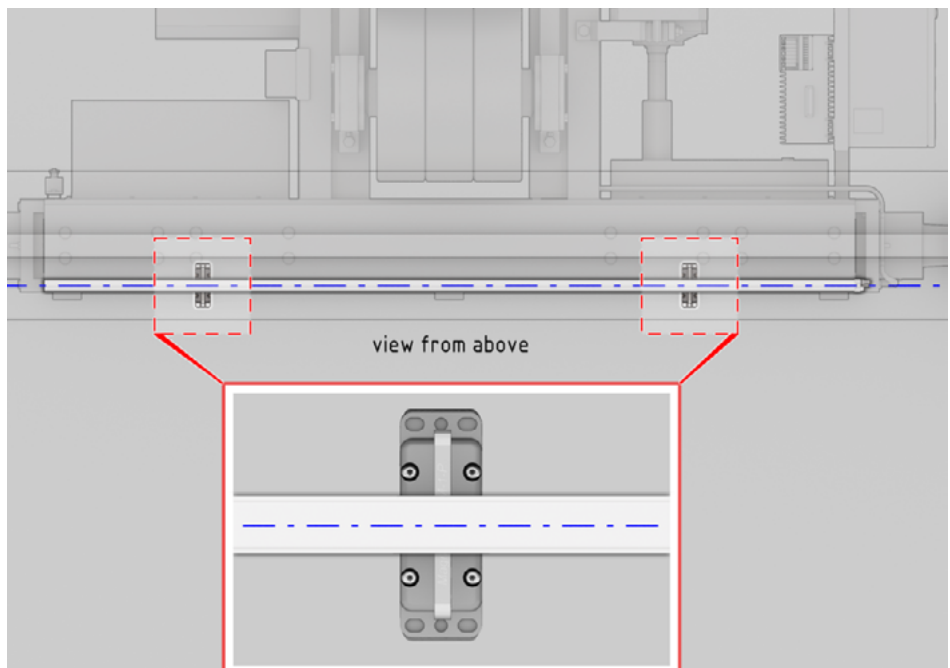
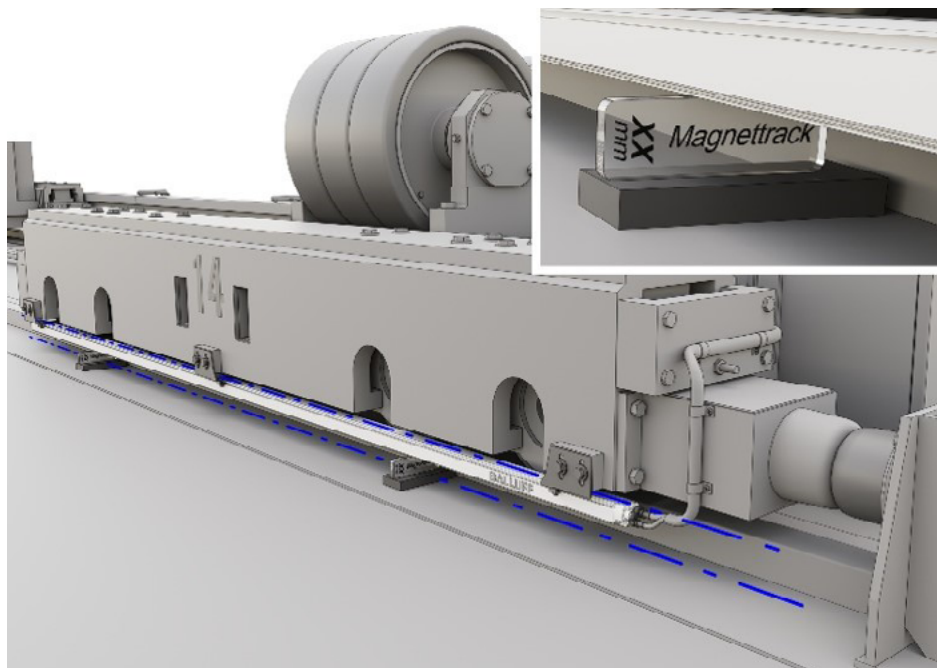
See the marker placement coordinates table in the system datasheet.



