

PANEL SUBSYSTEM SINGULATOR

1. Description

Controls the singulation system to separate items on the conveyor.

2. Functions

- Detects and separates items for downstream processes.
- Provides signals to synchronize with other subsystems (e.g., camera, scale).

3. I/O and Signals

Signal Name	Type	Description	Panel
SINGULATOR_START	DO	Activate singulator	PANEL_CONTROL_RIO
SINGULATOR_STATUS	DI	Singulator operational status	PANEL_CONTROL_RIO

4. Interlocks & Safety

- Stops singulator if no items detected for separation.
- Stops if jam is detected (via PHOTO_EYE_JAM).

5. Dependencies

- Depends on PHOTO_EYE_JAM and PHOTO_EYE_INDUCT for item detection.

6. Alarms

Alarm ID	Condition	Message
A_SING_01	Singulator failure	"Singulator Fault"

7. HMI / Operator Interaction

- Displays singulator status (active, idle, fault).
- Manual start/stop options.