Product specification

PickMaster 5
Industrial Sorftware Products
Version 5.00
3HAC 5842-9
Revision -

The information in this manual is subject to change without notice and should not be construed as a commitment by ABB. ABB assumes no responsibility for any errors that may appear in this manual.

Except as may be expressly stated anywhere in this manual, nothing herein shall be construed as any kind of guarantee or warranty by ABB for losses, damages to persons or property, fit- ness for a specific purpose or the like.

In no event shall ABB be liable for incidental or consequential damages arising from use of this manual and products described herein.

This manual and parts thereof must not be reproduced or copied without ABB's written permission, and contents thereof must not be imparted to a third party nor be used for any unauthorized purpose. Contravention will be prosecuted.

Additional copies of this manual may be obtained from ABB at its then current charge.

©Copyright 2007 ABB All right reserved.

ABB AB
Robotics Products
SE-721 68 Västerås
Sweden

Overview 5

1 Welcome to PickMaster 5 7

1.1 General ... 7

2 Introduction 9

2.1 Palletizing application ... 9

3 System overview 13

3.1 Introduction ... 13

3.2 Product platforms ... 14

3.2.1 Introduction ... 14

3.2.2 Application design ... 14

3.2.3 Operation ... 15

3.3 Interfaces to peripheral equipment ... 16

3.3.1 Introduction ... 16

3.3.2 Interface description ... 16

4 Application Scope and Coverage 17

4.1 Introduction ... 17

4.2 Production run cases ... 18

4.2.1 General ... 18

4.2.2 Type of pallet loads ... 18

4.2.3 Product flows ... 19

5 Software concepts in PickMaster 23

5.1 Introduction ... 23

5.2 Description of software concepts ... 24

5.2.1 Introduction ... 24

5.2.2 Task oriented definitions ... 25

5.2.3 Separation of geometry and process ... 25

5.2.4 Flexible Gripper integration ... 25

5.2.5 Generic Station concept ... 25

5.2.6 Pattern generator, selector and editor ... 25

5.2.7 Database ... 25

5.2.8 Online/offline definitions ... 26

5.2.9 Bi-directional process execution ... 26

5.2.10 Parametrized Path ... 26

5.2.11 Logical Flow Control - LFC. ... 27

5.2.12 RAPID Templates ... 27

5.2.13 Ordering a Production ... 28

5.2.14 Simulation in RobotStudio ... 28

6 Features 29

6.1 Design ... 29

6.2 Operation ... 33

6.2.1 Introduction ... 33

6.2.2 Application control ... 33

6.2.3 Operator’s panel on FlexPendant ... 34

Table of Contents

7 Technical Specifications **35**

7.1 Product content **35**
7.1.1 Software Package 35
7.1.2 Licenses 35
7.2 Requirements and Limitations **36**

8 Specification of Variants and Options **37**

8.1 PickMaster options **37**
8.1.1 General 37
8.1.2 Basic options 37
8.1.3 PickMaster related Controller Options 38
8.1.4 RobotWare Option 38
8.1.5 Hardware options 38

9 Documentation **39**

Overview

About this Product specification

It describes the performance of the PickMaster 5 in terms of:

- Application environment setting
- Basic concepts
- Ease of use of the software application configuration
- Interactions with peripheral equipment
- Robot operation and controls
- Software options and licenses.

Users

It is intended for:

- Product managers and Product personnel
- Sales and Marketing personnel
- Order and Customer Service personnel

Contents

Please see Table of Contents on page 3.

Revisions

Revision	Description
Revision -	New Product specification

Complementary Product specifications

Product specification	Description
PickMaster user documentation	Application Manual - PickMaster 5

1 Welcome to PickMaster 5

1.1 General

Overview

Thank you for your interest in PickMaster. This document will give you an overview of the product characteristics and how it can be used. PickMaster is a PC-based application software from ABB aimed at designing and running IRC5 robots in packaging and material handling applications. It will save both engineering and commissioning time in putting the palletizing process into work as well as it will save costs by reducing the amount of peripheral equipment as well as complex PLC code.

PickMaster 5 is the latest member of the PickMaster software concept. It is used for offline or online configuration of palletizing applications and runtime control of PC-independent processes on the robot controller. Multiple controllers and robots can be designed in the configurator and simultaneously downloaded to connected controllers.

A palletizing cell is characterized by a robot with single or multi-head grippers, work areas used as feeding areas for pallets, products, slip sheets, etc.

