宽轨机车事件记录仪电源及信号说明
Instruction of event recorder power and signal for broad locomotive

一．电源 POWER

事件记录仪电源电压是 110V DC。低压柜内为事件记录仪预留了 2A 断路器和 110V 电源线，其中 110V 正线线号为 3177，110V 负线线号为 3179。

The voltage of event recorder is 110VDC。We reserve the 2A circuit breaker and 110V power line for event recorder in the low-voltage cabinet. The 110V positive power line number is 3177, and the 110V negative power line is 3179.

二．信号 SIGNAL

所有的信号需要集中在低压柜端子排 X8 上，信号清单及定义如下。

All of signals are gather to X8 terminal board in the low-voltage cabinet. Signals parameter list is shown as following.

1. 日期和时间：由事件记录仪提供。

Date and time: provided by ER.

2. 司机控制器档位(牵引工况)

Notches of master controller（traction zone）

0 位信号位于 X8 端子排 1 号点位，110V 高电平有效。

A 阀信号位于 X8 端子排 2 号点位，110V 高电平有效。

B 阀信号位于 X8 端子排 3 号点位，110V 高电平有效。

C 阀信号位于 X8 端子排 4 号点位，110V 高电平有效。

司机控制器档位与上述信号的逻辑关系如下表：

Zero position signal is located at No.1 point of X8 terminal board, 110V high level is valid.

A value signal is located at No.2 point of X8 terminal board, 110V high level is valid.

B value signal is located at No.3 point of X8 terminal board, 110V high level is valid.

C value signal is located at No.4 point of X8 terminal board, 110V high level is valid .

The relationship between the notches of master controller and the above signal is shown in the following table.

信号 signal	0 档 Notch 0	1 档 Notch 1	2 档 Notch 2	3 档 Notch 3	4 档 Notch 4	5 档 Notch 5	6 档 Notch 6	7 档 Notch 7	8 档 Notch 8
0 位 0 position	●								
A 阀 A value			●	●			●	●	
B 阀 B value				●	●	●	●		
C 阀 C value						●	●	●	●
注：●代表信号有效 Note: ● represents the signal is valid.									

3. 电控阀档位：由事件记录仪制造商与克诺尔联系。
Notches of EBV, in this project，the EBV cannot provide this signal。The event recorder manufacturer will inquire KNORR how they can detect the notch signal.

4. 紧急制动信号：位于 X8 端子排 5 号点位，110V 高电平有效。
Voluntary emergency brake signal is located at No.5 point of X8 terminal board, 110V high level is valid.

5. 列车管压力信号（4-20mA 模拟量信号）：
Pressure of brake pipe（4-20ma analog signal）
传感器电源输入位于 X8 端子排 6 号点位,供电范围为 12-25V DC，由事件记录仪提供。
传感器信号输出位于 X8 端子排 7 号点位，4-20mA 对应 0-1000 kPa。
传感器连线屏蔽层位于 X8 端子排 8 号点位。
Sensor power input supplied by the event recorder is located at No.6 point of X8 terminal board. Voltage range is 12-25V DC.
Sensor signal input is located at No.7 point of X8 terminal board. The 4-20mA signal corresponds with 0-1000 kPa.
Sensor wiring shield is located at No.8 point of X8 terminal board.

6. 制动缸压力信号（4-20mA 模拟量信号）：
Pressure of brake cylinder（4-20ma analog signal）
传感器电源输入位于 X8 端子排 9 号点位,供电范围为 12-25V DC，由事件记录仪提供。
传感器信号输出位于 X8 端子排 10 号点位，4-20mA 对应 0-1000 kPa。
传感器连线屏蔽层位于 X8 端子排 11 号点位。
Sensor power input supplied by the event recorder is located at No.9 point of X8 terminal board. Voltage range is 12-25V DC.
Sensor signal output is located at No.10 point of X8 terminal board. The 4-20mA signal corresponds with 0-1000 kPa.
Sensor wiring shield is located at No.11 point of X8 terminal board.

7. 电阻制动工况信号
Dynamic break signal
电阻制动信号位于 X8 端子排 13 号点位，110V 高电平有效。
Dynamic break signal is located at No.13 point of X8 terminal board, 110V high level is valid.

8. 机车速度信号（每转脉冲数 200）
Locomotive speed signal（200pulse per rotation）
传感器电源负端位于 X8 端子排 14 号点位，供电范围 12-30V DC，由事件记录仪提供。
传感器信号输出位于 X8 端子排 15 号点位，输出波形为方波，上升和下降时间均不大于 10μs。
传感器电源正端位于 X8 端子排 16 号点位，供电范围 12-30V DC，由事件记录仪提供。
传感器连线屏蔽层位于 X8 端子排 17 号点位。

Negative end of sensor power supplied by the event recorder is located at No.14 point of X8 terminal board. Voltage range is 12-30V DC.
Sensor signal output is located at No.15 point of X8 terminal board. The output waveform is square wave, and the rise and fall time are not more than 10 μ s.
Positive end of sensor power supplied by the event recorder is located at No.16 point of X8 terminal board. Voltage range is 12-30V DC.
Sensor wiring shield is located at No.17 point of X8 terminal board.

9. 方向信号(前进，中立，后退)
Reverser signal（forward, neutral, reverse）
方向信号取司机控制器方向手柄信号
前进信号位于 X8 端子排 18 号点位，110V 高电平有效。
后退信号位于 X8 端子排 19 号点位，110V 高电平有效。
司机控制器无法提供中立信号，需由事件记录器通过前进和后退信号进行判断。
Reverser signal is adopted from Master controller direction handle.
Forward signal is located at No.18 point of X8 terminal board, 110V high level is valid.
Reverse signal is located at No.19 point of X8 terminal board, 110V high level is valid.
Master controller can not supply neutral signal. Event recorder needs to judge neutral signal via forward signal and reverse signal.

10. 无人警惕踏板信号：位于 X8 端子排 20 号点位，110V 高电平有效。
Live-man pedal signal is located at No.20 point of X8 terminal board, 110V high level is valid.

11. 喇叭按钮信号：位于 X8 端子排 21 号点位，110V 高电平有效。
Application signal of horn is located at No.21 point of X8 terminal board, 110V high level is valid.

12. 头灯开关信号
Application signal of headlight
前头灯开关信号位于 X8 端子排 22 号点位,110V 高电平有效。
后头灯开关信号位于 X8 端子排 23 号点位,110V 高电平有效。
Application signal of front headlight is located at No.22 point of X8 terminal board, 110V high level is valid.
Application signal of back headlight is located at No.23 point of X8 terminal board, 110V high level is valid.

13. 无人警惕装置投切除信号：位于 X8 端子排 24 号点位,110V 高电平有效。
Cut off signal of live-man system is located at No.24 point of X8 terminal board, 110V high level is valid.