YORK
BY JOHNSON CONTROLS

Service Information

File In/With: N/A	SI0227
Supersedes SI0227 (610)	REV 415
Equipment Affected: YK Centrifugal Chillers with OptiSpeed VSDs	
Quick Start Feature – Product Overview and Ordering Information	

GENERAL

Quick Start is a software feature recently developed for YK Mod G chillers equipped with OptiSpeed variable speed drives and was designed for critical cooling installations, such as data centers and process applications, where a primary operational goal is to re-establish cooling as quickly as possible after a power failure. The Quick Start feature accomplishes this by minimizing restart time and loading the chiller as quickly as possible. This reduces the deviation from chill water set point and enables the fastest achievement of leaving chill water temperature set point. Once the chiller is running and approaches set point it will return to standard YK control. A chiller with the Quick Start feature enabled will also load faster on initial start and will start an additional chiller in a multiple chiller plant room when required. It is available for retrofit and can be utilized in both Uninterrupted Power Supply (UPS) and non-UPS applications.

The ideal installations for Quick Start are thermal storage applications, pharmaceutical facilities, manufacturing processes, and data centers. Why do these facilities want this feature? In this type of facility cooling requirements remain constant when the chillers are impacted by a power failure. In a data center application a seemingly small delay in getting the chill water temperature back to set point could cause servers to overheat resulting in the web-sites going down. The financial impact could be millions of dollars for each minute of downtime.

A detailed explanation of the Quick Start feature is provided in Form 160.75-TD4. This publication includes the following:

- Feature Overview
- Comparison of Normal Start to Quick Cold Start to Quick Restart. This includes sample graphs of various size chillers and comparative restart times.
- Quick Start Tuning Parameters
- UPS Sizing and Wiring Information

The Quick Start feature has two different starting modes:

- Quick Restart. When a chiller shuts down, if certain conditions are met at the completion of Coastdown (and within 30 seconds thereafter), the chiller is started immediately with no Prelube. The vanes are given a constant open pulse and after the OptiSpeed drive achieves its start frequency, the speed ramp rate is faster than with normal control.
- Quick Normal Start. If the conditions for a Quick Restart are not met, the next time the chiller is started, it has a normal Prelube just like a normal start, however the vanes will begint o open at the beginning of Prelube, instead of waiting until System Run. At the completion of Prelube, the OptiSpeed is started and after the OptiSpeed drive achieves its Start Frequency, the speed ramp rate is faster than with normal control.

APPLICATION

In order to use this feature, the chiller must be equipped with a Low Voltage OptiSpeed Drive (in Modbus Protocol Configuration) or a Medium Voltage OptiSpeed Drive.

There are two major delineations of the Quick Start feature.

1. Quick Start with no UPS
2. Quick Start with UPS

The table below highlights the Quick Start retrofit scenarios.

RETROFIT SCENARIOS	NO UPS*	UPS (SUPLLIED BY OTHERS)
YK Mod G Chillers with VSD shipped after 8/14/09	Feature needs to be enabled in the OptiView software	Wiring modifications required to accommodate the UPS
YK Mod G Chillers with VSD shipped before 8/14/09	Requires installation of v21 (C.OPT.01.21.307) or later OptiView software	Requires installation of v21 (C.OPT.01.21.307) or later OptiView software Wiring modifications required to accommodate the UPS
YK Mod F Chiller with VSD where the last 3 digits of the VSD part number are -7XX	Requires installation of v21 (C.OPT.01.21.307) or later OptiView software	Requires installation of v21 (C.OPT.01.21.307) or later OptiView software Wiring modifications required to accommodate the UPS
YK Mod F Chiller with VSD where the last 3 digits of the VSD part number are NOT -7XX	Requires new boards and harness for VSD and panel Requires installation of v21 (C.OPT.01.21.307) or later OptiView software	Requires new boards and harness for VSD and panel Requires installation of v21 (C.OPT.01.21.307) or later OptiView software Wiring modifications required to accommodate the UPS

*The feature needs to be enabled for all retrofit scenarios.

