

上海德意达电子电器设备有限公司

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和全世界所有的铁路列车制造商及其系统供应商一样，我们一直致力于不断完善技术以确保产品的可靠性，安全性及经济性等性能；我们全面分析市场需求，为客户提供完善且经济的解决方案。

Alike rail vehicle operators and their system suppliers all over the world,Shanghai DEUTA turns to the extensive know-how to secure the performance, reliability, safety and economy of their modern transport technologies. shanghai DEUTA analyzes overall needs and enables the development and implementation of powerful, economical complete solutions which precisely meet our client's requirement.

本资料综合地描述了多种技术可能性，不一定适用于每一个具体业务。客户需在签订合同前确认所需求的功能特性。

the information in this document contains general descriptions of various technical possibilities which may not always be available in every individual case. the required features must therefore be defined in every case before signing of the contract.



上海德意达
Shanghai DEUTA



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公司简介

上海德意达电子电器设备有限公司是中德合资企业，由德国德意达集团和上海铁路通信有限公司于1994年合资创办，致力于国内外铁路及城市轨道交通车载设备的引进、开发、生产和服务。

德国德意达公司始建于1905年，是世界知名的专业生产铁路及城市轨道交通车载设备的公司，产品销往八十多个国家，现改制为德国德意达集团。上海铁路通信工厂是中国铁路通信信号集团公司成员，原隶属于中国铁道部，现归属国资委。建厂于1906年，2010年改制为上海铁路通信有限公司，历年来为中国铁路生产了大量通信、信号设备和机车仪表产品。

上海德意达公司拥有完整的产供销、研发以及服务体系，并建立了精益生产模式，于1999年通过了德国TÜV CERT莱茵公司的ISO9002质量认证并于2003年升级到ISO9001:2000版，于2006年1月通过了德国TÜV CERT莱茵公司的ISO14001:2004环境体系认证。在2009年6月通过了德国TÜV CERT莱茵公司的IRIS 01国际铁路工业标准体系认证。上海德意达公司自1994年10月投产以来，迄今为止已向中国铁路提供了大量速度传感器、双针速度表及其它车载电子产品，同时也为中国的出口机车装备了大量的机车运行记录器等产品。上海德意达一直致力于以国际领先的技术和服务，使公众享受轨道交通带来的安全、舒适和便捷。

Established by Shanghai Railway Communication Equipment Factory (SRCEF) and DEUTA Group in Germany, Shanghai DEUTA Electronic & Electrical Equipment Co. Ltd. is a Joint Venture enterprise which devotes itself to introducing & developing and manufacturing on-board equipment for railway and urban rail transport as well as supplying services at home and abroad.

DEUTA-Werke GmbH, founded in 1905, specialize in manufacturing on-board equipment used in railway and urban rail transport in Germany. Its products are sold to more than 80 countries all over the world. SRCEF, founded in 1906, is one member of China Railway Communication & Signal Group Corp. which is originally subordinated to the Ministry of Railways. Now it is subordinated to China Capital Commission. It has been manufacturing a large quantity of communication & signal equipments and locomotive instruments.

Shanghai DEUTA not only integrates complete manufacturing, research & development, sales & after-sales system but also adopts lean production model. In 1999, Shanghai DEUTA passed ISO 9002 quality system certificate of TÜV Rheinland and updated to the version of ISO9001:2000 in 2003. Moreover, in Jan. 2006, the company passed ISO14001:2004 environmental system certificate of TÜV Rheinland. On June 2009, Shanghai Deuta passed IRIS 01 authorized by TÜV CERT. Began its production since Oct.1994, Shanghai DEUTA has been providing lots of sensors and indicators and on-board electronic devices for China railways up to now. At the same time, the company also has been supplying the Chinese export locomotives large numbers of locomotive event recorders and other products. With advanced technology and service, Shanghai DEUTA enables the public to enjoy safety, comfort, and convenience that railway and mass transport provides.

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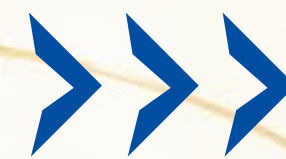
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传感器系列



DF16 光电传感器

DF16 Photoelectric Sensor

传感器 / sensors

DF16 光电传感器产品简介

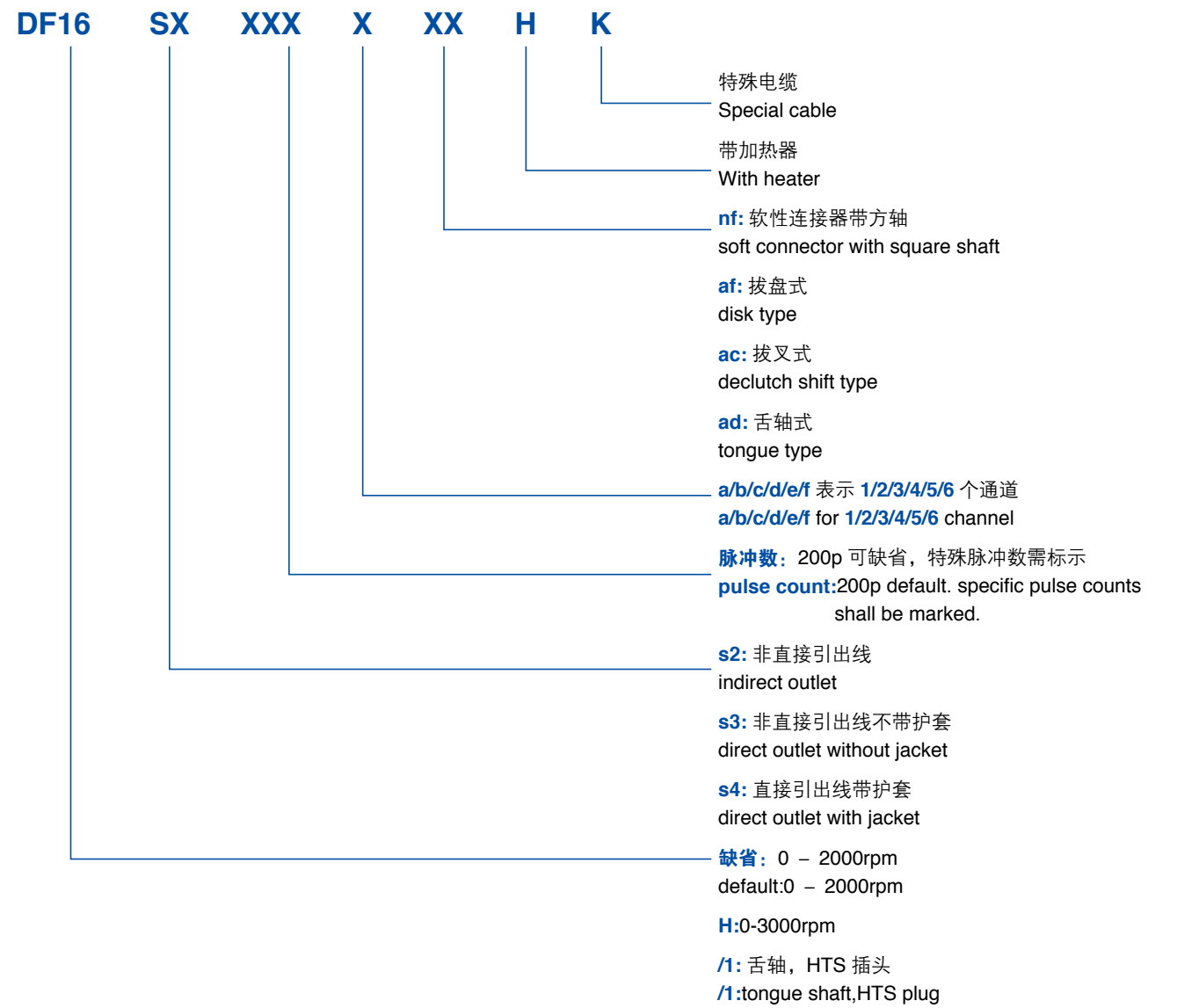
DF16 Photoelectric Sensor

DF16 光电传感器是上海德意达设计和高精度测速测距设备，通过光电模块扫描光栅内、外轨道，输出和光栅栅格一致的方波信号，根据光电模块安装位置不同，速传可以输出两种不同脉冲数的方波信号，速传最多输出 6 通道方波信号，信号提供系统检测机车运行方向、行驶速度、加速度、空转及打滑。

Designed and produced by Shanghai DEUTA Electronic & Electrical Equipment Co., Ltd, DF16 photoelectric sensor is a high precision speed and range device that scans internal and external grating orbit with photovoltaic module and outputs square signal consistent with the grid. For different module installation positions, the sensor outputs two square signals of different pulse counts and up to 6 channels signals. The signal system tests locomotive running direction, speed, acceleration, idle running and slipping.

