

# JK DZ08 B x A24S Equalizer Communication Protocol

translated with the help of <https://www.deepl.com/en/translator>

## 1. Overview

JK DZ08 B x A24S Equalizer Single Board Electrical Interface, Data Grid for External Communication  
The following is a list of the contents of the device, such as mode, communication rate, etc.

## 2. Communication parameters

correspondence interface	CAN
baud rate	250kbps

## 3. C AN Bus Data Data Format

In.  
Only standard frames of the CAN bus are used during communication, no extension frames are used  
The arbitration field ID of the communication frame is used to bind the content of the entire communication frame.  
CAN  
Bus Extended Frame Arbitration Field ID total 11 Bit . The protocol provides for all high 7 bits to be zero and the low 4 bits to be to indicate the device address.

Arbitration Field	
Bit 10 : 4	Bit 3 : 0
0	equalizer adress

## 4. Communications processes (or Communications flow)

entire communication is done as a master-slave, with the master as the primary device and the equalizer as the slave. All of the general the letter can only be initiated by the master device and responded to from the device. During communication, define the first word of each frame of data.  
The bytes are data type indications and all data frames are high bytes before and low bytes after below  
The device address is 0 x01, for example, to illustrate the communication.

### 4.1 Request Equalizer Data

1) Host Send data

Addr.	data field	
	1	2 - 8
0x01	0xFF	-

2) Equalizer response

Addr	Data field							
	1	2	3	4	5	6	7	8
0x01	0x01	temperature (INT16)(°C)		total voltage (UINT16)(10mV)		average voltage (UINT16)(mV)		identify quantity
0x01	0x02	highest cell	lowest single cell	balanced with report to the police	largest volt. diff. (UINT16)(mV)		equalize current (UINT16)(mA)	
0x01	0x03	Trigger diff. voltage (UINT16)(mV)		max. balance current (UINT16)(mA)		balanced switch	number of cells	(leer)
0x01	0x04	x04 cell number	cell Voltage N (UINT16)(mV)		cell Voltage N+1 (UINT16)(mV)		cell Voltage N+2 (UINT16)(mV)	

Note 1. Equalization and alarm bytes B IT0 means equalized battery charge;  
BIT1 means equalized battery discharge; BIT4  
Note 2. The number of recognized cells is the actual identification string number of the equalizer, and the number of cells is the working string set by the equalizer  
Note 3. The cell number N is the number of the first cell voltage in the frame.

### 4.2 Setting the number of monolithic series (or: Setting the number of cells)

1) Host Send data

Addr.	data field		
	1	2	3 - 8
0x01	0xF0	cell quantity	-

## 2) Equalizer response

Addr.	data field		
	1	2	3 - 8
0x01	0xF1	cell quantity	-

Note 1. The number of monomers is in the range of 2 - 24. Out of range, the equalizer will not be recognized, and the current equalizer will be returned to internal parameters.

## 4.3 Setting the balanced trigger voltage difference

### 1) Host Send data

Addr.	data field			
	1	2	3	4 - 8
0x01	0xF2	trigg.diff.volt.(UINT16)(mV)		-

## 2) Equalizer response

Addr.	data field			
	1	2	3	4 - 8
0x01	0xF3	trigg.diff.volt.(UINT16)(mV)		-

Note 1. Equalization trigger The differential pressure range is 2 - 1000m V Out of range the equalizer will not recognize and return to internal parameters.

## 4.4 Setting the maximum equalizing current

### 1) Host Send data

Addr.	data field			
	1	2	3	4 - 8
0x01	0xF4	max.bal.curr.(UINT16)(mA)		-

## 2) Equalizer response

Addr.	data field			
	1	2	3	4 - 8
0x01	0xF5	max.bal.curr.(UINT16)(mA)		-

Note 1. The maximum equalization current range is 30 - 1000 mA. Out of range, the equalizer will not recognize and return to internal parameters.

## 4.5 Setting the balance switch

### 1) Host Send data

Addr.	data field			
	1	2	3	4 - 8
0x01	0xF6	balance switch		-

## 2) Equalizer response

Addr.	data field			
	1	2	3	4 - 8
0x01	0xF7	balance switch		-

Note 1. The setting range of the equalization switch is 0 1, 0 means turn off equalization; 1 means turn on equalization; the equalizer will not recognize other values and return to internal parameters.

