

# **PLA33CB and PLA33CMB**

**Modbus registers**

**FW version 6.7 and newer**

Measured parameters				
DESCRIPTION	NAME	ADDRESS	TYPE	UNIT
Voltage L1	"VOLT_L1"	100	float	V
Voltage L2	"VOLT_L2"	102	float	V
Voltage L3	"VOLT_L3"	104	float	V
Voltage L1-L2	"VOLT_L1_L2"	106	float	V
Voltage L2-L3	"VOLT_L2_L3"	108	float	V
Voltage L1-L3	"VOLT_L1_L3"	110	float	V
Voltage THDU L1	"VOLT_THDU_L1"	112	float	%
Voltage THDU L2	"VOLT_THDU_L2"	114	float	%
Voltage THDU L3	"VOLT_THDU_L3"	116	float	%
Current L1	"CURR_L1"	118	float	A
Current L2	"CURR_L2"	120	float	A
Current L3	"CURR_L3"	122	float	A
Current N	"CURR_NULL"	126	float	A
Current THDI L1	"CURR_THDI_L1"	130	float	%
Current THDI L2	"CURR_THDI_L2"	132	float	%
Current THDI L3	"CURR_THDI_L3"	134	float	%
Cosφ L1	"COS_L1"	136	float	
Cosφ L2	"COS_L2"	138	float	
Cosφ L3	"COS_L3"	140	float	
Power factor	"POWER_FACTOR"	144	float	
Frequency	"FREQUENCY"	150	float	Hz
Voltage 3.harmonic L1	"HARM_U3_L1"	154	float	%
Voltage 3.harmonic L2	"HARM_U3_L2"	156	float	%
Voltage 3.harmonic L3	"HARM_U3_L3"	158	float	%
Voltage 5.harmonic L1	"HARM_U5_L1"	160	float	%
Voltage 5.harmonic L2	"HARM_U5_L2"	162	float	%
Voltage 5.harmonic L3	"HARM_U5_L3"	164	float	%
Voltage 7.harmonic L1	"HARM_U7_L1"	166	float	%
Voltage 7.harmonic L2	"HARM_U7_L2"	168	float	%
Voltage 7.harmonic L3	"HARM_U7_L3"	170	float	%
Voltage 9.harmonic L1	"HARM_U9_L1"	172	float	%
Voltage 9.harmonic L2	"HARM_U9_L2"	174	float	%
Voltage 9.harmonic L3	"HARM_U9_L3"	176	float	%
Voltage 11.harmonic L1	"HARM_U11_L1"	178	float	%
Voltage 11.harmonic L2	"HARM_U11_L2"	180	float	%
Voltage 11.harmonic L3	"HARM_U11_L3"	182	float	%
Voltage 13.harmonic L1	"HARM_U13_L1"	184	float	%
Voltage 13.harmonic L2	"HARM_U13_L2"	186	float	%
Voltage 13.harmonic L3	"HARM_U13_L3"	188	float	%
Voltage 15.harmonic L1	"HARM_U15_L1"	190	float	%
Voltage 15.harmonic L2	"HARM_U15_L2"	192	float	%
Voltage 15.harmonic L3	"HARM_U15_L3"	194	float	%
Voltage 17.harmonic L1	"HARM_U17_L1"	196	float	%
Voltage 17.harmonic L2	"HARM_U17_L2"	198	float	%
Voltage 17.harmonic L3	"HARM_U17_L3"	200	float	%
Voltage 19.harmonic L1	"HARM_U19_L1"	202	float	%
Voltage 19.harmonic L2	"HARM_U19_L2"	204	float	%
Voltage 19.harmonic L3	"HARM_U19_L3"	206	float	%
Current 3.harmonic L1	"HARM_A3_L1"	208	float	%
Current 3.harmonic L2	"HARM_A3_L2"	210	float	%
Current 3.harmonic L3	"HARM_A3_L3"	212	float	%
Current 5.harmonic L1	"HARM_A5_L1"	214	float	%
Current 5.harmonic L2	"HARM_A5_L2"	216	float	%
Current 5.harmonic L3	"HARM_A5_L3"	218	float	%
Current 7.harmonic L1	"HARM_A7_L1"	220	float	%
Current 7.harmonic L2	"HARM_A7_L2"	222	float	%
Current 7.harmonic L3	"HARM_A7_L3"	224	float	%
Current 9.harmonic L1	"HARM_A9_L1"	226	float	%
Current 9.harmonic L2	"HARM_A9_L2"	228	float	%
Current 9.harmonic L3	"HARM_A9_L3"	230	float	%
Current 11.harmonic L1	"HARM_A11_L1"	232	float	%

Measured parameters				
DESCRIPTION	NAME	ADDRESS	TYPE	UNIT
Current 11.harmonic L2	"HARM_A11_L2"	234	float	%
Current 11.harmonic L3	"HARM_A11_L3"	236	float	%
Current 13.harmonic L1	"HARM_A13_L1"	238	float	%
Current 13.harmonic L2	"HARM_A13_L2"	240	float	%
Current 13.harmonic L3	"HARM_A13_L3"	242	float	%
Current 15.harmonic L1	"HARM_A15_L1"	244	float	%
Current 15.harmonic L2	"HARM_A15_L2"	246	float	%
Current 15.harmonic L3	"HARM_A15_L3"	248	float	%
Current 17.harmonic L1	"HARM_A17_L1"	250	float	%
Current 17.harmonic L2	"HARM_A17_L2"	252	float	%
Current 17.harmonic L3	"HARM_A17_L3"	254	float	%
Current 19.harmonic L1	"HARM_A19_L1"	256	float	%
Current 19.harmonic L2	"HARM_A19_L2"	258	float	%
Current 19.harmonic L3	"HARM_A19_L3"	260	float	%
Apparent power L1	"APPARENT_POWER_L1"	262	float	VA
Apparent power L2	"APPARENT_POWER_L2"	264	float	VA
Apparent power L3	"APPARENT_POWER_L3"	266	float	VA
Active power L1	"ACTIVE_POWER_L1"	268	float	W
Active power L2	"ACTIVE_POWER_L2"	270	float	W
Active power L3	"ACTIVE_POWER_L3"	272	float	W
Reactive L power L1	"REACT_POWER_CONSUMPT_L1"	274	float	Var
Reactive L power L2	"REACT_POWER_CONSUMPT_L2"	276	float	Var
Reactive L power L3	"REACT_POWER_CONSUMPT_L3"	278	float	Var
Reactive C power L1	"REACT_POWER_SUPPLY_L1"	280	float	Var
Reactive C power L2	"REACT_POWER_SUPPLY_L2"	282	float	Var
Reactive C power L3	"REACT_POWER_SUPPLY_L3"	284	float	Var
Total 3-phase apparent power	"TOTAL_APPARENT_POWER"	288	float	VA
Total 3-phase active power	"TOTAL_ACTIVE_POWER"	294	float	W
Total 3-phase reactive L power	"TOTAL_REACTIVE_CONSUMPT"	300	float	Var
Total 3-phase reactive C power	"TOTAL_REACTIVE_SUPPLY"	306	float	Var
Active energy consumption (+)	"ENERGY_ACTIVE_CONSUMPT"	310	float	kWh
Reactive L energy consumption (+)	"ENERGY_REACTIVE_CONSUMPT_L"	312	float	kVArh
Reactive C energy consumption (+)	"ENERGY_REACTIVE_CONSUMPT_C"	314	float	kVArh
Active energy distribution (-)	"ENERGY_ACTIVE_SUPPLY"	316	float	kWh
Reactive L energy distribution (-)	"ENERGY_REACTIVE_SUPPLY_L"	318	float	kVArh
Reactive C energy distribution (-)	"ENERGY_REACTIVE_SUPPLY_C"	320	float	kVArh