产品型号定义

Models



方轴速传 DF16S4b(d)nf

测速范围:	0 – 2500rpm
每转脉冲数:	外轨道 200P/R、内轨道 80P/R
输出通道数:	单、双、三、四
输出波形:	方波
输出幅度:	高电平≥ 9V, (负载电阻≥ 3KΩ) , 低电平≤ 2V
脉冲占空比:	50% ± 20%
脉冲相位差:	90° ± 45° (双、四) 出轴顺时针旋转 120° ± 60° (三) 出轴顺时针旋转
工作电源:	DC12 ~ 30V
功耗电流:	≤ 40mA (每通道)
短路保护:	具有输出短路保护功能
耐压:	1500V 50Hz, 1min (通道对外壳) 500V 50Hz, 1min (各通道间)
工作温度:	– 40℃ ~ 70℃
耐振性能:	振动 30g, 冲击 200g(DIN40046)
密封性:	能承受雨、雪、风、沙 (IP66, 非安装面)
重量:	3Kg
传动方式:	方轴传动

Speed range:	0 – 2500rpm
Pulses per revolution:	Outside the orbit 200 P/R,Inside the orbit 80 P/R
Working principle :	1 to 4 channels
Signals shape:	square wave
Signal amplitude:	U _{out} high ≥ 9V (loaded resistance3KΩ) ,U _{out} low ≤ 2V
Pulse duty factor:	50% ± 20%
Phase shift:	90° ± 45° (2 channel or 4 channel output); 120° ± 60° (3 channel output) for clockwise direction of rotation, see from the drive side
Supply voltage:	DC12 ~ 30V
Current consumption:	≤ 40mA (each channel)
Overload protection:	yes
insulation:	1500V 1min (between channels and housing) 500V 1min(between channels)
Operation Temperature:	– 40℃ ~ 70℃
Vibration and Shock:	Vibration 30 g,shock 200g (DIN40056)
Housing protection:	IP66
Weight :	3Kg
Drive type:	nf,shaft coupling

舌轴速传 DF16/1.200b(f)adk

	测速范围:	0 ~ 2500rpm
	每转脉冲数:	外轨 200P/R
	输出通道数:	双、三、四、六
	输出波形:	方波
	输出幅度:	高电平≥ Ub-3V , 低电平≤ 2V
	脉冲占空比:	50% ± 10%
	脉冲相位差:	90° ± 45° 面向出轴顺时针旋转
	工作电源:	DC12 ~ 30V
	功耗电流:	≤ 40mA (每通道)
	短路保护:	具有极性、过热、输出短路等保护
	耐压:	1500V 50Hz, 1min (通道对外壳) 500V 50Hz, 1min (各通道间 , 共电源线的除外)
	工作温度:	- 40℃ ~ 70℃
	耐振性能:	振动 30g, 冲击 200g(DIN40046)
	密封性:	能承受雨、雪、风、沙 (IP66, 非安装面)
	重量:	约 3.5Kg
	传动方式:	舌轴

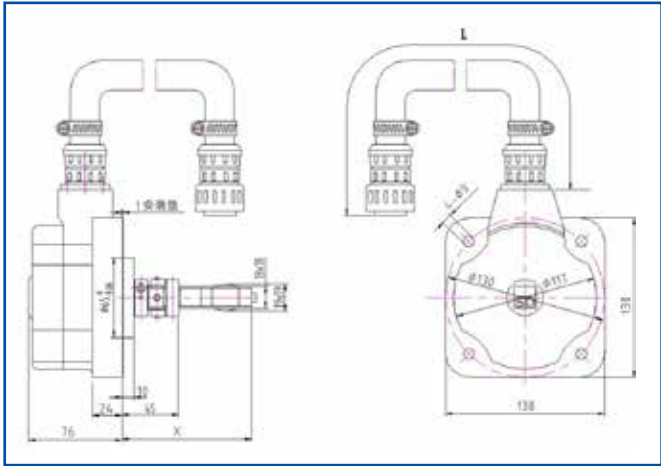
	Speed range:	0 – 2500rpm
	Pulses per revolution:	200P/R
	Working principle :	2-6 channels
	Signals shape:	square wave
	Signal amplitude:	U _{out} high ≥ Ub-3V , U _{out} low ≤ 2V
	Pulse duty factor:	50% ± 10%
	Phase shift:	90° ± 45° for clockwise direction of rotation, see from the drive side
	Supply voltage:	DC12 ~ 30V
	Current consumption:	≤ 40mA (each channel)
	Overload protection:	yes
	insulation:	1500V 1min (between channels and housing) 500V 1min(between channels)
	Operation Temperature:	- 40℃ ~ 70℃
	Vibration and Shock:	Vibration 30 g,shock 200g (DIN40056)
	Housing protection:	IP66
	Weight :	approx.3.5kg
	Drive type:	ad , tongue coupling

拨叉速传 DF16 S4b(d)ac

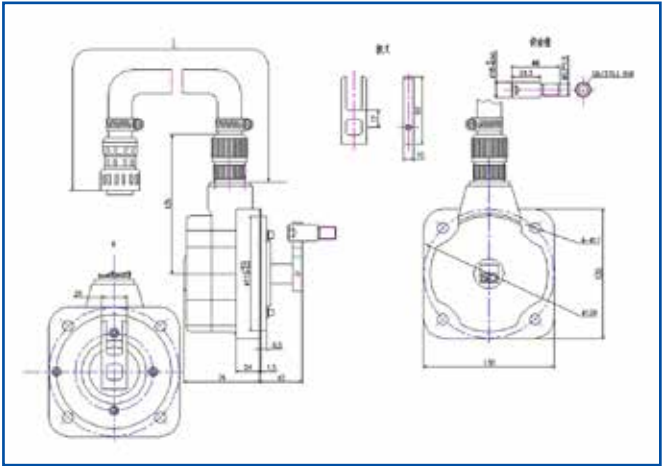
	测速范围:	0 – 2500rpm
	每转脉冲数:	外轨道 200P/R、内轨道 80P/R
	输出通道数:	单、双、三、四
	输出波形:	方波
	输出幅度:	高电平≥ 9V, (负载电阻 3KΩ) , 低电平≤ 2V
	脉冲占空比:	50% ± 20%
	脉冲相位差:	90° ± 45° (双、四) 出轴顺时针旋转 120° ± 60° (三) 出轴顺时针旋转
	工作电源:	DC12 ~ 30V
	功耗电流:	≤ 40mA (每通道)
	短路保护:	具有输出短路保护功能
	耐压:	1500V 50Hz, 1min (通道对外壳) 500V 50Hz, 1min (各通道间)
	工作温度:	- 40℃ ~ 70℃
	耐振性能:	振动 30g, 冲击 200g(DIN40046)
	密封性:	能承受雨、雪、风、沙 (IP66, 非安装面)
	重量:	3Kg
	传动方式:	拨叉

	Speed range:	0 – 2500rpm
	Pulses per revolution:	Outside the orbit 200 p/R,Inside the orbit 80 P/R
	Working principle :	1 to 4 channels
	Signals shape:	square wave
	Signal amplitude:	U _{out} high ≥ 9V (loaded resistance3KΩ) , U _{out} low ≤ 2V
	Pulse duty factor:	50% ± 20%
	Phase shift:	90° ± 45° (2 channel or 4 channel output) 120 ° ± 60 ° (3 channel output) for clockwise direction of rotation, see from the drive side
	Supply voltage:	DC12 ~ 30V
	Current consumption:	≤ 40mA (each channel)
	Overload protection:	yes
	Channel insulation:	1500V 1min (between channels and housing) 500V 1min(between channels)
	Operation Temperature:	- 40℃ ~ 70℃
	Vibration and Shock:	vibration 30 g,shock 200g (DIN40056)
	Housing protection:	IP66
	Weight :	3Kg
	Drive type:	ac,drive fork

