

Field Failure Rate [FFR] is practically equivalent to the MTBF(Mean Time Between Failure), in million of Hours and year at 24 hours a day, 7 days a week.

These FFR are gross. There are defined as the ration between the Cumulative produced Modules multiplied by Time and the number of modules returned to Murten for Repair, regardless whether the module is defective or not, if the user has made a mistake or not.

Type / Field Failure Rate [FFR]	[mio h] [Years @ 24h/D]		Example for a Typical Configuration				Real configuration to be filled by the User			
	1/FFR	Summ	FFR Total	Availability:	1/FFR	Summ	FFR Total	Availability		
PCD1, PCD2			6.5E-02	100.00%	4.1E-02	213 040 [h]	24.3 [years]	100.00%		
C100, C150	8.8	1000	1	1.0E-03	1	1.0E-03				
C2000	8.8	1000	0		0					
M110, 120, M150	0.6	70	0		1	1.4E-02				
M17x, M48x	0.5	60	1	1.7E-02	0					
M5xxx ¹⁾	0.2	20	0		0					
E11x, E16x, E61x	4.4	500	3	6.0E-03	0					
A200,220,250 ³⁾	3.5	400	1	2.5E-03	0					
A300, A400, A46x	6.1	700	6	8.6E-03	0					
W1xx	1.8	200	0		3	1.5E-02				
W2, W3, W4, W6	3.5	400	1	2.5E-03	0					
W5	2.6	300	1	3.3E-03	0					
H1	3.5	400	0		1	2.5E-03				
R6000	2.6	300	0		0					
F2xxx	2.6	300	0		0					
F5xx	2.6	300	0		1	3.3E-03				
T8 ¹⁾	1.8	200	0		1	5.0E-03				
PCD7										
F1xx, F2xx	8.8	1000	2	2.0E-03	0					
F6xx, F7xx, F8xx	0.9	100	1	1.0E-02	0					
F74xx	1.8	200	1	5.0E-03	0					
F75xx	1.8	200	1	5.0E-03	0					
R4xx	8.8	1000	1	1.0E-03	0					
R5xx	8.8	1000	1	1.0E-03	0					
H104S ¹⁾	1.8	200	0		0					
D23x	0.8	90	0		0					
D4xx ¹⁾²⁾	0.2	20	0		0					
PCS1.Cxx ¹⁾	0.4	40	0		0					

Availability=FFR / (FFR + Rtime)

Availability is based on

- the condition where the customer is supposed to have spare modules
- so an estimated 'Repair time' of 4 hours to localize and replaced the defective module can be applied.

- 1) Previsional estimation
- 2) Backlight: 50% luminosity after 50'000h
- 3) Subject to limited Life Time; for Relais typical 0.7 x 10⁶ cycles

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	1 / FFR	Summ	FFR Total	1 / FFR	Summ	FFR Total	1 / FFR	Summ	FFR Total	Availability
PCD3			6.4E-02	15.6 [years]	136 317 [h]	100.00%	6.5E-02	15.5 [years]	135 564 [h]	100.00%
C100, C110	8.8	1000	1	1.0E-03			1	1.0E-03		
C200	3.5	400	0				0			
M3xxx ¹⁾	0.2	20	1	5.0E-02			1	5.0E-02		
M5xxx ¹⁾										
M6xxx ¹⁾										
M20xx ¹⁾	0.2	18	0				0			
M21xx ¹⁾										
M22xx ¹⁾	0.1	16	0				0			
M23xx ¹⁾										
T66x ¹⁾	0.2	20	0				0			
T76x ¹⁾	1.8	200	0				0			
E11x, E16x, E61x	4.4	500	3	6.0E-03			0			
A200,220,250 ³⁾	3.5	400	1	2.5E-03			0			
A300, A400, A46x	6.1	700	1	1.4E-03			3	4.3E-03		
W1xx	1.8	200	0				0			
W2, W3, W4, W6	3.5	400	0				2	5.0E-03		
W5	2.6	300	1	3.3E-03			1	3.3E-03		
H1	3.5	400	0				0			
R5xx, R6xx ¹⁾	2.6	300	0				0			
F1xx	2.6	300	0				0			
F2xx	1.8	200	0				0			
PCD7										
F1xx	8.8	1000	0				1	1.0E-03		
R-SD xxx	1.0	110	0				0			

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	1/FFR	Summ	FFR Total	1 / FFR	Summ	FFR Total	Availability					
PCD7.Dxxx, PCS1			5.0E-02	20.0 [years]	175 200 [h]	100.00%			5.0E-02	20.0 [years]	175 200 [h]	100.00%
D23x	0.8	90	0						0			
D4xx ^{1) 2)}	0.2	20	1	5.0E-02				1	5.0E-02			
PCS1.Cxx ¹⁾	0.4	40	0					0				

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