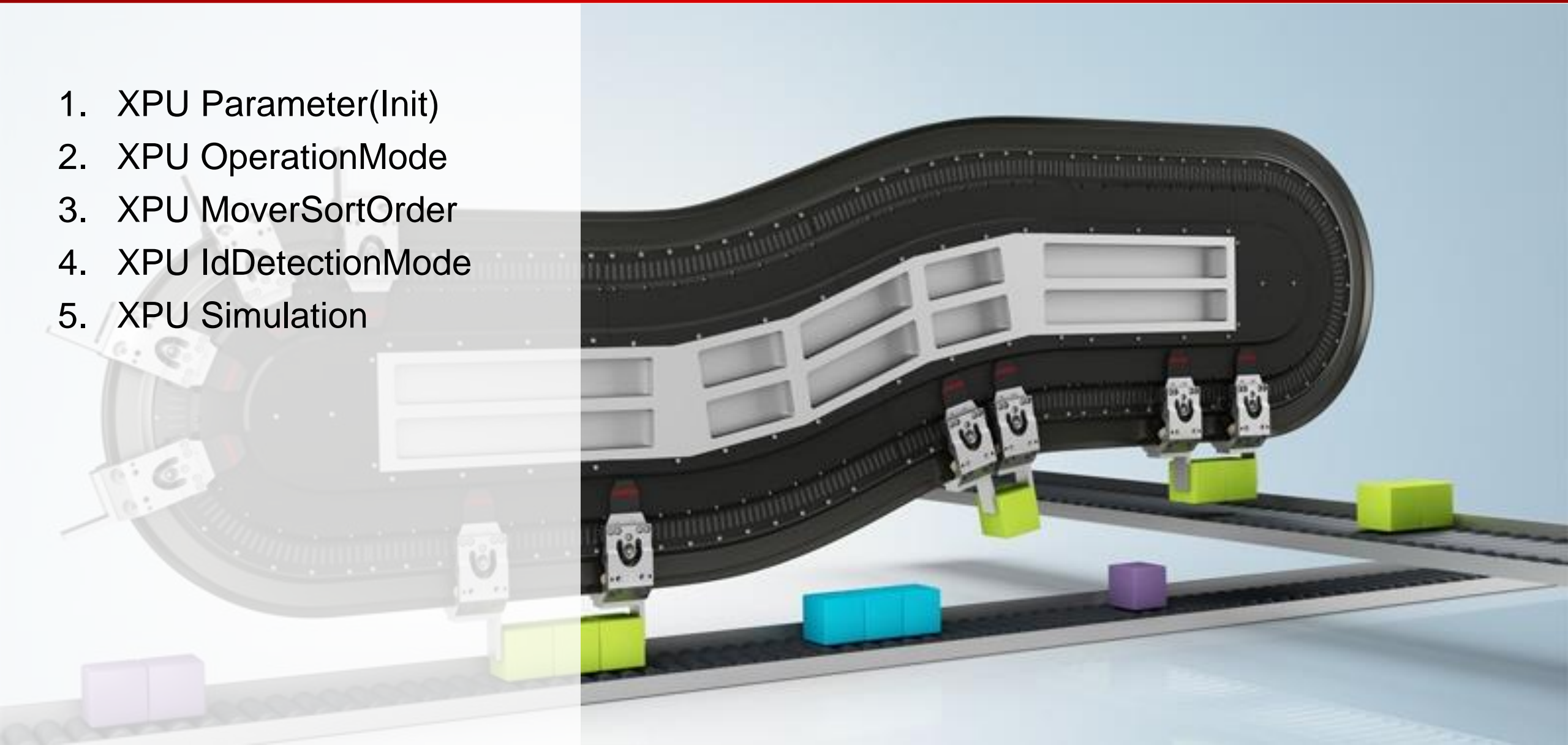
