

Flexi | FIT

Specification and functionalities

Version "B"

November 2024

Without the written acceptance of the manufacturer no part stated in this document is allowed to be reproduced or passed on to others, neither on electronic means nor mechanically, i.e., photocopying process, recording or by using any system for storing or retrieving of information.

The contents of this document are valid from the time of the issue date. The manufacturer reserves the right for alterations in line with the relevant technical further development of the system without notice.

ConverterTec reserves the right to update any portion of this publication at any time. Information provided by ConverterTec is believed to be correct and reliable. However, ConverterTec assumes no responsibility unless otherwise expressly undertaken.

© ConverterTec, all rights reserved

Contents

1. Overview	4
1.1. Applicable items	4
1.2. Component blocks	4
1.3. Mechanical dimensions	4
2. Specification	5
2.1. Electrical parameters	5
2.2. Storage conditions	5
2.3. Interfaces	5
2.3.1. Connectors	5
3. Functionalities	9
3.1. Power supply monitoring	9
3.2. Error monitoring	10
3.2.1. Error list	10
4. Document revision history	11

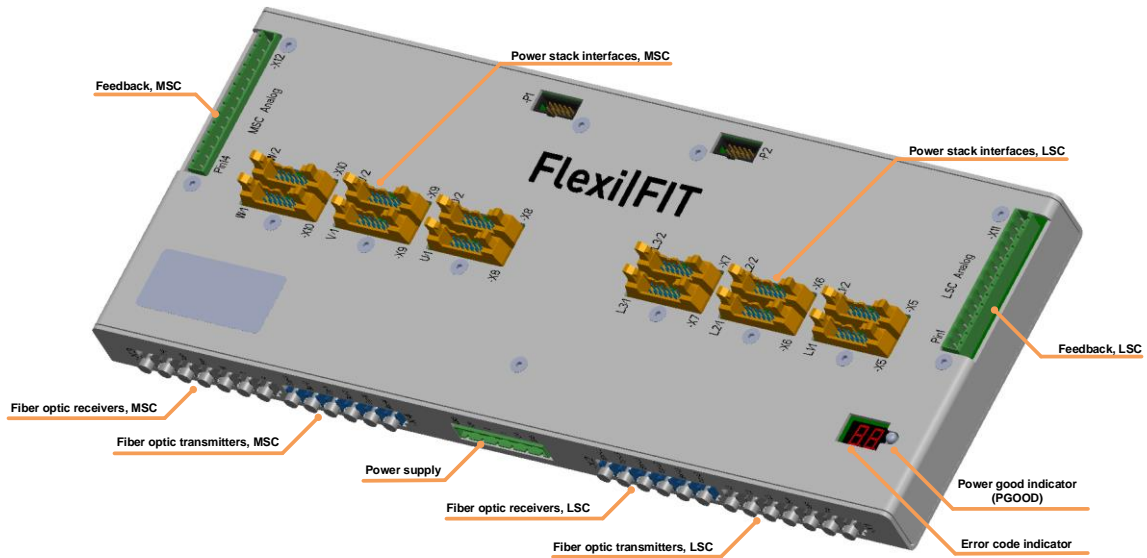
1. Overview

FlexiFIT is a replacement for FIT Parallel Board (KP-30922), used in multiple Concycle converter types. Along with the functionality set of the original FIT Parallel Board, FlexiFIT offers enhanced troubleshooting capabilities and improved reliability.

