1 Introduction

1.1 About Painting PowerPac

Overview

The Painting PowerPac is a RobotStudio solution for offline programming and simulation of Paint application. It allows the programming and installation of new robots offline. This reduces installation and programming time, while not disturbing ongoing production..

Painting PowerPac is used to verify the paint line layout and painting programs. Possible program weaknesses, such as singularity, speed deviations and so on, are discovered before production start. Cycle time and robot positioning challenges are discovered at an early stage instead of after installation. It is possible to simulate the Production sequence and visualize bottlenecks and get an estimate on paint parameters.

Use the Painting PowerPac for controlling a range of features of the paint process, such as:

- Setting up the Paint cell
- Creating and editing of brush specifications
- Creating Paint Strokes
- Setting and editing Events
- Setting up the Production sequence using Job Queue
- Estimating volume of Paint material consumed for a program
- Connecting to the *Virtual Applicator* to get Brush tables using the Service

Note

Painting PowerPac works with Paint systems only

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1.2 Terms and Concepts

Painting PowerPac concepts

The following table lists the terminologies and concepts used in Painting PowerPac

Concept	Description
Brush Specification	Brush Specification is a table of brush properties used by Painting PowerPac for displaying purposes, as a supplement to the “standard” Brush Tables. It contains information about the Brush Width, Length, Color, Pitch, Spray Distance and TCP Velocity associated with a Brush number. These brush properties are not used by the robot controller directly, but is used by Painting PowerPac to generate paint programs.
PaintStroke	PaintStroke is the term used to identify a group of *PaintL* and *SetBrush* instructions between the Start and End of a Paint sequence.
Paint Specification	Paint Specification contains information about the characteristics of the paint material such as the Nominal Thickness, its Density and Solid Content information. These parameters are used when user wants to access the Virtual Applicator services
Panel	Unique segments of a workpiece can be grouped together and saved as a Panel. For example, Door, Hood and so on. Panels are used while generating path using the Auto PaintStroke feature.
Virtual Fluid Device	Virtual Fluid Device is the utility option under Reports group in the ribbon tab. It shows the Material Consumption and the Gun-On time for executed programs and material (Brush Table) combination.
Workpiece	The CAD models on which the paint programs are created are referred to as Workpieces. In a RobotStudio station, there can be several CAD models, some represent the part being worked upon and others the environment.
Support Instruction	Support Instruction is a term used to identify a group of instructions like `WaitWobj`, `DropWobj`, `MoveL`, `MoveAbsJ` which will help during paint programming.

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1.3 Painting support in RobotStudio

Paint Manipulator libraries are integrated into RobotStudio and are available as template systems from RobotStudio 5.15. The available system are shown in the following table.

Robot Type	Manipulator Variant	RS Model Name
IRB 52	standard vertical arm (Right and Left)	IRB52_12_700_1005__01.rslib
IRB 52	short vertical arm (Right and Left)	IRB52_12_475_1005__01.rslib
IRB 540 -12	standard arm (Right and Left)	IRB540_12_1000_1620__01.rslib
IRB 580-12	short arm (Right and Left) and standard arm w/MTB (Right and Left)	IRB580_12_1000_1220__01.rslib
IRB 580-12	standard arm (Right and Left) and standard arm w/MTB (Right and Left)	IRB580_12_1000_1620__01.rslib
IRB 5400-12	standard arm (Right and Left)	IRB5400_12_1200_1620__01.rslib
IRB 5400-12	standard arm (Right and Left)	IRB5400_12_1200_1620__01.rslib
IRB 5400-13	standard arm (Right and Left)	IRB5400_13_1200_1620__01.rslib
IRB 5400-13	standard arm axis 2 + 60 deg	IRB5400_13_1200_1620_60P_01.rslib
IRB 5400-14	standard arm (Right and Left)	IRB5400_14_1200_1620__01.rslib
IRB 5400-14	standard arm axis 2 + 60 deg	IRB5400_14_1200_1620_60P_01.rslib
IRB 5400-22	process arm (Right and Left)	IRB5400_22_1200_1620__01.rslib
IRB 5400-23	process arm (Right and Left)	IRB5400_23_1200_1620__01.rslib
IRB 5400-24	process arm (Right and Left)	IRB5400_24_1200_1620__01.rslib
IRB 5500	AType_b80 and BType_b80	IRB5500_35A_1300_1720__01.rslib IRB5500_35B_1300_1720__01.rslib
IRB 5500 ProArm	AType_b80 and BType_b80	IRB5500_ProArm_A_1300_1720__01.rslib IRB5500_ProArm_B_1300_1720__01.rslib

Motion Instructions

Process templates functionality provides support (including synchronization) for arbitrary motion instructions. The templates for *PaintL* and *SetBrush* are added and set as default when the user activates the Painting PowerPac from the addins tab.

Action Instructions

The process template functionality of RobotStudio provides support for including Action instructions *SetBrush*, *UseBrushTab*, *WaitWobj*, *DropWobj* and so on. The parameters for the action instructions can also be specified from RobotStudio.

In Painting PowerPac, *SetBrush* instruction is automatically loaded once the PowerPac is activated.

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