MAXima of measured parameters				
DESCRIPTION	NAME	ADDRESS	TYPE	UNIT
MAX voltage L1	"MAX_VOLT_L1"	400	float	V
MAX voltage L2	"MAX_VOLT_L2"	402	float	V
MAX voltage L3	"MAX_VOLT_L3"	404	float	V
MAX voltage L1-L2	"MAX_VOLT_L1_L2"	406	float	V
MAX voltage L2-L3	"MAX_VOLT_L2_L3"	408	float	V
MAX voltage L1-L3	"MAX_VOLT_L1_L3"	410	float	V
MAX voltage THDU L1	"MAX_VOLT_THDU_L1"	412	float	%
MAX voltage THDU L2	"MAX_VOLT_THDU_L2"	414	float	%
MAX voltage THDU L3	"MAX_VOLT_THDU_L3"	416	float	%
MAX current L1	"MAX_CURR_L1"	418	float	A
MAX current L2	"MAX_CURR_L2"	420	float	A
MAX current L3	"MAX_CURR_L3"	422	float	A
MAX current N	"MAX_CURR_NULL"	426	float	A
MAX current THDI L1	"MAX_CURR_THDI_L1"	430	float	%
MAX current THDI L2	"MAX_CURR_THDI_L2"	432	float	%
MAX current THDI L3	"MAX_CURR_THDI_L3"	434	float	%
MAX cosφ L1	"MAX_COS_L1"	436	float	
MAX cosφ L2	"MAX_COS_L2"	438	float	
MAX cosφ L3	"MAX_COS_L3"	440	float	
MAX power factor	"MAX_POWER_FACTOR"	444	float	
MAX frequency	"MAX_FREQUENCY"	450	float	Hz
MAX Voltage 3.harmonic L1	"MAX_HARM_U3_L1"	454	float	%

MAXima of measured parameters				
DESCRIPTION	NAME	ADDRESS	TYPE	UNIT
MAX Voltage 3.harmonic L2	"MAX_HARM_U3_L2"	456	float	%
MAX Voltage 3.harmonic L3	"MAX_HARM_U3_L3"	458	float	%
MAX Voltage 5.harmonic L1	"MAX_HARM_U5_L1"	460	float	%
MAX Voltage 5.harmonic L2	"MAX_HARM_U5_L2"	462	float	%
MAX Voltage 5.harmonic L3	"MAX_HARM_U5_L3"	464	float	%
MAX Voltage 7.harmonic L1	"MAX_HARM_U7_L1"	466	float	%
MAX Voltage 7.harmonic L2	"MAX_HARM_U7_L2"	468	float	%
MAX Voltage 7.harmonic L3	"MAX_HARM_U7_L3"	470	float	%
MAX Voltage 9.harmonic L1	"MAX_HARM_U9_L1"	472	float	%
MAX Voltage 9.harmonic L2	"MAX_HARM_U9_L2"	474	float	%
MAX Voltage 9.harmonic L3	"MAX_HARM_U9_L3"	476	float	%
MAX Voltage 11.harmonic L1	"MAX_HARM_U11_L1"	478	float	%
MAX Voltage 11.harmonic L2	"MAX_HARM_U11_L2"	480	float	%
MAX Voltage 11.harmonic L3	"MAX_HARM_U11_L3"	482	float	%
MAX Voltage 13.harmonic L1	"MAX_HARM_U13_L1"	484	float	%
MAX Voltage 13.harmonic L2	"MAX_HARM_U13_L2"	486	float	%
MAX Voltage 13.harmonic L3	"MAX_HARM_U13_L3"	488	float	%
MAX Voltage 15.harmonic L1	"MAX_HARM_U15_L1"	490	float	%
MAX Voltage 15.harmonic L2	"MAX_HARM_U15_L2"	492	float	%
MAX Voltage 15.harmonic L3	"MAX_HARM_U15_L3"	494	float	%
MAX Voltage 17.harmonic L1	"MAX_HARM_U17_L1"	496	float	%
MAX Voltage 17.harmonic L2	"MAX_HARM_U17_L2"	498	float	%
MAX Voltage 17.harmonic L3	"MAX_HARM_U17_L3"	500	float	%
MAX Voltage 19.harmonic L1	"MAX_HARM_U19_L1"	502	float	%
MAX Voltage 19.harmonic L2	"MAX_HARM_U19_L2"	504	float	%
MAX Voltage 19.harmonic L3	"MAX_HARM_U19_L3"	506	float	%
MAX Current 3.harmonic L1	"MAX_HARM_A3_L1"	508	float	%
MAX Current 3.harmonic L2	"MAX_HARM_A3_L2"	510	float	%
MAX Current 3.harmonic L3	"MAX_HARM_A3_L3"	512	float	%
MAX Current 5.harmonic L1	"MAX_HARM_A5_L1"	514	float	%
MAX Current 5.harmonic L2	"MAX_HARM_A5_L2"	516	float	%
MAX Current 5.harmonic L3	"MAX_HARM_A5_L3"	518	float	%
MAX Current 7.harmonic L1	"MAX_HARM_A7_L1"	520	float	%
MAX Current 7.harmonic L2	"MAX_HARM_A7_L2"	522	float	%
MAX Current 7.harmonic L3	"MAX_HARM_A7_L3"	524	float	%
MAX Current 9.harmonic L1	"MAX_HARM_A9_L1"	526	float	%
MAX Current 9.harmonic L2	"MAX_HARM_A9_L2"	528	float	%
MAX Current 9.harmonic L3	"MAX_HARM_A9_L3"	530	float	%
MAX Current 11.harmonic L1	"MAX_HARM_A11_L1"	532	float	%
MAX Current 11.harmonic L2	"MAX_HARM_A11_L2"	534	float	%
MAX Current 11.harmonic L3	"MAX_HARM_A11_L3"	536	float	%
MAX Current 13.harmonic L1	"MAX_HARM_A13_L1"	538	float	%
MAX Current 13.harmonic L2	"MAX_HARM_A13_L2"	540	float	%
MAX Current 13.harmonic L3	"MAX_HARM_A13_L3"	542	float	%
MAX Current 15.harmonic L1	"MAX_HARM_A15_L1"	544	float	%
MAX Current 15.harmonic L2	"MAX_HARM_A15_L2"	546	float	%
MAX Current 15.harmonic L3	"MAX_HARM_A15_L3"	548	float	%
MAX Current 17.harmonic L1	"MAX_HARM_A17_L1"	550	float	%
MAX Current 17.harmonic L2	"MAX_HARM_A17_L2"	552	float	%
MAX Current 17.harmonic L3	"MAX_HARM_A17_L3"	554	float	%
MAX current 19.harmonic L1	"MAX_HARM_A19_L1"	556	float	%
MAX current 19.harmonic L2	"MAX_HARM_A19_L2"	558	float	%
MAX current 19.harmonic L3	"MAX_HARM_A19_L3"	560	float	%
MAX apparent power L1	"MAX_APPARENT_POWER_L1"	562	float	VA
MAX apparent power L2	"MAX_APPARENT_POWER_L2"	564	float	VA
MAX apparent power L3	"MAX_APPARENT_POWER_L3"	566	float	VA
MAX Active power LL1	"MAX_ACTIVE_POWER_L1"	568	float	W
MAX Active power LL2	"MAX_ACTIVE_POWER_L2"	570	float	W
MAX Active power L3	"MAX_ACTIVE_POWER_L3"	572	float	W
MAX reactive L power L1	"MAX_REACT_POWER_CONSUMPT_L1"	574	float	Var
MAX reactive L power L2	"MAX_REACT_POWER_CONSUMPT_L2"	576	float	Var