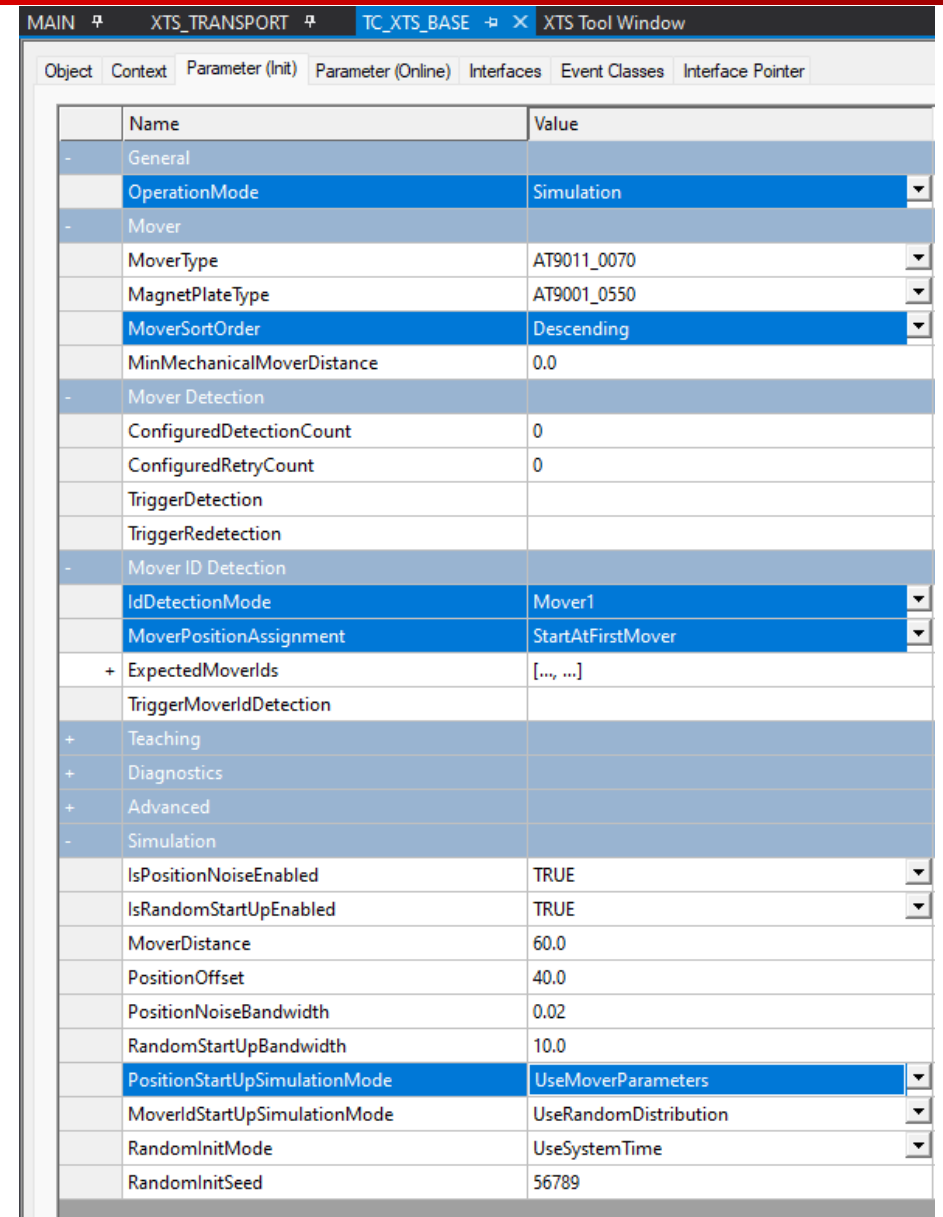