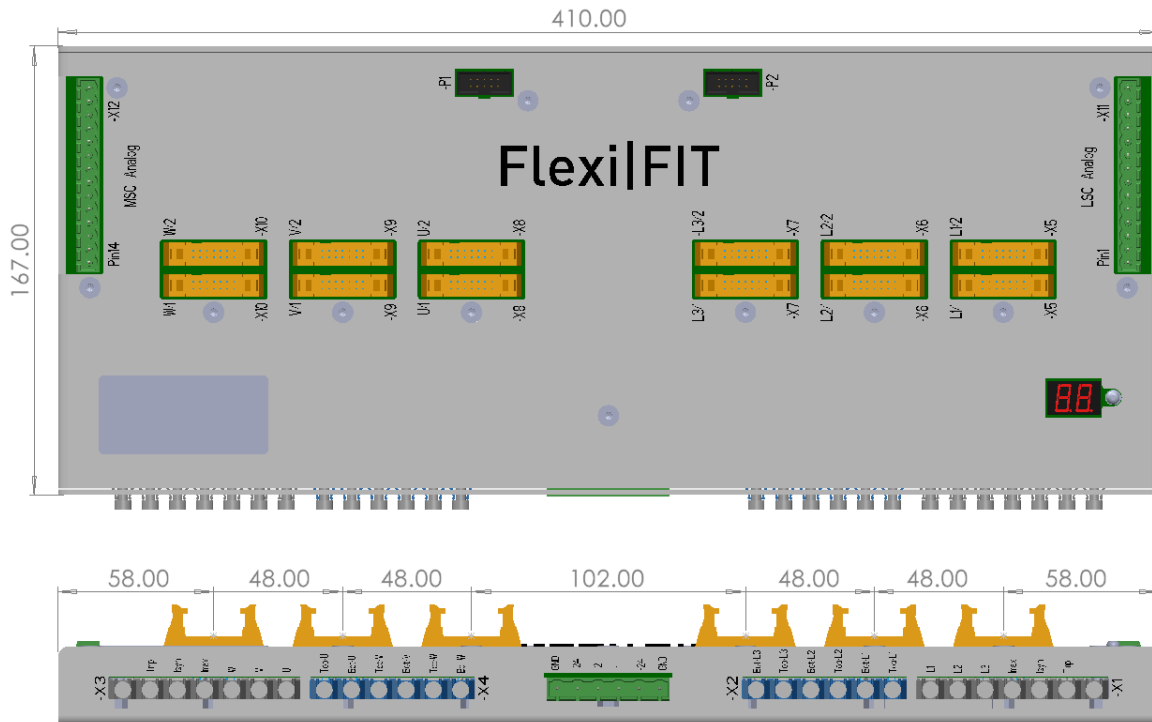
1.1. Applicable items

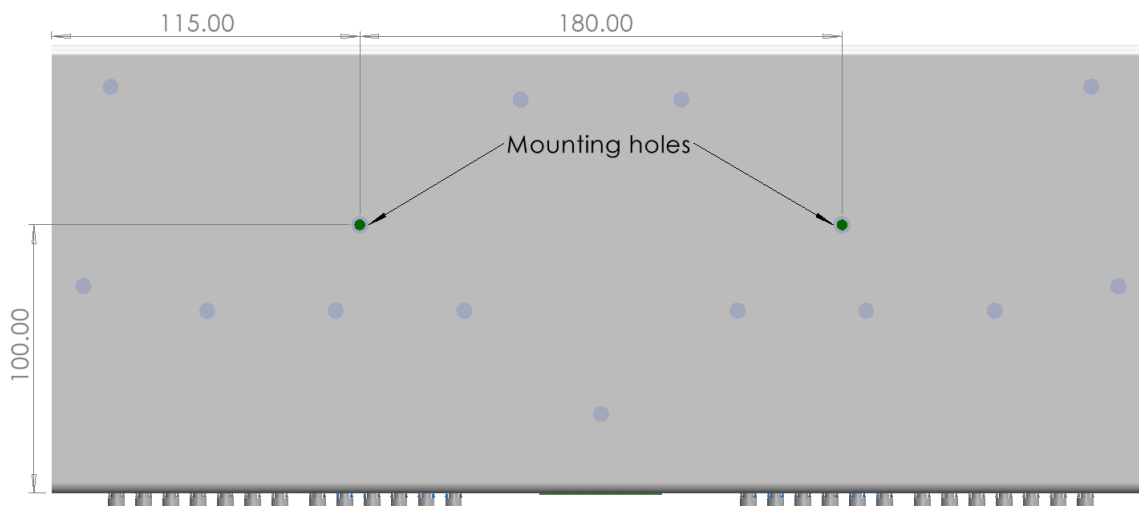
Item-No	Description
I-06922	FlexiFIT board assembly

1.2. Component blocks



1.3. Mechanical dimensions





**All dimensions are in mm.*

2. Specification

2.1. Electrical parameters

	Min	Nominal	Max	Unit
Supply voltage	21	27.5	30	VDC
Supply current	-	-	5	A
Operating ambient temperature	-5	-	+60	°C

2.2. Storage conditions

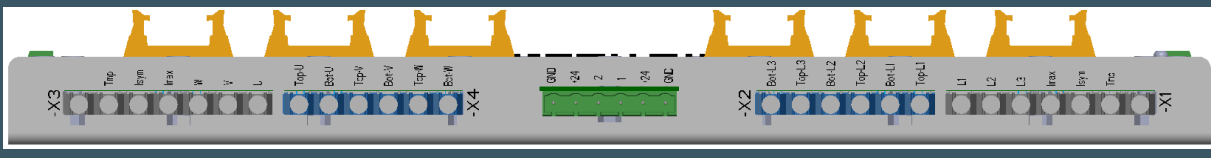
	Min	Nominal	Max	Unit
Storage temperature			30	°C
Storage humidity	-	-	70	%

