

FY6600 Series Function Waveform Generator

Host Computer Communication Protocol Specification

Rev 1.5

Overview

The overall structure of control command using the command line, the baud rate of fixed value 115200bps, the command issued by PC, the execution machine analysis, each command marks the end to newline (sixteen hexadecimal representations for "0x0a"). The execution machine will reply 0x0a after command executed. The following is a detailed description of the different orders.

Communication Protocol Summary

	Writing Command	Command Line			Return	Reading Command	Command Line		Return	
		Code	Value	End Mark			Code	End Mark	Value	End Mark
Output	Set waveform of main wave	WMW	xxxxxxxx	0x0a	0x0a	Read waveform of main wave	RMW	0x0a	xxxxxxxx	0x0a
	Set frequency of main wave	WMF	xxxxxxxx	0x0a	0x0a	Read frequency of main wave	RMF	0x0a	xxxxxxxx	0x0a
	Set amplitude of main wave	WMA	xxxxxxxx	0x0a	0x0a	Read amplitude of main wave	RMA	0x0a	xxxxxxxx	0x0a
	Set offset of main wave	WMO	xxxxxxxx	0x0a	0x0a	Read offset of main wave	RMO	0x0a	xxxxxxxx	0x0a
	Set duty cycle of main wave	WMD	xxxxxxxx	0x0a	0x0a	Read duty cycle of main wave	RMD	0x0a	xxxxxxxx	0x0a
	Set phase of main wave	WMP	xxxxxxxx	0x0a	0x0a	Read phase of main wave	RMP	0x0a	xxxxxxxx	0x0a
	Set On/Off of main wave output	WMN	xxxxxxxx	0x0a	0x0a	Read On/Off of main wave output	RMN	0x0a	xxxxxxxx	0x0a
	Set waveform of auxiliary wave	WFW	xxxxxxxx	0x0a	0x0a	Read waveform of auxiliary wave	RFW	0x0a	xxxxxxxx	0x0a
	Set frequency of auxiliary wave	WFF	xxxxxxxx	0x0a	0x0a	Read frequency of auxiliary wave	RFF	0x0a	xxxxxxxx	0x0a
	Set amplitude of auxiliary wave	WFA	xxxxxxxx	0x0a	0x0a	Read amplitude of auxiliary wave	RFA	0x0a	xxxxxxxx	0x0a
	Set offset of auxiliary wave	WFO	xxxxxxxx	0x0a	0x0a	Read offset of auxiliary wave	RFO	0x0a	xxxxxxxx	0x0a
	Set duty cycle of auxiliary wave	WFD	xxxxxxxx	0x0a	0x0a	Read duty cycle of auxiliary wave	RFD	0x0a	xxxxxxxx	0x0a
	Set phase of auxiliary wave	WFP	xxxxxxxx	0x0a	0x0a	Read phase of auxiliary wave	RFP	0x0a	xxxxxxxx	0x0a
	Set On/Off of auxiliary wave output	WFN	xxxxxxxx	0x0a	0x0a	Read On/Off of auxiliary wave output	RFN	0x0a	xxxxxxxx	0x0a
Set trigger	WPM	xxxxxxxx	0x0a	0x0a	Read trigger	RPM	0x0a	xxxxxxxx	0x0a	

mode of main wave				
Set pulse amount triggered by main wave	WPN	xxxxxxxx	0x0a	0x0a
Set ASK mode of main wave	WTA	xxxxxxxx	0x0a	0x0a
Set FSK mode of main wave	WTF	xxxxxxxx	0x0a	0x0a
Set FSK secondary frequency of main wave	WFK	xxxxxxxx	0x0a	0x0a
Set PSK mode of main wave	WTP	xxxxxxxx	0x0a	0x0a

mode of main wave				
Read pulse amount triggered by main wave	RPN	0x0a	xxxxxxxx	0x0a
Read ASK mode of main wave	RTA	0x0a	xxxxxxxx	0x0a
Read FSK mode of main wave	RTF	0x0a	xxxxxxxx	0x0a
Read FSK secondary frequency of main wave	RFK	0x0a	xxxxxxxx	0x0a
Read PSK mode of main wave	RTP	0x0a	xxxxxxxx	0x0a