**MAXima of measured parameters**

DESCRIPTION	NAME	ADDRESS	TYPE	UNIT
MAX reactive L power L3	"MAX_REACT_POWER_CONSUMPT_L3"	578	float	Var
MAX reactive power supply L1	"MAX_REACT_POWER_SUPPLY_L1"	580	float	Var
MAX reactive power supply L2	"MAX_REACT_POWER_SUPPLY_L2"	582	float	Var
MAX reactive power supply L3	"MAX_REACT_POWER_SUPPLY_L3"	584	float	Var
MAX 3-phase apparent power	"MAX_TOTAL_APPARENT_POWER"	588	float	VA
MAX 3-phase active power	"MAX_TOTAL_ACTIVE_POWER"	594	float	W
MAX 3-phase reactive power consumption	"MAX_TOTAL_REACTIVE_CONSUMPT"	600	float	Var
MAX 3-phase reactive power distribution	"MAX_TOTAL_REACTIVE_SUPPLY"	606	float	Var

**Minimums of measured parameters**

DESCRIPTION	NAME	ADDRESS	TYPE	UNIT
MIN voltage L1	"MIN_VOLT_L1"	610	float	V
MIN voltage L2	"MIN_VOLT_L2"	612	float	V
MIN voltage L3	"MIN_VOLT_L3"	614	float	V
MIN voltage L1-L2	"MIN_VOLT_L1_L2"	616	float	V
MIN voltage L2-L3	"MIN_VOLT_L2_L3"	618	float	V
MIN voltage L1-L3	"MIN_VOLT_L1_L3"	620	float	V

**Average values**

DESCRIPTION	NAME	ADDRESS	TYPE	UNIT
AVG voltage L1	"VOLT_L1"	622	float	V
AVG voltage L2	"VOLT_L2"	624	float	V
AVG voltage L3	"VOLT_L3"	626	float	V
AVG voltage L1-L2	"VOLT_L1_L2"	628	float	V
AVG voltage L2-L3	"VOLT_L2_L3"	630	float	V
AVG voltage L1-L3	"VOLT_L1_L3"	632	float	V
AVG voltage THDU L1	"VOLT_THDU_L1"	634	float	%
AVG voltage THDU L2	"VOLT_THDU_L2"	636	float	%
AVG voltage THDU L3	"VOLT_THDU_L3"	638	float	%
AVG current L1	"CURR_L1"	640	float	A
AVG current L2	"CURR_L2"	642	float	A
AVG current L3	"CURR_L3"	644	float	A
AVG current N	"CURR_NULL"	648	float	A
AVG current THDI L1	"CURR_THDI_L1"	652	float	%
AVG current THDI L2	"CURR_THDI_L2"	654	float	%
AVG current THDI L3	"CURR_THDI_L3"	656	float	%
AVG cosφ L1	"COS_L1"	658	float	
AVG cosφ L2	"COS_L2"	660	float	
AVG cosφ L3	"COS_L3"	662	float	
AVG power factor	"POWER_FACTOR"	666	float	
AVG frequency	"FREQUENCY"	672	float	Hz
AVG voltage 3.harmonic L1	"HARM_U3_L1"	676	float	%
AVG voltage 3.harmonic L2	"HARM_U3_L2"	678	float	%
AVG voltage 3.harmonic L3	"HARM_U3_L3"	680	float	%
AVG voltage 5.harmonic L1	"HARM_U5_L1"	682	float	%
AVG voltage 5.harmonic L2	"HARM_U5_L2"	684	float	%
AVG voltage 5.harmonic L3	"HARM_U5_L3"	686	float	%
AVG voltage 7.harmonic L1	"HARM_U7_L1"	688	float	%
AVG voltage 7.harmonic L2	"HARM_U7_L2"	690	float	%
AVG voltage 7.harmonic L3	"HARM_U7_L3"	692	float	%
AVG voltage 9.harmonic L1	"HARM_U9_L1"	694	float	%
AVG voltage 9.harmonic L2	"HARM_U9_L2"	696	float	%
AVG voltage 9.harmonic L3	"HARM_U9_L3"	698	float	%
AVG voltage 11.harmonic L1	"HARM_U11_L1"	700	float	%
AVG voltage 11.harmonic L2	"HARM_U11_L2"	702	float	%
AVG voltage 11.harmonic L3	"HARM_U11_L3"	704	float	%
AVG voltage 13.harmonic L1	"HARM_U13_L1"	706	float	%
AVG voltage 13.harmonic L2	"HARM_U13_L2"	708	float	%
AVG voltage 13.harmonic L3	"HARM_U13_L3"	710	float	%
AVG voltage 15.harmonic L1	"HARM_U15_L1"	712	float	%
AVG voltage 15.harmonic L2	"HARM_U15_L2"	714	float	%