## 5. Examples

### 5.1 Requesting equalizer data

序号	帧间隔时间 $\mu$ s	名称	帧ID	帧类型	帧格式	DLC	数据	帧数量
00000001	623.093.308	发送成功	001	DATA	STANDARD	1	FF	1
00000002	623.078.363	接收	001	DATA	STANDARD	8	01 00 15 1E D3 0F 69 14	1
00000003	000.000.262	接收	001	DATA	STANDARD	8	02 13 02 00 00 05 00 00	1
00000004	000.000.229	接收	001	DATA	STANDARD	7	03 03 E8 01 FF 00 14	1
00000005	000.009.116	接收	001	DATA	STANDARD	8	04 00 0F 69 0F 69 0F 67	1
00000006	000.000.236	接收	001	DATA	STANDARD	8	04 03 0F 69 0F 68 0F 67	1
00000007	000.000.258	接收	001	DATA	STANDARD	8	04 06 0F 68 0F 68 0F 6C	1
00000008	000.009.609	接收	001	DATA	STANDARD	8	04 09 0F 6A 0F 67 0F 68	1
00000009	000.000.235	接收	001	DATA	STANDARD	8	04 0C 0F 68 0F 69 0F 69	1
00000010	000.000.234	接收	001	DATA	STANDARD	8	04 0F 0F 69 0F 6A 0F 6B	1
00000011	000.009.632	接收	001	DATA	STANDARD	8	04 12 0F 6A 0F 6D 00 00	1
00000012	000.000.260	接收	001	DATA	STANDARD	8	04 15 00 00 00 00 00 00	1

host send:		ID: 01						
	Data:	0 xFF						
equalizer response		ID 01						
answer	Data:	01 00 15 1E D3 0F 69 14;	0x0015 0x1ED3 0x0F69 0x14	21 x 1°C = 21°C 7891 x 10mV = 78,91V 3995 x 1mV = 3,995V 20 x 1 = 20	temperature total voltage average voltage number of cells			
	Data:	02 13 02 00 00 05 00 00;	0x13 0x02 0x00  0x00  0x00  0x00  0x0005 0x0000	No. 19 No. 2 (0x00 & BIT0) = 0  (0x00 & BIT1) = 0  (0x00 & BIT4) = 0  (0x00 & BIT5) = 0  5 x 1mV = 5mV 0 x 1mA = 0mA	max. volt cell min. volt cell Equalization and alarm Unbalanced charging Equalization and alarm Unbalanced discharge Equalization and alarm Number of units set correctly Equalization and alarm Wire resistance is normal. max. differential voltage equalize current			
	Data:	03 03 E8 01 FF 00 14;	0x03E8 0x01FF 0x00  0x14	1000 x 1mV = 1V 511 x 1mA = 0,511A  20	balancing voltage difference maximum balance current Equalization Switch balancing off Set Number of cells			
	Data:	04 00 0F 69 0F 69 0F 67;	0x00 0x0F69 0x0F69 0x0F67	0 3945 x 1mV = 3,945V 3945 x 1mV = 3,945V 3943 x 1mV = 3,943V	start cell number voltage cell 0 voltage cell 1 voltage cell 2			
	Data:	04 03 0F 69 0F 68 0F 67;	0x03 0x0F69 0x0F68 0x0F67	3 3945 x 1mV = 3,945V 3944 x 1mV = 3,944V 3943 x 1mV = 3,943V	start cell number voltage cell 3 voltage cell 4 voltage cell 5			
	Data:	04 06 0F 68 0F 68 0F 6C;	0x0F6 0x0F68 0x0F68 0x0F6C	6 3944 x 1mV = 3,944V 3944 x 1mV = 3,944V 3948 x 1mV = 3,948V	start cell number voltage cell 6 voltage cell 7 voltage cell 8			

