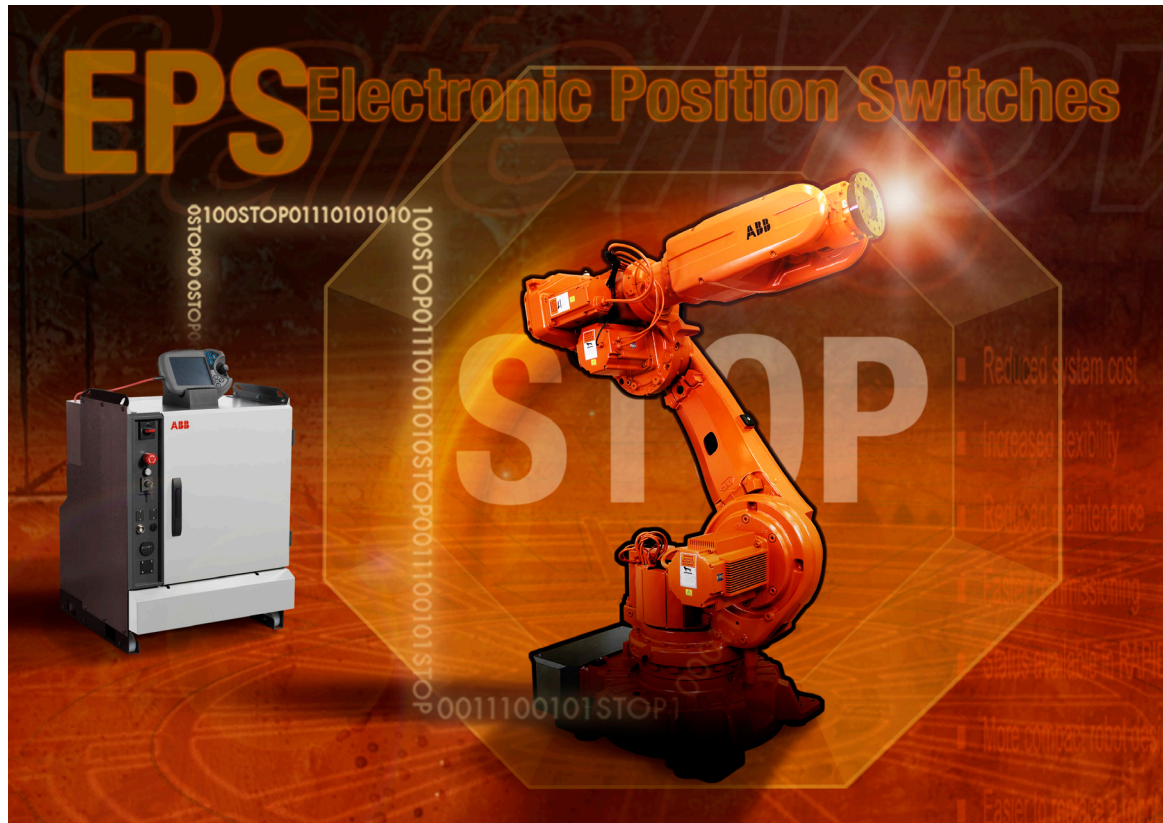




Electronic Position Switches

Industrial Robot

Q2/2007



New generation robot safety

Electronic Position Switches (EPS) is the first product in SafeMove, ABB's new generation robot safety concept. SafeMove builds on the latest developments in redundant software and electronics-based safety solutions, as well as updated safety regulations, in order to provide safe and predictable robot motion.

Replacement of mechanical position switches

Position switches are used to convey information about the position of robot axes to the safety control of the cell (safety PLC or relay logic) in a safety classified way. Typically, the cell safety control will also receive information about the operator's whereabouts (e.g. from a light curtain) and will ensure that the operator and the robot do not enter the same area at the same time. EPS is an all electronic/software-based solution, replacing electro-mechanical switches on the robot arm as well as the associated floor cables. This means faster commissioning through software configuration and totally maintenance free operation.

Increased flexibility

Flexibility is greatly enhanced by covering all robot axes instead of only the main axes available with electro-mechanical switches. For example it is possible to take wrist orientation into account and optimize the timing to free a zone for operator entry, leading to significant cycle time cuts. The five safe outputs used to communicate the position status of the robot can be configured in a very flexible way and each output can signal an arbitrary combination of axes positions.

High-level safety

EPS is based on a safety-rated computer separated from the normal control of the robot. EPS forms secure axial position values by analyzing redundant signals from the robot system. To avoid the risk of someone tampering with the set-up of EPS, the configuration of EPS is subject to strict authorization procedures, similar to those of safety PLC programs.



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TECHNICAL DATA, ELECTRONIC POSITION SWITCHES

Output

5 safe outputs, each freely configurable

Input

1 safe input, for synchronizing EPS and robot controller

Axes covered

Axes 1-6

Safety regulations

Machinery Directive 98/37/EC, ISO 13849-1, ISO 10218-1

Safety category

Category 3 according to ISO 13849-1/EN 954

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