Measurement

Measurement

Set coupling mode	WCC	xxxxxxxx	0x0a	0x0a
Reset Counter	WCZ	xxxxxxxx	0x0a	0x0a
Pause the measurement	WCP	xxxxxxxx	0x0a	0x0a
Set gate time of measurement	WCG	xxxxxxxx	0x0a	0x0a

Read gate time of measurement	RCG	0x0a	xxxxxxxx	0x0a
Read frequency of external measurement	RCF	0x0a	xxxxxxxx	0x0a
Read external counting value	RCC	0x0a	xxxxxxxx	0x0a
Read external counting period	RCT	0x0a	xxxxxxxx	0x0a
Read positive pulse width of external measurement	RC+	0x0a	xxxxxxxx	0x0a
Read negative pulse width of external measurement	RC-	0x0a	xxxxxxxx	0x0a
Read duty cycle of	RCD	0x0a	xxxxxxxx	0x0a

						external measurement				
Sweep	Set sweep object	SOB	xxxxxxxx	0x0a	0x0a					
	Set start data of sweep	SST	xxxxxxxx	0x0a	0x0a					
	Set end data of sweep	SEN	xxxxxxxx	0x0a	0x0a					
	Set sweep time	STI	xxxxxxxx	0x0a	0x0a					
	Set sweep mode	SMO	xxxxxxxx	0x0a	0x0a					
	Set start-stop of sweep	SBE	xxxxxxxx	0x0a	0x0a					
	Set signal source of sweep	SXY	xxxxxxxx	0x0a	0x0a					
System Setting	Save parameters of current two channels	USN	xxxxxxxx	0x0a	0x0a					
	Load parameters from storage position	ULN	xxxxxxxx	0x0a	0x0a					
	Add synchronization mode	USA	xxxxxxxx	0x0a	0x0a	Read synchronization information	RSA	0x0a	xxxxxxxx	0x0a
	Cancel synchronization mode	USD	xxxxxxxx	0x0a	0x0a					
	Set buzzer on/off	UBZ	xxxxxxxx	0x0a	0x0a	Read buzzer status	RBZ	0x0a	xxxxxxxx	0x0a
	Set uplink mode	UMS	xxxxxxxx	0x0a	0x0a	Read uplink mode	RMS	0x0a	xxxxxxxx	0x0a
	Set local uplink status	UUL	xxxxxxxx	0x0a	0x0a	Read local uplink status	RUL	0x0a	xxxxxxxx	0x0a
						Read local ID	UID	0x0a	xxxxxxxx	0x0a
						Read local Model	UMO	0x0a	xxxxxxxx	0x0a

● Detailed description of each command

1、 Main waveform Parameter command

Set Main waveform Parameter :

1) WMW:set up main waveform form

Format:**WMW**xx+0x0a

Which "XX" represents the waveform of the 2 figures ,among:

WMW00 expressed as sine

WMW01 expressed as Rectangular

WMW02 expressed as Triangle/Square

WMW03 expressed as Rise Sawtooth

WMW04 expressed as Fall Sawtooth

WMW05 expressed as Step Triangle

WMW06 expressed as Positive Step

WMW07 expressed as Inverse Step

WMW08 expressed as Positive Exponent

WMW09 expressed as Inverse Exponent

WMW10 expressed as Positive Falling Exponent

WMW11 expressed as Inverse Falling Exponent

WMW12 expressed as Positive Logarithm

WMW13 expressed as Inverse Logarithm

WMW14 expressed as Positive Falling Logarithm

WMW15 expressed as Inverse Falling Logarithm

WMW16 expressed as Positive Half Wave

WMW17	expressed as Negative Half Wave
WMW18	expressed as Positive Half Wave Rectification
WMW19	expressed as Negative Half Wave Rectification
WMW20	expressed as Lorenz Pulse
WMW21	expressed as Multitone
WMW22	expressed as Noise
WMW23	expressed as Electrocardiogram (ECG)
WMW24	expressed as Trapezoidal Pulse
WMW25	expressed as Sinc Pulse
WMW26	expressed as Narrow Pulse
WMW27	expressed as Gauss White Noise
WMW28	expressed as AM
WMW29	expressed as FM
WMW30	expressed as Linear FM
WMW31	expressed as Arbitrary1
WMW32	expressed as Arbitrary2
.....	
WMW94	expressed as Arbitrary64

2) **WMF**: Set main waveform frequency

Format: **WMF**xxxxxxxxxxxx+0x0a

Which "xxxxxxxxxxxx" represents the frequency value of the 14 digits, the frequency value is fixed to uHz as a unit, for example

- ❖ **WMF**1000000000 indicates that the setting frequency is 100Hz
- ❖ **WMF**000123456 indicates that the setting frequency is 123.456mHz

❖ WMF000000001 indicates that the setting frequency is 1uHz.