1. XPU Parameter(Init)
2. XPU OperationMode
3. XPU MoverSortOrder
4. XPU IdDetectionMode
5. XPU Simulation



## ■ Required settings for XTS\_TRANSPORT\_LAYER:

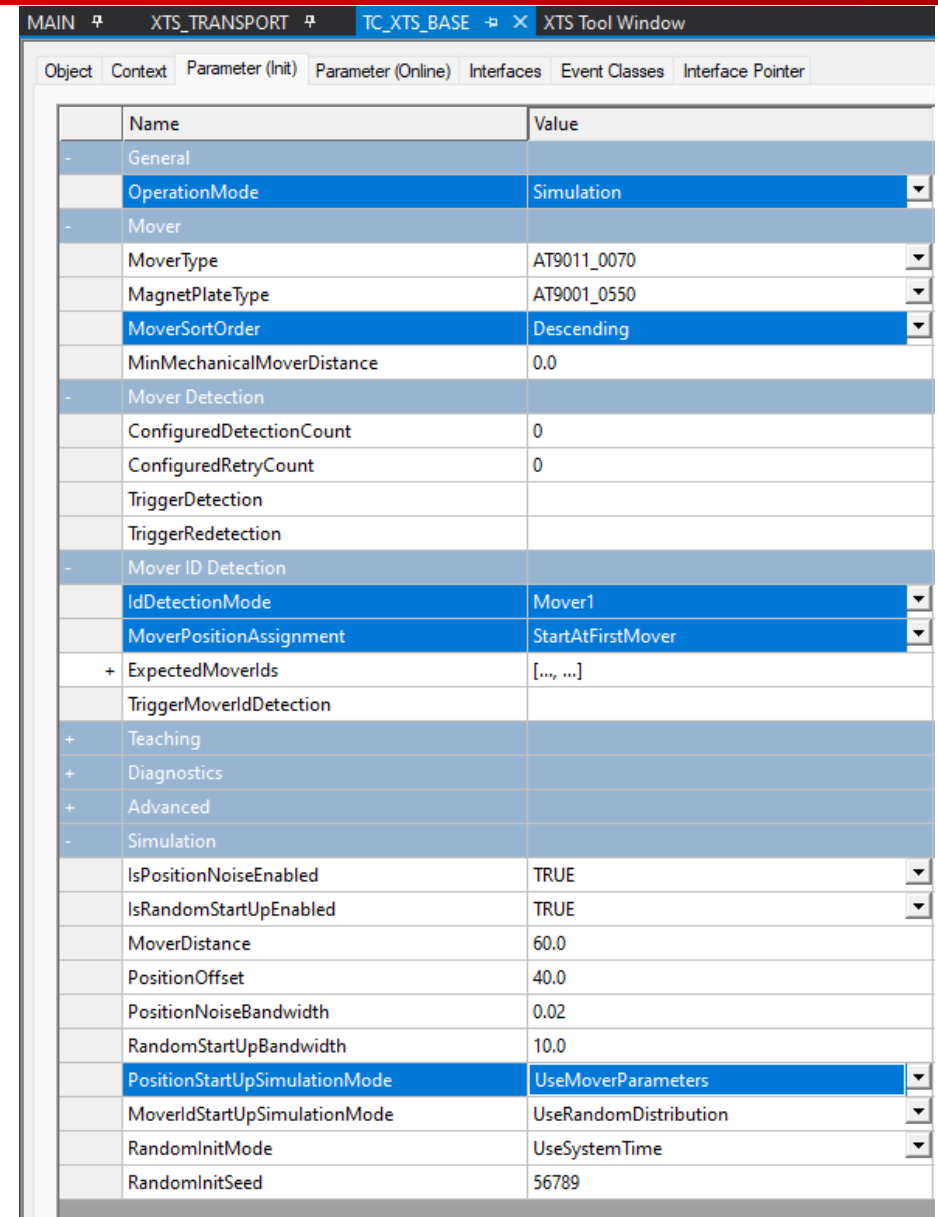
- MoverSortOrder
  - Descending (position based)
- MoverIdDetectionMode
  - Mover1
  - Standard (used for OperationMode.Simulation)
- MoverPositionAssignment
  - StartAtFirstMover
- PositionStartUpSimulationMode
  - UseMoverParameters



Object	Context	Parameter (Init)	Parameter (Online)	Interfaces	Event Classes	Interface Pointer
		Name	Value			
-		General				
		OperationMode	Simulation			
-		Mover				
		MoverType	AT9011_0070			
		MagnetPlateType	AT9001_0550			
		MoverSortOrder	Descending			
		MinMechanicalMoverDistance	0.0			
-		Mover Detection				
		ConfiguredDetectionCount	0			
		ConfiguredRetryCount	0			
		TriggerDetection				
		TriggerRedetection				
-		Mover ID Detection				
		IdDetectionMode	Mover1			
		MoverPositionAssignment	StartAtFirstMover			
+		ExpectedMoverIds	[..., ...]			
		TriggerMoverIdDetection				
+		Teaching				
+		Diagnostics				
+		Advanced				
-		Simulation				
		IsPositionNoiseEnabled	TRUE			
		IsRandomStartUpEnabled	TRUE			
		MoverDistance	60.0			
		PositionOffset	40.0			
		PositionNoiseBandwidth	0.02			
		RandomStartUpBandwidth	10.0			
		PositionStartUpSimulationMode	UseMoverParameters			
		MoverIdStartUpSimulationMode	UseRandomDistribution			
		RandomInitMode	UseSystemTime			
		RandomInitSeed	56789			