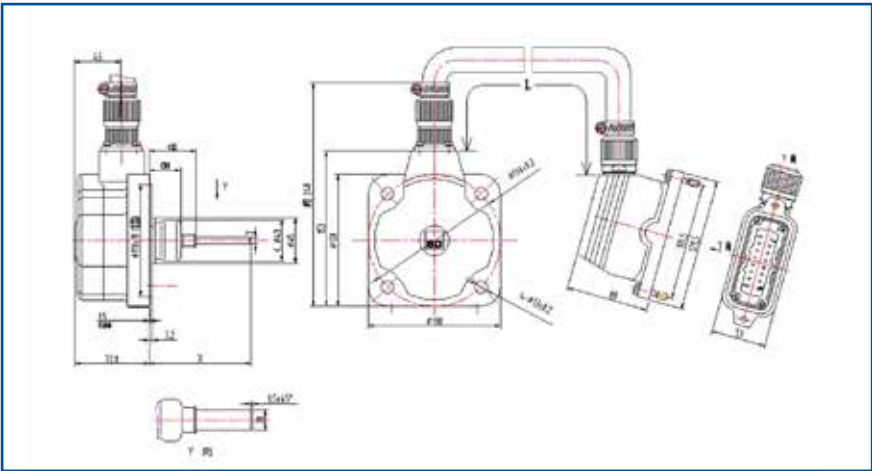
外型图 outside drawing



DF16S4b(d)nf

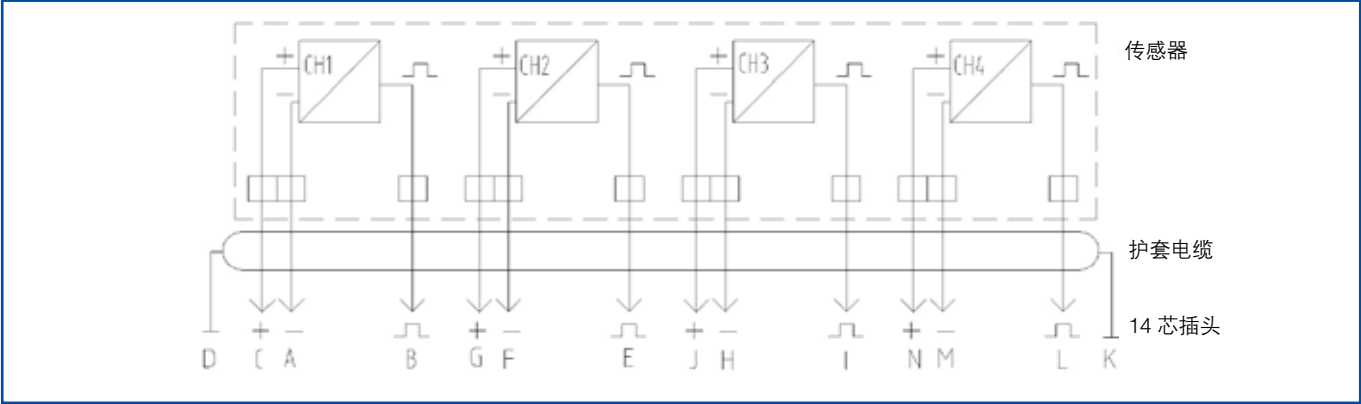


DF16S4b(d)ac

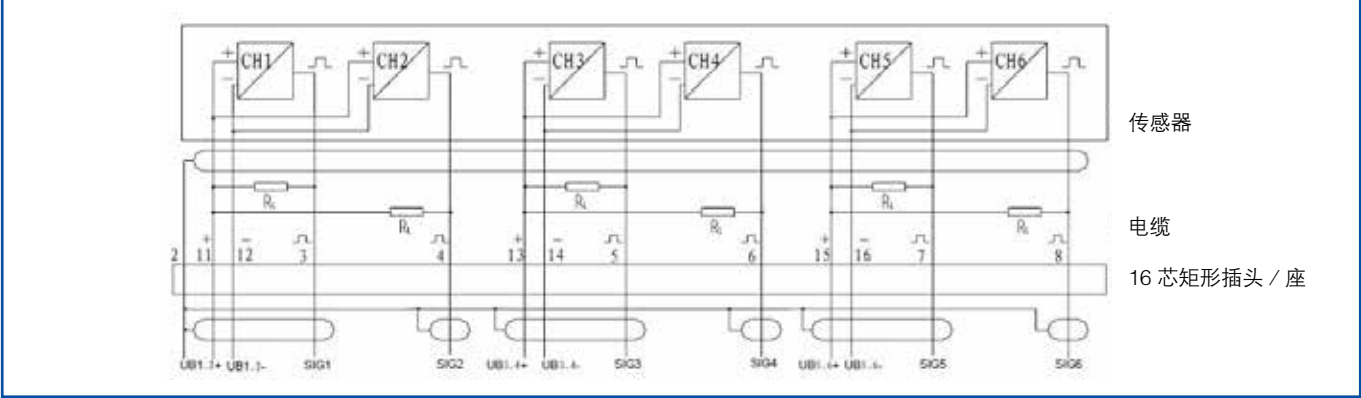


DF16/1.200b(f)adk

DF16S4b(d)nf 和 DF16S4b(d)ac 带直接引出线 1-4CH 接线图



DF16/1.200fadk 带直接引出线 6CH 接线图

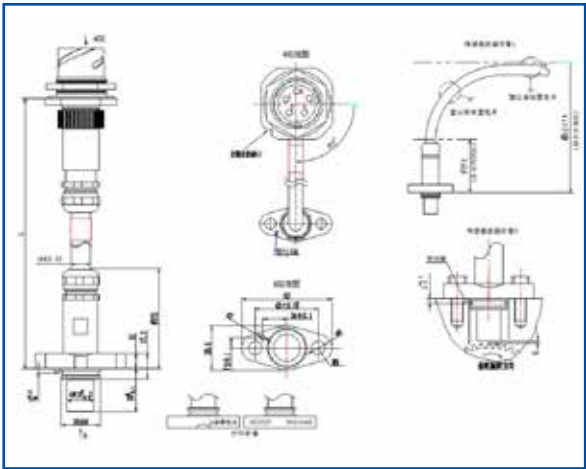


霍尔传感器产品说明 Hall Sensor Specification

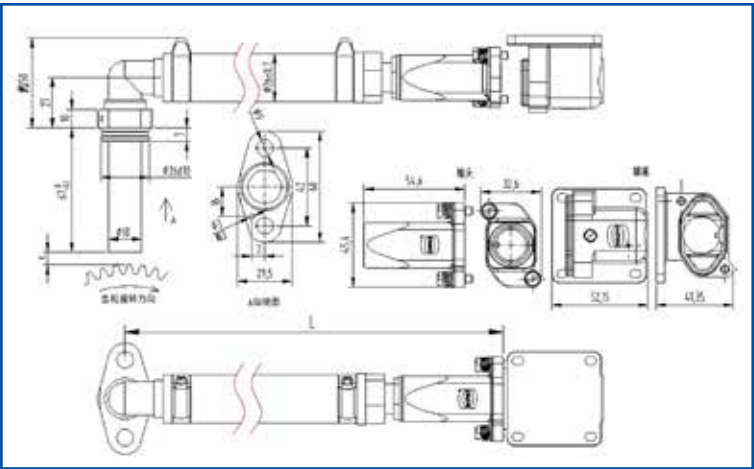
HS22 霍尔传感器是上海德意达研制的高精度测速测距设备，通过霍尔原理输出方波信号，可以同时输出 2 通道方波信号，信号提供系统检测机车运行方向、行驶速度、加速度、空转及打滑。

Developed by Shanghai DEUTA Electronic & Electrical Equipment Co., Ltd, Hall sensor is a high precision speed and range device that works on Hall effects and can output 2 channels signals simultaneously. The signal system tests locomotive running direction, speed, acceleration, idle running and slipping.

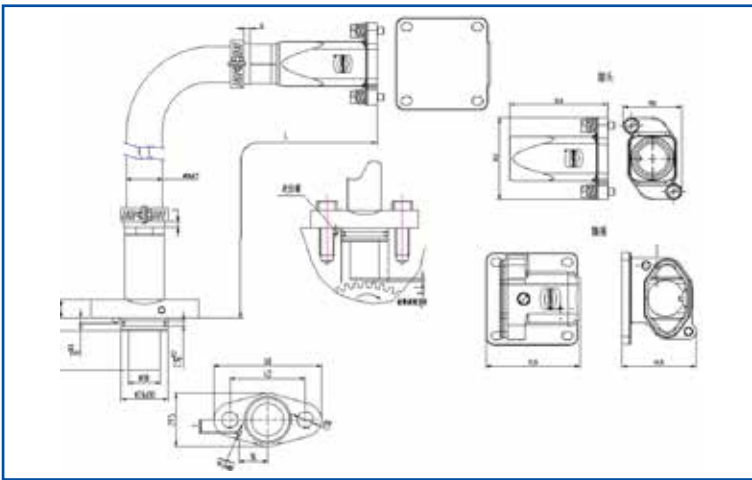
外型图 outside drawing



HS22G2A



HS22G4



HS22G5

HS22G2A 霍尔传感器 Hall Sensor



测速范围：	0 ~ 20KHz
测速齿轮：	模数≥ 2
安装间隙：	0.3 ~ 2.0mm, 建议 1.0mm
输出通道数：	双通道
输出波形：	方波，上升、下降摆动率≥ 2V/μ s
输出幅度：	高电平≥ Ub-2.8V（满载），低电平≤ 0.5V
脉冲占空比：	50% ± 20%
相位差：	在齿轮如图旋转时，1 通道超前 2 通道 90 ± 30°
负载能力：	± 20mA
驱动方式：	推挽
输出阻抗：	< 50 Ω
工作电源：	Ub = 10 ~ 30VDC，额定工作电压：DC15V
空载时电流消耗：	≤ 40mA
带载时电流消耗：	≤ 60mA
电源极性保护：	有
输出短路保护：	有
耐压强度：	1500V 50Hz，1min（通道与外壳）
工作温度：	- 40℃ ~ 120℃
耐振性能：	振动 40g，冲击 100g
防护等级：	IP68

Speed measurement range:	0 ~ 20KHz
Speed measurement gear:	Modulus ≥ 2.0
Installation gap:	0.3 ~ 2.0mm, proposed as 1.0mm
Output channels:	Dual-channel
Output waveform:	Square wave, up and down swing rate ≥ 2V/μ s
Output amplitude:	High level ≥ Ub-2.8V (full load), low level ≤ 2V
Pulse duty cycle:	50% ± 20%
Phase difference:	The gear when rotating as showed in the figure, the channel 1 is 90 ± 30° ahead of channel 2
Load capacity:	± 20mA
Drive:	Push-pull
Output impedance:	<50 Ω
Working power:	Ub = 10 ~ 30VDC Rated voltage: DC15V
Current consumption:	≤ 40mA (no load)
Current consumption:	≤ 60mA (full load)
Power polarity protection:	Yes
Output short circuit protection:	Yes
Compressive strength:	1500Vrms 50Hz, 1min(between housing and channels)
Operating temperature:	-40℃ ~ 120℃
Resistance to vibration performance:	vibration 40g, shock 100g
Protection class:	IP68