3)WMA: To set the Amplitude of main waveform

Form as: WMA_{xx.xx}+ 0x0a

Above “xx.xx” shows the amplitude value needed. For example:

WMA12.35 means the amplitude is set to 12.35V.

WMA0.35 means the amplitude is set to 0.35V.

4)WMO: To set the Offset of main waveform

Form as: WMO_{xx.xx}+ 0x0a

Above “xx.xx” shows the offset value needed. For example:

WMO2.35 means the offset is set to 2.35V

WMO-2.35 means the offset is set to -2.35V

5)WMD: To set the Duty Cycle of main waveform

Form as: WMD_{xx.x}+ 0x0a

Above “xx.x” shows the duty cycle value represented by 3 digits. For example:

WMD50.1 means the duty cycle is set to 50.1%.

6)WMP: To set the Phase of main waveform

Form as: WMP_{xxx}+ 0x0a

Above “xxx” shows the phase value needed. For example:

WMP123.4 means the phase is set to 123.4.

WMP4.5 means the phase is set to 4.5°.

7)WMN: To set the On/Off status of main wave output.

Form as: WMNx+ 0x0a

Above “x” shows On/Off status. Fox example:

WMN0 means main wave output is set to Off.

WMN1 means main wave output is set to On.

8) WMS: To set pulse period of main wave pulse

Form as: WMS xxxx+ 0x0a

Above “xxxx” shows pulse period. Unit is nS. For example:

WMN10000 means pulse period is 10000 nS.

Read Main Wave information

1)RMW: Read waveform of main wave.

PC sends RMW + 0x0a ,

If the machine returns 000000001, it means the current waveform is Square.

Details as follows:

0	Sine Wave
1	Square Wave
2	Triangle/Ramp Wave
3	Rise Sawtooth Wave
4	Fall Sawtooth Wave
5	Step Triangle Wave

- 6 Positive Step Wave
- 7 Inverse Step Wave
- 8 Positive Exponent Wave
- 9 Inverse Exponent Wave
- 10 Positive Falling Exponent Wave
- 11 Inverse Falling Exponent Wave
- 12 Positive Logarithm Wave
- 13 Inverse Logarithm Wave
- 14 Positive Falling Logarithm Wave
- 15 Inverse Falling Logarithm Wave
- 16 Positive Half Wave
- 17 Negative Half Wave
- 18 Positive Half Wave Rectification
- 19 Negative Half Wave Rectification
- 20 Lorenz Pulse Wave
- 21 Multitone Wave
- 22 Random Noise Wave
- 23 Electrocardiogram (ECG) Wave
- 24 Trapezoidal Pulse Wave
- 25 Sinc Pulse Wave
- 26 Narrow Pulse Wave
- 27 Gauss White Noise Wave
- 28 AM Wave

29	FM Wave
30	Linear FM Wave
31	Arbitrary Waveform 1
32	Arbitrary Waveform 2
.....	
94	Arbitrary Waveform 64

2)RMF: Read frequency of main wave

PC sends RMF + 0x0a ,

If the machine returns 00010000.000000, it means the current frequency is 10KHz.

The unit of frequency is Hz.

3)RMA: Read the amplitude of main wave

PC sends RMA + 0x0a

If the instrument returns “00000010000”, it means the current amplitude is 10.000V

4)RMO: To read the offset of main waveform.

PC sends RMO + 0x0a ,

If the instrument returns “611”, it means the current offset is -0.389V.

If the instrument returns “16782”, it means the current offset is 6.782V.

(Calculating method instruction: If the return value is smaller than 10000, deduct 10000 from the return value. When the return value is bigger than 10000, deduct

10000 from the return value.)

5)RMD: To read the duty cycle of main waveform.