KITS AND COMPONENTS FOR QUICK START RETROFITS

YK Mod G Chillers with OptiSpeed drive shipped after 8/14/09

1. Non-UPS: no parts required.
2. UPS (Wiring modification kits for the VSD).
   Kit selection is based on the type of OptiSpeed drive (VSD or TM) and compressor. Kits include isolation transformers, transformer harness, wiring upgrade kit, installation drawing, and miscellaneous hardware.

DRIVE	COMPRESSOR				INSTALLATION AND WIRING INSTRUCTIONS (INCLUDED IN THE KIT)
	Q	P	H	K	
TM 790/1048 HP	375-91472-101	375-91472-105			035-22895-000
VSD 351 HP	375-91472-102	375-91472-106			035-22895-001
VSD 424 HP	375-91472-104	375-91472-108			035-22895-001
VSD 503/608 HP	375-91472-103	375-91472-107			035-22895-002

YK Mod G Chillers with OptiSpeed drive shipped before 8/14/09

1. Non-UPS:
   Program card (C.OPT.01.21.307 or later): 031-02474-001
2. UPS (wiring modification kits for the OptiSpeed drive)
   Follow instructions for YK Mod G Chillers with VSD shipped after 8/14/09

YK Mod F Chiller with VSD where the last 3 digits of the VSD part number are -7XX

1. Non-UPS
   Program card (C.OPT.01.21.307 or later): 031-02474-001
2. UPS (wiring modification kits for the VSD)
   Follow instructions for YK Mod G Chillers with VSD shipped after 8/14/09

YK Mod F Chiller with VSD where the last 3 digits of the VSD part number are NOT -7XX

1. Non-UPS

COMPONENT DESCRIPTION	PART NUMBER
OptiView Microboard	631-02430-601
J20 Adaptor Cable	571-05166-000
J13 (OptiView microboard) to 3TB (OptiSpeed) cable	375-92455-210

VSD Logic Board Upgrade Kit. Upgrade to 031-02506-001 logic board by ordering one of the following kits:

KIT DESCRIPTION	PART NUMBER	WIRING DRAWING (INCLUDED IN KIT)	EPROM DRAWING (INCLUDED IN KIT)
TM (658/790 HP, 900/1100 HP)	331-02506-601	035-21563-000	025-21572-000
VSD – 460 volt (292-351 HP, 419/503 HP)	331-02506-602	035-21565-000	025-21572-000
VSD - 575 volt (424 & 608 HP)	331-02506-603	035-21565-000	025-21572-000

OptiSpeed Wiring Modification Kits for Modbus Communication

DRIVE	KIT PART NUMBER	INSTALLATION DRAWING (INCLUDED IN KIT)	WIRING DRAWING (INCLUDED IN KIT)
TM	371-05193-001	035-21573-000	035-21563-000
VSD	371-05193-002	035-21574-000	035-21565-000

2. UPS (wiring modification kits for the VSD)
   Follow instructions for YK Mod G Chillers with VSD shipped after 8/14/09

Installation costs will vary based on application and local conditions. The installation drawings should be reviewed with the local branch Operations team to determine JCI technician hours and subcontractor costs (if required).

Pricing

When quoting Quick Start you must be aware of, and take into consideration, the cost of the feature as offered on new equipment. This is specifically true if you are quoting the feature on a newer Mod level chiller (Mod G after 8-14-09) where the feature only requires software activation (non-UPS) and relatively minor wiring modifications for UPS. Below are the approximate branch transfer prices for the feature when provided on a new chiller. Quick Start retrofits should never be priced below these costs.

- Non-UPS (low and medium voltage VSD): $1000-$1500
- UPS (currently low voltage only): $1200 - $1750 (UPS provided by others)

Contacts

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