HS22G4 霍尔传感器 Hall Sensor

	测速范围:	0 ~ 20KHz
	测速齿轮:	模数 =2.5
	安装间隙:	0.3 ~ 1.5mm, 建议 1.0mm
	输出通道数:	双通道, 电气隔离
	输出波形:	方波, 上升、下降摆动率≥ 2V/μ s
	输出幅度:	高电平≥ Ub-2.8V (满载), 低电平≤ 2V
	脉冲占空比:	50% ± 20%
	相位差:	在齿轮如图旋转时, 1 通道超前 2 通道 90 ± 30°
	负载能力:	± 20mA
	驱动方式:	推挽
	输出阻抗:	< 50 Ω
	工作电源:	Ub = 10 ~ 30VDC 额定电压: DC15V
	空载时电流消耗:	≤ 40mA
	带载时电流消耗:	≤ 60mA
	电源极性保护:	有
	输出短路保护:	有
	耐压强度:	AC2000Vrms 50Hz, 1min (通道与外壳间)

	Speed measurement range:	0 ~ 20KHz
	Speed measurement gear:	Modulus =2.5
	Installation gap:	0.3 ~ 1.5mm, proposed as 1.0mm
	Output channels:	Dual-channel, electrically isolated
	Output waveform:	Square wave, up and down swing rate ≥ 2V/μ s
	Output amplitude:	High level ≥ Ub-2.8V (full load), low level ≤ 2V
	Pulse duty cycle:	50% ± 20%
	Phase difference:	The gear when rotating as showed in the figure, the channel 1 is 90 ± 30° ahead of channel 2
	Load capacity:	± 20mA
	Drive:	Push-pull
	Output impedance:	<50 Ω
	Working power:	Ub = 10 ~ 30VDC Rated voltage: DC15V
	Current consumption:	≤ 40mA (no load)
	Current consumption:	≤ 60mA (full load)
	Power polarity protection:	Yes
	Output short circuit protection:	Yes
	Compressive strength:	2000Vrms 50Hz, 1min(bewteen housing and channels)
	Operating temperature:	-40℃ ~ 120℃
	Resistance to vibration performance:	vibration 40g, shock 100g
	Protection class:	IP68

HS22G5 霍尔传感器 Hall Sensor

	测速范围:	0 ~ 20KHz
	测速齿轮:	模数 =2.0
	安装间隙:	0.3 ~ 2.0mm, 建议 1.0mm
	输出通道数:	双通道, 电气隔离
	输出波形:	方波, 上升、下降摆动率≥ 2V/μ s
	输出幅度:	高电平 =12. 3 ± 5%V, 低电平≤ 2V
	脉冲占空比:	50% ± 20%
	相位差:	在齿轮如图旋转时, 1 通道超前 2 通道 90 ± 30°
	负载能力:	± 20mA
	驱动方式:	推挽
	输出阻抗:	< 50 Ω
	工作电源:	Ub = 15 ~ 30VDC 额定工作电压: DC24V
	空载时电流消耗:	≤ 40mA
	带载时电流消耗:	≤ 60mA
	电源极性保护:	有
	输出短路保护:	有
	耐压强度:	AC2000Vrms 50Hz, 1min (通道与外壳间), AC500Vrms 50Hz, 1min (两通道间)
	工作温度:	- 40℃ ~ 120℃
	耐振性能:	振动 40g, 冲击 100g
	防护等级:	IP68

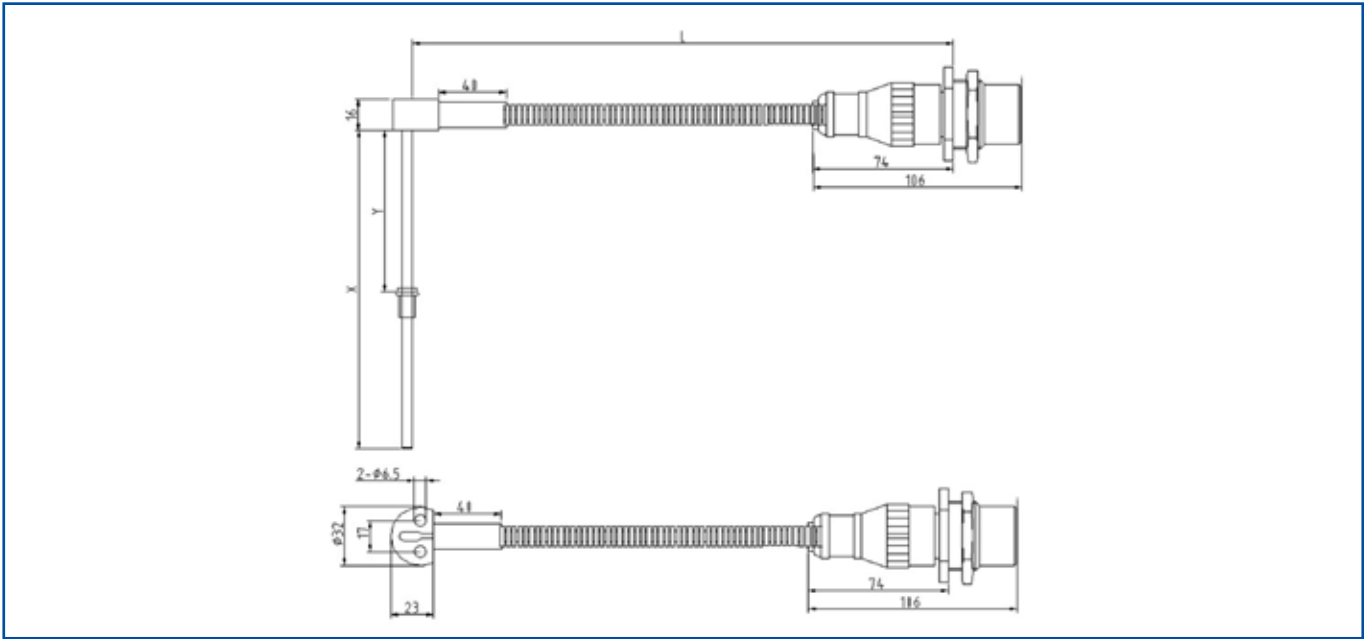
	Speed measurement range:	0 ~ 20KHz
	Speed measurement gear:	Modulus = 2.0
	Installation gap:	0.3 ~ 2.0mm, proposed as 1.0mm
	Output channels:	Dual-channel, electrically isolated
	Output waveform:	Square wave, up and down swing rate ≥ 2V/μ s
	Output amplitude:	High level =12. 3 ± 5%V, low level ≤ 2V
	Pulse duty cycle:	50% ± 20%
	Phase difference:	The gear when rotating as showed in the figure, the channel 1 is 90 ± 30° ahead of channel 2
	Load capacity:	± 20mA
	Drive:	Push-pull
	Output impedance:	<50 Ω
	Working power:	Ub = 15~ 30VDC Rated voltage: DC24V
	Current consumption:	≤ 40mA (no load)
	Current consumption:	≤ 60mA (full load)
	Power polarity protection:	Yes
	Output short circuit protection:	Yes
	Compressive strength:	2000Vrms 50Hz, 1min (bewteen channels and housing) 500Vrms 50Hz, 1min (bewteen channels)
	Operating temperature:	-40℃ ~ 120℃
	Resistance to vibration performance:	vibration 40g, shock 100g
	Protection class:	IP68

PtS100 系列温度传感器产品说明 PtS100 Temperature Sensor Specification

PtS100 系列温度传感器是上海德意达研制的高精度测温设备，温度传感器是四线制的 Pt100 铂电阻温度传感器，其阻值随温度的变化而变化，通过检测其阻值即可判断当时的温度值。

PtS100 series temperature sensor is a high-precision temperature measuring device developed by DEUTA. As a four-wire Pt100 platinum resistance temperature sensor, its resistance varies with temperature. The measurement of resistance can instantly tell the temperature.

外型图 outside drawing



PtS100 系列

PtS100 系列温度传感器 PtS100 Temperature Sensor

	接口方式:	二线制、三线制或四线制
	测量温度:	-40℃ ~ + 250℃
	工作温度:	-40℃ ~ + 150℃
	测量电阻:	DIN IEC 60751 (± 0.12 Ω /0℃) B 级
	测量电流:	1 ~ 5mA
	响应时间:	<5S
	绝缘电阻:	≥ 200M Ω
	防护等级:	IP68
	振动:	300m/s²
	冲击:	1000m/s²

	Interface mode:	Two-Wire system, three-wire system or four-wire system
	Measuring temperature:	-40℃ ~ + 250℃
	Operating temperature :	-40℃ ~ + 150℃
	Measuring resistance :	DIN IEC 60751 (± 0.12 Ω /0℃) B class
	Measuring current :	1 ~ 5mA
	Response Time :	<5S
	Insulation resistance:	≥ 200M Ω
	Housing protection:	IP68
	Vibration :	300m/s²
	Shock:	1000m/s²

雷达传感器产品说明 Radar Sensor Specification

德意达雷达是第一款使用微波的多普勒效应来进行轨道交通速度测量的传感器。对于不同的应用，德意达研发了两种使用不同算法的不同雷达：双天线雷达和单天线雷达。可以实现对机车绝对速度、行车距离、行驶方向的检测。

DEUTA radar is the first sensor for rail transit speed measurement based on Doppler effect. In view of different applications, DEUTA has developed radars by way of two algorithms - dual channel radar and single channel radar to realize the measurement of locomotive absolute speed, driving distance and driving direction.