ADJUSTING THE SENSOR POSITION

Using two calibrators, adjust the sensor's position relative to the markers. The sensor must "lay" on the calibrators.

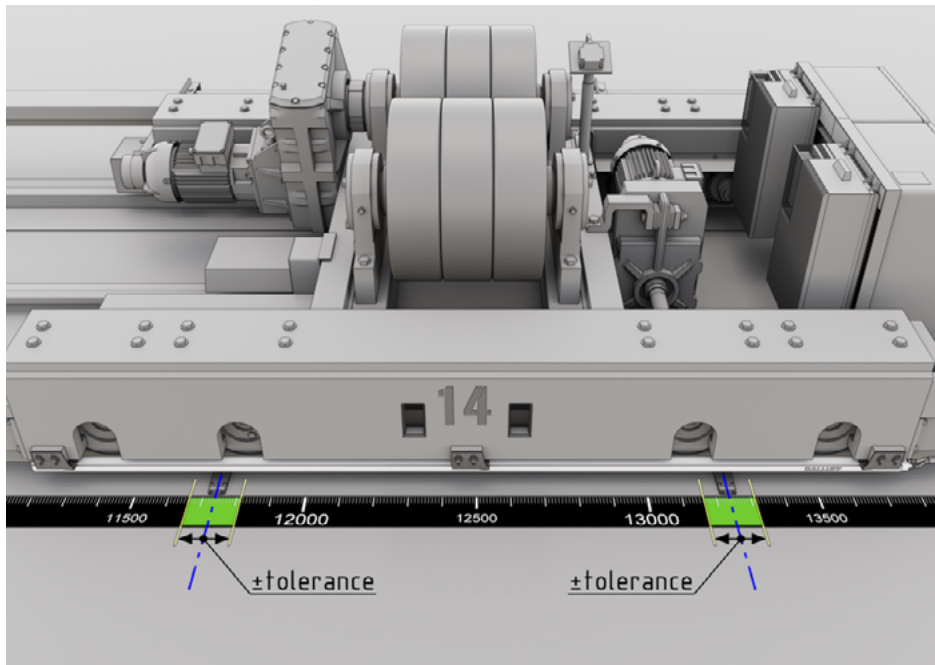
When viewing the sensor from above, the longitudinal axis of the sensor must pass through the middle of the longitudinal axis of the markers.



INSTALLATION OF MARKERS

Install all markers according to the coordinate table in the system datasheet.

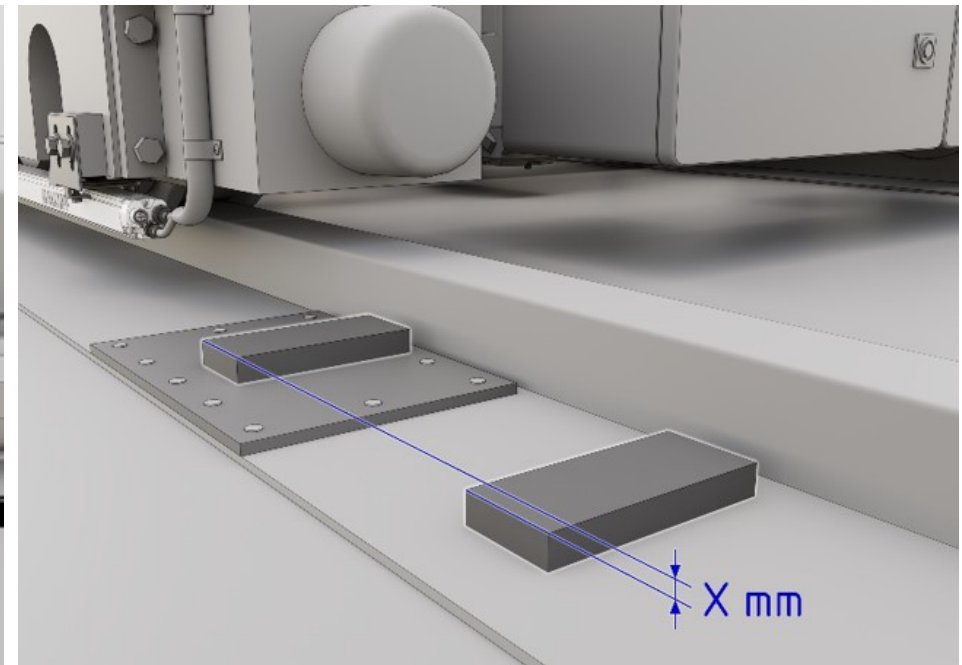
Horizontal acceptable tolerance limit of marker installation (specified in the system datasheet).