5.2 Setting the number of units

序号	帧间隔时间us	名称	帧ID	帧类型	帧格式	DLC	数据	帧数量
00000001	2231. 219. 316	发送成功	001	DATA	STANDARD	2	F0 10	1
00000002	2231. 207. 202	接收	001	DATA	STANDARD	2	F1 10	1
00000003	306. 305. 099	发送成功	001	DATA	STANDARD	2	F0 20	1
00000004	000. 000. 000	接收	001	DATA	STANDARD	2	F1 10	1

host send:		ID: 01						
	Data:	0xF0 0x10;					Set the number of cells to 16	
Equalizer response		ID: 01						
Response data:		F1 10	0x01	16			sending and receiving data are the same, set success	
host send:		ID: 01						
	Data:	0xF0 0x20;					Set the number of cess to 32 (out of range!)	
Equalizer response		ID: 01						
Response data:		F1 10	0x01	16			Send data not consistent to received data, setting fail	

5.3 Setting the equalization trigger differential voltage

序号	帧间隔时间 $\mu$ s	名称	帧ID	帧类型	帧格式	DLC	数据	帧数量
00000001	004.576.999	发送成功	001	DATA	STANDARD	3	F2 00 FF	1
00000002	000.000.000	接收	001	DATA	STANDARD	3	F3 00 FF	1
00000003	019.923.794	发送成功	001	DATA	STANDARD	3	F2 FF FF	1
00000004	000.000.000	接收	001	DATA	STANDARD	3	F3 00 FF	1

host send:		ID: 01						
	Data:	F2 00 FF;		0x00FF x 1mV = 255mV		Setting equalization trigger differentila voltage		
Equalizer response		ID: 01						
Response data:		F3 00 FF;		0x00FF x 1mV = 255mV		sending and receiving data consistent, set success		
host send:		ID: 01						
	Data:	F2 FF FF;		0xFFFF x 1mV = 65535mV		Data out of range		
Equalizer response		ID: 01						
Response data:		F2 00 FF;		0x00FF x 1mV = 255mV		Send data not consistent to received data, setting fail		

### 5.4 Setting maximum equalization current

序号	帧间隔时间 $\mu$ s	名称	帧ID	帧类型	帧格式	DLC	数据	帧数量
00000001	011.586.612	发送成功	001	DATA	STANDARD	3	F4 01 FF	1
00000002	011.594.656	接收	001	DATA	STANDARD	3	F5 01 FF	1
00000003	004.790.044	发送成功	001	DATA	STANDARD	3	F4 01 00	1
00000004	004.771.754	接收	001	DATA	STANDARD	3	F5 01 FF	1

host send:		ID: 01						
	Data:	F4 01 FF;		0x01FF x 1mA = 511mA		Setting maximum equalization current		
Equalizer response		ID: 01						
Response data:		F5 01 FF;		0x01FF x 1mA = 511mA		sending and receiving data consistent, set success		
host send:		ID: 01						
	Data:	F4 01 00;		0x0100 x 1mA = 256mA		Data out of range		
Equalizer response		ID: 01						
Response data:		F5 01 FF;		0x01FF x 1mA = 511mA				

### 5.5 Setting Equalization switch

序号	帧间隔时间 $\mu$ s	名称	帧ID	帧类型	帧格式	DLC	数据	帧数量
00000001	005.752.495	发送成功	001	DATA	STANDARD	2	F6 00	1
00000002	005.743.479	接收	001	DATA	STANDARD	2	F7 00	1
00000003	016.869.377	发送成功	001	DATA	STANDARD	2	F6 01	1
00000004	016.870.476	接收	001	DATA	STANDARD	2	F7 01	1
00000005	002.407.549	发送成功	001	DATA	STANDARD	2	F6 02	1
00000006	002.395.940	接收	001	DATA	STANDARD	2	F7 01	1

host send:		ID: 01						
	Data:	F6 01;		0x01		turn on equalization		
Equalizer response		ID: 01						
Response data:		F5 01 FF;		0x01		Balance on, send data, receive data in line, set success		
host send:		ID: 01						
	Data:	F6 02;				Data out of range		
Equalizer response		ID: 01						
Response data:		F7 01;		Equalisation = 1 (On)		Send data don't match received data, setting failed		