

APPLICATION NOTE

# New Engineering Recommendations “EREC G98” and “EREC G99”

## How to set the Grid feeding monitoring relay CM-UFD.M33/ CM-UFD.M33M to comply with “EREC G98” and “EREC G99”



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The Engineering Recommendations (EREC) G99 and G98 have been written to take account of the EU Network Code on Requirements for Grid Connection of Generators 14 April 2016.

They are published by the Energy Networks Association (ENA) and come into effect on 27 April 2019 for Power Generating Modules first installed on or after that date. It has been prepared and approved for publication under the authority of the Great Britain Distribution Code Review Panel. The approved abbreviated title of this engineering documents are “EREC G99”.

## Required Settings to fulfill the EREC

To fulfill the new Engineering Recommendation “EREC G98” and “EREC G99” the red marked parameters within the following table must be set.

### Menu Structure CM-UFD.M33(M)

Main Menu	Submenu	Options	Configuration possibilities	Step size	G99 LV	G99 HV	G98	
Nominal Voltage	Measuring principle		[3L-N + 3L-L], [3L-N], [3L-L], [1L-N]		3L-N	3L-L	3L-N	
	Nominal voltage		[57.7] - [240.0] V L-N / [99.9] - [415.7] V L-L		230 V L-N	110 V L-L	230 V L-N	
I/O setup	Relay 3	Working principle	[disabled], [open-circuit], [closed-circuit], [synchronous with R1/R2], [bus controlled], [bus fault]		disabled	disabled	disabled	
		ON-delay	[0.00] - [10.00] s	0.01 s	0 s	0 s	0 s	
		ON-time	[0.05] - [10.00] s	0.01 s	0.5 s	0.5 s	0.5 s	
	Feedback Y1	Monitoring	[disabled], [enabled], [tripping only]			disabled	disabled	disabled
		Working principle	[normally closed], [normally open], [auto detection]			<b>auto detection</b>	<b>auto detection</b>	<b>auto detection</b>
		Trip window	[0.05] - [0.50] s	0.01 s	0.1 s	0.1 s	0.1 s	
		Release window	[0.5] - [6000.00] s	0.1 s	0.5 s	0.5 s	0.5 s	
		Control input Y3	Function	[disabled], [remote trip], [suppress Y1], [suppress Y2], [suppress Y1/Y2], [suppress VS]		disabled	disabled	disabled
	Auto reconnection	Number of attempts	Working principle	[normally closed], [normally open]		normally open	normally open	normally open
				[0] - [3]	1	0	0	0
	Monitoring function	>UAV	Monitoring	[disabled], [enabled]		disabled	disabled	disabled
			Threshold value	[1.000] - [1.300] x Un	0.005 x Un	1.1 xUn	1.1 xUn	1.1 xUn
			Hysteresis	[0.1] - [10.0] %	0.1 %	0.1 %	0.1 %	0.1 %
>U1		Monitoring	[disabled], [enabled]			enabled	enabled	enabled
		Threshold value	[1.000] - [1.300] x Un	0.005 x Un	1.14 xUn	1.1 xUn	1.14 xUn	
		Hysteresis	[0.5] - [10.0] %	0.1 %	1 %	1 %	1 %	
		Tripping delay	[0.00] - [600.00] s	0.01 s	1.0 s	1.0 s	1.0 s	
>U2		Monitoring	[disabled], [enabled]			enabled	enabled	enabled
		Threshold value	[1.000] - [1.300] x Un	0.005 x Un	1.19 xUn	1.13 xUn	1.19 xUn	
		Hysteresis	[0.5] - [10.0] %	0.1 %	1 %	1 %	1 %	
		Tripping delay	[0.00] - [600.00] s	0.01 s	0.5 s	0.5 s	0.5 s	
<U1		Monitoring	[disabled], [enabled]			enabled	enabled	enabled
		Threshold value	[0.100] - [1.000] x Un	0.005 x Un	<b>0.8 xUn</b>	<b>0.8 xUn</b>	<b>0.8 xUn</b>	
		Hysteresis	[0.5] - [10.0] %	0.1 %	1 %	1 %	1 %	
	Tripping delay	[0.00] - [600.00] s	0.01 s	2.5 s	2.5 s	2.5 s		
<U2	Monitoring	[disabled], [enabled]			<b>disabled</b>	<b>disabled</b>	<b>disabled</b>	
	Threshold value	[0.100] - [1.000] x Un	0.005 x Un	<b>0.45 xUn</b>	<b>0.45 xUn</b>	<b>0.45 xUn</b>		

