

[0004] One particular challenge that arises in such products is the design for various motor sizes, for facilitating programming, for sharing programming and control parameters, and so forth. Most such products have been designed to power specific sizes of motors (typically rated by the power output or frame size), and the user must select and program the appropriate product for the particular motor to be powered. All of the circuitry used to control power electronic devices within the drives has typically been included in the single package. Programming has been done either manually or by an interface with a configuration computer or network connected to the unitary package. This product paradigm, however, suffers from drawbacks including limitations of installation and configuration of the drives, relatively inefficient use of control platforms between drives, in accessibility of the programming once the drive is commissioned, or, conversely, risks of access to the drives from exterior sources due to resident network connections.

[0005] There is a need, therefore, for improved techniques for driving electric motors that can respond to such drawbacks.

BRIEF DESCRIPTION

[0006] Embodiments of The invention provides novel techniques for configuring a motor drive designed to respond to such needs. In accordance with certain aspects of the invention, a motor drive system comprises a power subassembly including power electronic switches controllable to provide controlled frequency AC power to an electric motor, and driver circuitry configured to apply gate drive signals to the power electronic switches. A control subassembly is separable from the power subassembly but physically configured to be attached to the power subassembly and to make electrical connections with the power subassembly when attached. The control subassembly includes control circuitry configured that, in operation, applies control signals to the drive circuitry for controlling the power electronic switches. The control subassembly is configured to be coupled to a

configuration station and comprises an interface that identifies the control subassembly~~motor drive system~~ to the configuration station in conformance with a USB mass storage device class.

[0007] In accordance with other aspects, the invention provides a motor drive system that includes a control subassembly separable from a power subassembly but physically configured to be attached to a power subassembly and to make electrical connections with the power subassembly when attached. The control subassembly includes control circuitry configured that, in operation, applies control signals to drive circuitry of the power subassembly for controlling an electric motor. The control subassembly comprises at least one motor control routine operating on parameters for control of the electric motor and is configured to be coupled to a configuration station for transfer of a configuration file comprising the parameters from the configuration station via a drag-and-drop file transfer, wherein the control subassembly is configured to be recognized as a USB mass storage class device when connected to the configuration station.

[0008] In accordance with other aspects, ~~t~~The invention also provides a motor drive method that comprises connecting a control subassembly to a configuration station, the control subassembly being configured to be physically attached to a power subassembly and to make electrical connections with the power subassembly when attached. The control subassembly includes control circuitry configured that, in operation, applies control signals to drive circuitry of the power subassembly for controlling an electric motor. The control subassembly comprises at least one motor control routine operating on parameters for control of the electric motor. The control subassembly is recognized on the configuration station as a USB mass storage class device. A configuration file comprising the parameters is then transferred from the configuration station.

DRAWINGS

[0009] These and other features, aspects, and advantages of the present invention will become better understood when the following detailed description is read with reference to the accompanying drawings in which like characters represent like parts throughout the drawings, wherein: