Customer specific setting for STP 60-10 / STP 60-10-US

Plant name:

Contact data	Name		**Date**	
	Telephone			
	Email-Address		**Signature**	

Inverter model ☐ **STP 60-10** ☐ **STP 60-10-US**

SW version ☐ **Newest** ☐ **Other** ____

Parent standard ☐ **IEC 61727** ☐ **BDEW** ☐ **G59/3** ☐ **AS 4777** ☐ **IEEE 1547** ☐ **Other** ____

The STP 60-10 can be configured in accordance with many country specifications. You can select the appropiate standard during the commisioning of the inverters. However, if you want to get a specific plant setting, you need to fill out this form and send it to us before commissioning.
First choose the standard that must be used as reference and then fill out the form only with the different values. The other values will be set as in the parent standard. Please refer to the document "STP60-10-Parameter-TI" available in our website.
Contact your grid operator for the approval of the inverters with the specific setting. Otherwise you may face problems during the commisioning. SMA Solar Technology AG is not responsible of the approval of specific settings.

Protection Settings

	Short description of parameter	Range / step size		Parameter ID	Value
	Nominal grid voltage	220 - 277 / 1	[V]	UNOM	
	Nominal grid frequency	50/60	[Hz]	FNOM	
Voltage disconnection	Under voltage stage 2 (far)	23 - UMIN1 / 0.1	[V]	UMIN2	
	Trip time for under voltage stage 2	0 - TUMIN1 / 0.01	[s]	T_UMIN2	
	Under voltage stage 1 (near)	23 - UNOM / 0.1	[V]	UMIN1	
	Trip time for under voltage stage 1	0 - 600 / 0.01	[s]	T_UMIN1	
	10 min. mean (EN 50160)	UNOM - 350 / 0.1	[V]	U10M_AVG	
	Trip time for 10 min. Mean	0 - 600 / 0.01	[s]	T_U10M_AVG	
	Over voltage stage 1 (near)	UNOM - 350 / 0.1	[V]	UMAX1	
	Trip time for over voltage stage 1	0 - 600 / 0.01	[s]	T_UMAX1	
	Over voltage stage 2 (far)	UMAX1 - 350 / 0.1	[V]	UMAX2	
	Trip time for over voltage stage 2	T_UMAX1 - 600 / 0.01	[s]	T_UMAX2	
Frequency disconnection	Under frequency stage 2 (far)	45/54 - FMIN1 / 0.01	[Hz]	FMIN2	
	Trip time for under frequency stage 2	0 - T_FMIN1 / 0.01	[s]	T_FMIN2	
	Under frequency stage 1 (near)	45/54 - 50/60 / 0.01	[Hz]	FMIN1	
	Trip time for under frequency stage 1	0 - 6000 / 0.01	[s]	T_FMIN1	
	Over frequency stage 1 (near)	50/60 - 55/66 / 0.01	[Hz]	FMAX1	
	Trip time for over frequency stage 1	0 - 6000 / 0.01	[s]	T_FMIN1	
	Over frequency stage 2 (far)	FMAX1 - 55/66 / 0.01	[Hz]	FMAX2	
	Trip time for over frequency stage 2	T_FMAX1 - 600 / 0.01	[s]	T_FMAX2	
(re-) Connection	Connection / Re-connection time (>T_SHT_INT)	0 - 1200 / 0.01	[s]	T_CON	
	Re-connection time (<T_SHT_INT)	0 - 1200 / 0.01	[s]	T_RECON	
	Maximum time for a short interupt	0 - 1200 / 0.01	[s]	T_SHT_INT	
	Connection/reconnection ramp rate	0.6 - 1200 / 0.01	[%/min]	RmpIncTmm_ONLINE	
	Minimum connection voltage	UMIN1 - UNOM / 0.1	[V]	UMIN_CON	
	Maximum connection voltage	UNOM - UMAX1 / 0.1	[V]	UMAX_CON	
	Minimum connection frequency	FMIN1 - FNOM / 0.01	[Hz]	FMIN_CON	
	Maximum connection frequency	FNOM - FMAX1 / 0.01	[Hz]	FMAX_CON	
Loss Of Mains	Active frequency shift (1: on, 0: off)		[bool]	LOM_F_SHF_K0 / _K1	
	Rate of Change of Frequency	0.1 - 5 / 0.01	[HZ/s]	LOM_ROC	
	Trip time for RoCoF	0 - 1200 / 0.01	[s]	T_LOM_ROC	
	RoCoF threshold	0 - 5 / 0.01	[Hz]	LOM_ROC_THR	