PC sends RMD + 0x0a ,

If the instrument returns 0000000689, it means the current duty cycle is 68.9%.

6)RMP: To read the phase of main waveform.

PC sends RMP + 0x0a ,

If the instrument returns 2189, it means the current phase is 218.9°.

(7) RMN: To read the output status: enabled or disabled.

PC sends RMN + 0x0a ,

If the instrument returns 0, it means the main waveform output is disabled.

If the instrument returns 255, it means the main waveform output is enabled.

8)RSS: To read the pulse period of main wave pulse.

Format as: RSS + 0x0a

If the machine returns 10000, it means the pulse period is 10000 nS.

2、Parameter command of subsidiary waveform

To set parameter of subsidiary waveform

(1)WFW: To set the type of subsidiary waveform

Form as : WFW xx+ 0x0a

Above “xx” represents the waveform type by 2 digits. i.e.:

WFW00	Set to be Sine Wave
WFW01	Set to be Square Wave
WFW02	Set to be Triangle/Ramp Wave
WFW03	Set to be Rise Sawtooth Wave
WFW04	Set to be Fall Sawtooth Wave
WFW05	Set to be Step Triangle Wave
WFW06	Set to be Positive Step Wave
WFW07	Set to be Inverse Step Wave
WFW08	Set to be Positive Exponent Wave
WFW09	Set to be Inverse Exponent Wave
WFW10	Set to be Positive Falling Exponent Wave
WFW11	Set to be Inverse Falling Exponent Wave
WFW12	Set to be Positive Logarithm Wave
WFW13	Set to be Inverse Logarithm Wave
WFW14	Set to be Positive Falling Logarithm Wave
WFW15	Set to be Inverse Falling Logarithm Wave
WFW16	Set to be Positive Half Wave
WFW17	Set to be Negative Half Wave
WFW18	Set to be Positive Half Wave Rectification
WFW19	Set to be Negative Half Wave Rectification
WFW20	Set to be Lorenz Pulse Wave
WFW21	Set to be Multitone Wave
WFW22	Set to be Random Noise Wave

WFW23	Set to be Electrocardiogram (ECG) Wave
WFW24	Set to be Trapezoidal Pulse Wave
WFW25	Set to be Sinc Pulse Wave
WFW26	Set to be Narrow Pulse Wave
WFW27	Set to be Gauss White Noise Wave
WFW28	Set to be AM Wave
WFW29	Set to be FM Wave
WFW30	Set to be Linear FM Wave
WFW31	Set to be Arbitrary Waveform 1
WFW32	Set to be Arbitrary Waveform 2
WFW33	Set to be Arbitrary Waveform 3
WFW34	Set to be Arbitrary Waveform 4
WFW35	Set to be Arbitrary Waveform 5
WFW36	Set to be Arbitrary Waveform 6
WFW37	Set to be Arbitrary Waveform 7
WFW38	Set to be Arbitrary Waveform 8
WFW39	Set to be Arbitrary Waveform 9
WFW40	Set to be Arbitrary Waveform 10
WFW41	Set to be Arbitrary Waveform 11
WFW42	Set to be Arbitrary Waveform 12
WFW43	Set to be Arbitrary Waveform 13
WFW44	Set to be Arbitrary Waveform 14
WFW45	Set to be Arbitrary Waveform 15

WFW46 Set to be Arbitrary Waveform 16

(2)WFF: To set the Frequency of subsidiary waveform

Form as: WFFxxxxxxxxxxxxxxxx + 0x0a

Above “xxxxxxxxxxxxxxxx” shows the frequency value represented by 14 digits.

The unit of frequency is fixed as uHz. For example:

WFF100000000 Means setting the frequency to 100Hz.

WFF000123456 Means setting the frequency to 0.123456Hz

WFF000000001 Means setting the frequency to 1uHz

(3)WFA: To set the Amplitude of subsidiary waveform

Form as: WFAxx.xx+ 0x0a

Above “xx.xx” shows the amplitude value needed. For example:

WFA12.351 means the amplitude is set to 12.351V.

WFA0.352 means the amplitude is set to 0.352V.