2.3. Interfaces

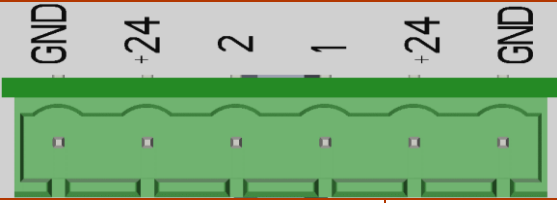
2.3.1. Connectors

Converter		Type	Qty
LSC	Power stack	IDC 14 pin 2x7, pitch 2.54mm	6
	Control	Fiber optic HFBR-1521Z \ HFBR-2522Z	12
	Feedback	Phoenix Contact 1755626 14 pin, pitch 5.00mm	1
MSC	Power stack	IDC 14 pin 2x7, pitch 2.54mm	6
	Control	Fiber optic HFBR-1521Z \ HFBR-2522Z	12
	Feedback	Phoenix Contact 1755626 14 pin, pitch 5.00mm	1
	Power supply	Phoenix Contact 1766275 8 pin, pitch 7.62mm	1

2.3.1.1 Fiber optics


MSC			LSC		
					
Phase	Signal name	Function	Phase	Signal name	Function
U	Top-U	Drive signal, TOP side	L1	Top-L1	Drive signal, TOP side
	U	Phase error		L1	L1
V	Bot-U	Drive signal, BOT side	L2	Bot-L1	Drive signal, BOT side
	Top-V	Drive signal, TOP side		Top-L2	Drive signal, TOP side
W	V	Phase error	L3	L2	Phase error
	Bot-V	Drive signal, BOT side		Bot-L2	Drive signal, BOT side
-	Top-W	Drive signal, TOP side	-	Top-L3	Drive signal, TOP side
	W	Phase error		L3	L3
-	Bot-W	Drive signal, BOT side	-	Bot-L3	Drive signal, BOT side
	Tmp	Over temperature error		Tmp	Over temperature error
	Isym	Current asymmetry error		Isym	Current asymmetry error
	Imax	Overcurrent error		Imax	Overcurrent error
	Uzk	N/A (always ON)		Uzk	N/A (always ON)

2.3.1.2 Power supply connector



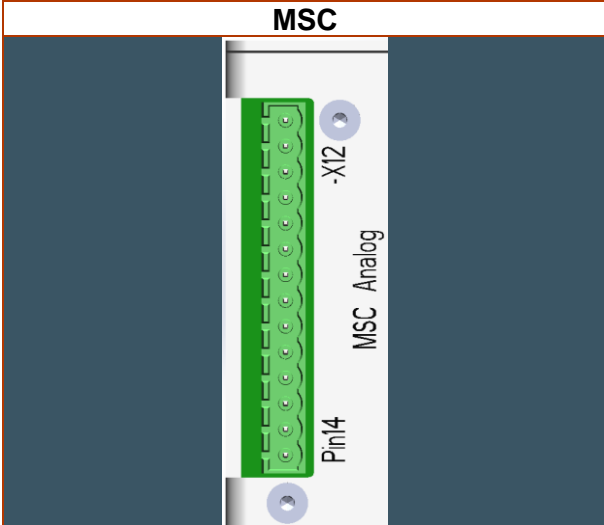
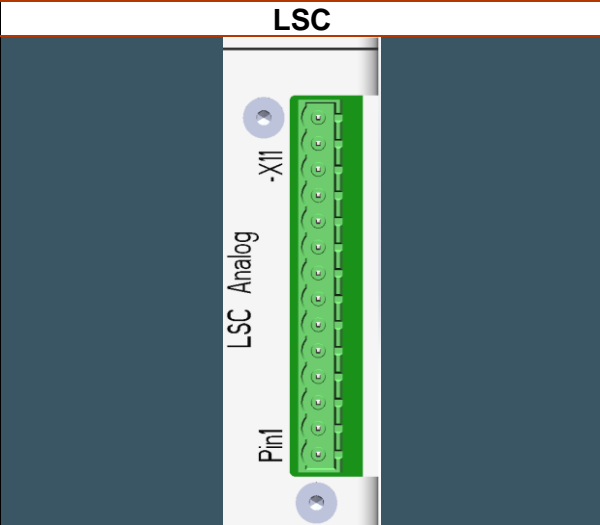
Pin#	Signal name	Function	Specification
1	GND	LSC Ground	
2	+24V	LSC +24V supply voltage	
3	1	Power good contact 1	Contact voltage: 30V max. Contact current: 500mA.
4	2	Power good contact 2	
5	+24V	MSC +24V supply voltage	
6	GND	MSC Ground	

2.3.1.3 Power stack connectors



Pin#	Signal name	Function	Specification
1	GND	Digital ground	
2	BOT	Bottom drive signal	0/15VDC
3	ERROR	Phase error	
4	TOP	Top drive signal	0/15VDC
5	TEMP_ERR	Over temperature error	
6	+24V	24V Power supply output	18 – 30VDC
7	+24V	24V Power supply output	
8			
9			
10	GND	Ground	
11	GND	Ground	
12	TEMP_ANA	Analog temperature signal	±10VDC
13	GND_ANA	Analog ground	
14	I_ANA	Analog current signal	±10VDC