- **Switch for using real or simulated hardware in TcloXts driver:**

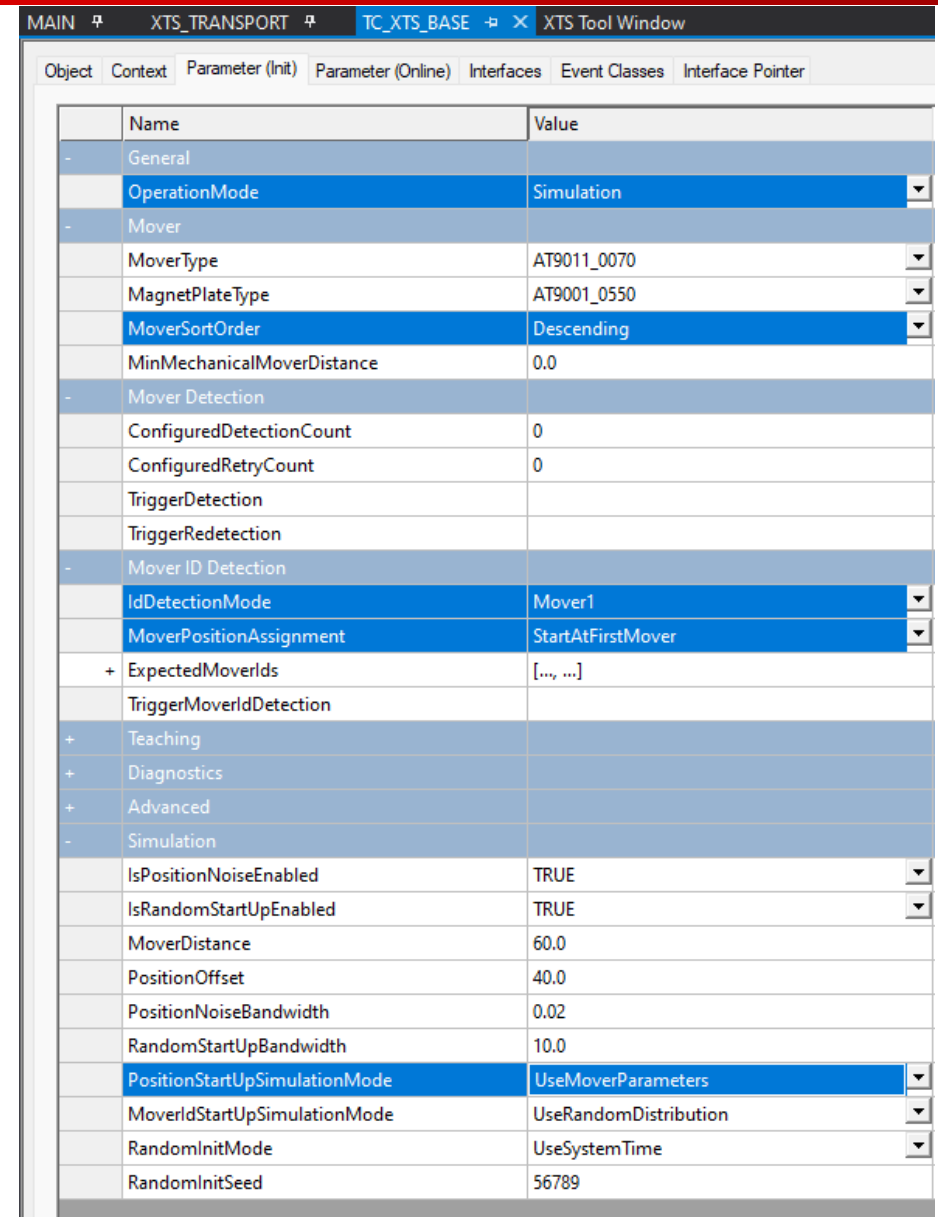
- Simulation:
  - Movement based on setpoint generator output.
  - Set IdDetectionMode to MoverIdDetectionMode.Standard
- Normal:
  - Control feedback from MC Controller / SoftDrive
  - Set IdDetectionMode to MoverIdDetectionMode.Mover1



Object	Context	Parameter (Init)	Parameter (Online)	Interfaces	Event Classes	Interface Pointer
		Name	Value			
-		General				
		OperationMode	Simulation			
-		Mover				
		MoverType	AT9011_0070			
		MagnetPlateType	AT9001_0550			
		MoverSortOrder	Descending			
		MinMechanicalMoverDistance	0.0			
-		Mover Detection				
		ConfiguredDetectionCount	0			
		ConfiguredRetryCount	0			
		TriggerDetection				
		TriggerRedetection				
-		Mover ID Detection				
		IdDetectionMode	Mover1			
		MoverPositionAssignment	StartAtFirstMover			
+		ExpectedMoverIds	[..., ...]			
		TriggerMoverIdDetection				
+		Teaching				
+		Diagnostics				
+		Advanced				
-		Simulation				
		IsPositionNoiseEnabled	TRUE			
		IsRandomStartUpEnabled	TRUE			
		MoverDistance	60.0			
		PositionOffset	40.0			
		PositionNoiseBandwidth	0.02			
		RandomStartUpBandwidth	10.0			
		PositionStartUpSimulationMode	UseMoverParameters			
		MoverIdStartUpSimulationMode	UseRandomDistribution			
		RandomInitMode	UseSystemTime			
		RandomInitSeed	56789			

## ■ Mover detection cycle at startup:

- XPU detects all movers at startup:
  - MoverSortOrder sets search direction
  - Position based
- Ascending:
  - Position from mover-to-mover increases
- Descending:
  - Position from mover-to-mover decreases