(4)WFO: To set the Offset of subsidiary waveform

Form as: WFO xx.xx+ 0x0a

Above “xx.xx” shows the offset value needed. For example:

WFO 2.351 means the offset is set to 2.351V

WFO -2.352 means the offset is set to -2.352V

(5)WFD: To set the Duty Cycle of subsidiary waveform

Form as: WFD $xx.x + 0x0a$

Above “xx.x” shows the duty cycle value represented by 3 digits. For example:

WFD50.1 means the duty cycle is set to 50.1%.

(6)WFP: To set the Phase of subsidiary waveform

Form as: WFP $xxx + 0x0a$

Above “xxx” shows the phase value needed. For example:

WFP142.3 means the phase is set to 142.3°.

WFP4.5 means the phase is set to 4.5°.

(8)WFN: To enable/disable subsidiary waveform output.

Form as: WFN $x + 0x0a$

Above “x” represents the status of enable/disable. For example:

WFN0 means the subsidiary waveform output is disabled.

WFN1 means the subsidiary waveform output is enabled.

Read the information of subsidiary waveform:

(1)RFW: To read the type of subsidiary waveform.

PC sends RFW + $0x0a$,

If the instrument returns “1”, it means the current waveform is Square Wave.

Details as follows:

0	Sine Wave
1	Square Wave

- 2 Triangle/Ramp Wave
- 3 Rise Sawtooth Wave
- 4 Fall Sawtooth Wave
- 5 Step Triangle Wave
- 6 Positive Step Wave
- 7 Inverse Step Wave
- 8 Positive Exponent Wave
- 9 Inverse Exponent Wave
- 10 Positive Falling Exponent Wave
- 11 Inverse Falling Exponent Wave
- 12 Positive Logarithm Wave
- 13 Inverse Logarithm Wave
- 14 Positive Falling Logarithm Wave
- 15 Inverse Falling Logarithm Wave
- 16 Positive Half Wave
- 17 Negative Half Wave
- 18 Positive Half Wave Rectification
- 19 Negative Half Wave Rectification
- 20 Lorenz Pulse Wave
- 21 Multitone Wave
- 22 Random Noise Wave
- 23 Electrocardiogram (ECG) Wave
- 24 Trapezoidal Pulse Wave

25	Sinc Pulse Wave
26	Narrow Pulse Wave
27	Gauss White Noise Wave
28	AM Wave
29	FM Wave
30	Linear FM Wave
31	Arbitrary Waveform 1
32	Arbitrary Waveform 2
33	Arbitrary Waveform 3
34	Arbitrary Waveform 4
35	Arbitrary Waveform 5
36	Arbitrary Waveform 6
37	Arbitrary Waveform 7
38	Arbitrary Waveform 8
39	Arbitrary Waveform 9
40	Arbitrary Waveform 10
41	Arbitrary Waveform 11
42	Arbitrary Waveform 12
43	Arbitrary Waveform 13
44	Arbitrary Waveform 14
45	Arbitrary Waveform 15
46	Arbitrary Waveform 16

(2)RFF: To read the frequency of subsidiary waveform.

PC sends RFF + 0x0a ,

If the instrument returns “00010000.000000” , it means the current frequency is 10KHz.

The unit of frequency value is Hz which is fixed.

(3)RFA: To read the amplitude of subsidiary waveform.

PC sends RFA + 0x0a ,

If the instrument returns “10000”, it means the current amplitude is 10.000V

(4)RFO: To read the offset of subsidiary waveform.

PC sends RFO + 0x0a ,

If the instrument returns “611”, it means the current offset is -0.389V.

If the instrument returns “16782”, it means the current offset is 6.782V.

(Calculating method instruction: If the return value is smaller than 10000, deduct 10000 from the return value. When the return value is bigger than 10000, deduct 10000 from the return value.)

(5)RFD: To read the duty cycle of subsidiary waveform.

PC sends RFD + 0x0a ,

If the instrument returns 689, it means the current duty cycle is 68.9%.

(6)RFP: To read the phase of subsidiary waveform

PC sends RFP + 0x0a ,

If the instrument returns 1289, it means the current phase is 128.9°.

(8)RFN: To read the subsidiary output status: enabled or disabled.

PC sends RFN + 0x0a ,

If the instrument returns 0000000000, it means the subsidiary waveform output is disabled.

