

# YASKAWA

# FP605

## MANUAL SUPPLEMENT

AC DRIVE FOR INDUSTRIAL  
FAN AND PUMP APPLICATIONS

### AFFECTED DOCUMENTS:

FP605 Installation & Primary Operation (TOEPC7106171F)

FP605 Technical Reference (SIEPC7106171F)

FP605 with Main Switch Installation & Primary Operation  
(TOEPC7106171G)

FP605 Quick Setup Procedures

(TOEPC7106171A, TOEPC7106171B, TOEPC7106171C)

FP605 Quick Setup Procedures for IP55/UL Type 12

(TOEPC7106171D and TOEPC7106171E)



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DOCUMENT NUMBER: TOEPYAISUP19A

# 1 Supplemental Information - Applicable Documents

The contents of this supplement apply to the product instructions in [Table 1.1](#).

**Table 1.1 Affected Documents**

Drive Series	Document
FP605	FP605 Installation & Primary Operation (TOEPC7106171F)
	FP605 Technical Reference (SIEPC7106171F)
	FP605 with Main Switch Installation & Primary Operation (TOEPC7106171G)
	FP605 Quick Setup Procedures (TOEPC7106171A, TOEPC7106171B, TOEPC7106171C)
	FP605 Quick Setup Procedures for IP55/UL Type 12 (TOEPC7106171D and TOEPC7106171E)

## 2 Short Circuit Protection Requirements for UL Listing

**⚠ WARNING** *Electrical Shock Hazard. After the input protective device trips, do not immediately energize the drive or operate peripheral devices. Wait for the time specified on the warning label at a minimum and make sure that all indicators are OFF. Then check the wiring and peripheral device ratings to find the cause of the problem. If you do not know the cause of the problem, contact Yaskawa before you energize the drive or peripheral devices. If you do not fix the problem before you operate the drive or peripheral devices, it can cause serious injury or death.*

### ◆ UL Compliance

Install one of the types of short circuit protection devices in [Table 2.1](#) or [Table 2.2](#) to comply with UL 508C. Semiconductor protective type fuses are recommended, but the tables also show alternative short circuit protection devices. Make sure that you install this product in a location with Overvoltage Category III and pollution degree 2 or less.

#### ■ Molded Case Circuit Breaker (MCCB) Ratings

- Maximum MCCB rating is 250% of the drive full load output amp (FLA) rating for models 2011 to 2273 and 4005 to 4302.
- Maximum MCCB rating is 200% of the drive full load output amp (FLA) rating for models 2343, 2396, and 4361 to 4720.
- When you use MCCBs you must mount the drive in a ventilated enclosure according to the minimum enclosure volume specified in this document.

**Note:**

When you use MCCBs, current limiting type are recommended, but not required.

#### ■ Semiconductor Fuses and Motor Circuit Protectors (MCPs)

When you use semiconductor fuses or Motor Circuit Protectors (MCPs) for drive protection, you must mount them in the same enclosure with the drive.

#### ■ Non-Semiconductor Fuse Ratings

- Maximum CC, J, or T fuse rating is 175% of the drive full load output amp (FLA) rating for models 2011 to 2396 and 4005 to 4302.
- Maximum J or T fuse rating is 175% of the drive full load output amp (FLA) rating and enclosed into a ventilated enclosure with a minimum enclosure volume as described in this document for models 4361 to 4720.

#### ■ Short Circuit Current Rating (SCCR)

The maximum SCCR provided by the drive with approved protection device listed in this document is 100,000 RMS symmetrical amps.

#### ■ Electric Code Compliance

The user must provide short circuit protection to protect input branch circuits as specified by the National Electric Code (NEC), the Canadian Electric Code, Part 1 (CEC), and local codes.

■ Required Short Circuit Protection

Table 2.1 Approved Short Circuit Protection for FP605 AC Drives (240 V)

Drive Catalog Code FP65U	Drive Mounted without Supplemental Enclosure (Using Type 1 Kit)		Drive Mounted in Supplemental Enclosure							
	Semiconductor Fuse <sup>*1</sup> Part Number (Permitted Only in Type 1 Kit) <i>Manufacturer: Eaton/Bussman</i>	Class CC, J, or T Fuse <sup>*2</sup> Maximum Amps	Any Size Protected Enclosure (Ventilated or Non-Ventilated)		Restricted Size Protected Enclosure (Ventilated Only)				Enclosure Volume Minimum (in <sup>3</sup> )	
			Semiconductor Fuse <sup>*1</sup> Part Number <i>Manufacturer: Eaton/Bussman</i>	Class CC, J, or T Fuse <sup>*2 *3</sup> Maximum Amps	Class CC, J, or T Fuse <sup>*2 *3</sup> Maximum Amps	MCCB <sup>*3</sup> Maximum Amps	MCP <sup>*1</sup> Part Number <i>Manufacturer: Schneider</i>	External Heatsink	Internal Heatsink	
<b>Three-Phase 240 V</b>										
2011	Not allowed. Does not support internal fuses for these drive models.	17.5	FWH-40B	17.5	Enclosure volume not restricted. Refer to the values in the column to the left for fuses.	25	HLL36030M71	3056	3056	
2017		25	FWH-45B	25		40	HLL36030M71	3056	3056	
2024		40	FWH-80B	40		60	HLL36050M72	3056	3056	
2031		50	FWH-125B	50		75	HLL36050M72	3056	3056	
2046		80	FWH-125B	80		110	HLL36100M73	5520	5520	
2059		100	FWH-175B	100		125	HLL36100M73	5520	5520	
2075		125	FWH-200B	125		175	HLL36150M74	5520	5520	
2088		150	FWH-225A	150		200	HLL36150M74	5520	5520	
2114		200	FWH-225A	200		250	HLL36150M74	5520	5520	
2143		250	FWH-250A	250		350	JLL36250M75	21582	14657	
2169		250	FWH-275A	250		400	JLL36250M75	21582	14657	
2211		350	FWH-600A	350		500	LAL3640036M or LLL36400M37X	52800	14657	
2273		450	FWH-800A	450		600	LAL3640036M or LLL36400M37X	52800	14657	
2343		600	FWH-1000A or FWH-1000B	600		700	PLL34060M68	52800	52800	
2396	700	FWH-1000A or FWH-1000B	700	800	PLL34060M68	52800	52800			

