

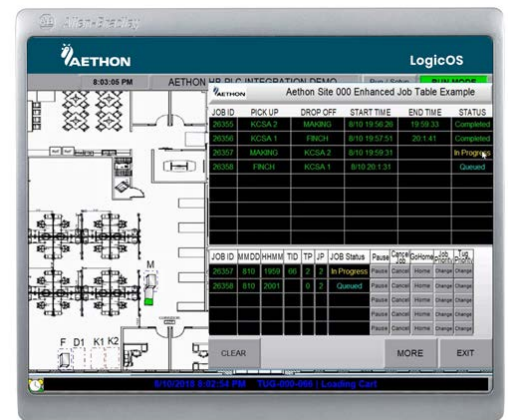
Product Description

LogicOS™ is Aethon's solution for third parties who want direct control of TUG autonomous mobile robots using standard programmable logic controllers, or PLCs.

LogicOS™ facilitates the command and control communication between automation equipment, tools and sensors monitored by PLCs and TUG autonomous mobile robots.

Benefits:

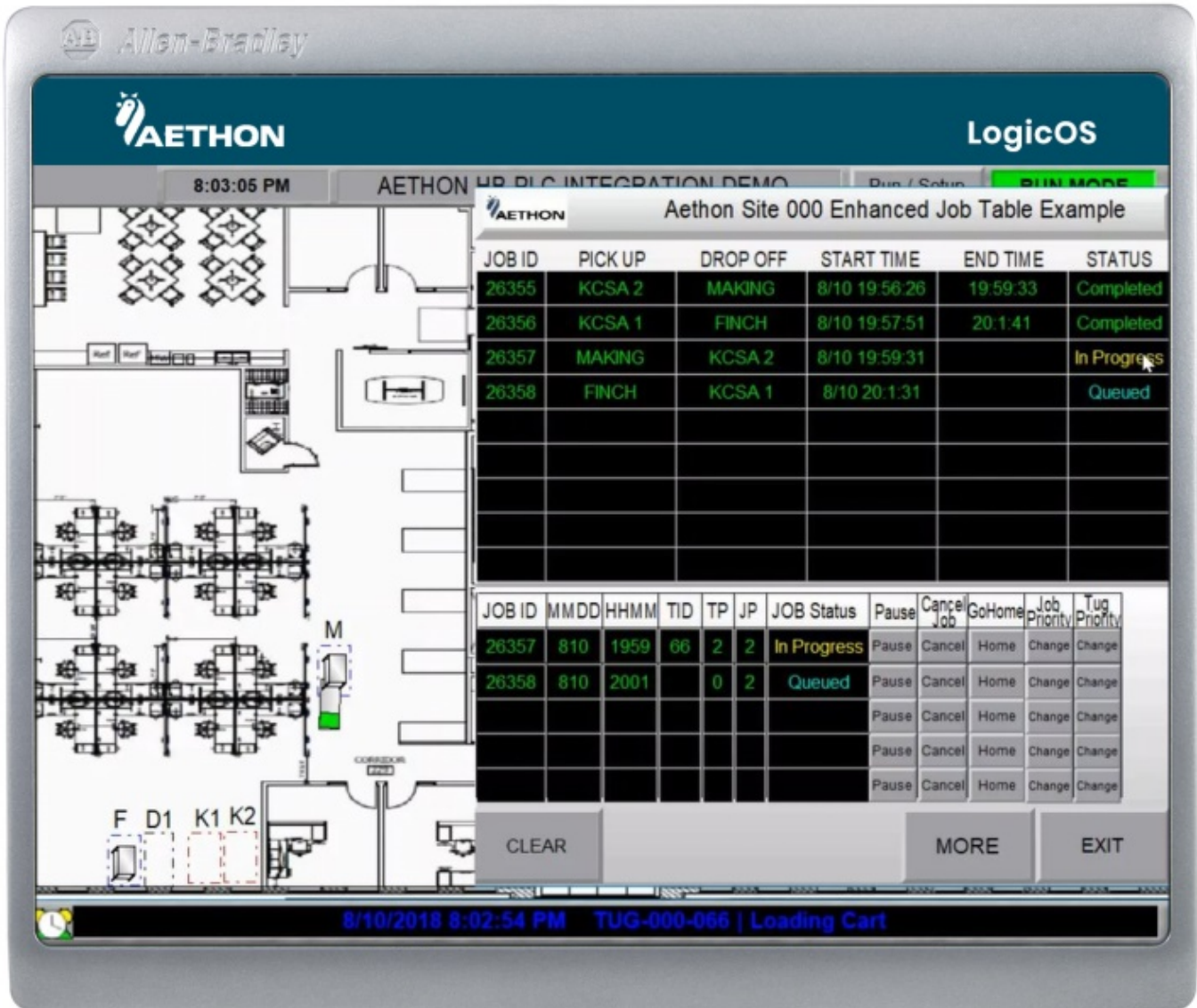
- Open integration to TUG operations
- Real-time interaction to synchronize material flow with equipment
- Allows tools and equipment to be coordinated with the TUG
- Granular control of robot actions during an active run
- Ability to integrate with HMI to provide active monitoring and control of TUG



Specifications

Specification	LogicOS
PLC Support	Modbus TCP/IP. Requires 300Kb of free data and logic memory Systems such as Rockwell ControlLogix™ and Siemens S7 line
Total TUGs Controlled	Up to 30 TUG robots
Pre-Defined Instructions & Sample Code	Automatic job destination generation Real-time status and alarm monitoring Job management and display – up to 20 simultaneous jobs Tug management and display – up to 30 TUGs running simultaneously Real-time coordinates and rotation tracking Conversion interface between TUG coordinates and display
System Interface Support	HMI / SCADA – Sample HMI Application Provided
Signaling Support	Stack Lamps, Sirens
Job State Management	Prioritization, Cancellation, Multi-Destination, Wait, Re-Route

HMI Sample Application



The screenshot displays an Allen-Bradley HMI interface for LogicOS. The top left shows the Allen-Bradley logo and the Aethon logo. The top right displays 'LogicOS'. The main area is divided into a floor plan on the left and a job table on the right. The floor plan shows a facility layout with various workstations and a loading cart icon. The job table is titled 'Aethon Site 000 Enhanced Job Table Example' and contains the following data:

JOB ID	PICK UP	DROP OFF	START TIME	END TIME	STATUS
26355	KCSA 2	MAKING	8/10 19:56:26	19:59:33	Completed
26356	KCSA 1	FINCH	8/10 19:57:51	20:1:41	Completed
26357	MAKING	KCSA 2	8/10 19:59:31		In Progress
26358	FINCH	KCSA 1	8/10 20:1:31		Queued

Below the main job table is a detailed view for selected jobs:

JOB ID	MMDD	HHMM	TID	TP	JP	JOB Status	Pause	Cancel Job	GoHome	Job Priority	Tug Priority
26357	810	1959	66	2	2	In Progress	Pause	Cancel	Home	Change	Change
26358	810	2001		0	2	Queued	Pause	Cancel	Home	Change	Change
							Pause	Cancel	Home	Change	Change
							Pause	Cancel	Home	Change	Change

At the bottom of the screen, there are buttons for 'CLEAR', 'MORE', and 'EXIT'. The status bar at the very bottom shows the date and time '8/10/2018 8:02:54 PM' and the location 'TUG-000-066 | Loading Cart'.