If the instrument returns 0000000255, it means the subsidiary waveform output is enabled.

3、Modulation and Trigger

(1) WPM: To set the Trigger Mode of main waveform

Form as: WPM_x+ 0x0a

Above “x” presents the trigger mode needed. For example:

WPM0 means trigger is disabled.

WPM1 means the main waveform is triggered by subsidiary (CH2) waveform.

WPM2 means the main waveform is triggered by external signal inputted from Ext.In connector.

WPM3 means the main waveform is triggered manually. The main waveform is triggered one time each time the command is sent.

(2) WPN: To set the pulse numbers of main waveform when triggered.

Form as: WPN_{xxxxxxx}+ 0x0a

Above “xxxxxxx” shows the pulse numbers and can be set from 1 to 1048575. For example:

WPN10 means the main channel will output waveform with 10 cycles when triggered.

(3) WTA: Set ASK modulation mode of main wave

Form as: WTA x+ 0x0a

Above “x” shows the trigger mode needed. For example:

WPM0 means normal output without trigger.

WPM1 means modulation mode of external signal input.

WPM2 means manual modulation mode

(4) WTF: Set FSK modulation mode of main wave

Form as: WTF x+ 0x0a

Above “x” shows the trigger mode needed. For example:

WTF0 means normal output without trigger.

WTF1 means modulation mode of external signal input.

WTF2 means manual modulation mode

(5) WFK: Set secondary frequency of main wave FSK

Form as: WFK xxxxxxx.x+ 0x0a

Above “xxxxxxx.x” shows secondary frequency needed. For example:

WFK123.4 means the secondary frequency for FSK modulation is

123.4Hz.

(6) WTP: Set PSK modulation of main wave.

From as: WTP x+ 0x0a

Above “x” shows the trigger mode needed. For example:

WTP0 means normal output without trigger.

WTP1 means modulation mode of external signal input.

WTP2 means manual modulation mode

(7)RPM: Read trigger mode of main wave.

PC sends RPM + 0x0a ,

If the machine returns 000000002 , it means the current trigger mode is by external signa.

Details as below :

- 0 No trigger
- 1 Triggered by subsidiary wave.
- 2 Triggered by external signal and signals input from Ext. terminal.
- 3 Triggered by manual. Triggered one time by the command

(8)RPN: Read pulse No. triggered of main wave.

PC sends RPN + 0x0a ,

If the machine returns 0000000068, it means the pulse No. is 68.

(9) RTA: Read ASK mode

PC sends RTA + 0x0a ,

If the machine returns 0000000002 , it means the current modulation mode is manual.

Details as :

- 0 No trigger
- 1 Modulation mode of external signal.
- 2 Manual modulation mode

(10) RTF: Read FSK mode

PC sends RTF+ 0x0a ,

If the machine returns 0000000002 , it means the current modulation mode is manual.

Details as:

- 0 No trigger
- 1 Modulation mode of external signal.
- 2 Manual modulation mode

(11) RFK: Read FSK secondary frequency.

PC sends RFK + 0x0a ,

If the machine returns 0000002345 , it means the current secondary frequency is 234.5Hz.

(12) RTP: Read PSK mode

PC sends RTP + 0x0a ,

If the machine returns 000000002 , it means the current modulation mode is manual.

Details as:

- 0 No trigger
- 1 Modulation mode of external signal.
- 2 Manual modulation mode

4、 Measurement command

(1)RCF: Read frequency of external measurement

PC sends RCF + 0x0a ,

If the machine returns 0000000668 ,

When the gate time is 1s, the frequency result is 668Hz.

When the gate time is 10s, the frequency result is 66.8Hz.

When the gate time is 100s, the frequency result is 6.68Hz.

Note: Please read the gate time first before do this command to confirm the magnitude.

(2)RCC: Read external counting value.

PC sends RCC + 0x0a ,

If the machine returns 0000000668 , it means the value counted is 668.

(3)WCZ: Reset the counter.

Form as: WCZ_x+ 0x0a

Above “x” means the object of reset. For example:

WCZ0 means reset the counter.

(4)WCP: Pause the measurement.

Form as: WCP_x+ 0x0a

Above “x” means the object of pause. For example:

WCP0 means pause the counter.

(5)RCT: Read the external counting period.