PickMaster benefits

- Comprehensive application oriented software
  - Configuration of palletizing lines for one or more robots
  - Integrated pallet pattern generator
  - Integrated expandable data base for products and patterns, grippers
  - Easy change or addition of new products in an existing line
  - Fast transfer of the application to the robots over Ethernet
  - Integrated search functions for stack heights
- Application Process efficiency
  - Integrated fully automated station logics and cell operation (LFC) provides unrivalled high flexibility of simultaneous production of many stacks and many feeder stations, which saves costs peripheral equipment
  - I/O interfaces for stations and multi-gripper control
  - Optimized robot operations on each station including pickup and place of one or more boxes at a time
  - Highest robot performance through pre-fetch of next operation simultaneously with the robot motion
- PickMaster Operation Panel on the FlexPendant

- Mimimal cost of ownership
  - Standard Software offering risk reduction through product-based repeat solution, configurable for a multitude of operational cases
  - Globally support by ABB
  - Highest enhancement flexibility through open RAPID code
  - Full offline capability including full application simulation in RobotStudio
  - Introduction

A palletizing application aims at picking larger size objects from a fixed position and to stack them together tightly in a second fixed position. An important parameter for the palletizing process is the speed of the process, i.e. the throughput of products in time and the efficiency to stack the products in a stable configuration without taking too much space. After the palletizing process the stacks are loaded into containers or trucks and the less space the products require, the less transportation costs are involved.

2 Introduction

2.1 Palletizing application

A palletizing application aims at picking container objects like boxes and cases from one or more stations and to stack them together tightly in a second station for further shipment. An important parameter for the palletizing process is the speed of the process, i.e. the throughput of products in time and the efficiency to stack the products in a stable configuration without taking too much space.

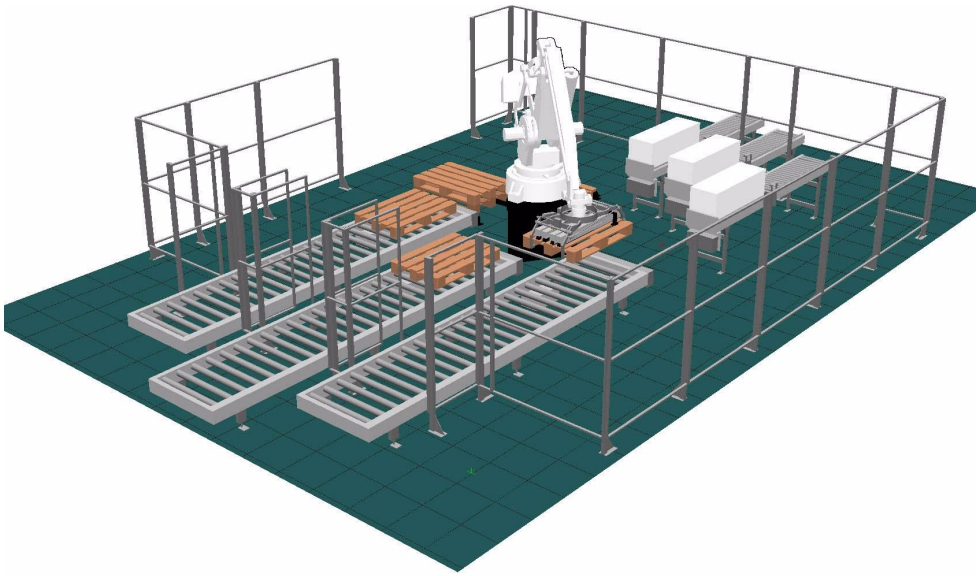

Figure 1 Typical palletizing cell with one robot and multiple in- and outfeeders.

A robot has the benefit of concentrating all palletizing to one cell where many different pallet loads may be produced simultaneously, for both high and low throughput demands, thus making the palletizing process flexibly adapted to many production situations. Therefore multiple infeeders and outfeeders are usually gathered around the robot, which enables parallel production of many different pallet loads.