Vertical acceptable tolerance limit for marker installation:

$X = \pm 2 \text{ mm}$ for calibre 1

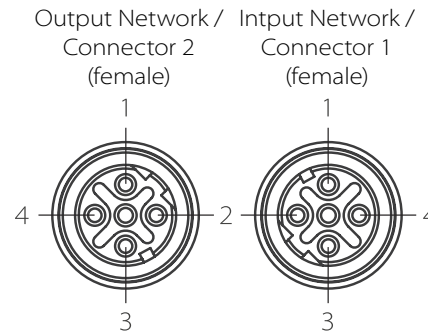
$X = \pm 5 \text{ mm}$ for calibre 3.



POWER SUPPLY AND PROFINET CONNECTION

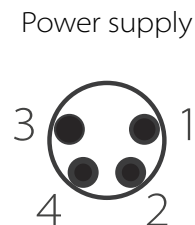
Ethernet cable of category Cat 5e minimum, with diameter from 5 to 8 mm is used for connection of transducer to PROFINET network. Cable contacts are attached to connector using screw terminals. Conductor cross sections is from 0.14 mm² to 0.75 mm². Maximum torque of the terminal is 0.6 N/m.

Power supply		
Pin	Color	Signal
1	Brown	10 to 30 VDC
2	White	Not used
3	Blue	0 V GDN
4	Black	Not used



A 2-wire cable with diameter from 3.5 to 5 mm is used for connection of transducer power supply. A quick cable entry system is applied for connection of contacts. Conductor cross section is from 0.14 to 0.38 mm². Maximum torque of the terminal is 0.4 N/m.

I/O bus (data)		
Pin	Color	Signal
1	Yellow	TX+
2	White	RX+
3	Orange	TX-
4	Blue	RX-



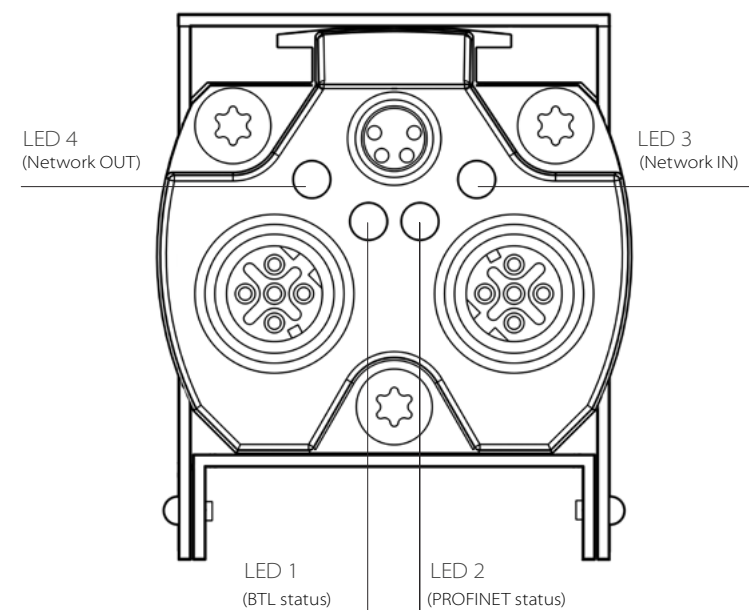
LED INDICATION

BTL Status LED1	Status
Green	Normal functioning. Magnetic marker is the working zone of transducer.
Red	Error. Magnetic marker is faulty or out the working zone of transducer.