PC sends RCT + 0x0a ,

If the machine returns 0000060668, it means the counting period is 60668ns.

(6)RC+: Read width of positive pulse of external measurement.

PC sends RC+ + 0x0a ,

If the machine returns 0000060668, it means the width of positive pulse is 60668ns.

(7)RC-: Read width of positive pulse of external measurement.

PC sends RC- + 0x0a ,

If the machine returns 0000060668, it means the width of negative pulse is 60668ns.

(8)RCD: Read the duty cycle of external measurement.

PC sends RCD + 0x0a ,

If the machine returns 0000000668, it means the duty cycle of external measurement is 66.8%.

(9)WCG: Set the gate time of measurement.

Form as: WCG x+ 0x0a

Above “x” means the gate time needed. For example:

WCG0 Means gate time is set to 1s

WCG1 Means gate time is set to 10s

WCG2 Means gate time is set to 100s

(10)RCG: Red the gate time of measurement.

PC sends RCT + 0x0a ,

If the machine returns 0000000000, It means the gate time is 1s.

Details as:

0 Means the gate time current is 1s.

1 Means the gate time current is 10s.

2 Means the gate time current is 100s.

(11)WCC: Set the coupling mode of measurement.

Form as: WCC x+ 0x0a

Above “x” is the coupling mode needed. For example:

WCC0 means set the coupling mode is set to DC coupling.

WCC1 means set the coupling mode is set to AC coupling.

5、 Sweep command

(1)SOB: Set the object of sweep.

Form as: SOB_x+ 0x0a

Above “x” is the object needed of sweep. For example:

SOB0 means set the frequency to be object.

SOB1 means set the amplitude to be object.

SOB2 means set the offset to be object.

SOB3 means set the duty cycle to be object.

(2)SST: Set the start position of sweep.

1、 When the sweep object is frequency, the unit is Hz.

Form as: SST_{xxxxxxx.x}+ 0x0a

For example:

SST1000.0 means the start frequency is 1000.0Hz

2、 When the sweep object is amplitude, the unit is V.

Form as: SST_{xx.xxx}+ 0x0a

For example:

SST10.001 means the start amplitude is 10.001V

3、 When the sweep object is offset, the unit is V.

Form as: SST_{xx.xxx}+ 0x0a

For example:

SST-6.000 means the start offset is -6.000V.

4、 When the sweep object is duty cycle, the unit is %.

Form as: SST_{xx.x}+ 0x0a

For example:

SST68.9 means the start duty cycle is 68.9%.

When the value input is higher than max value, the machine will keep the max value.

(3)SEN: Set the sweep end position.

1、 When the sweep object is frequency, the unit is Hz.

Form as: SEN_{xxxxxxxx.x}+ 0x0a

For example:

SEN1000.0 means the end frequency is 1000.0Hz.

2、 When the sweep object is amplitude, the unit is V.

Form as: SEN_{xx.xxx}+ 0x0a

For example:

SEN10.000 means the end amplitude is 10.000V.

3、 When the sweep object is offset, the unit is V.

Form as: SEN_{xx.xxx}+ 0x0a

For example

SEN-6.000 means the end offset is -6.000V

4、 When the sweep object is duty cycle, the unit is %.

Form as: SEN_{xx.x}+ 0x0a

For example:

SSN68.9 means the end duty cycle is 68.9%

Note: When the value input is higher than max value, the machine will keep the max value.

(4)STI: Set the sweep time

Form as: STIxxx.xx+ 0x0a

Above “xxx.xx” means the sweep time needed. For example:

STI68.9 means the sweep time is set to 68.9s

(6)SMO: Set the sweep mode

Form as: SMO x+ 0x0a

Above “x” is the sweep mode needed. For example:

SMO0 means the sweep mode is linear sweep.

SMO1 means the sweep mode is log sweep.

(7)SBE: Set the sweep on/off.

Form as: SBE_x+ 0x0a

Above “x” means the on/off status of sweep. For example:

SBE0 Set the sweep turned off.

SBE1 Set the sweep turned on.

(8)SXY: Set the control source of sweep.

Form as: SXY x+ 0x0a

Above “x” means the control source of sweep. For example:

SXY0 means the control source is time.

SXY1 means the control source is analog signal input from VCO IN terminal.

