

ALPHA6460V Frequency Converter for Corrugated Paperboard Production Line

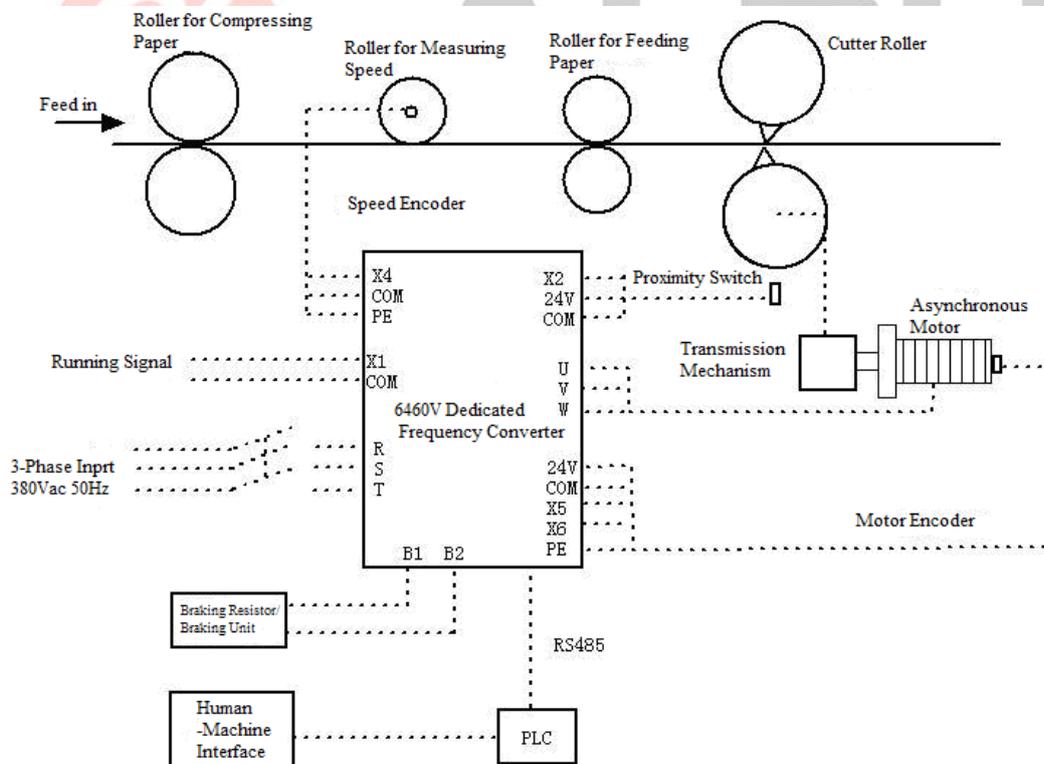
Model 6460 frequency converter represents an improvement over the ALPHA6000 version. It is specially designed for the corrugated paperboard slitter to cut a long paperboard to a smaller length on a continuous production line. Precise position control and flexible configurations allow our frequency converter to suit various slitting applications.



This short article mainly gives a brief description of ALPHA6460 converter for use in the corrugated paperboard slitter. As a matter of fact, our frequency converter also can be used in the color registration device and flying saw.

True to its name, the corrugated paperboard slitter is used to cut long, continuous corrugated paperboards to more manageable lengths. Its cutting performance and parameter setting directly affect whether the finished paperboard has a high dimensional accuracy, the creasing is damaged, and the cut is smooth and aesthetically appealing. The frequency converter is a key element in adjusting cutting parameters and controlling the length to be cut. It is easy and economical to operate.

System Representation (Optional PLC and User Interface)



Working Principle

The slitting operation is carried out in two steps. At the first stage, the cutter and material to be cut should maintain the same linear speed. The area where the cutter performs cuts on the material is called the synchronization zone. After cutting, the cutter should adjust its speed depending on the required length to be cut during the next cutting operation. The area where the slitter changes its speed is called the de-synchronization zone. During cutting, the frequency converter ensures the roller cutter does not rotate in the reverse direction. When a long paperboard needs to be cut, the direction of cutting motion should be at 180° to the feed motion.

The ALPHA6460V frequency converter uses an encoder to measure the material feed speed and length. It is also able to detect the cutter position via an encoder and proximity switch. The cutting length is precisely controlled through real-time adjustment of the roller cutting speed. This ensures the paperboard can be cut to a fixed, accurate length.

Parameters

Feature Code		Parameter Value	Note
P0.03	Default Frequency Controller 1	12	Slitting Speed Control Mode
P0.07	Order Setting Mode	2	Terminal Control
P0.18	Accelerating Time 1	1.0s	According to site conditions
P0.19	Decelerating Time 2	1.0s	
P2.37	Wiring Direction	0: Forward 1: Reverse	According to site conditions
P2.44	Number of Pulses per Revolution (Cutting Roller Motor Encoder)	1000	According to site setting
P2.45	Built-in PG (Rotational Direction Control)	0: A-Phase in Advance (forward rotation) 1: B-Phase in Advance (forward rotation)	According to site conditions
P3.01	X1 Terminal Function	1	Forward Running
P3.02	X2 Terminal Function	52	Cutting Point Signal
P3.04	X4 Terminal Function	80	High-Speed Pulses Input (for measuring speed)
P3.05	X5 Terminal Function	81	Encoder A-Phase
P3.06	X6 Terminal Function	82	Encoder B-Phase
P6.07	Cutting Mode	0: Rotary Cutting 1: Fly Cutting	According to site setting
P6.09	Cutting Length	----mm	Maximum 10 groups of lengths and cutting quantities. Feature Code: P6.11-P6.38
P6.10	Cutting Quantity	----	

P6.54	Measuring Roller Diameter	----mm	According to site setting
P6.56	Number of Pulses per Revolution (Measuring Roller Motor Encoder)	2560	According to site setting (higher number of pulses means more accurate cuts)
P6.57	Measuring Roller Motor Speed Reduction Ratio	1.00	According to site setting
P6.58	Cutting Roller Diameter	----mm	
P6.61	Cutting Roller Motor Speed Reduction Ratio	----	
P6.66	Position Coefficient	0.120	According to site conditions
P6.77	Switching Mode	0: Manually Operated 1: Automated	

Benefits of Retrofitting the Slitter

After retrofitting the slitter with our frequency converter, the problem of non-uniform paperboard length and unstable cutting performance is solved. The resulting paperboard can have a tighter tolerance. The converter has helped slitter owners improve their production efficiency and reduce their production cost.