Average values				
DESCRIPTION	NAME	ADDRESS	TYPE	UNIT
AVG voltage 15.harmonic L3	"HARM_U15_L3"	716	float	%
AVG voltage 17.harmonic L1	"HARM_U17_L1"	718	float	%
AVG voltage 17.harmonic L2	"HARM_U17_L2"	720	float	%
AVG voltage 17.harmonic L3	"HARM_U17_L3"	722	float	%
AVG voltage 19.harmonic L1	"HARM_U19_L1"	724	float	%
AVG voltage 19.harmonic L2	"HARM_U19_L2"	726	float	%
AVG voltage 19.harmonic L3	"HARM_U19_L3"	728	float	%
AVG current 3.harmonic L1	"HARM_A3_L1"	730	float	%
AVG current 3.harmonic L2	"HARM_A3_L2"	732	float	%
AVG current 3.harmonic L3	"HARM_A3_L3"	734	float	%
AVG current 5.harmonic L1	"HARM_A5_L1"	736	float	%
AVG current 5.harmonic L2	"HARM_A5_L2"	738	float	%
AVG current 5.harmonic L3	"HARM_A5_L3"	740	float	%
AVG current 7.harmonic L1	"HARM_A7_L1"	742	float	%
AVG current 7.harmonic L2	"HARM_A7_L2"	744	float	%
AVG current 7.harmonic L3	"HARM_A7_L3"	746	float	%
AVG current 9.harmonic L1	"HARM_A9_L1"	748	float	%
AVG current 9.harmonic L2	"HARM_A9_L2"	750	float	%
AVG current 9.harmonic L3	"HARM_A9_L3"	752	float	%
AVG current 11.harmonic L1	"HARM_A11_L1"	754	float	%
AVG current 11.harmonic L2	"HARM_A11_L2"	756	float	%
AVG current 11.harmonic L3	"HARM_A11_L3"	758	float	%
AVG current 13.harmonic L1	"HARM_A13_L1"	760	float	%
AVG current 13.harmonic L2	"HARM_A13_L2"	762	float	%
AVG current 13.harmonic L3	"HARM_A13_L3"	764	float	%
AVG current 15.harmonic L1	"HARM_A15_L1"	766	float	%
AVG current 15.harmonic L2	"HARM_A15_L2"	768	float	%
AVG current 15.harmonic L3	"HARM_A15_L3"	770	float	%
AVG current 17.harmonic L1	"HARM_A17_L1"	772	float	%
AVG current 17.harmonic L2	"HARM_A17_L2"	774	float	%
AVG current 17.harmonic L3	"HARM_A17_L3"	776	float	%
AVG current 19.harmonic L1	"HARM_A19_L1"	778	float	%
AVG current 19.harmonic L2	"HARM_A19_L2"	780	float	%
AVG current 19.harmonic L3	"HARM_A19_L3"	782	float	%
AVG apparent power L1	"APPARENT_POWER_L1"	784	float	VA
AVG apparent power L2	"APPARENT_POWER_L2"	786	float	VA
AVG apparent power L3	"APPARENT_POWER_L3"	788	float	VA
AVG active power L1	"ACTIVE_POWER_L1"	790	float	W
AVG active power L2	"ACTIVE_POWER_L2"	792	float	W
AVG active power L3	"ACTIVE_POWER_L3"	794	float	W
AVG reactive power consumption L1	"REACT_POWER_CONSUMPT_L1"	796	float	Var
AVG reactive power consumption L2	"REACT_POWER_CONSUMPT_L2"	798	float	Var
AVG reactive power consumption L3	"REACT_POWER_CONSUMPT_L3"	800	float	Var
AVG reactive power distribution L1	"REACT_POWER_SUPPLY_L1"	802	float	Var
AVG reactive power distribution L2	"REACT_POWER_SUPPLY_L2"	804	float	Var
AVG reactive power distribution L3	"REACT_POWER_SUPPLY_L3"	806	float	Var
AVG 3-phase apparent power	"TOTAL_APPARENT_POWER"	810	float	VA
AVG 3-phase active power	"TOTAL_ACTIVE_POWER"	816	float	W
AVG 3-phase reactive power consumption	"TOTAL_REACTIVE_CONSUMPT"	822	float	Var
AVG 3-phase reactive power distribution	"TOTAL_REACTIVE_SUPPLY"	828	float	Var

Maximum Average values				
DESCRIPTION	NAME	ADDRESS	TYPE	UNIT
MAX AVG voltage L1	"VOLT_L1"	840	float	V
MAX AVG voltage L2	"VOLT_L2"	842	float	V
MAX AVG voltage L3	"VOLT_L3"	844	float	V
MAX AVG voltage L1-L2	"VOLT_L1_L2"	846	float	V
MAX AVG voltage L2-L3	"VOLT_L2_L3"	848	float	V
MAX AVG voltage L1-L3	"VOLT_L1_L3"	850	float	V
MAX AVG voltage THDU L1	"VOLT_THDU_L1"	852	float	%
MAX AVG voltage THDU L2	"VOLT_THDU_L2"	854	float	%

