

100mJ Transceiver Co-Aperture Laser Rangefinder and Target Designator

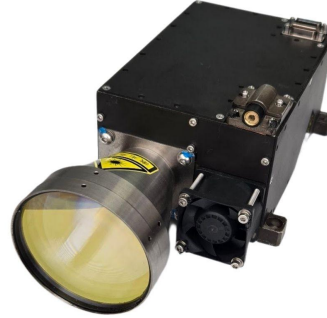
Model: **LR100K1**

PRODUCT DESCRIPTION

The 100mJ Transceiver Co-Aperture Laser Rangefinder and Target Designator is a high-performance optical device designed for precision targeting and range measurement applications. It features a laser pulse energy of 100mJ, providing excellent ranging and target designation capabilities.

other applications requiring high-precision distance measurement and target designation.

- **Beam Divergence:** ≤ 0.15 mrad, ensuring a narrow and focused beam for accurate targeting.
- **Weight:** Only 1600g, making it lightweight and easy to integrate into various platforms.
- **Laser Target Designation Cycle:** The laser operates with a working period of 90 seconds followed by a 60-second pause, with 4 cycles under ambient or low temperature conditions and 1 cycle under high temperature conditions.
- **Applications:** This laser rangefinder and target designator is widely used in aviation, ground-based illumination, and



MAIN INDEX PARAMETERS

Project	Parameters
Dimensions	$\leq 230 \times 130 \times 96$ mm
Weight(without cover)	≤ 1.5 kg
Wavelength	1064nm ± 1 nm
Pumping mode	Semiconductor side-pumping
Irradiation frequency	Fixed frequency 45ms~125ms(default 20Hz)
Trigger mode	Internal synchronized irradiation,external synchronized irradiation(Trigger delay:304.0us ± 0.1 us)
Output energy	≥ 100 mJ@20Hz
Maximum irradiation distance	≥ 12 km
Q switch	Optoelectronic Q switch
Pulse width	10ns to 20ns
Beam divergence	≤ 0.15 mrad(Acceptance method uses hole-fitting,the energy ratio before and after the hole is not less than 86.5%)
Energy instability	$\leq 8\%$ (RMS)
Laser irradiation cycle	Working 90s,pausing 60s;4 cycles(ambient temperature or low temperature);1 cycle(high temperature)
Power supply	DC 24V ± 4 V
Power consumption	< 60 W(Standby current at ambient temperature: < 0.2 A,peak working current < 5 A)
Communication serial port	RS422
External synchronization interface	3V differential logic level chip,RS422 interface(From external synchronization signal to light emission delay 304.0us ± 0.1 us)
Encoding mode	Precise frequency encoding,time encoding,pseudo-random encoding
Period precision	$< \pm 1$ us
Ranging Mode	Ranging Mode 0~25 Hz
Maximum Ranging Distance	Maximum Ranging Distance ≥ 30 km (45 km visibility, 4x6 m typical target, target reflectivity $> 20\%$)

ERDI ELECTRICAL PARAMETERS

1• Electrical connection interface consists of connectors J30J-21ZKP and J30J-04ZK. The interface definition is as follows:

Table 1 J30J-21ZKP Interface Definition

J30J-21ZKP				
Pin	Functionality	Description	Direction	Remarks
1	TX+	RS422 Tx+	Output	RS422 Communication Interface
2	TX-	RS422 Tx-	Output	
3	RX+	RS422 Rx+	Input	
4	RX-	RS422 Rx-	Input	
5	GND	RS422 Ground	GND	
6	EN+	Power Enable		24V Power Supply Enable Switch
7	EN-	Power Enable		
8-13		Empty		
14	A	External Sync Differential+(A)	Input	A,B are the A and B outputs of the differential chip(RS422 chip).
15	B	External Sync Differential-(B)	Input	
16-21		Empty		

Table 2 J30J-04ZK Interface Definition

J30J-04ZK				
Pin	Description	Direction	Remarks	Description
A、 B	24V	Power Supply	Input	Red
C、 D	GND	Ground	Input	Black

- Power Supply Interface:+24VDC±10%;
- External Trigger:RS422 differential signal;
- Heat Dissipation Mode:Cooling fan located at the front end of the device.

ERDI COMMUNICATION PROTOCOL

1.Physical Interface

- Communication Interface:RS422 full duplex;
- Communication Format:1 start bit,8 data bits,1 stop bit,no parity bit;
- Baud Rate:115200bps;
- Communication Format:Case insensitive.

