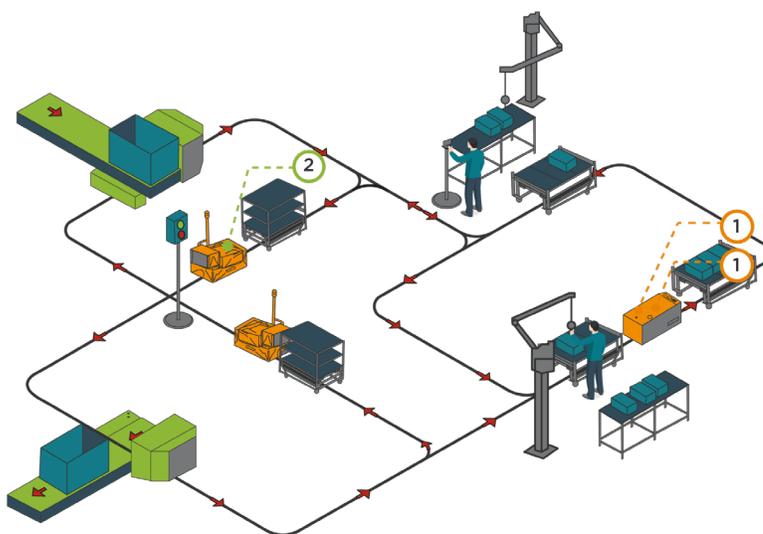# SENSORS FOR AUTOMATED GUIDED VEHICLES (AGVs) & AUTONOMOUS MOBILE ROBOTS (AMRs)

AGVs are automated guided vehicles used to help transport loads or goods to support manufacturing production lines and are ideal for facilities with well-defined and relatively fixed operations. More recently AMRs or autonomous mobile robots, have been introduced in the industry. AMRs, like AGVs, follow along a predefined, designated path. However, AMRs can see an obstacle and move around it to complete their designated task while AGVs, on the other hand, can sense an obstacle but just stop and wait until the obstacle is removed, requiring user intervention. AGVs and AMRs can both be used for dynamic activities such as transporting materials, loading or unloading goods as well as shelving or de-shelving inventory.   Sensors from TE Connectivity, including a range of position, optical, tilt and force sensors, provide the foundational data to ensure that AGVs and AMRs are operating correctly, safely and as efficiently as possible.

TE CONNECTIVITY ADVANTAGES

- Engineering Expertise
- Industry Experience
- Manufacturing Scale
- Portfolio Breadth
- Customization Capability

AUTOMATED GUIDED VEHICLES & AUTONOMOUS MOBILE ROBOTS

1 FORCE, POSITION

2 OPTICAL

SENSORS FOR AUTOMATED GUIDED VEHICLES (AGV) & AUTONOMOUS MOBILE ROBOTS (AMR)

Sensor Technology		Application	Key Product Features	Benefits
String Pots		• Hydraulic cylinder control • Boom arm extension • Platform elevation	• 120" (3.048 m) measurement range • 0.35% full scale accuracy • 0.05% full scale repeatability • Effectively infinite resolution • IP67 protection	• Easy to install • High performance/size ratio • Indoor & outdoor use • Does not require perfectly parallel alignment
APD Optical Sensor Series 8 APD Optical Sensor Series 9		• Navigation and collision prevention	• High accuracy • Multiple pixel active area • Customizable designs	• Increased safety
FX29 Compact Compression Load Cell		• Payload weighing	• Load ranges available up to 600lbs • Fast time response • Designed with high strength, low mass materials • Digital interface • Proven MEMS microfused technology	• Reduces or eliminates dangerous conditions • Allows robot to operate more efficiently • Easy interface and integration into system • Robust and reliable feedback to system
FC23 Compression Load Cell		• Payload weighing	• Load ranges available up to 2000lbs • Fast time response • Designed with high strength, low mass materials • Digital interface • Proven MEMS microfused technology	• Reduces or eliminates dangerous conditions • Allows robot to operate more efficiently • Easy interface and integration into system • Robust and reliable feedback to system
AXISENSE-2 Dual Axis Tilt Sensor		• Angle measurement in fork lift	• High accuracy • Rugged package • Compact design	• Measure angle of mast to prevent load from falling

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