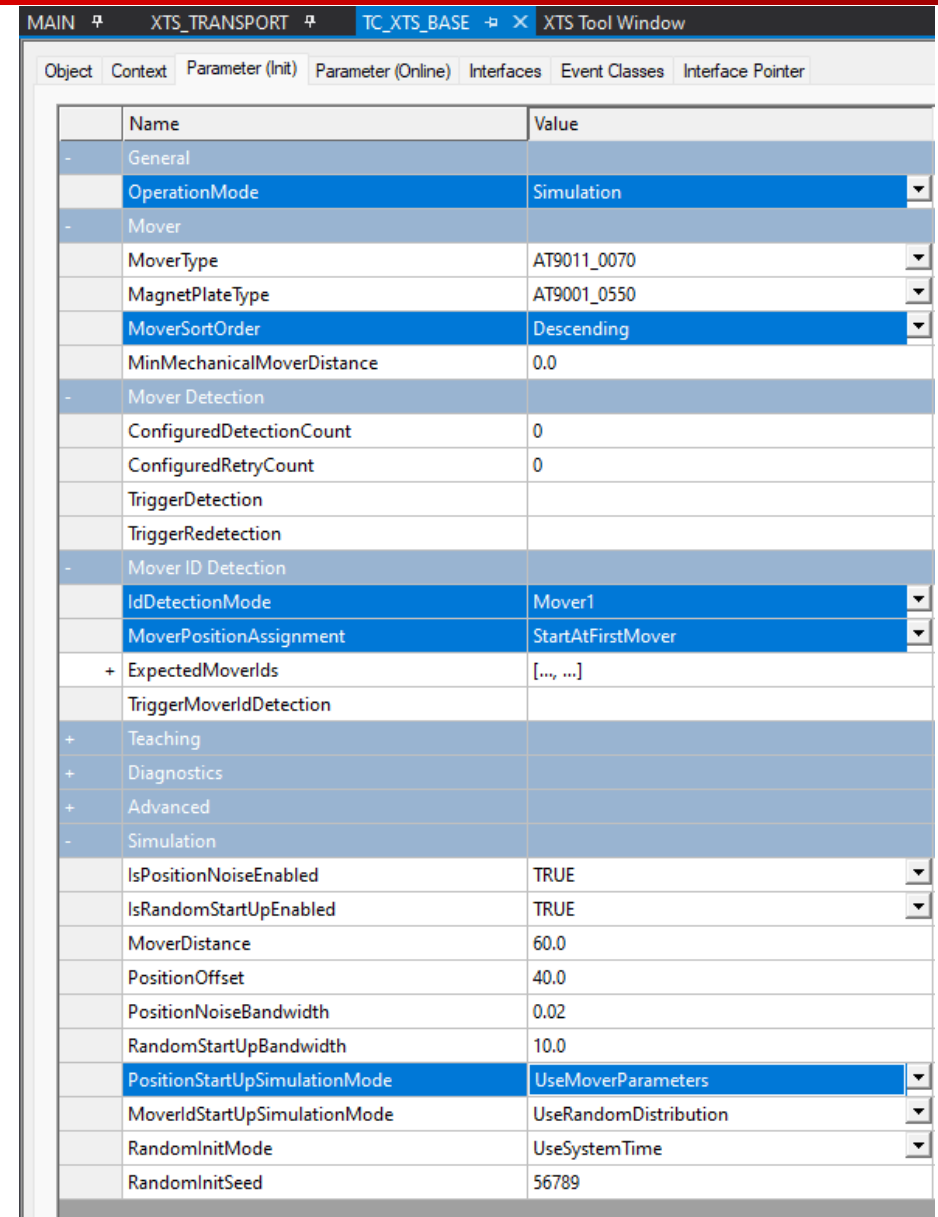


The screenshot shows the 'XTS Tool Window' with the 'Parameter (Init)' tab selected. The 'MoverSortOrder' parameter is highlighted in blue, showing a value of 'Descending'. Other parameters like 'OperationMode' (Simulation), 'MoverType' (AT9011\_0070), and 'MagnetPlateType' (AT9001\_0550) are also visible.

