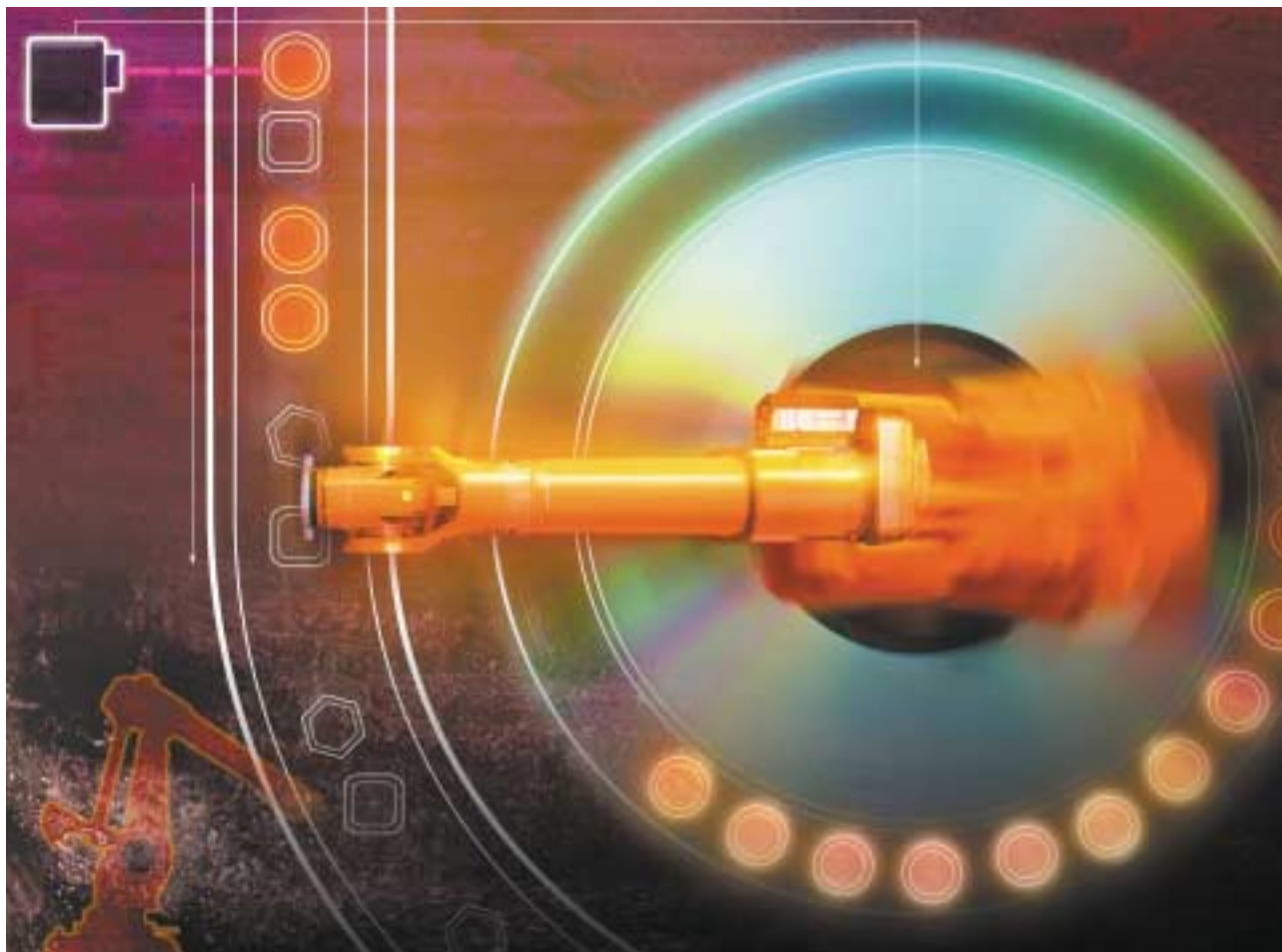


# Conveyor Tracking

## Industrial Robot BaseWare option

### MAIN APPLICATIONS

Picking  
Painting



### Highly accurate, automatic synchronization with moving objects

If you run a robot equipped production line with objects on a moving conveyor, Conveyor Tracking is definitely the function for you. This BaseWare option ensures that robot programs are executed correctly in relation to the work object, regardless of how the conveyor moves.

Conveyor Tracking is a position synchronization feature in which a coordination system follows the object on a conveyor line. The path of the robot (its tool centre point) moves along with the work object. This function can handle a queue of up to 254 objects.

Jobs are executed with great accuracy independent of conveyor speed, including stop and reverse motion. You are thus ensured a constant process result, with high quality.

The position of the conveyor is registered using a 2-phase encoder installed on the conveyor drive unit. The system is configured to scale the pulse/distance ratio, conveyor resolution etc.

Conveyor Tracking also enables you to easily integrate robots into old production lines utilizing existing conveyors not controlled by the robot.

# Conveyor Tracking

## Industrial Robot BaseWare option

### Benefits

- Linear and circular conveyors
- Two simultaneously connected conveyors
- Up to 254 objects can reside in an object queue
- Start window for objects definable
- Maximum tracking distance definable
- Supports a robot mounted on a parallel track motion
- Tracking can be activated “on-the-fly”

### Accuracy

In Auto operation, up to 350 mm/s constant conveyor speed, the Tool Centre Point (TCP) of the robot will stay within +/-2mm\* of the path as seen with no conveyor motion.

### Object queue

The ABB Encoder Interface Unit will maintain a queue of up to 254 objects that have passed the synchronization switch.

### RAPID access queue and conveyor data

ABB's own programming language RAPID has access to the number of objects in the object queue and current position and speed of the conveyor. This program may also remove the first or all of the objects in the tracking queue.

### Start window and queue tracking distance

The S4Cplus Industrial Robot Controller and the ABB Encoder Interface Unit will maintain the object queue based upon a set of distances relative to the conveyor and synchronization switch.

### Maximum distance

A maximum tracking distance may be specified to stop the robot from tracking outside of the work or safety area.

### Track follows conveyor

For robots mounted on a linear track, the system can be configured to make the track trolley follow the conveyor and maintain its position relative to it. The TCP speed relative to the work object will still be the programmed speed.

### Multiple conveyors

Up to two conveyors are supported by the standard option, each with its own Encoder Interface Unit.

### Coordinated finepoint

The robot can be programmed to passively follow a work object on a conveyor, no matter of how the conveyor moves. The robot will hold the position within +/-0.7mm, depending on the calibration of robot and conveyor. The passive coordination can be maintained as long as the RAPID program is running.

### Calibration of linear conveyors

The linear conveyor can easily be calibrated to take any position and orientation in relation to the robot.

### Information on teach pendant

The user has access to the conveyor position and speed via the teach pendant.

### Hardware configuration and connections

The conveyor interface to the S4Cplus Industrial Robot Controller is through the ABB Encoder Interface Unit.

### Encoder type selection

The encoder provides a series of pulses indicating the motion of the conveyor. This is used to synchronize the motions of the robot with the motion of the conveyor.

### Synchronization switch

The synchronization switch indicates the presence of objects on the conveyor. This switch should be chosen so that it provides a reliable and repeatable signal for objects on the conveyor regardless of conveyor speed.

*\*Dependent on the calibration of the robot and conveyor. Applicable to linear conveyor tracking only and provided the robot is within its dynamic limits with the added conveyor motion.*

### TRACKING FUNCTION PRINCIPLE