5、 System Setting command

(1)USN: Save the parameters of current two channels (Frequency, amplitude, offset, duty cycle, waveform and so on) to a certain position.

Form as: USN_{xx}+ 0x0a

Above “xx” means the saving position. For example:

USN06 means save current parameters to position 6.

USN01 means save current parameters to position 1.

Note: If the position 1 has data saved, the machine will load these data when start-up.

(2)ULN: Load the parameters of current two channels (Frequency, amplitude, offset, duty cycle, waveform and so on) from a certain position.

Form as: ULN_{xx}+ 0x0a

Above “xx” means the position needed to load. For example:

ULN06 means load parameters from position 6.

ULN01 means load parameters from position 1.

Note: If the position 1 has data saved, the machine will load these data when start-up. If the position needed to load doesn't have data saved, the machine will not load. It will maintain current parameters.

(3)USA: Add synchronization mode.

Form as: USA_x+ 0x0a

Above “x” means the synchronization object. For example:

USA0 means set the waveform of second channel synchronized with first channel.

USA1 means set the frequency of second channel synchronized with first channel.

USA2 means set the Amplitude of second channel synchronized with first channel.

USA3 means set the offset of second channel synchronized with first channel.

USA4 means set the duty cycle of second channel synchronized with first channel.

Note: Synchronization function is not available in sweep status.

(4)USD: Cancel synchronization mode

Form as: USD_x+ 0x0a

Above “x” means the synchronization object. For example:

USD0 means cancel the waveform of second channel synchronized with first channel.

USD1 means cancel the frequency of second channel synchronized with first channel.

USD2 means cancel the amplitude of second channel synchronized with first

channel.

USD3 means cancel the offset of second channel synchronized with first channel.

USD4 means cancel the duty cycle of second channel synchronized with first channel.

(5)RSA: Read synchronization information.

Form as: $RSA_x + 0x0a$

Above “x” means the synchronization object needs to read.

RSA0 means read the waveform synchronization information.

RSA1 means read the frequency synchronization information.

RSA2 means read the amplitude synchronization information.

RSA3 means read the offset synchronization information.

RSA4 means read the duty synchronization information.

If the machine returns 0, it means the object synchronization is disabled.

If the machine returns 255, it means the object synchronization is enabled.

For example: PC sends $RSA_2 + 0x0a$,

If the machine returns 0, it means the amplitude synchronization is disabled.

If the machine returns 255, it means the amplitude synchronization is disabled.

(5)UBZ: Set the buzzer on/off

Form as: $UBZ_x + 0x0a$

Above “x” means the on/off status of buzzer. For example:

UBZ0 means turn off the buzzer.

UBZ1 means turn on the buzzer.

(5)RBZ: Read the buzzer on/off status.

Form as: RBZ+ 0x0a

For example: PC sends RBZ+ 0x0a ,

If the machine returns 0, it means the buzzer is disabled.

If the machine returns 255, it means the buzzer is enabled.

(6) UMS: To set the uplink mode.

Form as: UMS_x+ 0x0a

Above “x” represents the uplink mode. For example:

UMS0 means setting the instrument as master machine.

UMS1 means setting the instrument as slave machine.

(6) RMS: To read the uplink mode.

Form as: RMS+ 0x0a

For example: PC sends RMS+ 0x0a ,

If the instrument returns 0, it means it is master machine in uplink.

If the instrument returns 255, it means it is slave machine in uplink.

(7) UUL: To turn on/off unlink function.

Form as: UML_x+ 0x0a

Above “x” represents the on/off status of uplink. For example:

UML0 means turning off the uplink function.

UML1 means turning on the uplink function.

(7) RUL: To read the uplink on/off status.

Form as: RUL+ 0x0a

For example: PC sends RUL+ 0x0a ,

If the instrument returns 0, it means the uplink function is in off status.

If the instrument returns 255, it means the uplink function is in on status.

(8) UID: To read the ID number of the instrument.

PC sends UID + 0x0a ,

The instrument returns its ID number.

(9) UMO: To read the model of the instrument.

PC sends UMO + 0x0a ,

The instrument returns its model.

NOTE: Feeltech reserves the right to modify all protocol without notice

Please download latest communication protocol from our website:

<http://www.feeltech.net/>