Object	Name	Value
-	General	
	OperationMode	Simulation
-	Mover	
	MoverType	AT9011_0070
	MagnetPlateType	AT9001_0550
	MoverSortOrder	Descending
	MinMechanicalMoverDistance	0.0
-	Mover Detection	
	ConfiguredDetectionCount	0
	ConfiguredRetryCount	0
	TriggerDetection	
	TriggerRedetection	
-	Mover ID Detection	
	IdDetectionMode	Mover1
	MoverPositionAssignment	StartAtFirstMover
+	ExpectedMoverIds	[..., ...]
	TriggerMoverIdDetection	
+	Teaching	
+	Diagnostics	
+	Advanced	
-	Simulation	
	IsPositionNoiseEnabled	TRUE
	IsRandomStartUpEnabled	TRUE
	MoverDistance	60.0
	PositionOffset	40.0
	PositionNoiseBandwidth	0.02
	RandomStartUpBandwidth	10.0
	PositionStartUpSimulationMode	UseMoverParameters
	MoverIdStartUpSimulationMode	UseRandomDistribution
	RandomInitMode	UseSystemTime
	RandomInitSeed	56789

## ■ Mover 1 detection after startup:

- XPU is triggered by fb\_Xpu after successful startup:
  - Mover 1 (recommended for new projects)
    - Inverted magnet plate is detected
- Standard (compatibility with legacy projects only)
  - Movers are sorted by detection position only, must be assigned/sorted to PLC datafields manually



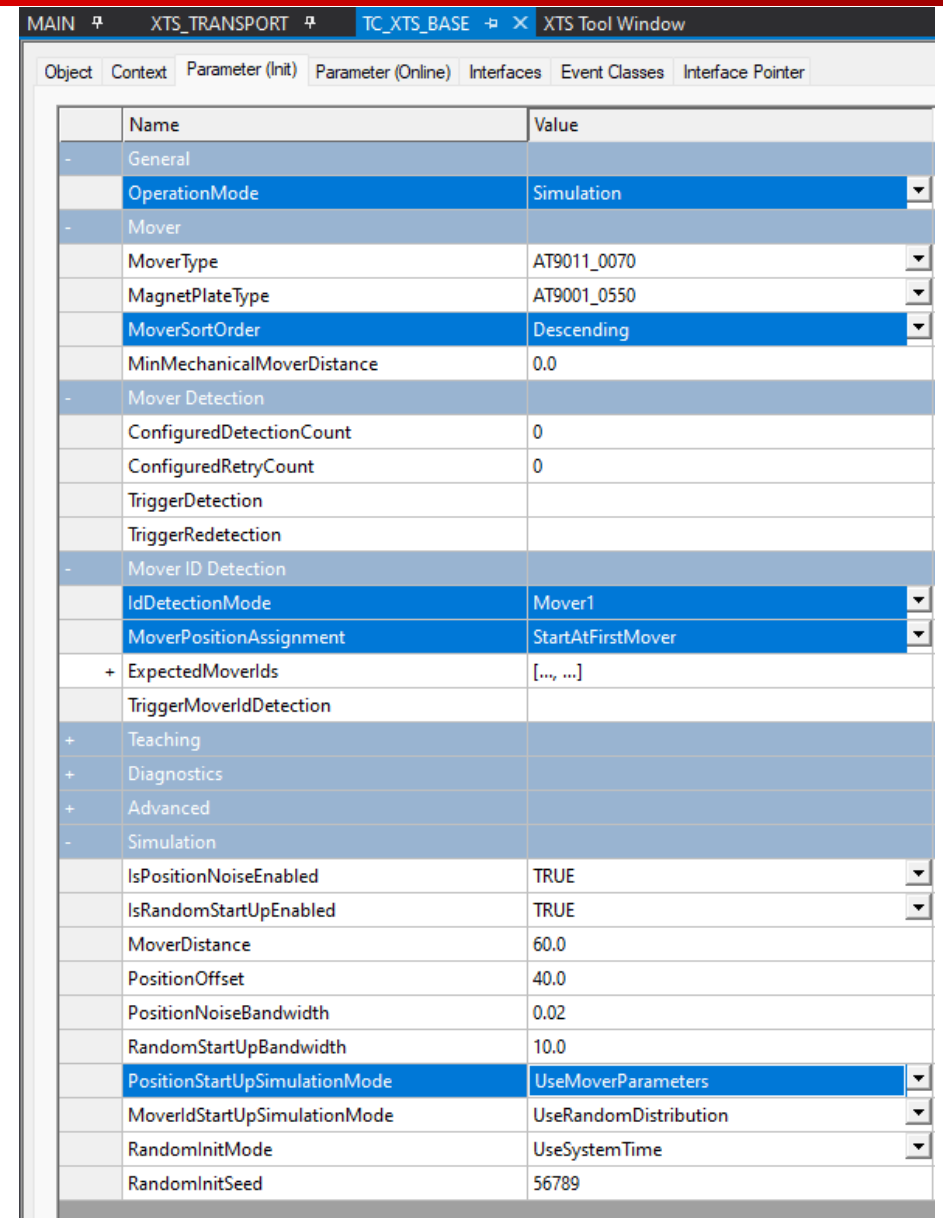
The screenshot shows the XTS Tool Window with the 'TC\_XTS\_BASE' tab selected. The 'Parameter (Online)' tab is active, displaying a list of parameters for the 'Mover 1' configuration. The parameters are organized into sections: General, Mover, Mover Detection, Mover ID Detection, Teaching, Diagnostics, Advanced, and Simulation. The 'IdDetectionMode' parameter is set to 'Mover1', and the 'MoverPositionAssignment' is set to 'StartAtFirstMover'. The 'ExpectedMoverIds' parameter is set to '[..., ...]'. The 'Simulation' section contains several parameters related to position noise and random startup, all of which are set to 'TRUE' or specific values.