2.Communication Messages

- Corresponding messages are sent through the computer.

3.Communication Format

- The communication format is as follows:

Frame Header	Data Length	Command Code	Data	Checksum
2 bytes	1 bytes	1 byte	N bytes	1 bytes

- Frame Header: The first byte is fixed at 0xEB, and the second byte is fixed at 0x90.
- Data Length: The number of bytes sent, including the length byte itself, excluding the frame header.
- Command Code: 1 byte.
- Data: The command data sent; if it is a 16-bit data, it is split into two bytes, with the most significant byte first and the least significant byte second.
- Checksum: The cumulative sum of the data (8 bits, excluding frame header and checksum), taken modulo 0xFF.

2. Control Commands

Table 1: Laser Control Commands

No.	Command	Explanation	Remarks
Byte1	0xEB	Frame Header 1	
Byte2	0x90	Frame Header 2	
Byte3	0x09	Data Length	Byte3~Byte11
Byte4	0X00	Stop Laser Ranging or Illumination	
	0X01	Single Ranging Start	
	0X02	1Hz Ranging Start	
	0X03	1-25Hz Ranging Start	
	0X04	External Synchronization Illumination Delay Setting	External Synchronization Illumination: The delay from when the laser receives an external synchronization signal to when it emits light.
	0X05	Internal/External Synchronization Illumination Start	
	0X06	Distance Gating Setting	(This time the power is on, it takes effect)
	0X07	Distance Gating Inquiry	
	0X08	Internal Synchronization Illumination Period Setting	(This time the power is on, it takes effect)
	0X09	Internal Synchronization Illumination Period Inquiry	
	0X0B	Internal/External Synchronization Illumination Switch	
	0X0C	LD Current Option Setting	Default LD Current 0 (Effective on this power-up)
	0X50	Q Delay, LD Pulse Width Setting	
	0X51	LD Current Setting	
	0X52	Q High Voltage Setting	
	0X53	APD High Voltage Setting	
	0X54	LD Parameter Inquiry	
	0X55	APD High Voltage Status Setting	Default Off (Receives Enable and Disable Commands)
	0X56	Q High Voltage Status Setting	Default On (Temporarily Unavailable)
	0X57	LD1 Power Supply Status Setting	Default On
0X59	Fan Start Temperature Point		
0X5F	Serial Port Upgrade Command		
0X60	Software Version Inquiry		

Byte5~10	Data1~6		
Byte11	Checksum		The sum of bytes from the 3rd to the 10th is taken modulo 0xFF.

Table:Explanation of Laser Control Command 1

The relationship between Byte 4 and the data 1 to 6 in Bytes 5 to Byte 10.

NUM	Byte4	Byte5~Byte10 Data1~6	Remarks
1	0X00	Data1~6 0X00	Laser Stop Ranging or Illumination
2	0X01、 0X02	Data1~6 0X00	Single Ranging, 1Hz Ranging
323	0X03	Data1 Distance Measurement Frequency Data2~6 0X00	Ranging Start Range: 1-25Hz (1LSB = 1Hz)
4	0X04	Data1 External Synchronization Light Emission Delay High Data2 External Synchronization Light Emission Delay Low Data3~6 0X00	External Synchronization Illumination:Laser Emission Delay After Receiving External Synchronization Signal Range:303.0-305.0(1LSB=0.1 microseconds) Default:304.0(1LSB=0.1 microseconds)
5	0X05	Data1~5 0X00 Data6 1. Internal Synchronization Illumination Encoding Number: 0X01:Fixed Frequency 0XF2:Time Coding 2. When using external synchronization,this value is fixed at 0X01.	Illumination Start
6	0X06	Data1 Distance Range Selection High-Short Range Data2 Distance Range Selection Low-Short Range Data3 Distance Range Selection High-Long Range Data4 Distance Range Selection Low-Long Range Data5~6 0X00	Distance Range Selection Setting Unit is in meters(Minimum measuring range is 300 meters,maximum measuring range is 50,000 meters).
7	0X07	Data1~6 0X00	Distance Range Selection Inquiry
8	0X08	Data1 Internal Synchronization Illumination Cycle-High Data2 Internal Synchronization Illumination Cycle-Medium Data3 Internal Synchronization Illumination Cycle-Low Data4 Internal Synchronization Illumination Working Duration Data5 Internal Synchronization Illumination Interval Duration Data6 Internal Synchronization Illumination Cycle Count	Internal Synchronization Illumination Cycle Setting Internal Synchronization Illumination Cycle T.Illumination cycle=(45,000us-125,000us)with the unit being microseconds;default:50,000us (20Hz). Unit S,Range 190,Default 90 Unit S,Range 1255,Default 40 Range 14,Default 1
9	0X09	Data1~5 0X00	Internal Synchronization Illumination Cycle Inquiry