Maximum Average values				
DESCRIPTION	NAME	ADDRESS	TYPE	UNIT
MAX AVG voltage THDU L3	"VOLT_THDU_L3"	856	float	%
MAX AVG current L1	"CURR_L1"	858	float	A
MAX AVG current L2	"CURR_L2"	860	float	A
MAX AVG current L3	"CURR_L3"	862	float	A
MAX AVG current N	"CURR_NULL"	864	float	A
MAX AVG current THDI L1	"CURR_THDI_L1"	866	float	%
MAX AVG current THDI L2	"CURR_THDI_L2"	868	float	%
MAX AVG current THDI L3	"CURR_THDI_L3"	870	float	%
MAX AVG cosφ L1	"COS_L1"	872	float	
MAX AVG cosφ L2	"COS_L2"	874	float	
MAX AVG cosφ L3	"COS_L3"	876	float	
MAX AVG power factor	"POWER_FACTOR"	878	float	
MAX AVG frequency	"FREQUENCY"	880	float	Hz
MAX AVG voltage 3.harmonic L1	"HARM_U3_L1"	882	float	%
MAX AVG voltage 3.harmonic L2	"HARM_U3_L2"	884	float	%
MAX AVG voltage 3.harmonic L3	"HARM_U3_L3"	886	float	%
MAX AVG voltage 5.harmonic L1	"HARM_U5_L1"	888	float	%
MAX AVG voltage 5.harmonic L2	"HARM_U5_L2"	890	float	%
MAX AVG voltage 5.harmonic L3	"HARM_U5_L3"	892	float	%
MAX AVG voltage 7.harmonic L1	"HARM_U7_L1"	894	float	%
MAX AVG voltage 7.harmonic L2	"HARM_U7_L2"	896	float	%
MAX AVG voltage 7.harmonic L3	"HARM_U7_L3"	898	float	%
MAX AVG voltage 9.harmonic L1	"HARM_U9_L1"	900	float	%
MAX AVG voltage 9.harmonic L2	"HARM_U9_L2"	902	float	%
MAX AVG voltage 9.harmonic L3	"HARM_U9_L3"	904	float	%
MAX AVG voltage 11.harmonic L1	"HARM_U11_L1"	906	float	%
MAX AVG voltage 11.harmonic L2	"HARM_U11_L2"	908	float	%
MAX AVG voltage 11.harmonic L3	"HARM_U11_L3"	910	float	%
MAX AVG voltage 13.harmonic L1	"HARM_U13_L1"	912	float	%
MAX AVG voltage 13.harmonic L2	"HARM_U13_L2"	914	float	%
MAX AVG voltage 13.harmonic L3	"HARM_U13_L3"	916	float	%
MAX AVG voltage 15.harmonic L1	"HARM_U15_L1"	918	float	%
MAX AVG voltage 15.harmonic L2	"HARM_U15_L2"	920	float	%
MAX AVG voltage 15.harmonic L3	"HARM_U15_L3"	922	float	%
MAX AVG voltage 17.harmonic L1	"HARM_U17_L1"	924	float	%
MAX AVG voltage 17.harmonic L2	"HARM_U17_L2"	926	float	%
MAX AVG voltage 17.harmonic L3	"HARM_U17_L3"	928	float	%
MAX AVG voltage 19.harmonic L1	"HARM_U19_L1"	930	float	%
MAX AVG voltage 19.harmonic L2	"HARM_U19_L2"	932	float	%
MAX AVG voltage 19.harmonic L3	"HARM_U19_L3"	934	float	%
MAX AVG current 3.harmonic L1	"HARM_A3_L1"	936	float	%
MAX AVG current 3.harmonic L2	"HARM_A3_L2"	938	float	%
MAX AVG current 3.harmonic L3	"HARM_A3_L3"	940	float	%
MAX AVG current 5.harmonic L1	"HARM_A5_L1"	942	float	%
MAX AVG current 5.harmonic L2	"HARM_A5_L2"	944	float	%
MAX AVG current 5.harmonic L3	"HARM_A5_L3"	946	float	%
MAX AVG current 7.harmonic L1	"HARM_A7_L1"	948	float	%
MAX AVG current 7.harmonic L2	"HARM_A7_L2"	950	float	%
MAX AVG current 7.harmonic L3	"HARM_A7_L3"	952	float	%
MAX AVG current 9.harmonic L1	"HARM_A9_L1"	954	float	%
MAX AVG current 9.harmonic L2	"HARM_A9_L2"	956	float	%
MAX AVG current 9.harmonic L3	"HARM_A9_L3"	958	float	%
MAX AVG current 11.harmonic L1	"HARM_A11_L1"	960	float	%
MAX AVG current 11.harmonic L2	"HARM_A11_L2"	962	float	%
MAX AVG current 11.harmonic L3	"HARM_A11_L3"	964	float	%
MAX AVG current 13.harmonic L1	"HARM_A13_L1"	966	float	%
MAX AVG current 13.harmonic L2	"HARM_A13_L2"	968	float	%
MAX AVG current 13.harmonic L3	"HARM_A13_L3"	970	float	%
MAX AVG current 15.harmonic L1	"HARM_A15_L1"	972	float	%
MAX AVG current 15.harmonic L2	"HARM_A15_L2"	974	float	%
MAX AVG current 15.harmonic L3	"HARM_A15_L3"	976	float	%

Maximum Average values				
DESCRIPTION	NAME	ADDRESS	TYPE	UNIT
MAX AVG current 17.harmonic L1	"HARM_A17_L1"	978	float	%
MAX AVG current 17.harmonic L2	"HARM_A17_L2"	980	float	%
MAX AVG current 17.harmonic L3	"HARM_A17_L3"	982	float	%
MAX AVG current 19.harmonic L1	"HARM_A19_L1"	984	float	%
MAX AVG current 19.harmonic L2	"HARM_A19_L2"	986	float	%
MAX AVG current 19.harmonic L3	"HARM_A19_L3"	988	float	%
MAX AVG apparent power L1	"APPARENT_POWER_L1"	990	float	VA
MAX AVG apparent power L2	"APPARENT_POWER_L2"	992	float	VA
MAX AVG apparent power L3	"APPARENT_POWER_L3"	994	float	VA
MAX AVG active power L1	"ACTIVE_POWER_L1"	996	float	W
MAX AVG active power L2	"ACTIVE_POWER_L2"	998	float	W
MAX AVG active power L3	"ACTIVE_POWER_L3"	1000	float	W
MAX AVG reactive power consumption L1	"REACT_POWER_CONSUMPT_L1"	1002	float	Var
MAX AVG reactive power consumption L2	"REACT_POWER_CONSUMPT_L2"	1004	float	Var
MAX AVG reactive power consumption L3	"REACT_POWER_CONSUMPT_L3"	1006	float	Var
MAX AVG reactive power distribution L1	"REACT_POWER_SUPPLY_L1"	1008	float	Var
MAX AVG reactive power distribution L2	"REACT_POWER_SUPPLY_L2"	1010	float	Var
MAX AVG reactive power distribution L3	"REACT_POWER_SUPPLY_L3"	1012	float	Var
MAX AVG 3-phase apparent power	"TOTAL_APPARENT_POWER"	1014	float	VA
MAX AVG 3-phase active power	"TOTAL_ACTIVE_POWER"	1016	float	W
MAX AVG 3-phase reactive power consumption	"TOTAL_REACTIVE_CONSUMPT"	1018	float	Var
MAX AVG 3-phase reactive power distribution	"TOTAL_REACTIVE_SUPPLY"	1020	float	Var