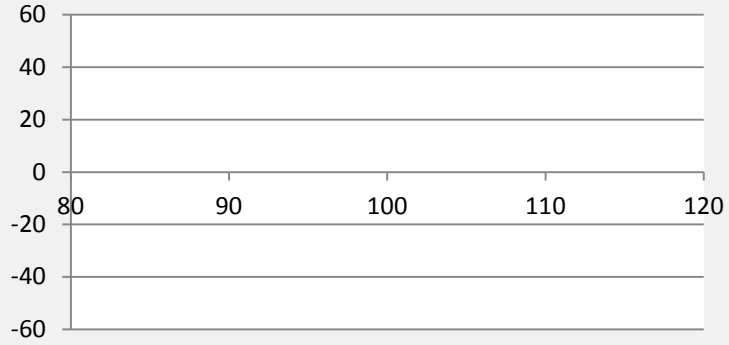
Auxiliary Support Settings

	Short description of parameter	Range / step size		Parameter ID	Value
Fault Ride Through	FRT mode (0:off, 1:zeroCurrent, 2:Q_CurrentOnly, 3:P_CurrentOnly, 4:fullCurrent_Q_Priority, 5: fullCurrent_P_Priority)		[int]	FRT_MODE	
	FRT dI/dU gain (k-factor) for Positive Sequence in HVRT	0 - 10 / 0.1	[/]	FRT_DIDU_POS_HVRT	
	FRT dI/dU gain (k-factor) for Positive Sequence in LVRT	0 - 10 / 0.1	[/]	FRT_DIDU_POS_LVRT	
	FRT reactive current curve type (0: BDEW, 1: SDL-Wind)		[int]	FRT_IQ_MODE	
	FRT blocking zone time	0 - 10 / 0.01	[s]	FRT_T_BLK	
	FRT transition time	0 - 10 / 0.01	[s]	FRT_T_TRANS	
	FRT lower threshold voltage	10 - 100 / 0.01	[%]	FRT_ULOW	
	FRT upper threshold voltage	100 - 130 / 0.01	[%]	FRT_UUP	
	FRT power recovery time	0 - 10 / 0.01	[s]	FRT_T_P_RECOV	
Basic Settings	**Mode Select (1: Q(U), 2: Q(P), 3: Q(S), 4: Q(T), 5: Qext, 6: PF(P), 7: PF(U), 8: PF(T), 9: PFext)**		**[int]**	**ModeSelect**	
	Night mode selection (0:false, 1:true)		[bool]	NightMode	
	Active power limitation for reactive power support	80 - 100 / 0.01	[%]	P_LIM_IF_Q	
	Nominal apparent power at point of common coupling	60 - 2400 / 0.1	[kVA]	Sgrid_nom	
	Voltage drop between PCC and generator	0 - 1000 / 0.1	[V]	UNOMOffset	
Immediate Controls	Maximum reactive power reduction rate	-1200 - 0.6 / 0.01	[%/min]	RmpDecTmm_Q	
	Maximum reactive power increase rate	0.6 - 1200 / 0.01	[%/min]	RmpIncTmm_Q	
	Reduction rate of power after external setpoint change	-1200 - 0.6 / 0.01	[%/min]	RmpDecTmm_EXT	
	Increase rate of power after external setpoint change	0.6 - 1200 / 0.01	[%/min]	RmpIncTmm_EXT	
	Maximum active power	0 - 100 / 0.01	[%]	P_ref	
	Maximum reactive power	-100 - 100 / 0.01	[%]	Q_ref	
	Maximum power factor	-0.8…1...0.8 / 0.01	[/]	PF_ref	
	Maximum apparent power	0 - 100 / 0.01	[%]	S_ref	
Fallback function	Activation of the Fallback function (0=disable, 1=enable)	0-1	[int]	FallbackEnabled	
	Activation time after a communication loss	2 - 20	[s]	FallbackDelay	
	Duration of the fallback function	0 - 604800	[s]	FallbackMaxDuration	
	P reference	0 - 100 / 0.01	[%]	FallbackPref	
	Q reference	0 - 100 / 0.01	[%]	FallbackQref	

Reactive Power Modes

Mode #1 Reactive power as a function of voltage	The time of the PT1 low pass filter	0.6 - 3600 / 0.01	[s]	RmpTmsPT1_UQ	
	Limit of active power for activation of Q(U)	0 - 100 / 0.01	[%]	lock_in_UQ	
	Limit of active power for deactivation of Q(U)	0 - 100 / 0.01	[%]	lock_out_UQ	
	Curve of Q(U) for decreasing U (hysteresis)	Q range : -60 to 60 % / 0.01			
	Curve of Q(U) for increasing U	U range: 80 to 120 % / 0.01			

Q_of_U_dec		*Q_of_U_inc*	



Mode #2 Reactive power as a function of active power. Contact us if you want to use this mode