		Data6	Synchronization Illumination Encoding Number: 0X01:Fixed Frequency 0XF2:Time coding	
10	0X0B	Data1	Internal Synchronization:0X00 External Synchronization:0X01	Switch Between Internal/External Synchronization Illumination
		Data2~6	0X00	
11	0X0C	Data1	LD Current Option 0:0X00 LD Current Option 1:0X01 LD Current Option 2:0X02 LD Current Option 3:0X03	LD Current Option Setting Default:LD Current Option 0
		Data2~6	0X00	
12	0X50 (Save)	Data1	Q Delay High	Laser Diode Q Delay and LD Pulse Width Setting Range:50-300 microseconds(1LSB=1 microsecond) Range:50-300 microseconds(1LSB=1 microsecond)
		Data2	Q Delay Low	
		Data3	LD Pulse Width High	
		Data4	LD Pulse Width Low	
		Data5~6	0X00	
13	0X51 (Save)	Data1	LD Current Option 0 Parameters	Range:0-140A(1LSB=1A)
		Data2	LD Current Option 1 Parameters	Range:0-140A(1LSB=1A)
		Data3	LD Current Option 2 Parameters	Range:0-140A(1LSB=1A)
		Data4	LD Current Option 3 Parameters	Range:0-140A(1LSB=1A)
		Data5~6	0X00	
14	0X52 (Save)	Data1	Q High Voltage-High	Range:2000-5000(1LSB=1V)
		Data2	Q High Voltage-Low	
		Data3~6	0X00	
15	0X53 (Save)	Data1	APD High Voltage-High	Range:40-450(1LSB=1V)
		Data2	APD High Voltage-Low	
		Data3~6	0X00	
16	0X54	Data1~6	0X00	LD Parameter Inquiry
17	0X55	Data1	0X01:On 0X00:Off	APD High Voltage State Setting
		Data2~6	0X00	
18	0X56	Data1	0X01:On 0X00:Off	Q High Voltage State Setting
		Data2~6	0X00	
19	0X57	Data1	0X01:On 0X00:Off	LD1 Power Supply State Setting
		Data2~6	0X00	
20	0X59 (Save)	Data1	Fan Start Temperature Point	Fan Start Temperature Point Setting Unit°C(Range 0-100)
		Data2	0X01: Set 0X00: Inquiry	When querying,Data1 is 0x00.
		Data3~6	0X00	
21	0X5F	Data1~6	0X5F	Serial Port Upgrade Command
22	0X60	Data1~6	0X00	Software Version Inquiry

Table:Laser Control Command 2

No.	Command	Explanation	Remarks	
Byte1	0XE8	Frame Header 1		
Byte2	0X90	Frame Header 2		
Byte3	0X14	Data Length	Byte3~Byte22	
Byte4	0X0A	Time Coding Setting	command	
Byte5	Data1	Time Code 1-High	Time Coding Range:40,000-60,000 microseconds,1LSB=1 microsecond Default Time Code value is 50,000 microseconds. The Time Code value is 16 bits,(high byte first, followed by the low byte).	
Byte6	Data2	Time Code 1-Low		1LSB=1us
Byte7	Data3	Time Code 2-High		Time Code 2
Byte8	Data4	Time Code 2-Low		1LSB=1us
Byte9	Data5	Time Code 3-High		Time Code 3
Byte10	Data6	Time Code 3-Low		1LSB=1us
Byte11	Data7	Time Code 4-High		Time Code 4
Byte12	Data8	Time Code 4-Low		1LSB=1us
Byte13	Data9	Time Code 5-High		Time Code 5
Byte14	Data10	Time Code 5-Low		1LSB=1us
Byte15	Data11	Time Code 6-High		Time Code 6
Byte16	Data12	Time Code 6-Low		1LSB=1us
Byte17	Data13	Time Code 7-High		Time Code 7
Byte18	Data14	Time Code 7-Low		1LSB=1us
Byte19	Data15	Time Code 8-High		Time Code 8
Byte20	Data16	Time Code 8-Low		1LSB=1us
Byte21	Data17	Time Code length	Time Code length Range:1-8(1LSB=1) Default: 1	
Byte22	Checksum		The sum of bytes 3 ~ 21,taken modulo 0XFF.	