		Hysteresis	[0.5] - [10.0] %	0.1 %	1 %	1 %	1 %	
		Tripping delay	[0.00] - [600.00] s	0.01 s	<b>0.1 s</b>	<b>0.1 s</b>	<b>0.1 s</b>	
Overfrequency >F1	Monitoring	[disabled], [enabled]			enabled	enabled	enabled	
	Threshold value	[50.00] - [65.00] Hz	0.01 Hz	<b>52.0 Hz</b>	<b>52.0 Hz</b>	<b>52.0 Hz</b>		
	Hysteresis	[0.05] - [4.00] Hz	0.01 Hz	0.1 Hz	0.1 Hz	0.1 Hz		
	Tripping delay	[0.00] - [600.00] s	0.01 s	<b>0.5 s</b>	<b>0.5 s</b>	<b>0.5 s</b>		
Overfrequency >F2	Monitoring	[disabled], [enabled]			<b>disabled</b>	<b>disabled</b>	<b>disabled</b>	
	Threshold value	[50.00] - [65.00] Hz	0.01 Hz	<b>51.5 Hz</b>	<b>51.5 Hz</b>	<b>51.5 Hz</b>		
	Hysteresis	[0.05] - [4.00] Hz	0.01 Hz	0.1 Hz	0.1 Hz	0.1 Hz		
	Tripping delay	[0.00] - [600.00] s	0.01 s	<b>0.1 s</b>	<b>0.1 s</b>	<b>0.1 s</b>		
Underfrequency <F1	Monitoring	[disabled], [enabled]			enabled	enabled	enabled	
	Threshold value	[45.00] - [60.00] Hz	0.01 Hz	47.5 Hz	47.5 Hz	47.5 Hz		
	Hysteresis	[0.05] - [4.00] Hz	0.01 Hz	0.1 Hz	0.1 Hz	0.1 Hz		
	Tripping delay	[0.00] - [600.00] s	0.01 s	20.0 s	20.0 s	20.0 s		
Underfrequency <F2	Monitoring	[disabled], [enabled]			enabled	enabled	enabled	
	Threshold value	[45.00] - [60.00] Hz	0.01 Hz	47.0 Hz	47.0 Hz	47.0 Hz		
	Hysteresis	[0.05] - [4.00] Hz	0.01 Hz	0.1 Hz	0.1 Hz	0.1 Hz		
	Tripping delay	[0.00] - [600.00] s	0.01 s	0.5 s	0.5 s	0.5 s		
ROCOF	Monitoring	[disabled], [enabled]			<b>enabled</b>	<b>enabled</b>	<b>enabled</b>	
	Threshold value	[0.100] - [5.000] Hz/s	0.005 Hz/s	<b>1 Hz/s</b>	<b>1 Hz/s</b>	<b>1 Hz/s</b>		
	Number of cycles	[4] - [50]	1	<b>25</b>	<b>25</b>	<b>25</b>		
	Tripping delay	[0.00] - [600.00] s	0.01 s	<b>0.5 s</b>	<b>0.5 s</b>	<b>0.5 s</b>		
	Error time	[0.50] - [600.00] s	0.01 s	<b>30 s</b>	<b>30 s</b>	<b>30 s</b>		
Vector Shift VS	Monitoring	[disabled], [enabled]			<b>disabled</b>	<b>disabled</b>	<b>disabled</b>	
	Threshold value	[2.0] - [50.0] °	0.1 °	<b>50 °</b>	<b>50 °</b>	<b>50 °</b>		
	Error time	[0.50] - [600.00] s	0.01 s	<b>30 s</b>	<b>30 s</b>	<b>30 s</b>		
Global delay settings	Tripping delay offset	[0] - [100] ms	1 ms	<b>0ms</b>	<b>0ms</b>	<b>0ms</b>		
Switch-on conditions	Switch-on delay	Switch-on delay	[0.05] - [600.00] s	0.01 s	20 s	20 s	20 s	
		Short interruption	[disabled], [enabled]		disabled	disabled	disabled	
	Voltage window	Monitoring	[disabled], [enabled]			disabled	disabled	disabled
		Minimum	[0.100] - [1.000] x Un	0.005 x Un	<b>0.8 xUn</b>	<b>0.8 xUn</b>	<b>0.8 xUn</b>	
		Maximum	[1.000] - [1.300] x Un	0.005 x Un	<b>1.14 xUn</b>	<b>1.1 xUn</b>	<b>1.14 xUn</b>	
	Frequency window	Monitoring	[disabled], [enabled]			disabled	disabled	disabled
Minimum		[45.00] - [60.00] Hz	0.01 Hz	<b>47.5</b>	<b>47.5</b>	<b>47.5</b>		
	Maximum	[50.00] - [65.00] Hz	0.01 Hz	<b>52.0</b>	<b>52.0</b>	<b>52.0</b>		
General settings	Language	Language	[English], [Deutsch]		English *)	English *)	English *)	
	Display	Switch-off delay	[10] - [600] s	1 s	10 s *)	10 s *)	10 s *)	
		Contrast	[0] - [9]	1	5 *)	5 *)	5 *)	
	Password	Protection	[disabled], [enabled]		disabled *)	disabled *)	disabled *)	
		Change password	[****]		0000 *)	0000 *)	0000 *)	
Load settings	"Setting name"							
Save settings Information	"Setting name"							
Modbus	Bus mode	Communication	[disabled], [enabled]		disabled *)	disabled *)	disabled *)	
		Remote trip via bus	[disabled], [enabled]		disabled *)	disabled *)	disabled *)	
		Fault reaction	[trip R1/R2], [fault message]		fault message *)	fault message *)	fault message *)	
		Timeout	1-600 s	1 s	10 s *)	10 s *)	10 s *)	
	Bus config.	Slave address	1-247	1	1 *)	1 *)	1 *)	
		Baud rate	[1200], [2400], [4800], [9600], [19200], [38400], [57600], [115200]		19200 *)	19200 *)	19200 *)	
		Parity	[EVEN, ODD, NONE]		EVEN *)	EVEN *)	EVEN *)	
Error memory	Error list							
	Error recording	Remote trip via Y3	[disabled], [enabled]		enabled *)	enabled *)	enabled *)	
		Remote trip via bus	[disabled], [enabled]		enabled *)	enabled *)	enabled *)	

	Power OFF	[disabled], [enabled]	enabled *)	enabled *)	enabled *)
Reset error memory					
Operating counter					
Cumulated OFF-time					
Trip counter					

\*) Device defaults, not affected by loading a setting

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