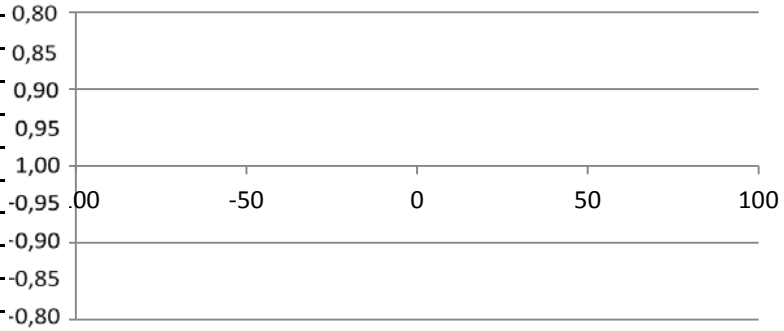
Mode #3 Reactive power as a function of apparent power is editable via the ramps and reference points given under Immidiate

Mode #5 Constant reactive power is editable via the ramps and reference points given under Immidiate Controls

Mode #6
Power factor as a function of power

The time of the PT1low pass filter.	0.6 - 3600 / 0.01	[s]	RmpTmsPT1_PPF	
Grid voltage limit for activation of PF(P) support	80 - 120 / 0.01	[%]	lock_in_PPF	
Grid voltage limit for deactivation of PF(P) support	80 - 120 / 0.01	[%]	lock_out_PPF	
Curve of PF(P) for decreasing P (hysteresis)	PF range: +- 0.8 to 1 / 0.0001			
Curve of PF(P) for increasing P	P range: -100 to 100 % / 0.01			

PF_of_P_dec		*PF_of_P_inc*	



Mode #7 Power factor as a function of voltage. Contact us if you want to use this mode.

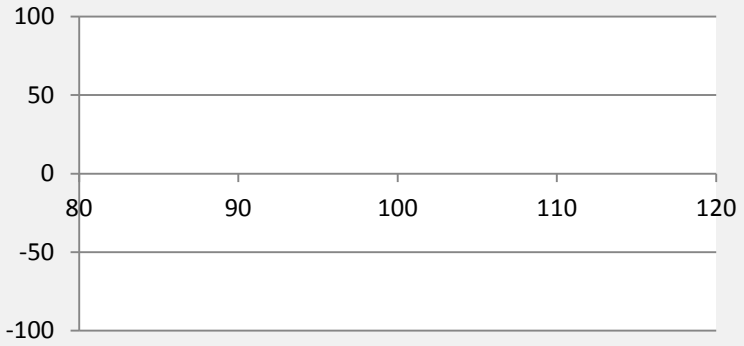
Mode #9 Constant power factor is editable via the ramps and reference points given under Immidiate Controls

Active Power control

Active power as a function of voltage

The time of the PT1low pass filter.	0.6 - 3600 / 0.01	[s]	RmpTmsPT1_UP	
Power reduction in responce to changes in voltage	-1200 - 0.6 / 0.01	[%/min]	RmpDecTmm_UP	
Power increasing in responce to changes in voltage	0.6 - 1200 / 0.01	[%/min]	RmpIncTmm_UP	
Curve for decreasing power - voltage	P range: -100 to 100 % / 0.01			
Curve for increasing power - voltage	U range: 80 to 120 % / 0.01			

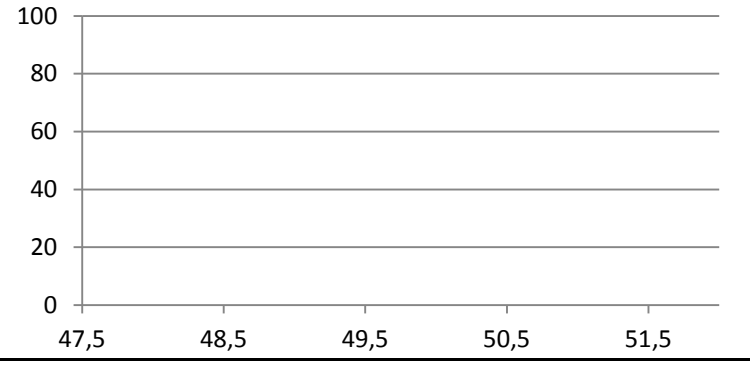
P_of_U_dec		*P_of_U_inc*	



Active power as a function of frequency

Max. active power reduction rate if f change	0.6 - 3600 / 0.01	[%/min]	RmpIncTmm_FPReg	
Delay between disturbance and start of P increase	0 - 600 / 0.01	[s]	tdelay_off	
Delay between disturbance and start of P decrease	0 - 2 / 0.01	[s]	tdelay_on	
Modeselector for rate limit		[bool]	variable	
Curve of P(f) for decreasing f (response)	P range: 0 to 100 % / 0.01			
Curve of P(f) for increasing f (response)	f range: 47.5 to 52 Hz / 0.01			