Table:Laser Return Data

No.	Command	Explanation	Remarks
Byte1	0XE8	Frame Header 1	
Byte2	0X90	Frame Header 2	
Byte3	0X18	Data Length	Byte3~Byte26
Byte4	0X00	Laser Stop Ranging or Illumination	Rangefinder /Internal Trigger
	0X01	Single Ranging	
	0X02	1Hz Ranging	
	0X03	1-25Hz Ranging Start	1-25Hz
	0X04	External Synchronization Illumination Setting	
	0X05	Start of Internal/External Synchronization Illumination	
	0X06	Distance Range Selection Setting	
	0X07	Distance Range Selection Inquiry	
	0X08	Internal Synchronization Illumination Cycle Setting	
	0X09	Internal Synchronization Illumination Cycle Inquiry	
	0X0A	Time Code Setting	
	0X0B	Switch Between Internal/External Synchronization Illumination	
	0X0C	LD Current Option Setting	
	0X0D	1Hz Status Frame	Upload at a 1Hz frequency when not emitting

			light.
	0X50	Q Delay and LD Pulse Width Setting	
	0X51	LD Current Setting	
	0X52	Q High Voltage Setting	
	0X53	APD High Voltage Setting	
	0X54	LD Parameter Inquiry	
	0X55	APD High Voltage State Setting	
	0X56	Q High Voltage State Setting	
	0X57	LD1 Power Supply State Setting	
	0X59	Fan Start Temperature Point	
	0XEE	Receiving Data Exception	
	0XED	Setting Parameter Failure	
Byte5~21	Data1~17		
Byte22	Data18	Status Byte 1	
Byte23	Data19	Status Byte 2	
Byte24	Data20	Ambient Temperature	S8,1LSB=1°C
Byte25	Data21	LD Temperature	S8,1LSB=1°C
Byte26	Checksum		The sum of bytes from Byte 3 to Byte 25,taken modulo 0XFF.

Table:Explanation of Laser Return Data
The relationship between Byte 4 and Bytes 5 to 25.

NUM	Byte4	Byte5~Byte25 Data1~17	Remarks	
1	0X00	Data1~17	0X11	Laser Stop Ranging or Illumination
2	0X01、 0X02、 0X03、 0X05、	Data1	Distance 1 High	Single Ranging,1Hz Ranging,1-25Hz Ranging,and Internal/External Synchronization Illumination target distance values,unit:meters.
		Data2	Distance 1 Low	
		Data3	Distance 2 High	
		Data4	Distance 2 Low	
		Data5	Distance 3 High	
		Data6	Distance 3 Low	
		Data7~17	0X00	
3	0X04	Data1	External Synchronization Light Emission Delay High	External Synchronization Illumination:Laser Emission Delay After Receiving External Synchronization Signal Range:303.0-305.0(1LSB=0.1 microseconds) Default:304.0(1LSB=0.1 microseconds)
		Data2	External Synchronization Light Emission Delay Low	
		Data3~17	0X00	
4	0X06、 0X07	Data1	Distance Range Selection High-Short Range	Distance Range Selection Setting,Distance Range Selection Inquiry Distance Range Selection Setting Unit is in meters(Minimum measuring range is 300 meters,maximum measuring range is 50,000 meters).
		Data2	Distance Range Selection Low-Short Range	
		Data3	Distance Range Selection High-Long Range	
		Data4	Distance Range Selection Low-Long Range	
		Data5~17	0X00	
5	0X08、	Data1	Internal Synchronization Illumination Cycle-High	Internal Internal Synchronization