DRS05 系列雷达（双天线）DRS05 series (dual channel)

	测速范围：	0.2 ~ 600Km/h, 标准的 DRS05 在速度超过 0.2Km/h 时开始输出脉冲
	电源：	15VDC < Ui < 150VDC, 绝缘, Ui 可用电池
	功耗：	< 7W, 根据接口结构最大到 10W
	极性反向保护：	有
	短路保护：	有
	串行接口：	RS485 二线
	数据格式：	异步 10 位（1 位起始，8 位数据，1 位停止，无奇偶校验位）
	标准脉冲输出：	69.44Hz /Km/h, 频率与速成正比，脉冲占空比 1:1。可根据客户需要定制。
	外壳材料：	铸铝，天线罩材料为 PEEK
	天线发射频率：	24.125GHz
	发射功率：	2 × 5mW, 每个天线为 5mW
	发射角：	40° 和 50°
	离反射面距离：	500mm ~ 1000mm
	工作温度：	−40 ° C ~ +70 ° C
	贮藏温度：	−40 ° C ~ +85 ° C
	防护等级：	IP65 IP67，仅针对带有配套插头和正确安装电缆的情况

耐震性能：	符合 EN 61373-1 类 -B 级要求
重量：	DRS05 约 2.1Kg DRS05 S1 约 4.7Kg
尺寸：	DRS05：244*140*134 (L*W*H) DRS05 S1：470*214*140(L*W*H)

DRS05 系列雷达（双天线）DRS05 series (dual channel)

	Speed range:	0.2 ~ 600Km/h. In the standard DRS05 device, the pulse output is activated above 0.2 km/h.
	Power supply:	15VDC < Ui < 150VDC, potential insulated, Ui Battery potential permitted
	Power consumption:	< 7W, depending on interface up to 10W
	Polarity reversal protection:	yes
	Short circuit protection:	yes
	Serial interface:	RS485, 2 wires
	Data format:	10-Bit asynchronous (1 start bit, 8 data bits, 1 stop bit, no parity)
	Standard pulse output:	69.44Hz per Km/h, speed is proportional to frequency, pulse duty factor 1:1. Can be modified according to customer' s requirements.
	Housing material:	Cast aluminum, antenna cover made of PEEK
	Transmission frequency of antenna:	24.125GHz
	Transmission power:	2 × 5mW, 5mW per antenna
	Emission angle:	40° and 50°
	Distance from reflecting surface:	500mm ~ 1000mm
	Operating temperature:	−40 ° C ~ +70 ° C
	Storage temperature:	−40 ° C ~ +85 ° C
	Protection class:	IP65 IP67, only with connected mating connector and professionally installed cable

Vibration and shock:	n accordance with EN 61373, Category 1, Class B
weight:	DRS05 约 2.1Kg DRS05 S1 约 4.7Kg
Dimensions:	DRS05：244*140*134 (L*W*H) DRS05 S1：470*214*140(L*W*H)

DRS4 系列雷达（单天线）DRS4 series (single channel)

	测速范围	0.8 ~ 250Km/h, 标准的 DRS4 在速度超过 0.8Km/h 时开始输出脉冲
	电源	24VDC (10V-30V) 或者 110VDC(70V-140V),
	功耗	< 7W, 根据接口结构最大到 10W
	极性反向保护	有
	短路保护	有
	标准脉冲输出	69.44Hz /Km/h, 频率与速成正比, 脉冲占空比 1:1。可根据客户需要定制。
	外壳材料	铸铝, 天线罩材料为 PEEK
	天线发射频率	24.125GHz
	发射功率	5mW
	发射角	40°
	离反射面距离	300mm ~ 500mm
	工作温度	-40 ° C ~ +70 ° C
	贮藏温度	-40 ° C ~ +85 ° C
	防护等级	IP65 IP67, 仅针对带有配套插头和正确安装电缆的情况
	耐震性能	符合 EN 61373-1 类 -B 级要求
	重量	约 1.8Kg
	尺寸	134*90*214 (L*W*H)

DRS4/1

DRS4 系列雷达（单天线）DRS4 series (single channel)

	Speed range	0.8 ~ 250Km/h. In the standard DRS4 device, the pulse output is activated above 0.8 km/h.
	Power supply	15VDC (10V-30V)or 150VDC (70V-140V)
	Power consumption	< 7W, depending on interface up to 10W
	Polarity reversal protection	yes
	Short circuit protection	yes
	Standard pulse output	69.44Hz per Km/h, speed is proportional to frequency, pulse duty factor 1:1. Can be modified according to customer' s requirements.
	Housing material	Cast aluminum, antenna cover made of PEEK
	Transmission frequency of antenna	24.125GHz
	Transmission power	5mW
	Emission angle	40°
	Distance from reflecting surface	300mm ~ 500mm
	Operating temperature	-40 ° C ~ +70 ° C
	Storage temperature	-40 ° C ~ +85 ° C
	Protection class	IP65 IP67, only with connected mating connector and professionally installed cable
	Vibration and shock	in accordance with EN 61373, Category 1, Class A
	weight	Approx. 1.8Kg
	Dimensions	134*90*214 (L*W*H)

DRS4/1

CS.JH-SX 系列数模转换盒

CS.JH-SX Serise D/A Converter

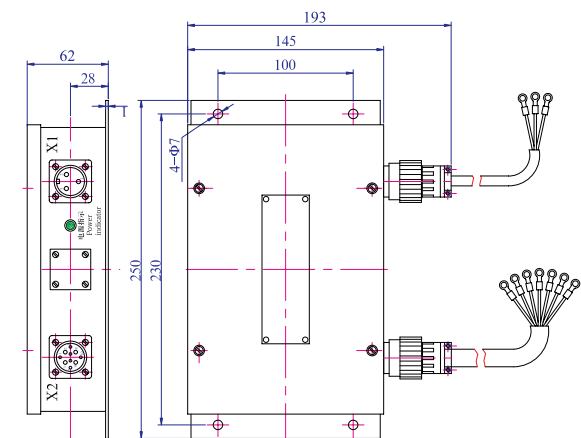
传感器 / sensors

CS.JH-SX 系列数模转换盒 CS.JH-SX Serise D/A Converter

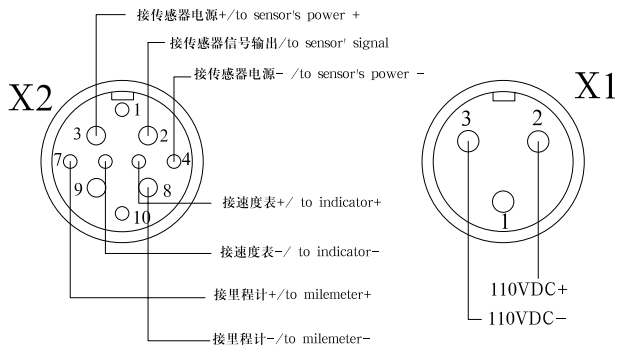
CS.JH-SX 系列数模转换盒，安装在机车司机操纵台内，是 DF16 速度传感器与 ENG、EZG、EGS、EGZ 系列单、双针广角度速度表进行接口的专用装置。它由 DC/DC 电源板、BWA6 F/I 板和 BI6 里程分频板组成。它将传感器的频率信号转换成 0 – 20mA 或 4-20mA 的线性电流。由 ENG、EZG、EGS、EGZ 速度表显示机车运行速度 (当一机二表时，I、II 端速度表串联使用)。BI6 板按平均轮径进行里程分频，推动里程计，实行走行公里数累计。它具有简单可靠、互换性好等特点，使用于国内外各种类型的机车。

CS.JH-SX series D/A converter is installed in driver’ s cabin, It is used specially for connecting DF16 sensor with ENG、EGS、EGZ Series single/double speedometer. It consists of DC/DC 、BWA6 F/I and BI6 boards, F/I converts the frequency signal of sensor to the linearity current of 0-20mA or 4-20mA. The traffic speed is displayed by ENG、EGS and EGZ speedometer. BI6 board divides the frequency according to average wheel diameter and drives the KM-counter to count the mileage. It is simple、reliable、exchangeable and suitable for all kinds of locomotive at home and abroad.

外型图 outside drawing



CS.JH-S1 外形
CS.JH-S1 Layout



CS.JH-S1 接线图
CS.JH-S1 Writing Diagram

CS.JH-SX 系列数模转换盒 CS.JH-SX Serise D/A Converter

	精度：	0.5%
	测速范围：	0 – 120Km/h 0 – 160Km/h 0 – 200Km/h 0 – 250Km/h 等
	配用的电流表额定值:	0 – 20mA, 4 – 20mA （RL<=500Ω）
	轮径：	1050mm（内燃机车）1250mm（电力机车）或根据用户要求
	里程驱动：	1Km/ 次, DC24V 15mA(降速比按平均轮径计算)
	工作电源：	DC110V ± 30% 也可选用逆变电源 DC24V
	功耗电流：	50mA(DC110V) 0.2A(DC24V)
	工作温度：	– 25 ~ 70℃
	耐振性能：	3g 50Hz X、Y、Z 三个方向
	耐压强度：	1500V 50Hz 交流正弦波 1min
	重量：	1.5Kg

accuracy:	0.5%
speed-measuring range:	0-120Km/h 0-160Km/h 0-200Km/h 0-250Km/h
rated value of provided ammeter:	0-20mA, 4-20mA (RL ≤ 500Ω)
wheel diameter:	1050(combustion locomotive),1250mm(electric locomotive) ,or according to customer's requirement
KM-Counter:	the amplitude is 24V, pulse width is 150ms
operating power supply:	DC110 V ± 30%, or 24VDC
power-consumption current:	50mA(DC110V), 200mA(DC24V)
operating temperature:	-25℃ ~+70℃
vibration resistance:	3g 50Hz X、Y、Z three directions
Compressive strength:	1500Vrms 50Hz 1min
weight:	approx. 1.5Kg

