



Overview

UNICO's fan/pump control systems are available as stand-alone components or turn-key packages. Packaged systems, which incorporate selected options with a variable-speed drive inside an enclosure, accommodate the majority of applications. Custom integration is also available for special requirements.

Variable-Speed Drive

UNICO's 1100 family of AC drives provides flux vector or variable-frequency (V/Hz) motor control from a single- or three-phase 230 or 460 V AC or three-phase 575 V AC input. Drives are available from 1 1/2 to 500 hp and are UL and C-UL listed.

Standard Packages

There are two basic option configurations. The *Disconnect Package* provides an AC input circuit breaker and operator, 115 V control transformer, and *Hand/Off/Auto* selector switch. The *Bypass Package* provides an AC input circuit breaker and operator, 115 V control transformer, *Hand/Off/Auto* selector switch, drive input and output contactors, bypass contactor, *Drive/Off/Bypass* selector, motor overload protector, keyed drive *Test/Off* selector, and bypass mode pilot light. Each of these components is described below.

Control Transformer

A step-down transformer converts the high-voltage line supply to 115 V AC for supplying the control circuits. Both the primary and secondary sides are fused.

Circuit Breaker/Disconnect

An input circuit breaker or fused disconnect interrupts the power to both the drive and bypass circuit. The breaker provides short-circuit protection when the motor is running across the line.

Hand/Off/Auto Selector

A three-position switch selects either local or remote operation. When set to *hand*, the user can start, stop, and adjust the speed of the motor from the drive's keypad. In *auto*, the drive is controlled externally through contacts and gets its speed reference from a remote source or through the keypad. When set to *off*, the drive will not run.

Overview Drive/Off/Bypass Selector

(continued)

A three-position selector switch controls a bypass contactor and drive input and output contactors. When set to *drive*, the input and output contactors are closed and the bypass contactor opened for normal operation. When *bypass* is selected, the motor is connected directly to line power and runs at full speed. The input and output contactors are opened to electrically isolate the drive so that it can be serviced without interrupting operation. A pilot light indicates when the system is in bypass mode.

Test/Off Switch

A keyed switch permits testing of the drive while the motor is in bypass mode. The switch closes the drive input contactor to provide power to the drive while it is disconnected from the motor.

Motor Overload Protector

A thermal motor overload relay protects the motor while in bypass mode.

Enclosure

Systems can be packaged in NEMA 1, 4, 3R, or 12 enclosures to accommodate any indoor or outdoor application. NEMA 4 packages can be placed in wash-down areas or on rooftops. NEMA 12 packages can be placed in mechanical rooms that serve as the plenum. Customization is available for special environmental requirements. All work is done in a UL-certified panel shop. Enclosures for systems with bypass control feature mechanical isolation between the drive and the bypass to ensure electrical safety.

Other Options Safety Terminals

A terminal block provides easy connection for freeze, fire, smoke, start/stop, and other external safety interlocks. This allows a building automation system to shut the motor down at any time by opening the 115 V circuit.

Motor Selection Contactors

Using motor selection contactors, two motors can be interchangeably operated by the same drive, such as for switching between primary and backup pumps. A *Local/Off/Remote* selector switch specifies whether the motor is selected locally using the *Motor 1/Off/Motor 2* selector switch or remotely using contacts from a building automation system. Timers prevent a newly selected motor from being connected to the output of the drive until the drive has come to a stop. Pilot lights indicate the selected motor.

Automatic Bypass

The system can automatically enter bypass mode in the event of a drive failure.

Remote Bypass

A *Remote/Off/Local Run* selector switch selects the mode of bypass operation when the *Drive/Off/Bypass* selector is set to bypass. When set to *remote*, a contact must be closed to start the drive remotely in bypass. When *local run* is selected, the motor runs in bypass. If set to *off*, the drive will not run.

Power Conditioning

Various options are available for conditioning the incoming line, including an AC line reactors, isolation transformers, twelve-pulse transformers, or harmonic filters.

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Specifications subject to
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Unico is a leading global innovator of motion-control solutions for industry. Founded in 1967, the company develops, manufactures, and services variable-speed drives, application-engineered drive products, integrated drive systems, and ancillary products that improve operations by increasing productivity, safety, and equipment life while lowering energy and maintenance costs.