	0X09	Data2	Internal Synchronization Illumination Cycle-Medium	Synchronizat ion Illumination Cycle Setting	Illumination Cycle T.Illumination cycle=(45,000us- 125,000us)with the unit being microseconds;default:50,000u s(20Hz).	
		Data3	Internal Synchronization Illumination Cycle-Low			
		Data4	Internal Synchronization Illumination Working Duration			Unit S,Range 190,Default 90
		Data5	Internal Synchronization Illumination Interval Duration			Unit S,Range 1255,Default 40
		Data6	Internal Synchronization Illumination Cycle Count			Range 14,Default 1
		Data6-Data17	0X00			
6	0X0A	Data1	Time Code length	Time Code length	Range: 1-8(1LSB=1) Default:1	
		Data2	Time Code 1-High	Time Code 1 1LSB=1us	Length:8-bit Time Code quantity 1LSB=1 microsecond Range:40,000-60,000 microseconds Default:8 Time Codes with a value of 50,000 microseconds. Time Code value is 16 bits,with the high byte first and the low byte following.	
		Data3	Time Code 1-Low			
		Data4	Time Code 2-High	Time Code 2 1LSB=1us		
		Data5	Time Code 2-Low	Time Code 3 1LSB=1us		
		Data6	Time Code 3-High			
		Data7	Time Code 3-Low	Time Code 4 1LSB=1us		
		Data8	Time Code 4-High			
		Data9	Time Code 4-Low	Time Code 5 1LSB=1us		
		Data10	Time Code 5-High			
		Data11	Time Code 5-Low	Time Code 6 1LSB=1us		
		Data12	Time Code 6-High			
		Data13	Time Code 6-Low	Time Code 7 1LSB=1us		
		Data14	Time Code 7-High			
		Data15	Time Code 7-Low	Time Code 8 1LSB=1us		
Data16	Time Code 8-High					
Data17	Time Code 8-Low					
7	0X0B	Data1	Internal Synchronization:0X00 External Synchronization:0X01	Switch Between Internal/External Synchronization Illumination		
		Data2~17	0X00			
8	0X0C	Data1	LD Current Option 0:0X00 LD Current Option 1:0X01 LD Current Option 2:0X02 LD Current Option 3:0X03	LD Current Option Setting Default:LD Current Option 0		
		Data2~17	0X00			
9	0X0D (1Hz 上传)	Data1	External Synchronization Light Emission Delay High	External Synchronization Illumination:Laser Emission Delay After Receiving External Synchronization Signal Range:303.0-305.0(1LSB=0.1 microseconds) Default:304.0(1LSB=0.1 microseconds)		

		Data2	External Synchronization Light Emission Delay Low	
		Data3	Time Code length	Range: 1-8(1LSB=1) Default: 1
		Data4	Internal Synchronization Illumination Cycle-High	Internal Synchronization Illumination Cycle T.The illumination cycle is from 45,000 microseconds to 125,000 microseconds,with the unit being microseconds;the default is 50,000 microseconds(20Hz).
		Data5	Internal Synchronization Illumination Cycle-Medium	
		Data6	Internal Synchronization Illumination Cycle-Low	
		Data7	Distance Range Selection High-Short Range	
		Data8	Distance Range Selection Low-Short Range	Distance Range Selection Setting,Distance Range Selection Inquiry Distance Range Selection Setting Unit is in meters(Minimum measuring range is 300 meters,maximum measuring range is 50,000 meters).
		Data9	Distance Range Selection High-Long Range	
		Data10	Distance Range Selection Low-Long Range	
		Data11~17	0X00	
10	0X50	Data1	Q Delay High	Laser Q Delay and LD Pulse Width Setting/Inquiry Range:50-300 microseconds(1LSB=1 microsecond)
		Data2	Q Delay Low	
		Data3	LD Pulse Width High	Range:50-300 us(1LSB=1us)
		Data4	LD Pulse Width Low	
		Data5~17	0X00	
11	0X51	Data1	Set LD Current Option 0	Range:0-140A(1LSB=1A)
		Data2	Set LD Current Option 1	Range:0-140A(1LSB=1A)
		Data3	Set LD Current Option 2	Range:0-140A(1LSB=1A)
		Data4	Set LD Current Option 3	Range:0-140A(1LSB=1A)
		Data5~17	0X00	
12	0X52	Data1	Q High Voltage 1-High	Range:2000-5000(1LSB=1V)
		Data2	Q High Voltage 1-Low	
		Data3~17	0X00	
13	0X53	Data1	APD High Voltage-High	Range:40-450(1LSB=1V)
		Data2	APD High Voltage-Low	
		Data3~17	0X00	
14	0X54	Data1	Q Delay High	Range: 50-300us (1LSB=1us)
		Data2	Q Delay Low	
		Data3	LD Pulse Width High	Range: 50-300us (1LSB=1us)
		Data4	LD Pulse Width Low	
		Data5	LD Current Option 0	Range: 0-140A(1LSB=1A)
		Data6	LD Current Option 1	Range: 0-140A(1LSB=1A)
		Data7	LD Current Option 2	Range: 0-140A(1LSB=1A)
		Data8	LD Current Option 3	Range: 0-140A(1LSB=1A)
		Data9	Q High Voltage-High	Range: 2000-5000(1LSB=1V)
		Data10	Q High Voltage-Low	