>>>
仪表系列

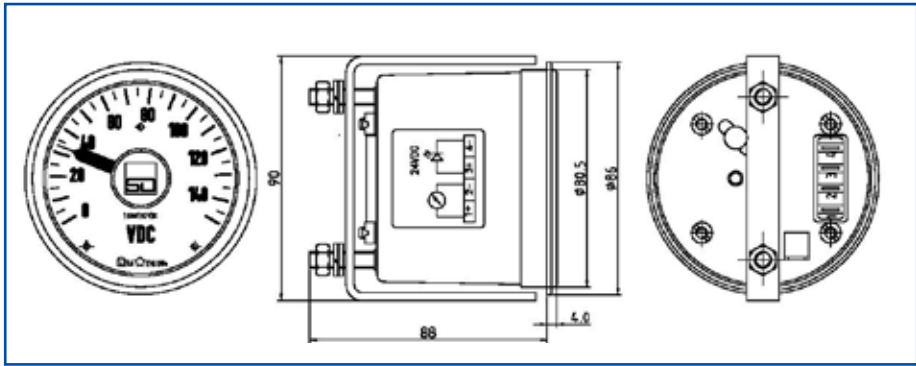


仪表产品说明 Indicators Specification

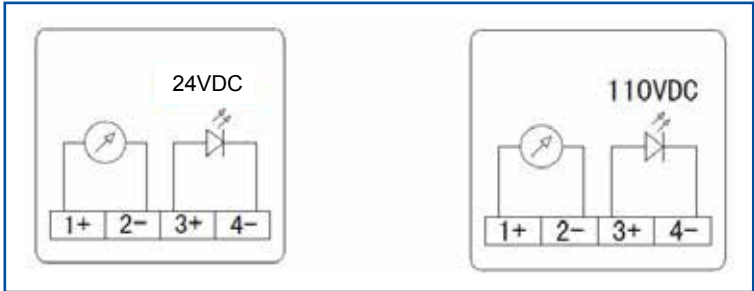
ENG/EZG、EGS/EGZ 系列单、双针表是上海德意达公司 (Shanghai DEUTA) 引进国外技术组装生产的广角度仪表。ENG 为单针表，EZG 为单针表带里程计，EGS 为双针表，EGZ 为双针表带里程计。该表由上、下机芯、里程计及外壳组成，具有结构牢固、防震性好、寿命长等特点。适用于国内外各种类型的机车。

ENG/EZG and EGS/EGZ 3/single/double pointer meter is the wide-angle instrument assembled and producedby Shanghai DEUTA with the introduction of a full range of technology. ENG is single pointer meter, EZGsingle pointer meter & speedometer, EGS double pointer meter, EGZ double pointer meter & speedometer.The meter is composed of upper and lower movement, speedometer and shell, known for the solid structure,admirable shock resistance and long service life, applicable to locomotives at home and abroad of al kinds.

ENG8/9a 系列仪表 Indicators



ENG8/9a 外形图



ENG8/9a 接线图

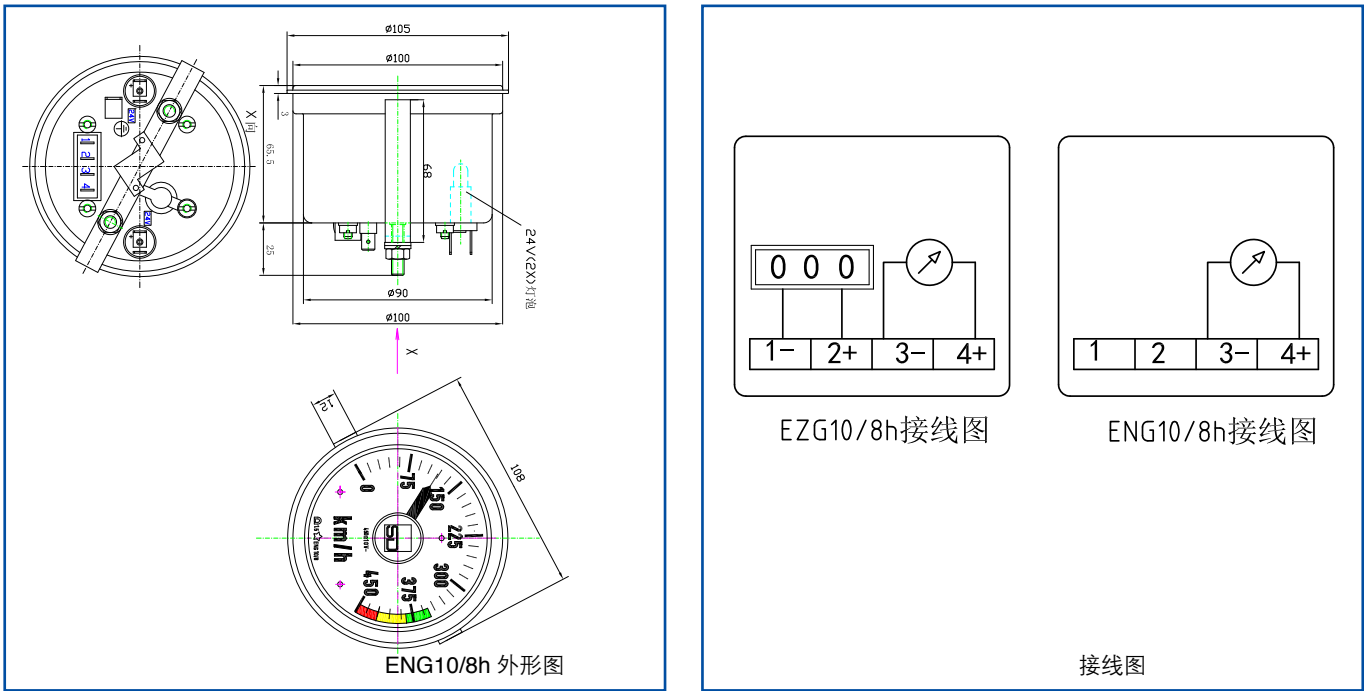


精度:	1.5%
输入信号范围:	0-20mA, 4-20mA, 0-50mA, ±75mV,0-10V, 0-75V,0-150V, 0-750V,0-1500V、0-6.6667V 等
内部照明:	LED 照明 24V 或者 110V
工作电压:	DC24V,DC110V
绝缘强度:	500V, 50Hz 交流正弦值 1min (电压表 1000V)
工作温度:	- 25 ~ + 70℃
耐振性能:	1g, 100Hz (DIN 89011)
重量:	约 0.8Kg



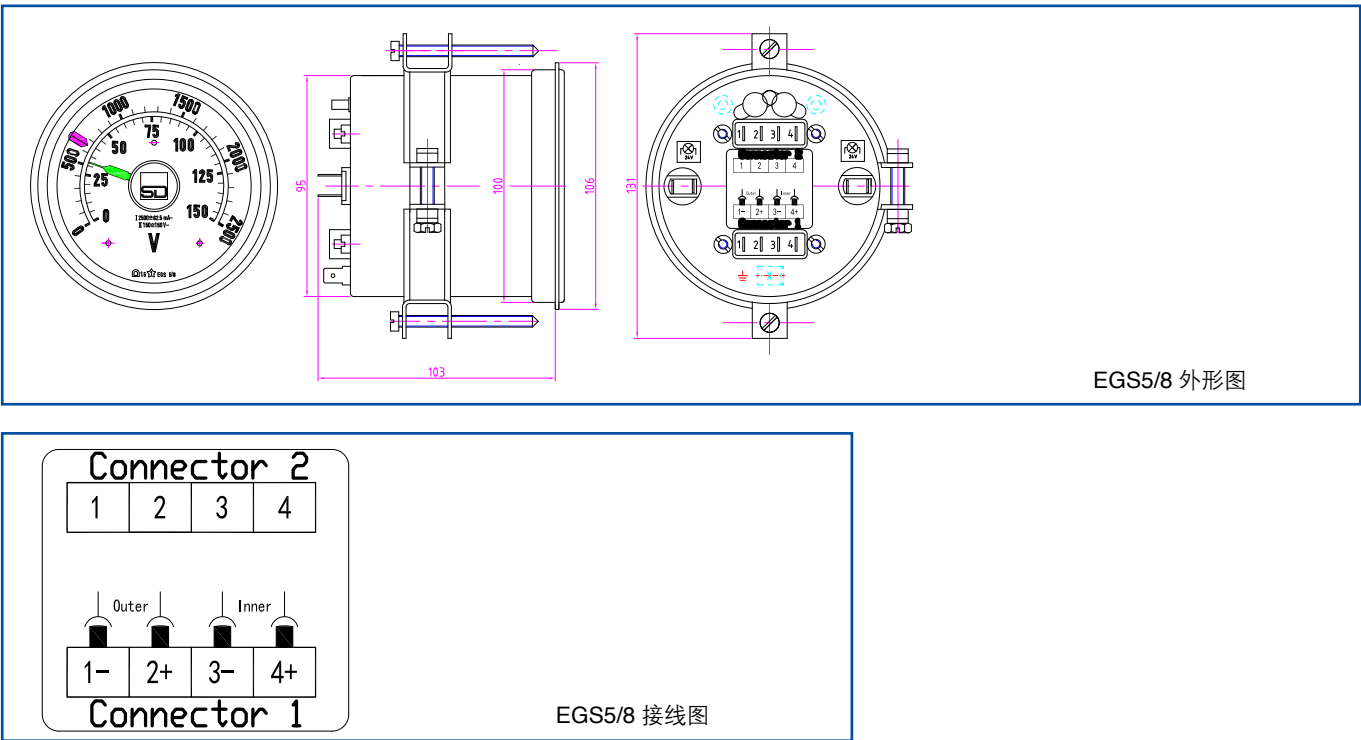
Accuracy class:	1.5%
Data for movement:	0-20mA, 4-20mA, 0-50mA, ±75mV,0-10V, 0-75V,0-150V, 0-750V,0-1500V、0-6.6667V
Internal illumination:	LED 24V or110V
Working voltage:	DC24V,DC110V
Test voltage:	500V,50Hz AC sine value 1min (Voltmeter 1000V)
Temperature range:	- 25 ~ + 70℃
Vibration testing:	1g,100Hz
Weight:	approx. 0.8Kg