Name	Value
General	
OperationMode	Simulation
Mover	
MoverType	AT9011_0070
MagnetPlateType	AT9001_0550
MoverSortOrder	Descending
MinMechanicalMoverDistance	0.0
Mover Detection	
ConfiguredDetectionCount	0
ConfiguredRetryCount	0
TriggerDetection	
TriggerRedetection	
Mover ID Detection	
IdDetectionMode	Mover1
MoverPositionAssignment	StartAtFirstMover
ExpectedMoverIds	[..., ...]
TriggerMoverIdDetection	
Teaching	
Diagnostics	
Advanced	
Simulation	
IsPositionNoiseEnabled	TRUE
IsRandomStartUpEnabled	TRUE
MoverDistance	60.0
PositionOffset	40.0
PositionNoiseBandwidth	0.02
RandomStartUpBandwidth	10.0
PositionStartUpSimulationMode	UseMoverParameters
MoverIdStartUpSimulationMode	UseRandomDistribution
RandomInitMode	UseSystemTime
RandomInitSeed	56789



## ■ Simulation based on setpoint generator in MOTION:

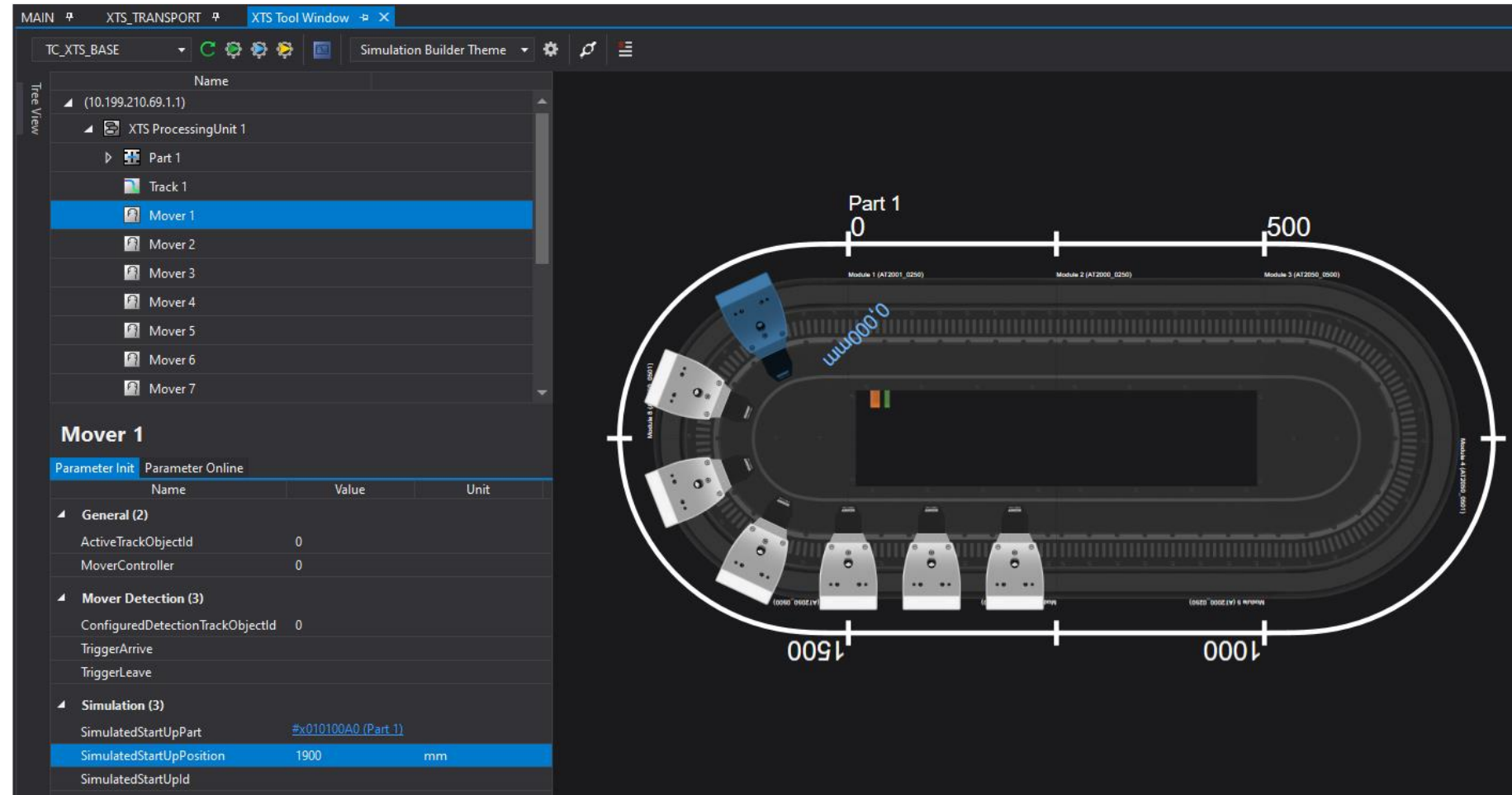
- Enables to test PLC code without hardware:
  - StartUp Position is required, since no mover detection is done in OperationMode Simulation.
- StartUp Position must match Descending sort order
  - Mover 1 → 1900
  - Mover 2 → 1800
  - Mover 3 → 1700
  - ...



