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STRATA

Medium Voltage Soft Start and Stop

DESCRIPTION

Soft starters are thyristor-based electronic starting switches for the smooth starting of three-phase induction motors.

The Strata NX family of Soft Starters, for medium voltage motors, enables adjustable starting ramp, initiating the gradual transfer of energy to the motor until the programmed starting current is reached, maintaining this current until the motor starts completely, eliminating jolts in mechanical components and overload on the electrical network during startup.

They can be used in motors installed in booster pumps, compressors, crushers, injection molding machines, extruders, machine tools, packaging machines, mixers, mills, textile machines, fans, food processors, cranes, mining machines, saws, conveyors and others, replacing compensating, star-delta or direct starters.

BENEFITS

- Integrates soft start and total motor protection
- Reduces starting current
- Enables soft starts and stops, eliminating jolts in the mechanical system
- Eliminates overload on the electrical network during start-up
- Enables starts of motors with heavy loads
- Graphical HMI with indications and curves in real time (trending)
- Simple installation, maintenance and operation
- Start-up, management and protection, compact system
- Compact, saves space
- Withstands harsh environments
- Maximum performance and reliability

APPLICATIONS

Large Volume Transfer

Salt Water Disposal Transfer and Injection

Blowers and Extruders

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DESCRIPTION

The STRATA-NX Soft Starter is a product designed with the most advanced components to achieve maximum performance and reliability. The STRATA-NX provides all the features normally found in this type of equipment, including measurements and diagnostics. The Strata NX family of Soft Starters, for medium voltage motors, enables adjustable starting ramp, initiating the gradual transfer of energy to the motor until the programmed starting current is reached, maintaining this current until the motor starts completely, eliminating jolts in mechanical components and overload on the electrical network during startup.

ELECTRICAL FEATURES

- Arc-resistant structure
- Allows starting of up to 5 times the nominal current for up to 60 seconds
- Programmable starting current limit
- Line and bypass vacuum contactors integrated in the withdrawable power module
- Self-programming for the most common applications (simplified)
- Allows full programming via the HMI or laptop with configuration program
- Withdrawable Power Converter Module facilitates checking and maintenance
- Disconnect switch with external Kirk handle and integrated fuses
- Current Loop and fiber optic trips (Triple insulation)
- Optional integrated digital relays (SEL/GE Multilin)

HIGHLIGHTS

- Metal enclosed Arc proof construction with all the necessary equipment for operation
- Six-pulse triggering for maximum stability with 2-pole motors and challenging loads
- Includes a three-phase input switch with fuses and external handle, Kirk type, as well as a vacuum input contactor for total safety
- Low voltage control module isolated by optical fibers
- Vacuum-encapsulated, grounded core potential transformers for complete isolation
- Current Loop powered discharges with professional high insulation cable (Silicone), Fully tested with 2 x Nominal + 1000 V, and partial discharges (Corona). Samples tested and discarded with 40000 V
- Removable power module with rails for easy checking and maintenance.
- Human Machine Interface (HMI) with graphic touchscreen display, and with backlight.
- Trigger circuits and readout modules fully isolated with epoxy resin and optical fibers and CE and UL certified control module
- Plug-in type terminals and a single microprocessor-based control module for the entire current and voltage line
- State-of-the-art microcontroller with 12-bit analog readouts

STRATA Overview

Medium Voltage Soft Start and Stop

START STOP CONTROL FEATURES

5 Ramp Modes: Voltage, Current, Speed, Pump, Curve (S and Full)

Remote Start command: Dry Contact Normally Open

Remote Soft Stop Control: Dry Contact Normally Closed.

Remote Stop Command: Dry Contact Normally Closed

Reset Command: Dry Contact Normally Open

MAIN FEATURES

The Strata NX Soft Start offers numerous advantages over star-delta, compensator, and direct starting methods.

- Reduced dimensions compared to transformer-based (compensator) starting.
- Reduces starting current.
- Reduces jolts and shocks to the mechanical system.
- Enables motor starting with any type of load (including heavy loads).
- No moving parts, reducing maintenance.
- Increases motor lifespan.
- Includes several built-in protections and indicators.
- Automatic shutdown in case of overload applied to the motor shaft.
- Features adjustments that allow perfect adaptation of the SS to load conditions.
- Does not require the use of a special motor.
- High number of operations (up to 8/hour).
- Possibility of Soft Stop.
- Cavitation detection in pumps.
- Indications of “Ready to start”, “Ramp” and “End of start”.