		Data11	APD High Voltage-High	Range: 40-450(1LSB=1V)
		Data12	APD High Voltage-Low	
		Data13	External Synchronization Light Emission Delay High	External Synchronization Illumination:Laser Emission Delay After Receiving External Synchronization Signal Range:303.0-305.0(1LSB=0.1 microseconds) Default:304.0(1LSB=0.1 microseconds)
		Data14	External Synchronization Light Emission Delay Low	
		Data15	Fan Start Temperature Point	
		Data16~17	0X00	
15	0X55	Data1	0X01:On 0X00:Off	APD High Voltage State Setting
		Data2~17	0X00	
16	0X56	Data1	0X01:On 0X00:Off	Q High Voltage State Setting
		Data2~17	0X00	
17	0X57	Data1	0X01:On 0X00:Off	LD1 Power Supply State Setting
		Data2~17	0X00	
18	0X59	Data1	0X01:On 0X00:Off	Fan Start Temperature Point(Range 0-100)
		Data2~17	0X00	
19	0XEE	Data1~17	0XEE	Receiving Data Exception
20	0XED	Data1~17	0XED	Setting Parameter Failure

Status Byte 1

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Internal/External Synchronization Illumination 0:Internal 1:External	Standby/Prepare 0:Standby 1:Preparing	Temperature Sensor Status 0:Normal 1:Abnormal	Main Wave 0:Normal 1:Abnormal	APD High Voltage State 0:On 1:Off	APD 0:Normal 1:Abnormal	Ambient Temperature 0:Normal 1:Abnormal	LD Temperature 0:Normal 1:Abnormal(Over Temperature 70°C)

Status Byte 2

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Illumination Status 0:Not Emitting Light 1:Emitting Light	LD Current Status 0:Normal 1:Abnormal	LD1 Power Status 0:On 1:Off	X Default:0	X Default:0	X Default:0	LD Current Options LD Current Option 0:0x00 LD Current Option 1:0x01 LD Current Option 2:0x02 LD Current Option 3:0x03	

Automatic Transmission of Data at the End of Emission

Table:Communication in Automatic Mode

No.	Command	Explanation	Remarks
Byte1	0XE8	Frame Header 1	
Byte2	0X90	Frame Header 2	
Byte3	0X0B	Data Length	Byte3~Byte13
Byte4	0X00	Write Temperature Parameter Command	
	0X01	Read Temperature Parameter Command	Upload All Temperature Parameter Data
	0X02	Switch to Auto/Manual Mode Command	
	0X03	Query Current Temperature Parameter Command	
	0X04	Disable Over-Temperature 70°C Stop Emission Command	Stop Emission at Over-Temperature 70°C,Allow Emission at 60°C Recovery
Byte5~12	Data1~8		
Byte13	Checksum		The sum of bytes from the 3rd to the 11th,taken modulo 0xFF.

The Corresponding Relationship Between Byte4 and Bytes 5 ~ 12

NUM	Byte4	Byte5~Byte12 Data1~8		Remarks
1	0X00、 0X01	Data1	Temperature Sequence Number	
		Data2	Current	Range:0-140A(1LSB=1A)
		Data3	Q Delay High	Q Delay
		Data4	Q Delay Low	Range:50-300us(1LSB=1us)
		Data5	LD Pulse Width High	LD Pulse Width
		Data6	LD Pulse Width Low	Range:50-300us(1LSB=1us)
		Data7	Q High Voltage-High	Range: 2000-5000(1LSB=1V)
		Data8	Q High Voltage-Low	
2	0X02	Data1	Turn Off Auto:0x00 Turn On Auto:0x01	
		Data2-8		
3	0X03	Data1	Current	Range:0-140A(1LSB=1A)
		Data2	Q Delay High	Q Delay
		Data3	Q Delay Low	Range:50-300us(1LSB=1us)
		Data4	LD Pulse Width High	LD Pulse Width
		Data5	LD Pulse Width Low	Range:50-300us(1LSB=1us)
		Data6	Q High Voltage-High	Range: 2000-5000(1LSB=1V)
		Data7	Q High Voltage-Low	
		Data8	Current Temperature Point	Turn off Auto Mode,Constant-55
4	0X04	Data1-8	0X00	