Pallet pattern layout

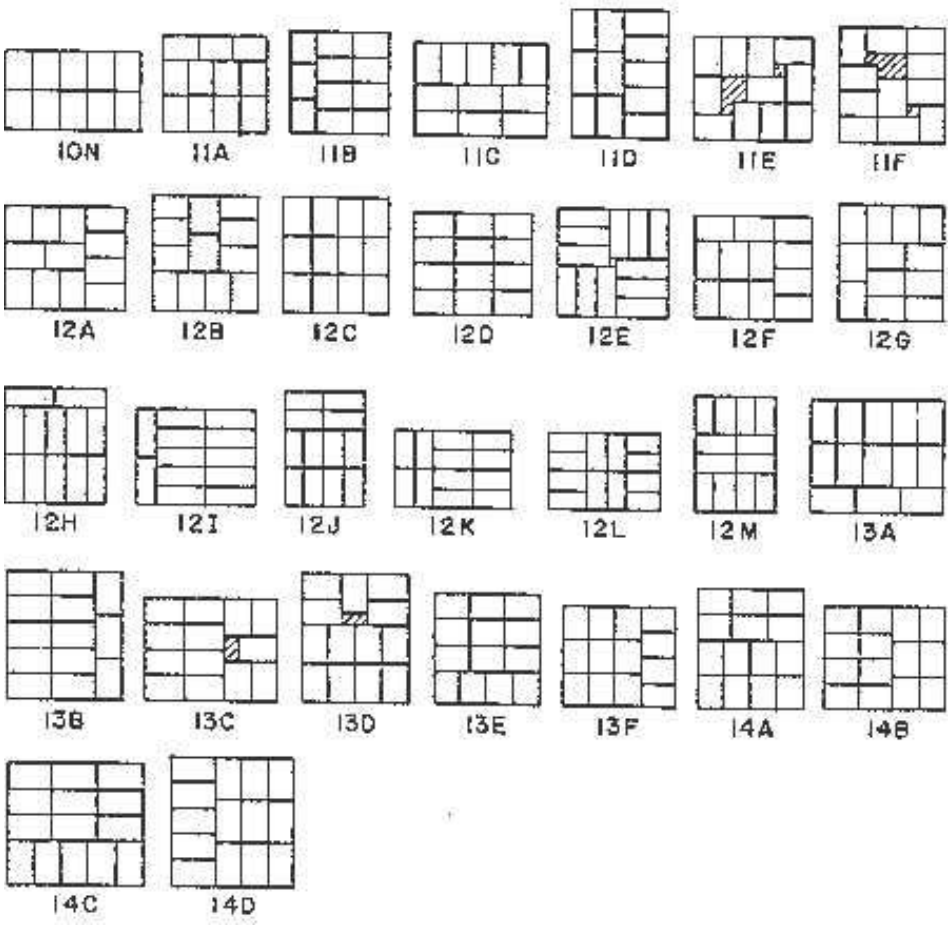

Figure 2 Typical pallet pattern layouts.

Software

PickMaster 5 is the software, which makes the creation of a palletizing process a comprehensive application oriented configuration task one gets both the benefit of the flexibility and minimal engineering costs for programming and trouble shooting.

Feeders

Additionally, if the production can be dynamically controlled, e.g. allowing pallet loads and products to swap between feeders based on instant production demands, the use of the feeders can be optimized. The number of feeders can be minimized and/or the productivity can be increased, which means lower costs per produced unit.

Logical Flow Control (LFC)

In order to achieve such a high efficiency, not having to rely on a predefined setup of dedicated products and pallet loads to given stations, PickMaster introduces an intelligent logical station control concept - the concept of "Logical Flow Control" LFC with built-in, automated intelligent order sequence control.

LFC sends order signals to the peripheral feeder control about what product to present on each product feeder and to the robot, where to get the next products from and where to place them. This standardized LFC-concept removes the need for advanced PLC programs to control the robot palletizing cell.

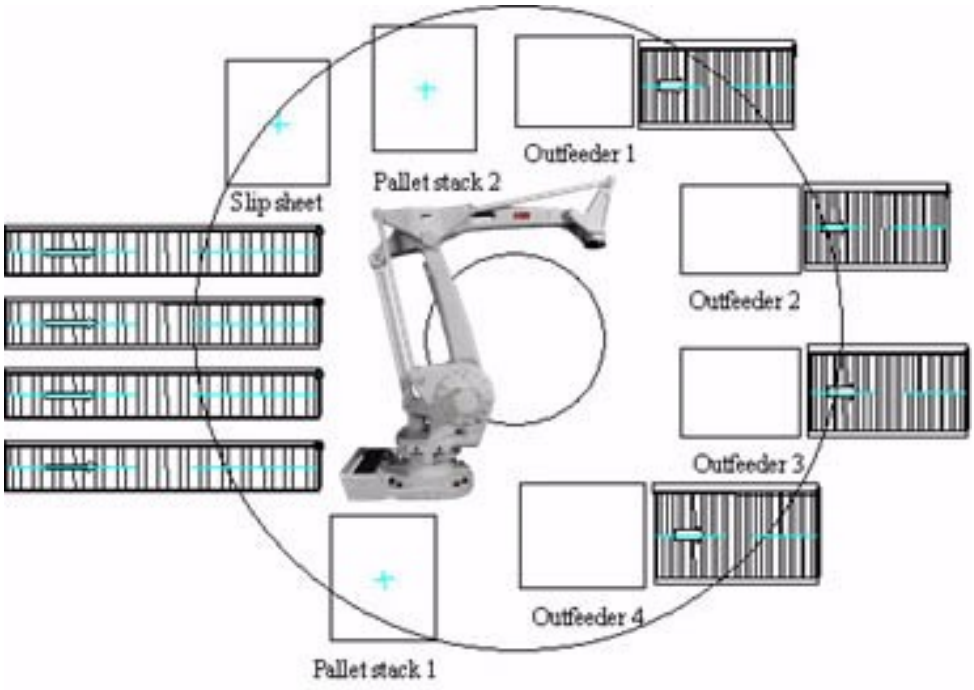

Figure 3 Robot cell with feeders and stack stations.

以上内容仅为本文档的试下载部分，为可阅读页数的一半内容。如要下载或阅读全文，请访问：https://d.book118.com/958022131137006023