PROTECTIONS AND FUNCTIONS

- ANSI Code 7: Rate of Change Relay
- ANSI Code 26: Apparatus Thermal Device
- ANSI Code 27: Undervoltage
- ANSI Code 30: Annunciator
- ANSI Code 32O: Overpower
- ANSI Code 37: Undercurrent/Overcurrent/Cavitation
- ANSI Code 46: Phase Current Imbalance
- ANSI Code 47: Phase Balance Voltage Relay
- ANSI Code 48: Incomplete Sequence Relay
- ANSI Code 50: Instantaneous Operation
- ANSI Code 50G: Instantaneous Ground Fault Protection
- ANSI Code 51: Overload Protection
- ANSI Code 55: Power Factor
- ANSI Code 59: Overvoltage
- ANSI Code 60: Voltage Imbalance
- ANSI Code 86: Lockout
- ANSI Code 94: External Fault
- Thyristor Short Circuit
- Disconnected Load
- Self Test
- Time Between Usages
- Usages Per Hour
- Pause Time Stop/Start
- Modbus Communication
- C-Scan Communications

STRATA Overview

Medium Voltage Soft Start and Stop

MEASUREMENT AND MONITORING

- Instantaneous and Average Currents
- Input and Output Voltages
- Power Rating (kW, kVA, and kVAR)
- Power Factor
- Used Thermal Capacity
- Time to Trip
- Trends in Currents, Voltages

INCLUDED CURRENT AND VOLTAGE TRANSFORMERS

- (3) Current Transformers (CTs)
- (2) Voltage Transformers Input Measurement
- (1) Voltage Transformer for Measurement Motor Voltage

USER INTERFACE

- LCD Touchscreen with Backlight

INPUTS AND OUTPUTS ON THE PANEL

6 Digital Inputs

- Soft Start
- Soft Stop
- Full Stop
- Emergency Stop
- Line In
- Reset

8 Digital Outputs

- NO and NC Fault
- NO and NC Alarm
- NO and NC Running
- NO and NC Ready

INPUTS AND OUTPUTS ON THE CONTROL MODULE

8 Digital Inputs

- Soft Start
- Soft Stop
- Reset
- External Fail
- Module Inserted
- Module Test
- FB Line Contactor

6 Digital Outputs

- Ready
- Running
- Alarm
- Alarm Trip
- Aux 1
- Aux 2

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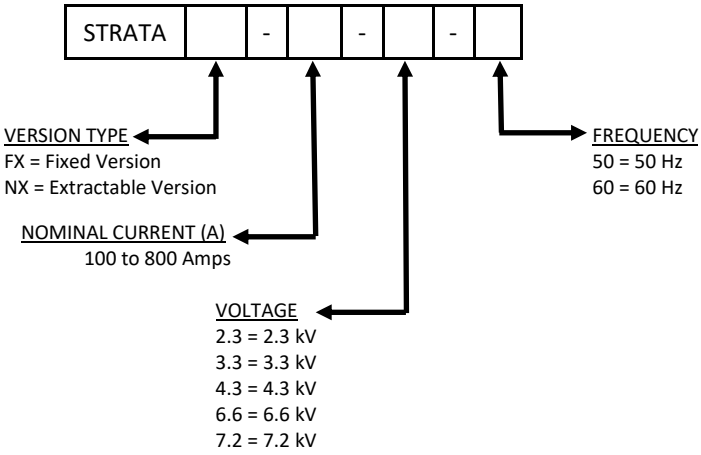
CONFIGURATOR



TECHNICAL SPECIFICATIONS

Nominal Voltages: 2100 to 7200 VAC (over 7200 V upon request) 50 Hz and 60 Hz

Auxiliary Voltage (Optional): 120VAC Internal or External

Current Rating: 100A, 200A, 300A, 400A, 500A, 600A, 700A and 800A

Current Limiting: Programmable

Overload Capacity: 120% Continuous

Inrush Current Capacity: 500% at 60 Seconds

Power Range (HP): 100 to 10000HP (Higher ratings available, consult factory for more information)

Ambient Temperature: 0 to 45° C (32 to 113° F)

Maximum Altitude: 0 to 6000 Ft. (2000 Meters)

Transient Protection: dV/dT with RC snubber and components for transient suppression

Input switch with fuses: With automatic grounding arm and external activation with Kirk-type handle, with key

Vacuum contactor for line input and bypass contactor included

Fully isolated low-voltage control circuit: With polymeric optical fibers, Disposals by “Current Loop” and encapsulated modules (triple insulation)

Voltage Selection: Nominal / Test - Multi Voltage

HMI Graphics Touchscreen: Listing of 120 faults and history with Time Stamp Programming and trend charts in real time

Programmable Kick Start (Booster): Optional

5 Types of Soft Start: voltage, current, speed, pumps, curve, and full start

5 Types of Soft Stop: voltage, current, speed, pumps, curve, and full stop

Digital Readings: Current (3-Phase), Voltage (3-Phase), KW, KVA, KVAR, PF, Thermal Capacity Used, Trip Time

Communication Ports: (RS485) with Modbus RTU protocol and CAN port with Cscan protocol, (DeviceNet optional)

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