The screenshot shows the 'XTS Tool Window' with the 'Parameter (Init)' tab selected. The window displays a list of parameters for the XTS transport system, organized into sections. The 'General' section includes 'OperationMode' set to 'Simulation'. The 'Mover' section includes 'MoverType' (AT9011\_0070), 'MagnetPlateType' (AT9001\_0550), and 'MoverSortOrder' (Descending). The 'Mover Detection' section includes 'ConfiguredDetectionCount' (0), 'ConfiguredRetryCount' (0), 'TriggerDetection', and 'TriggerRedetection'. The 'Mover ID Detection' section includes 'IdDetectionMode' (Mover1), 'MoverPositionAssignment' (StartAtFirstMover), and 'ExpectedMoverIds' ([..., ...]). The 'Teaching' section includes 'Diagnosis' and 'Advanced'. The 'Simulation' section includes 'IsPositionNoiseEnabled' (TRUE), 'IsRandomStartUpEnabled' (TRUE), 'MoverDistance' (60.0), 'PositionOffset' (40.0), 'PositionNoiseBandwidth' (0.02), 'RandomStartUpBandwidth' (10.0), 'PositionStartUpSimulationMode' (UseMoverParameters), 'MoverIdStartUpSimulationMode' (UseRandomDistribution), 'RandomInitMode' (UseSystemTime), and 'RandomInitSeed' (56789).

Name	Value
General	
OperationMode	Simulation
Mover	
MoverType	AT9011_0070
MagnetPlateType	AT9001_0550
MoverSortOrder	Descending
MinMechanicalMoverDistance	0.0
Mover Detection	
ConfiguredDetectionCount	0
ConfiguredRetryCount	0
TriggerDetection	
TriggerRedetection	
Mover ID Detection	
IdDetectionMode	Mover1
MoverPositionAssignment	StartAtFirstMover
ExpectedMoverIds	[..., ...]
TriggerMoverIdDetection	
Teaching	
Diagnosis	
Advanced	
Simulation	
IsPositionNoiseEnabled	TRUE
IsRandomStartUpEnabled	TRUE
MoverDistance	60.0
PositionOffset	40.0
PositionNoiseBandwidth	0.02
RandomStartUpBandwidth	10.0
PositionStartUpSimulationMode	UseMoverParameters
MoverIdStartUpSimulationMode	UseRandomDistribution
RandomInitMode	UseSystemTime
RandomInitSeed	56789

- **StartUp Position:**
  - Xts Tool Window





- **Mover StartUp Position:**
  - Check and/or Change in Mover Object of XPU

The screenshot displays the XTS Tool Window interface. On the left, the Solution Explorer shows a tree structure with 'TcCOM Objects' expanded, leading to 'XTS ProcessingUnit 1' and then 'Mover 1'. The main window has tabs for 'MAIN', 'XTS\_TRANSPORT', and 'TC\_XTS\_BASE'. The 'Parameter (Init)' tab is active, showing a table of parameters for the selected mover.

Object	Context	Parameter (Init)	Parameter (Online)	Data Area	Interfaces
-	General				
		ActiveTrackObjectId	00000000		
		MoverController	00000000		
-	Mover Detection				
		ConfiguredDetectionTrackObjectId	00000000		
		TriggerArrive			
		TriggerLeave			
-	Simulation				
		SimulatedStartUpPart	010100a0		
		SimulatedStartUpPosition	1900.0		
		SimulatedStartUpId			