Minimum Average values				
DESCRIPTION	NAME	ADDRESS	TYPE	UNIT
MIN AVG voltage L1	"VOLT_L1"	1050	float	V
MIN AVG voltage L2	"VOLT_L2"	1052	float	V
MIN AVG voltage L3	"VOLT_L3"	1054	float	V
MIN AVG voltage L1-L2	"VOLT_L1_L2"	1056	float	V
MIN AVG voltage L2-L3	"VOLT_L2_L3"	1058	float	V
MIN AVG voltage L1-L3	"VOLT_L1_L3"	1060	float	V
MIN AVG voltage THDU L1	"VOLT_THDU_L1"	1062	float	%
MIN AVG voltage THDU L2	"VOLT_THDU_L2"	1064	float	%
MIN AVG voltage THDU L3	"VOLT_THDU_L3"	1066	float	%
MIN AVG current L1	"CURR_L1"	1068	float	A
MIN AVG current L2	"CURR_L2"	1070	float	A
MIN AVG current L3	"CURR_L3"	1072	float	A
MIN AVG current N	"CURR_NULL"	1074	float	A
MIN AVG current THDI L1	"CURR_THDI_L1"	1076	float	%
MIN AVG current THDI L2	"CURR_THDI_L2"	1078	float	%
MIN AVG current THDI L3	"CURR_THDI_L3"	1080	float	%
MIN AVG cosφ L1	"COS_L1"	1082	float	
MIN AVG cosφ L2	"COS_L2"	1084	float	
MIN AVG cosφ L3	"COS_L3"	1086	float	
MIN AVG power factor	"POWER_FACTOR"	1088	float	
MIN AVG frequency	"FREQUENCY"	1090	float	Hz
MIN AVG voltage 3.harmonic L1	"HARM_U3_L1"	1092	float	%
MIN AVG voltage 3.harmonic L2	"HARM_U3_L2"	1094	float	%
MIN AVG voltage 3.harmonic L3	"HARM_U3_L3"	1096	float	%
MIN AVG voltage 5.harmonic L1	"HARM_U5_L1"	1098	float	%
MIN AVG voltage 5.harmonic L2	"HARM_U5_L2"	1100	float	%
MIN AVG voltage 5.harmonic L3	"HARM_U5_L3"	1102	float	%
MIN AVG voltage 7.harmonic L1	"HARM_U7_L1"	1104	float	%
MIN AVG voltage 7.harmonic L2	"HARM_U7_L2"	1106	float	%
MIN AVG voltage 7.harmonic L3	"HARM_U7_L3"	1108	float	%
MIN AVG voltage 9.harmonic L1	"HARM_U9_L1"	1110	float	%
MIN AVG voltage 9.harmonic L2	"HARM_U9_L2"	1112	float	%
MIN AVG voltage 9.harmonic L3	"HARM_U9_L3"	1114	float	%
MIN AVG voltage 11.harmonic L1	"HARM_U11_L1"	1116	float	%
MIN AVG voltage 11.harmonic L2	"HARM_U11_L2"	1118	float	%
MIN AVG voltage 11.harmonic L3	"HARM_U11_L3"	1120	float	%