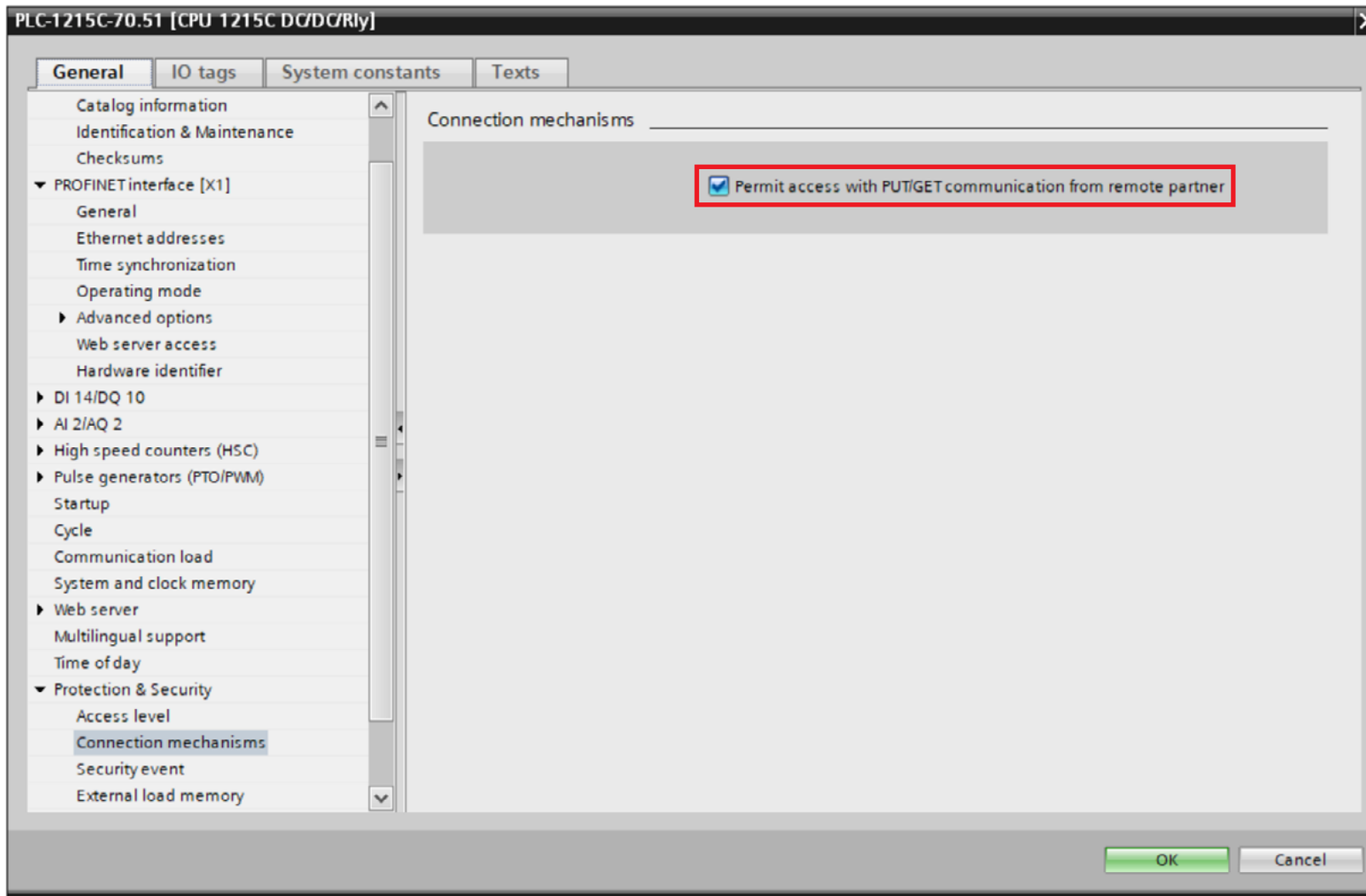
Profinet status LED2			
Red (network error)	Green	Value	Cause
Off	Off	No power	
On	On	Transducer not connected to network (no signal)	Profinet cable not connected/power off at the switch/master module not defined
Flashing ¹	On	Transducer connected to network (signal available), but there is no data exchange	Transducer in boot state (time needed until complete activation) Transducer configured incorrectly Wrong/inaccessible IP-address assigned to transducer Controller configuration does not correspond to transducer configuration
Off	On	Transducer connected to network and exchanges data	