ENG10/8h 系列仪表 Indicators



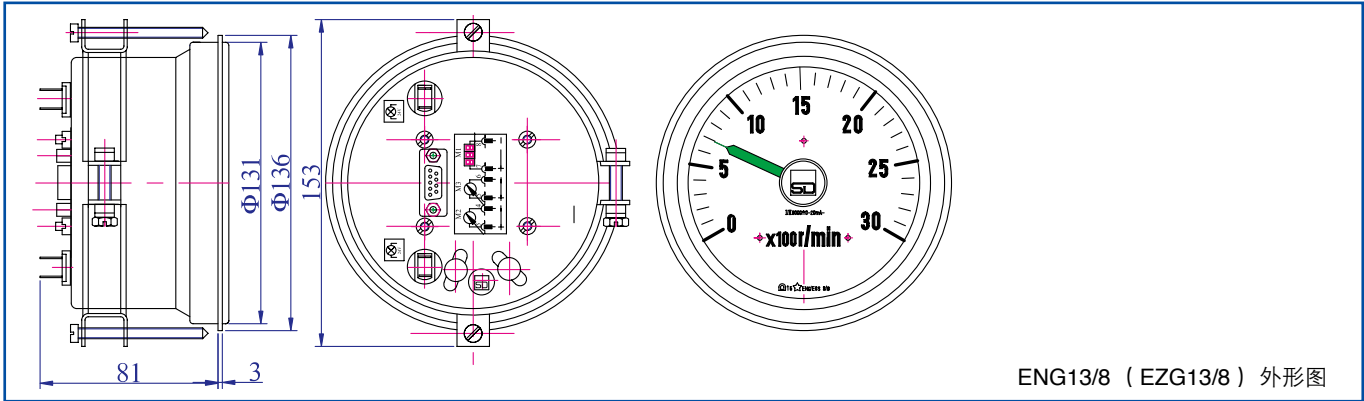
	精度:	1.5%
	表头额定值:	0-10mA, 0-20mA, 4-20mA, 0-1.0mA, 0-1.5mA, 0-75mV 等
	照明灯泡:	DC24V 或 DC110V LED
	工作电压:	DC24V,DC110V
	绝缘强度:	500V, 50Hz 交流正弦值 1min (电压表 1500V)
	工作温度:	- 25 ~ + 70℃
	耐振性能:	1g, 100Hz (DIN 89011)
	重量:	约 1.1Kg
	Accuracy class:	1.5%
	Data for movement:	0-10mA, 0-20mA, 4-20mA, 0-1.0mA, 0-1.5mA, 0-75mV etc.
	Internal illumination:	LED24V or110V
	Working voltage:	DC24V,DC110V
	Test voltage:	500V,50Hz AC sine value 1min (Voltmeter 1500V)
	Temperature range:	-25℃ ~70℃
	Vibration testing:	1g,100Hz (DIN 89011)
	Weight:	approx. 1.1Kg

EGS5/8 仪表 Indicators

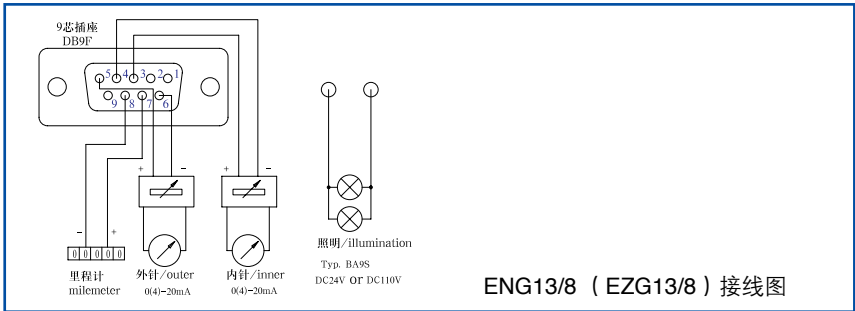


	精度:	1.5%
	表头额定值:	0-1.5mA;0-20mA; 4-20mA 等
	照明灯泡:	DC24V LED 灯泡
	照明工作电压:	DC24V
	绝缘强度:	1500V, 50Hz 交流正弦值 1min
	工作温度:	- 25 ~ + 70℃
	耐振性能:	1g, 100Hz (DIN 89011)
	重量:	1.10Kg
	Accuracy class:	1.5%
	Data for movement:	0-1.5mA;0-20mA; 4-20mA etc.
	Internal illumination:	LED24V or110V
	Working voltage:	DC24V
	Test voltage:	1500V,50Hz AC sine value 1min
	Temperature range:	-25℃ ~70℃
	Vibration testing:	1g,100Hz (DIN 89011)
	Weight:	approx. 1.1Kg

ENG13/8 (EZG13/8) 仪表 Indicators



ENG13/8 (EZG13/8) 外形图

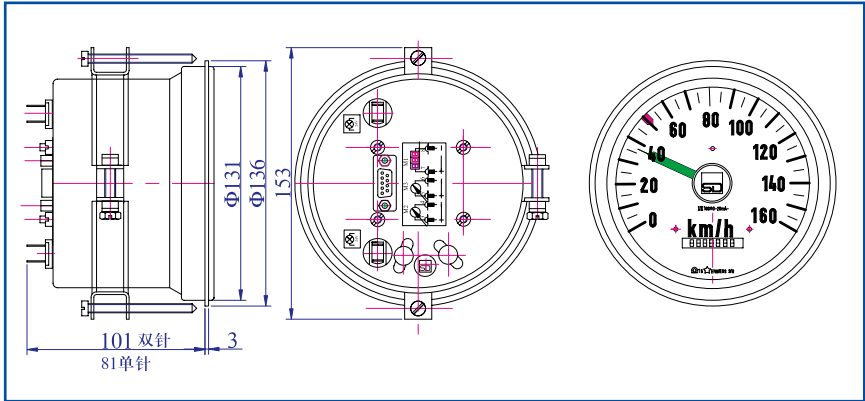


ENG13/8 (EZG13/8) 接线图

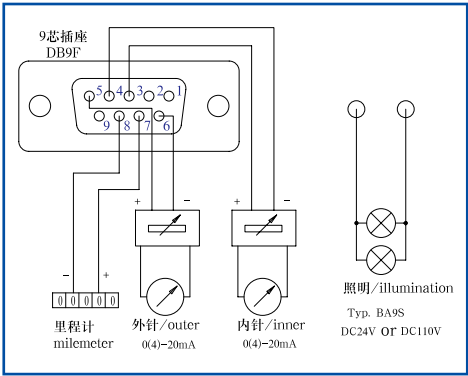
	精度:	1.5%
	表头额定值:	0-120, 160, 200, 250, 300Km/h, 0-20mA, 4-20mA 等
	内部照明:	DC24V 2x2w,DC110V 2x2w
	里程计:	7 位计数器, 24V, f _{max} 25Hz,P-250mW, 持续时间不少于 20ms
	绝缘强度:	500V, 50Hz 交流正弦值 1min
	工作温度:	- 25 ~ + 70℃
	耐振性能:	1g, 100Hz (DIN 89011)
	重量:	约 1Kg
	安装方式:	夹箍

	Accuracy class:	1.5%
	Data for movement:	0-120, 160, 200, 250, 300Km/h, 0-20mA, 4-20mA 等
	Internal illumination:	DC24V 2x2w,DC110V 2x2w
	Milemeter:	counter 7-digit,f _{max} 25Hz,P-250mW,pulse duration min.20ms
	Test voltage:	500V _{max} , 50Hz 1min
	Temperature range:	-25℃ ~70℃
	Vibration testing:	1g,100Hz (DIN 89011)
	Weight:	approx. 1Kg
	Mounting:	clamping clip