2.3.1.4 Feedback connectors

MSC			LSC		
					
Pin#	Signal name	Function	Specification		
1	FG	Functional ground	Shield ground		
2	I1+	Phase 1 current (+)	Differential analog output (+)		
3	I1-	Phase 1 current (-)	Differential analog output (-)		
4	I2+	Phase 2 current (+)	Differential analog output (+)		
5	I2-	Phase 2 current (-)	Differential analog output (-)		
6	I3+	Phase 3 current (+)	Differential analog output (+)		
7	I3-	Phase 3 current (-)	Differential analog output (-)		
8	TEMP+	Temperature (+)	Differential analog output (+)		
9	TEMP-	Temperature (-)	Differential analog output (-)		
10					
11					
12	GND	Ground			
13	GND	Ground			
14	FG	Functional ground	Shield ground		



3. Functionalities

3.1. Power supply monitoring

The power supply monitoring contact (signals 1 & 2 of the power supply connector) will open and close according to the voltage level of the power supply lines. Refer to “[Power supply connector](#)” for the position of the contact terminals.

The power good (or PGOOD) indicator will be illuminated according to voltage level of the power supply lines (refer to “[Component blocks](#)” for the position of PGOOD indicator). The power supply monitoring is only for indication purposes. It will not trigger any events or change the behavior of the system.

Low power supply voltage might cause sporadic failures or other unusual behavior of the system, caused by insufficient power supply of the power stacks.

	Nominal system power supply	*Threshold	LED state	Contact state
Power supply is in the acceptable range	27.5VDC	>21VDC <30VDC	green 	Closed
Power supply is NOT in the acceptable range		>30VDC <21VDC	red 	Open

**Voltage levels at the board power supply connector. (The voltage level, measured on the terminals of the power supply unit will differ from the levels, measured on the board)*

3.2. Error monitoring

To ease the troubleshooting efforts, the error code indicator will provide a numeric code when a power stack error is triggered (refer to “[Component blocks](#)” for the position of the error code indicator). When unexpected shutdown occurs, multiple events can be registered, but only the first one will be displayed.

3.2.1. Error list

Error code	Channel	Converter	Phase	Error description	Error type	Note
10	CH1	LSC	L1	Phase error	Resettable	
11	CH1	LSC	L1	Over temperature error	Resettable	
12	CH1	LSC	L2	Phase error	Resettable	
13	CH1	LSC	L2	Over temperature error	Resettable	
14	CH1	LSC	L3	Phase error	Resettable	
15	CH1	LSC	L3	Over temperature error	Resettable	
20	CH1	MSC	U	Phase error	Resettable	
21	CH1	MSC	U	Over temperature error	Resettable	
22	CH1	MSC	V	Phase error	Resettable	
23	CH1	MSC	V	Over temperature error	Resettable	
24	CH1	MSC	W	Phase error	Resettable	
25	CH1	MSC	W	Over temperature error	Resettable	
30	CH2	LSC	L1	Phase error	Resettable	
31	CH2	LSC	L1	Over temperature error	Resettable	
32	CH2	LSC	L2	Phase error	Resettable	
33	CH2	LSC	L2	Over temperature error	Resettable	
34	CH2	LSC	L3	Phase error	Resettable	
35	CH2	LSC	L3	Over temperature error	Resettable	
40	CH2	MSC	U	Phase error	Resettable	
41	CH2	MSC	U	Over temperature error	Resettable	
42	CH2	MSC	V	Phase error	Resettable	
43	CH2	MSC	V	Over temperature error	Resettable	
44	CH2	MSC	W	Phase error	Resettable	
45	CH2	MSC	W	Over temperature error	Resettable	
70	CH1	LSC	-	Power supply failure	Non-resettable	
71	CH1	LSC	-	Power supply overload	Resettable	
72	CH1	MSC	-	Power supply failure	Non-resettable	
73	CH1	MSC	-	Power supply overload	Resettable	
74	CH2	LSC	-	Power supply failure	Non-resettable	
75	CH2	LSC	-	Power supply overload	Resettable	
76	CH2	MSC	-	Power supply failure	Non-resettable	
77	CH2	MSC	-	Power supply overload	Resettable	
88	-	LSC	-	Overcurrent	Resettable	
89	-	MSC	-	Overcurrent	Resettable	
90	-	LSC	-	Current asymmetry	Resettable	
91	-	MSC	-	Current asymmetry	Resettable	

4. Document revision history

Date	Version	Changes
June 2024	A	Initial release.
November 2024	B	Added point 2.2 Updated points 1.3, 2.3.1.1, 3.2.1