- \*1 Protection device must be in same enclosure with drive.
- \*2 Class T fuses are fast-acting (non-time-delay) only. Class CC and J can be either time-delay or non-time-delay.
- \*3 Protection device and drive permitted in same or separate enclosure.

## 2 Short Circuit Protection Requirements for UL Listing

**Table 2.2 Approved Short Circuit Protection for FP605 AC Drives (480 V)**

Drive Catalog Code FP65U	Drive Mounted without Supplemental Enclosure (Using Type 1 Kit)		Drive Mounted in Supplemental Enclosure							
	Semiconductor Fuse <sup>*1</sup> Part Number (Permitted Only in Type 1 Kit) <i>Manufacturer: Eaton/Bussman</i>	Class CC, J, or T Fuse <sup>*2</sup> Maximum Amps	Any Size Protected Enclosure (Ventilated or Non-Ventilated)		Restricted Size Protected Enclosure (Ventilated Only)				Enclosure Volume Minimum (in <sup>3</sup> )	
			Semiconductor Fuse <sup>*1</sup> Part Number <i>Manufacturer: Eaton/Bussman</i>	Class CC, J, or T Fuse <sup>*2 *3</sup> Maximum Amps	Class CC, J, or T Fuse <sup>*2 *3</sup> Maximum Amps	MCCB <sup>*3</sup> Maximum Amps	MCP <sup>*1</sup> Part Number <i>Manufacturer: Schneider</i>	External Heatsink	Internal Heatsink	
<b>Three-Phase 480 V</b>										
4005	Not allowed. Does not support internal fuses for these drive models.	8	FWH-25A14F	8	Enclosure volume not restricted. Refer to the values in the column to the left for fuses.	15	HLL36030M71	3056	3056	
4006		9	FWH-30A14F	9		15	HLL36030M71	3056	3056	
4008		12	FWH-30A14F	12		15	HLL36030M71	3056	3056	
4011		17.5	FWH-40B	17.5		25	HLL36030M71	3056	3056	
4014		20	FWH-45B	20		35	HLL36030M71	3056	3056	
4021		35	FWH-60B	35		50	HLL36030M71	3056	3056	
4027		45	FWH-80B	45		60	HLL36050M72	3056	3056	
4034		60	FWH-100B	60		80	HLL36050M72	3056	3056	
4040		70	FWH-125B	70		100	HLL36100M73	5520	5520	
4052		90	FWH-150B	90		125	HLL36100M73	5520	5520	
4065		110	FWH-200B	110		150	HLL36100M73	5520	5520	
4077		125	FWH-225A	125		175	HLL36100M73	5520	5520	
4096		150	FWH-225A	150		225	HLL36150M74	5520	5520	
4124		200	FWH-225A	200		300	JLL36250M75	5520	5520	
4156		250	FWH-325A	250		350	JLL36250M75	21582	14657	
4180		300	FWH-500A	300		450	JLL36250M75	52800 <sup>*4</sup>	14657	
4240		400	FWH-600A	400		600	LAL3640036M or LLL36400M37X	52800 <sup>*4</sup>	14657	
4302		500	FWH-700A	500		700	LAL3640036M or LLL36400M37X	52800 <sup>*4</sup>	14657	
4361	FWH-800A	Not allowed. Must use semiconductor fuses.	FWH-800A	Not allowed. Must use minimum enclosure volume requirements.	600	700	PLL34060M68	52800 <sup>*4</sup>	52800	
4414	FWH-800A or FWH-800B		FWH-800A or FWH-800B		700	800	PLL34060M68	52800 <sup>*4</sup>	52800	
4477	FWH-1000A or FWH-1000B		FWH-1000A or FWH-1000B		800	900	PLL34080M68	52800 <sup>*4</sup>	52800	
4515	FWH-1000A or FWH-1000B		FWH-1000A or FWH-1000B		900	1000	PLL34080M68	52800 <sup>*4</sup>	52800	
4590	FWH-1200A		FWH-1200A		1000	1200	PLL34080M68	52800 <sup>*4</sup>	52800	
4720	FWH-1200A		FWH-1200A		1200	1400	PLL34100M69	52800 <sup>*4</sup>	52800	

\*1 Protection device must be in same enclosure with drive.

\*2 Class T fuses are fast-acting (non-time-delay) only. Class CC and J can be either time-delay or non-time-delay.

\*3 Protection device and drive permitted in same or separate enclosure.

\*4 External heatsink installation on these models requires a heatsink shroud and filter.

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## Revision History

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April 2022	-	First release

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## FP605 MANUAL SUPPLEMENT

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In the event that the end user of this product is to be the military and said product is to be employed in any weapons systems or the manufacture thereof, the export will fall under the relevant regulations as stipulated in the Foreign Exchange and Foreign Trade Regulations. Therefore, be sure to follow all procedures and submit all relevant documentation according to any and all rules, regulations and laws that may apply. Specifications are subject to change without notice for ongoing product modifications and improvements.

Original instructions.

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