¹ Flashing frequency is 0.5 Hz. The indication lasts for at least 3 sec.

Network LED3/LED4	Status	Communication
On	Port opened	YES
Flashing	The devise is identified by master module	YES
Off	Port closed	NO



ENABLING THE PUT/GET FUNCTION IN THE CONTROLLER



CONNECTING SCADA SYSTEM TO A PLC

The screenshot shows the Magnettrack SCADA interface with the 'Connect to PLC' dialog box open. The dialog box contains the following fields and buttons:

- IP Address:** IP address of PLC: 192.168.70.51
- Check IP address:** Button to verify the IP address.
- Additional parameters:** Section containing database settings.
- Databases:** List of databases to be checked:
 - Magnets database (dbMagnets): 700
 - Instance database (dbMagnettrack): 703
 - Managing database (dbManaging): 702
 - Errors log database (dbErrorsLog): 701
- Check databases:** Button to verify the database connections.
- Save:** Button to save the configuration.
- Cancel:** Button to cancel the operation.

The status bar at the bottom shows the current position: 0 m 188 mm 355 mkm. The status bar also includes a 'Connect to PLC Ctrl+C' button, which is highlighted with a red box and labeled 'Step 1. Push the button'.

The 'Chart parameters (Alt+C)' window is also visible, showing a graph of the magnet's position over time. The graph shows a magnet moving from 0 m 188 mm to 0 m 188 mm. The status bar also shows the current position: 0 m 188 mm 355 mkm.

The 'Statistics (Alt+S)' window is also visible, showing a table of magnet positions and deltas.

Nº	Abs. Coord.	Delta
0	-672619	
1	-391951	280668 : 280 mm (6%)
2	580306	239347 : 240 mm (-6%)
3	70306	199754 : 200 mm (-2%)

The status bar also shows the current position: 0 m 188 mm 355 mkm. The status bar also includes a 'Connect to PLC Ctrl+C' button, which is highlighted with a red box and labeled 'Step 1. Push the button'.

The 'Chart parameters (Alt+C)' window is also visible, showing a graph of the magnet's position over time. The graph shows a magnet moving from 0 m 188 mm to 0 m 188 mm. The status bar also shows the current position: 0 m 188 mm 355 mkm.

The 'Statistics (Alt+S)' window is also visible, showing a table of magnet positions and deltas.