Minimum Average values				
DESCRIPTION	NAME	ADDRESS	TYPE	UNIT
MIN AVG voltage 13.harmonic L1	"HARM_U13_L1"	1122	float	%
MIN AVG voltage 13.harmonic L2	"HARM_U13_L2"	1124	float	%
MIN AVG voltage 13.harmonic L3	"HARM_U13_L3"	1126	float	%
MIN AVG voltage 15.harmonic L1	"HARM_U15_L1"	1128	float	%
MIN AVG voltage 15.harmonic L2	"HARM_U15_L2"	1130	float	%
MIN AVG voltage 15.harmonic L3	"HARM_U15_L3"	1132	float	%
MIN AVG voltage 17.harmonic L1	"HARM_U17_L1"	1134	float	%
MIN AVG voltage 17.harmonic L2	"HARM_U17_L2"	1136	float	%
MIN AVG voltage 17.harmonic L3	"HARM_U17_L3"	1138	float	%
MIN AVG voltage 19.harmonic L1	"HARM_U19_L1"	1140	float	%
MIN AVG voltage 19.harmonic L2	"HARM_U19_L2"	1142	float	%
MIN AVG voltage 19.harmonic L3	"HARM_U19_L3"	1144	float	%
MIN AVG current 3.harmonic L1	"HARM_A3_L1"	1146	float	%
MIN AVG current 3.harmonic L2	"HARM_A3_L2"	1148	float	%
MIN AVG current 3.harmonic L3	"HARM_A3_L3"	1150	float	%
MIN AVG current 5.harmonic L1	"HARM_A5_L1"	1152	float	%
MIN AVG current 5.harmonic L2	"HARM_A5_L2"	1154	float	%
MIN AVG current 5.harmonic L3	"HARM_A5_L3"	1156	float	%
MIN AVG current 7.harmonic L1	"HARM_A7_L1"	1158	float	%
MIN AVG current 7.harmonic L2	"HARM_A7_L2"	1160	float	%
MIN AVG current 7.harmonic L3	"HARM_A7_L3"	1162	float	%
MIN AVG current 9.harmonic L1	"HARM_A9_L1"	1164	float	%
MIN AVG current 9.harmonic L2	"HARM_A9_L2"	1166	float	%
MIN AVG current 9.harmonic L3	"HARM_A9_L3"	1168	float	%
MIN AVG current 11.harmonic L1	"HARM_A11_L1"	1170	float	%
MIN AVG current 11.harmonic L2	"HARM_A11_L2"	1172	float	%
MIN AVG current 11.harmonic L3	"HARM_A11_L3"	1174	float	%
MIN AVG current 13.harmonic L1	"HARM_A13_L1"	1176	float	%
MIN AVG current 13.harmonic L2	"HARM_A13_L2"	1178	float	%
MIN AVG current 13.harmonic L3	"HARM_A13_L3"	1180	float	%
MIN AVG current 15.harmonic L1	"HARM_A15_L1"	1182	float	%
MIN AVG current 15.harmonic L2	"HARM_A15_L2"	1184	float	%
MIN AVG current 15.harmonic L3	"HARM_A15_L3"	1186	float	%
MIN AVG current 17.harmonic L1	"HARM_A17_L1"	1188	float	%
MIN AVG current 17.harmonic L2	"HARM_A17_L2"	1190	float	%
MIN AVG current 17.harmonic L3	"HARM_A17_L3"	1192	float	%
MIN AVG current 19.harmonic L1	"HARM_A19_L1"	1194	float	%
MIN AVG current 19.harmonic L2	"HARM_A19_L2"	1196	float	%
MIN AVG current 19.harmonic L3	"HARM_A19_L3"	1198	float	%
MIN AVG apparent power L1	"APPARENT_POWER_L1"	1200	float	VA
MIN AVG apparent power L2	"APPARENT_POWER_L2"	1202	float	VA
MIN AVG apparent power L3	"APPARENT_POWER_L3"	1204	float	VA
MIN AVG active power L1	"ACTIVE_POWER_L1"	1206	float	W
MIN AVG active power L2	"ACTIVE_POWER_L2"	1208	float	W
MIN AVG active power L3	"ACTIVE_POWER_L3"	1210	float	W
MIN AVG reactive power consumption L1	"REACT_POWER_CONSUMPT_L1"	1212	float	Var
MIN AVG reactive power consumption L2	"REACT_POWER_CONSUMPT_L2"	1214	float	Var
MIN AVG reactive power consumption L3	"REACT_POWER_CONSUMPT_L3"	1216	float	Var
MIN AVG reactive power distribution L1	"REACT_POWER_SUPPLY_L1"	1218	float	Var
MIN AVG reactive power distribution L2	"REACT_POWER_SUPPLY_L2"	1220	float	Var
MIN AVG reactive power distribution L3	"REACT_POWER_SUPPLY_L3"	1222	float	Var
MIN AVG 3-phase apparent power	"TOTAL_APPARENT_POWER"	1224	float	VA
MIN AVG 3-phase active power	"TOTAL_ACTIVE_POWER"	1226	float	W
MIN AVG 3-phase reactive power consumption	"TOTAL_REACTIVE_CONSUMPT"	1228	float	Var
MIN AVG 3-phase reactive power distribution	"TOTAL_REACTIVE_SUPPLY"	1230	float	Var

**Other parameters – write only**

NAME	DESCRIPTION	ADDRESS	TYPE
Averaging time in minutes	1 – 60	834	integer
Averaging method	0 – fix , 1 – sliding	836	integer
Reset	10001 – working hours 14255 – Min/Max 30078 – Energy	838	

**Other parameters – read only**

NAME	DESCRIPTION	ADDRESS	TYPE
Working hours	minutes	832	float
Averaging time	1 – 60 minutes	834	float
Averaging method	0 – fix window, 1 – sliding window	836	float

**Output/Input status**

DESCRIPTION	NAME	ADDRESS	TYPE
Output status	set or read PLA33 outputs 0000 00xx: 1 <sup>st</sup> bit - output 2, 0 <sup>th</sup> bit – output 1	50	r/w

### Example request to PLA

Request to PLA [voltage phase 1]:

[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
1	3	0	100	0	2	133	212	

- [0] - ID RS485
- [1] - modbus function (supported function 03)
- [2] [3] - register address
- [4] [5] - number of registers
- [6] [7] - crc

Answer from PLA:

[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
1	3	4	67	101	224	34	54	113

- [0] - ID RS485
- [1] - modbus function
- [2] - number of returned bytes
- [3] [4] [5] [6] - float (4x bytes little endian: a[6], a+1[5], a+2[4], a+3[3] = 229.875519)
- [7] [8] - crc

