

Connect IoT (Equipment Integration)



Provides MES equipment integration for different type of communication interfaces

Overview

There are many drivers for improving the degree of automation in manufacturing operations. Typically, there are three types of equipment in the shop floor that can be integrated: process equipment, metrology equipment and logistics equipment. The logistics equipment includes not only automated material storage and retrieval equipment, but also transport equipment, such as Automatic Guide Vehicles (AGVs) and Autonomous Intelligent Vehicles (AIVs). The primary goal of equipment integration is to abstract the equipment idiosyncrasies and to provide a standard interface with the MES.

At its most basic level, equipment integration is used for automatic data collection. At a higher level of integration, equipment integration is used for process automation and equipment control. For example, when a carrier is detected at a load port of a particular equipment, the system can

automatically validate the carrier, and can initiate the processing of the material resolving the recipe and any other information required for the process job.

Different communication protocols, different equipment capabilities and different levels of job control require an equipment integration solution that is modular, flexible and extensible to accommodate a big variety of equipment integration scenarios. Furthermore, because in a production environment, the roll-out of changes must be well controlled, it's critical to provide good change management tools.

Connect IoT is a distributed equipment integration module that can be used to connect virtually any equipment or device that provides some type of connectivity

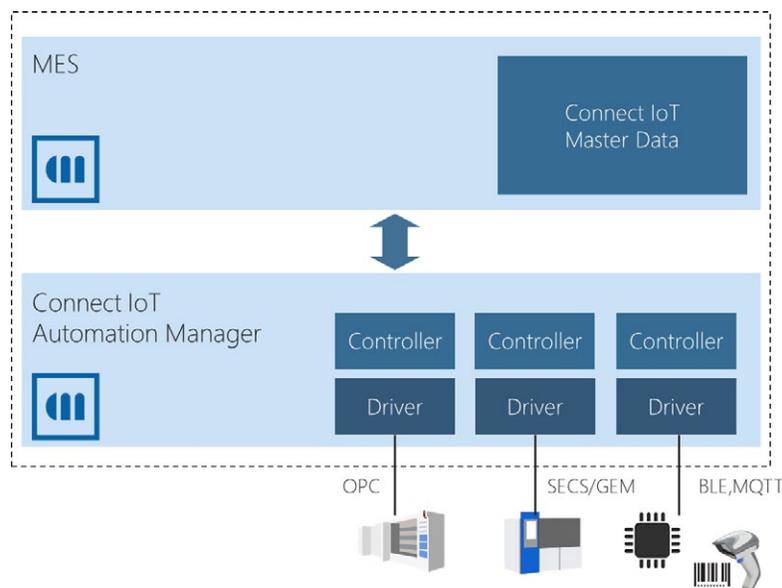


Figure 1 Connect IoT architecture

Key Features

- Centralized configuration and administration of all integrated equipment and devices.
- Version controlled Driver and Controller definitions.
- Visual workflow designer for the Controller.
- Integrated visual workflow debugger.
- Re-usable Drivers and Controllers.
- Distributed multi-platform execution of the Controllers and Drivers.
- Off-the-shelf drivers for the following type of interfaces:
 - Bluetooth Low Energy
 - CSV Files
 - Databases (currently only Microsoft™ SQL Server)
 - MQTT
 - IPC-CFX
 - Fuji Nexim
- OIB
- OPC-DA
- OPC-UA
- Raw Files
- REST
- SECS/GEM
- Serial Communication (RS-232)
- TCP/IP Socket
- USB Keyboard Wedge
- Extensible, modular architecture which allows the creation and addition of new drivers and workflow tasks.
- Provision of a self-update mechanism using a software repository.
- Out of the box native integration with IoT Data Platform.

Benefits

- Improved operational equipment effectiveness
- Better equipment utilization
- Reduction of downtime
- Reduction of scrap and rework
- Reduction of costs

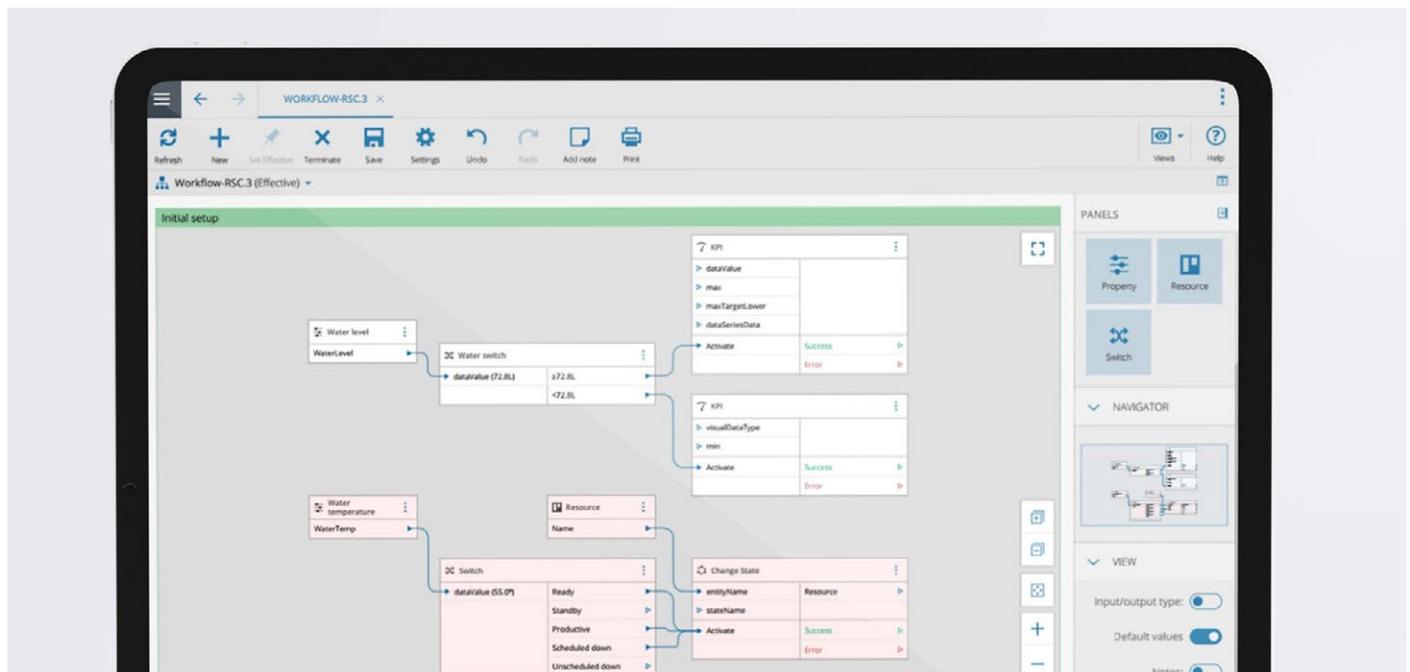


Figure 2 Connect IoT Automation Controller workflow editor



Critical
manufacturing 10.2

Disclaimer · The information contained in this document represents the current view of Critical Manufacturing on the issues discussed as of the date of publication. Because Critical Manufacturing must respond to changing market conditions, it should not be interpreted to be a commitment on the part of Critical Manufacturing, and Critical Manufacturing cannot guarantee the accuracy of any information presented after the date of publication. This document is for informational purposes only. Critical Manufacturing makes no warranties, express, implied or statutory, as to the information herein contained.

contact@criticalmanufacturing.com · www.criticalmanufacturing.com