Step 1. Push the button

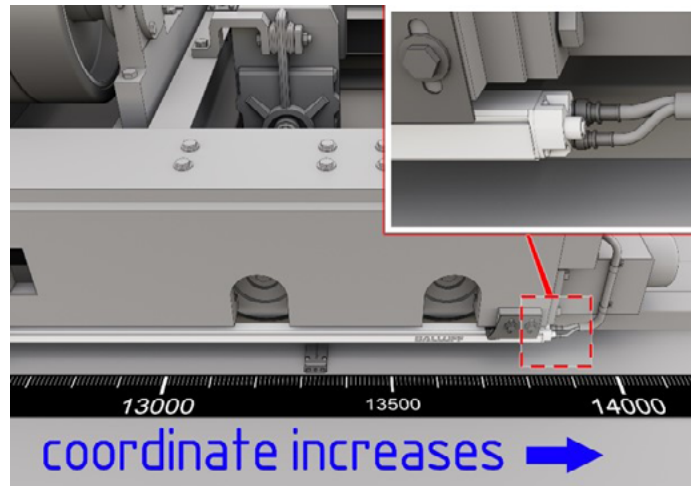
Step 2. Enter PLC IP

Step 3. Push the button

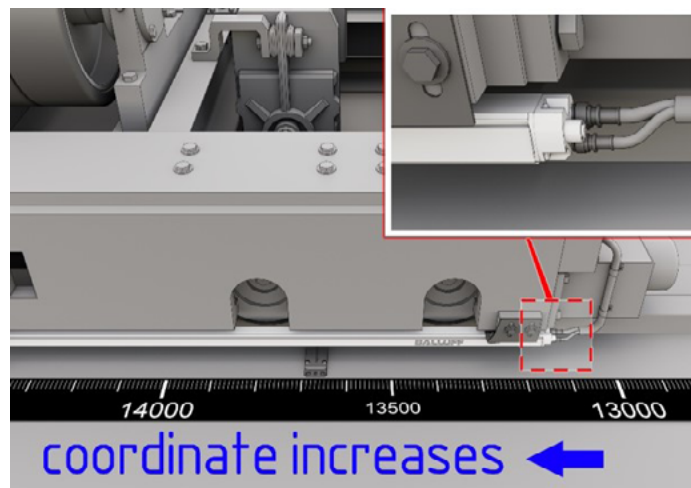
Step 4. Push the button

Step 5. Push the button

SET THE ORIENTATION OF THE SENSOR



Reverse sensor ☐



Reverse sensor ☒

Parameters

Parameters and controls Constants

Parameters

Starting position mkm

0 m 0 mm 000 mkm

dbMagnets number

Sensor

Sensor address

Sensor diagnostic address

Reverse sensor ☐

Errors logging

Errors log is on ☒

Log only critical errors ☐

Errors log Db number

Approximation

Approximation is on ☒

Approximation time (ms)

Approximation order

Controls

Modes

☐ Adaptive mode

☐ High accuracy adaptive mode

☒ Fixed mode

Magnets database

Manual lock of magnets database ☒

Signatures analyzer

Always use signatures analyzer ☒

Use only last virtual delta ☐

Deltas filtration ☒

Auto motion control

Enable auto motion control ☐

Interval markers analyzer

Start/referen. when markers exist ☐

Start/referen. only at one marker ☐

Save Cancel

THE LOCATION OF THE OBJECT'S COORDINATES IN THE PLC

The screenshot shows the Siemens TIA Portal interface. The left pane displays the project tree, and the right pane shows the data block configuration for 'db-MT-CPSA-6.20.33-Managing_axis1'. The 'Position' variable is highlighted in the 'Output' section.

Project tree (Left Pane):

- CP5A-6.20.33+DP-3.7.3-PLC-1215C-70.51_bt10.8m_70.76_M...
- PLC-1215C-70.51 [CPU 1215C DC/DC/Rly]
- Program blocks
- MT-CPSA-6.20.33
- db-MT-CPSA-6.20.33-Magnettrack [FB700]
- Axis 1
 - db-MT-CPSA-6.20.33-ErrorsLog_axis1 [DB701]
 - db-MT-CPSA-6.20.33-Magnets_axis1 [DB700]
 - db-MT-CPSA-6.20.33-Magnettrack_axis1 [DB...]
 - db-MT-CPSA-6.20.33-Managing_axis1 [DB702]**

Data block configuration (Right Pane):

Name	Data type	Offset	Start value	Monitor value	Retain	Accessible f...
Static						
Parameters	Struct	0.0				
Managing	Struct	26.0				
Output	Struct	36.0				
Position	DInt	36.0	0	478038		
Averagedvelocity	DInt	40.0	0	2		
Status	Word	44.0	16#0	16#0001		
ErrorsPresent	DWord	46.0	16#0	16#0000_0000		
ErrorsCollected	DWord	50.0	16#0	16#0000_0000		
WorkingMode	Int	54.0	0	2		
DbSignatureSCADA	DInt	56.0	-1189999345	-1_189_999_345		



THANK YOU!

Mobile: +(39)031 64-63-88

Phone: +(39)053 370-06-29

info@magnettrack.com

www.magnettrack.com