CRC-16 table:

```
static const unsigned short crc16tab[] = /* CRC lookup table polynomial 0xA001 */
```

```
{
```

```
0x0000, 0xC0C1, 0xC181, 0x0140, 0xC301, 0x03C0, 0x0280, 0xC241, 0x0000, 0xC0C1, 0xC181, 0x0140,
0xC301, 0x03C0, 0x0280, 0xC241, 0xC601, 0x06C0, 0x0780, 0xC741, 0x0500, 0xC5C1, 0xC481, 0x0440,
0xC601, 0x06C0, 0x0780, 0xC741, 0x0500, 0xC5C1, 0xC481, 0x0440, 0xCC01, 0x0CC0, 0x0D80, 0xCD41,
0x0F00, 0xCFC1, 0xCE81, 0x0E40, 0xCC01, 0x0CC0, 0x0D80, 0xCD41, 0x0F00, 0xCFC1, 0xCE81, 0x0E40,
0x0A00, 0xCAC1, 0xCB81, 0x0B40, 0xC901, 0x09C0, 0x0880, 0xC841, 0x0A00, 0xCAC1, 0xCB81, 0x0B40,
0xC901, 0x09C0, 0x0880, 0xC841, 0xD801, 0x18C0, 0x1980, 0xD941, 0x1B00, 0x1BC1, 0xDA81, 0x1A40,
0xD801, 0x18C0, 0x1980, 0xD941, 0x1B00, 0x1BC1, 0xDA81, 0x1A40, 0x1E00, 0xDEC1, 0xDF81, 0x1F40,
0xDD01, 0x1DC0, 0x1C80, 0xDC41, 0x1E00, 0xDEC1, 0xDF81, 0x1F40, 0xDD01, 0x1DC0, 0x1C80, 0xDC41,
0x1400, 0xD4C1, 0xD581, 0x1540, 0xD701, 0x17C0, 0x1680, 0xD641, 0x1400, 0xD4C1, 0xD581, 0x1540,
0xD701, 0x17C0, 0x1680, 0xD641, 0xD201, 0x12C0, 0x1380, 0xD341, 0x1100, 0xD1C1, 0xD081, 0x1040,
0xD201, 0x12C0, 0x1380, 0xD341, 0x1100, 0xD1C1, 0xD081, 0x1040, 0xF001, 0x30C0, 0x3180, 0xF141,
0x3300, 0xF3C1, 0xF281, 0x3240, 0xF001, 0x30C0, 0x3180, 0xF141, 0x3300, 0xF3C1, 0xF281, 0x3240,
0x3600, 0xF6C1, 0xF781, 0x3740, 0xF501, 0x35C0, 0x3480, 0xF441, 0x3600, 0xF6C1, 0xF781, 0x3740,
0xF501, 0x35C0, 0x3480, 0xF441, 0x3C00, 0xFCC1, 0xFD81, 0x3D40, 0xFF01, 0x3FC0, 0x3E80, 0xFE41,
0x3C00, 0xFCC1, 0xFD81, 0x3D40, 0xFF01, 0x3FC0, 0x3E80, 0xFE41, 0xFA01, 0x3AC0, 0x3B80, 0xFB41,
0x3900, 0xF9C1, 0xF881, 0x3840, 0xFA01, 0x3AC0, 0x3B80, 0xFB41, 0x3900, 0xF9C1, 0xF881, 0x3840,
0x2800, 0xE8C1, 0xE981, 0x2940, 0xEB01, 0x2BC0, 0x2A80, 0xEA41, 0x2800, 0xE8C1, 0xE981, 0x2940,
0xEB01, 0x2BC0, 0x2A80, 0xEA41, 0xEE01, 0x2EC0, 0x2F80, 0xEF41, 0x2D00, 0xEDC1, 0xEC81, 0x2C40, 0xE401, 0x24C0, 0x2580, 0xE541,
0x2700, 0xE7C1, 0xE681, 0x2640, 0xE401, 0x24C0, 0x2580, 0xE541, 0x2700, 0xE7C1, 0xE681, 0x2640,
0x2200, 0xE2C1, 0xE381, 0x2340, 0xE101, 0x21C0, 0x2080, 0xE041, 0x2200, 0xE2C1, 0xE381, 0x2340,
0xE101, 0x21C0, 0x2080, 0xE041, 0x60C0, 0x6180, 0xA141, 0x6300, 0xA3C1, 0xA281, 0x6240, 0x6600, 0xA6C1, 0xA781, 0x6740,
0xA501, 0x65C0, 0x6480, 0xA441, 0x6600, 0xA6C1, 0xA781, 0x6740, 0xA501, 0x65C0, 0x6480, 0xA441,
0x6C00, 0xACC1, 0xAD81, 0x6D40, 0xAF01, 0x6FC0, 0x6E80, 0xAE41, 0x6C00, 0xACC1, 0xAD81, 0x6D40,
0xAF01, 0x6FC0, 0x6E80, 0xAE41, 0xAA01, 0x6AC0, 0x6B80, 0xAB41, 0x6900, 0xA9C1, 0xA881, 0x6840, 0x7800, 0xB8C1, 0xB981, 0x7940,
0xBB01, 0x7BC0, 0x7A80, 0xBA41, 0x7800, 0xB8C1, 0xB981, 0x7940, 0xBB01, 0x7BC0, 0x7A80, 0xBA41,
0xBE01, 0x7EC0, 0x7F80, 0xBF41, 0x7D00, 0xBDC1, 0xBC81, 0x7C40, 0xBE01, 0x7EC0, 0x7F80, 0xBF41,
0x7D00, 0xBDC1, 0xBC81, 0x7C40, 0xB401, 0x74C0, 0x7580, 0xB541, 0x7700, 0xB7C1, 0xB681, 0x7640,
0xB401, 0x74C0, 0x7580, 0xB541, 0x7700, 0xB7C1, 0xB681, 0x7640, 0x7200, 0xB2C1, 0xB381, 0x7340,
0xB101, 0x71C0, 0x7080, 0xB041, 0x7200, 0xB2C1, 0xB381, 0x7340, 0xB101, 0x71C0, 0x7080, 0xB041,
0x5000, 0x90C1, 0x9181, 0x5140, 0x9301, 0x53C0, 0x5280, 0x9241, 0x5000, 0x90C1, 0x9181, 0x5140,
0x9301, 0x53C0, 0x5280, 0x9241, 0x9601, 0x56C0, 0x5780, 0x9741, 0x5500, 0x95C1, 0x9481, 0x5440,
0x9601, 0x56C0, 0x5780, 0x9741, 0x5500, 0x95C1, 0x9481, 0x5440, 0x9C01, 0x5CC0, 0x5D80, 0x9D41,
0x5F00, 0x5FC1, 0x5E81, 0x5E40, 0x9C01, 0x5CC0, 0x5D80, 0x9D41, 0x5F00, 0x5FC1, 0x5E81, 0x5E40,
0x5A00, 0x9AC1, 0x9B81, 0x5B40, 0x9901, 0x59C0, 0x5880, 0x9841, 0x5A00, 0x9AC1, 0x9B81, 0x5B40,
0x9901, 0x59C0, 0x5880, 0x9841, 0x8801, 0x48C0, 0x4980, 0x8941, 0x4A00, 0x4B00, 0x8BC1, 0x8A81, 0x4A40,
0x8801, 0x48C0, 0x4980, 0x8941, 0x4B00, 0x8BC1, 0x8A81, 0x4A40, 0x4E00, 0x8EC1, 0x8F81, 0x4F40,
0x8D01, 0x4DC0, 0x4C80, 0x8C41, 0x4E00, 0x8EC1, 0x8F81, 0x4F40, 0x8D01, 0x4DC0, 0x4C80, 0x8C41,
0x4400, 0x84C1, 0x8581, 0x4540, 0x8701, 0x47C0, 0x4680, 0x8641, 0x4400, 0x84C1, 0x8581, 0x4540,
0x8701, 0x47C0, 0x4680, 0x8641, 0x8201, 0x42C0, 0x4380, 0x8341, 0x4100, 0x81C1, 0x8081, 0x4040
0x8201, 0x42C0, 0x4380, 0x8341, 0x4100, 0x81C1, 0x8081, 0x4040
```

```
};
```