FP_of_f_dec		*FP_of_f_inc*	



PLA option

	Combination 0 to 31										Combination 32 to 63								
	Relay 1	Relay 2	Relay 3	Relay 4	Relay 5	Relay 6	P	Q	PF		Relay 1	Relay 2	Relay 3	Relay 4	Relay 5	Relay 6	P	Q	PF
0	*0*	*0*	*0*	*0*	*0*	*0*				**32**	*1*	*0*	*0*	*0*	*0*	*0*			
1	*0*	*0*	*0*	*0*	*0*	*1*				**33**	*1*	*0*	*0*	*0*	*0*	*1*			
2	*0*	*0*	*0*	*0*	*1*	*0*				**34**	*1*	*0*	*0*	*0*	*1*	*0*			
3	*0*	*0*	*0*	*0*	*1*	*1*				**35**	*1*	*0*	*0*	*0*	*1*	*1*			
4	*0*	*0*	*0*	*1*	*0*	*0*				**36**	*1*	*0*	*0*	*1*	*0*	*0*			
5	*0*	*0*	*0*	*1*	*0*	*1*				**37**	*1*	*0*	*0*	*1*	*0*	*1*			
6	*0*	*0*	*0*	*1*	*1*	*0*				**38**	*1*	*0*	*0*	*1*	*1*	*0*			
7	*0*	*0*	*0*	*1*	*1*	*1*				**39**	*1*	*0*	*0*	*1*	*1*	*1*			
8	*0*	*0*	*1*	*0*	*0*	*0*				**40**	*1*	*0*	*1*	*0*	*0*	*0*			
9	*0*	*0*	*1*	*0*	*0*	*1*				**41**	*1*	*0*	*1*	*0*	*0*	*1*			
10	*0*	*0*	*1*	*0*	*1*	*0*				**42**	*1*	*0*	*1*	*0*	*1*	*0*			
11	*0*	*0*	*1*	*0*	*1*	*1*				**43**	*1*	*0*	*1*	*0*	*1*	*1*			
12	*0*	*0*	*1*	*1*	*0*	*0*				**44**	*1*	*0*	*1*	*1*	*0*	*0*			
13	*0*	*0*	*1*	*1*	*0*	*1*				**45**	*1*	*0*	*1*	*1*	*0*	*1*			
14	*0*	*0*	*1*	*1*	*1*	*0*				**46**	*1*	*0*	*1*	*1*	*1*	*0*			
15	*0*	*0*	*1*	*1*	*1*	*1*				**47**	*1*	*0*	*1*	*1*	*1*	*1*			
16	*0*	*1*	*0*	*0*	*0*	*0*				**48**	*1*	*1*	*0*	*0*	*0*	*0*			
17	*0*	*1*	*0*	*0*	*0*	*1*				**49**	*1*	*1*	*0*	*0*	*0*	*1*			
18	*0*	*1*	*0*	*0*	*1*	*0*				**50**	*1*	*1*	*0*	*0*	*1*	*0*			
19	*0*	*1*	*0*	*0*	*1*	*1*				**51**	*1*	*1*	*0*	*0*	*1*	*1*			
20	*0*	*1*	*0*	*1*	*0*	*0*				**52**	*1*	*1*	*0*	*1*	*0*	*0*			
21	*0*	*1*	*0*	*1*	*0*	*1*				**53**	*1*	*1*	*0*	*1*	*0*	*1*			
22	*0*	*1*	*0*	*1*	*1*	*0*				**54**	*1*	*1*	*0*	*1*	*1*	*0*			
23	*0*	*1*	*0*	*1*	*1*	*1*				**55**	*1*	*1*	*0*	*1*	*1*	*1*			
24	*0*	*1*	*1*	*0*	*0*	*0*				**56**	*1*	*1*	*1*	*0*	*0*	*0*			
25	*0*	*1*	*1*	*0*	*0*	*1*				**57**	*1*	*1*	*1*	*0*	*0*	*1*			
26	*0*	*1*	*1*	*0*	*1*	*0*				**58**	*1*	*1*	*1*	*0*	*1*	*0*			
27	*0*	*1*	*1*	*0*	*1*	*1*				**59**	*1*	*1*	*1*	*0*	*1*	*1*			
28	*0*	*1*	*1*	*1*	*0*	*0*				**60**	*1*	*1*	*1*	*1*	*0*	*0*			
29	*0*	*1*	*1*	*1*	*0*	*1*				**61**	*1*	*1*	*1*	*1*	*0*	*1*			
30	*0*	*1*	*1*	*1*	*1*	*0*				**62**	*1*	*1*	*1*	*1*	*1*	*0*			
31	*0*	*1*	*1*	*1*	*1*	*1*				**63**	*1*	*1*	*1*	*1*	*1*	*1*			
																Backup value			
																IO select (off:0 on:1)	0	[bool]	
																Fallback if connection to IO box is lost			