EGZ3/8 (EGS3/8) 仪表 Indicators



EGZ3/8 (EGS3/8) 外形图

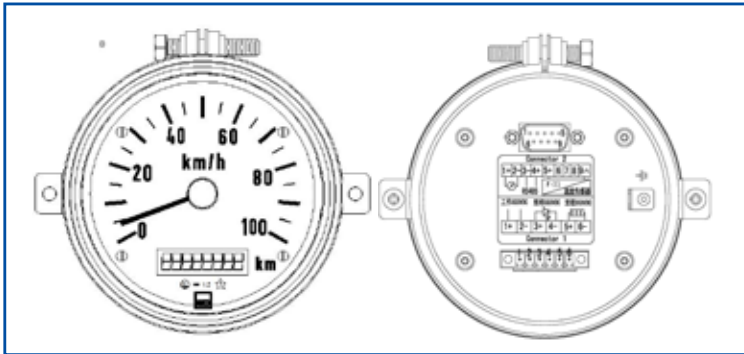


EGZ3/8 (EGS3/8) 接线图

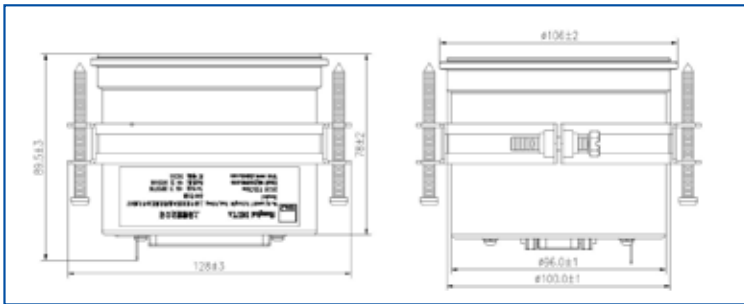
	精度:	1.5%
	表头额定值:	0-120, 160, 200, 250, 300Km/h, 0-20mA, 4-20mA 等
	内部照明:	DC24V 2x2w,DC110V 2x2w
	里程计:	7 位计数器, 24V, f _{max} 25Hz,P-250mW, 持续时间不少于 20ms
	绝缘强度:	500V, 50Hz 交流正弦值 1min
	工作温度:	- 25 ~ + 70℃
	耐振性能:	1g, 100Hz (DIN 89011)
	重量:	约 1Kg
	安装方式:	夹箍

	Accuracy class:	1.5%
	Data for movement:	0-120, 160, 200, 250, 300Km/h, 0-20mA, 4-20mA 等
	Internal illumination:	DC24V 2x2w,DC110V 2x2w
	Milemeter:	counter 7-digit,f _{max} 25Hz,P-250mW,pulse duration min.20ms
	Test voltage:	500V _{max} , 50Hz 1min
	Temperature range:	-25℃ ~70℃
	Vibration testing:	1g,100Hz (DIN 89011)
	Weight:	approx. 1Kg
	Mounting:	clamping clip

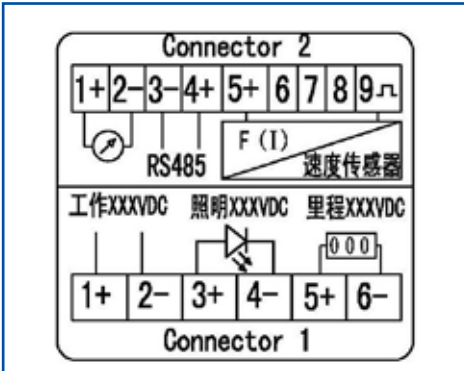
步进电机表 SMISM100



SMISM100 外形图

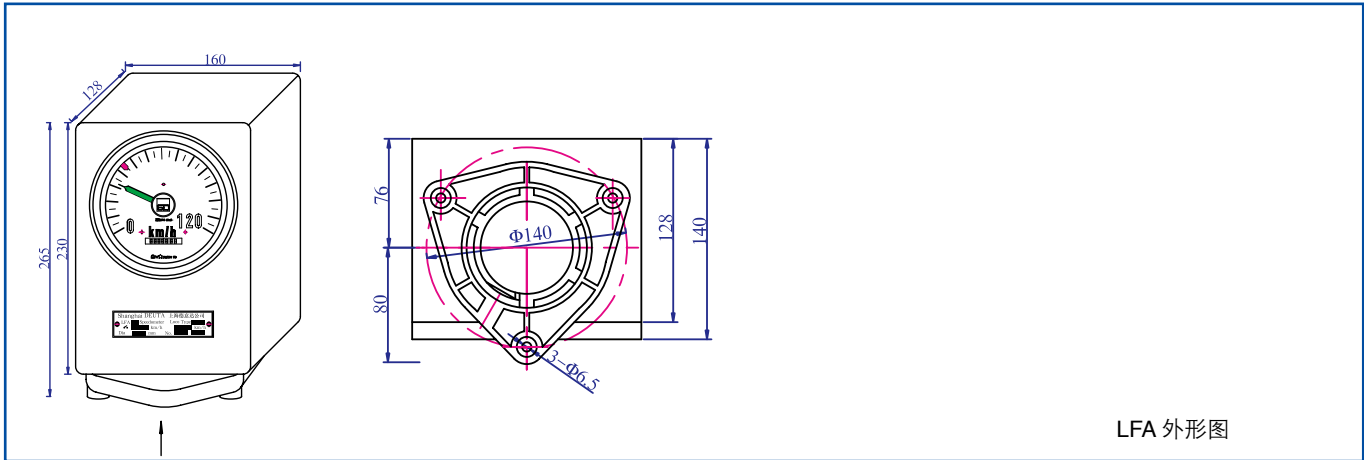


SMISM100 外形图



SMISM100 接线图

LFA 速度表 Speedometer



LFA 外形图



精度:	1.5%
测速范围:	0 – 120Km/h 等
表头额定值:	0 – 20mA 等
内部照明:	DC24V 2×2W, DC110V 2*2W
轮径:	1050mm(内燃)1250(电力) 或根据用户要求
里程累计:	0 – 10 KmDC24V 15mA(降速比按平均轮径 1020mm 计算)
工作电源:	DC110V ± 30%
功耗电流:	小于 0.2A(包括照明)
绝缘强度:	500V(内部电路), 1500V(外部电路) 50Hz 交流正弦 1min
工作温度:	– 25 ~ + 70℃
耐振性能:	振动 1g, 100Hz (DIN 89011)
重量:	4Kg
配用传感器:	DF16 光电速度传感器 (DC24V, 每转脉冲 200P/R)



accuracy class:	1.5%
detectable speed range:	0-120Km/h etc.
Data for movement:	0-20mA etc
internal scale illumination:	DC24V 2×2W, DC110V 2*2W
axel diameter:	1050mm(diesel locomotive)1250 (electric locomotive)
Additional indicator:	0 – 10 KmDC24V 15mA
supply votage:	DC110V ± 30%
current consumption:	<0.2A(including illumination)
insulation strength:	500V(internal circuit), 1500V(external circuit) 50Hz alternative sine 1min
operating temperature:	– 25 ~ + 70℃
vibration test:	1g, 100Hz(DIN 89011)
weight:	4Kg
matching sensor:	pulse generator DF16



显示器系列



显示器产品说明 Displayer Specification

多功能终端即显示器产品是一种可应用于复杂控制与指示系统的人机界面。它显示控制过程数据并接收信息作为输入。紧凑而简洁的结构与高性能使其能够适用于各种列车环境。其单板解决方案以及内部不含移动部件的设计让产品更为可靠。产品被广泛地应用于高铁、大铁、地铁、磁悬浮等领域。

Multi-function terminal displayer is a man-machine interface applicable for complicated control and indication system. It displays control process data and receives information as the input. The compact and simple structure, along with the superior performance, makes it applicable for all train transport environment. The single-piece solution and the absence of moving parts inside make it more reliable. It is widely used in areas of high-speed railway, railway, metro and magnetic levitation.

显示器产品种类 Displayer Varieties

显示器产品有 MFT 及 DCX 两大族系分别基于 X86 和 ARM 平台。每个族系根据不同的液晶显示屏的大小、输入方式、通讯方式等有相应的变形产品。

Displays include X86-based MFT and ARM-based DCX family. Each family enjoys variations of different LCD screen size, input method and communication means.



显示器产品应用 Displayer Application

产品广泛应用于高铁、大铁、地铁、磁悬浮、轻轨等领域的信号系统、牵引系统、制动系统、网络等系统中，目前应用覆盖：

高铁：CTCS3、CTCS2；

大铁：和谐机车；

地铁：沈阳 1、2 号线、成都 1、2 号线、西安 1、2 号线、北京 4 号线、大兴线、杭州 1、2

号线、大连 1、2 号线等地铁、南京机场线、南昌一号线等；

轻轨：沈阳轻轨三期项目；

The display products are widely used in signal system, traction system, braking system and network system of high-speed railway, railway, metro, magnetic levitation and light rail service. Current applications can be found in

High-speed railway: CTCS3, CTCS2;

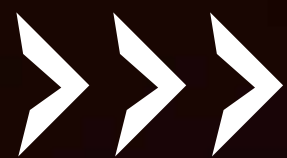
Railway: HX locomotive;

Metro: Shenyang Line 1&2, Chengdu Line 1&2, Xi' an Line 1&2, Beijing Line 4, Line Daxing, Hangzhou

Line 1&2, Dalian 1&2, Nanjing Airport Express, Nanchang Line 1;

Light rail: Shenyang Light Rail Project Phase III;





记录器系列



REDBOX 系列产品特点 REDBOX series Product Feature

• 平台方案实现多样变化

DEUTA 通过 REDBOX 铸就了一个统一的平台，实现了记录器的多种变形。所有多功能记录器的稳固基础来源于设备核心，由通讯结构、微处理器和存储模块组成。

• 全球可用

通过网络接口，REDBOX 记录器提供全新的服务方案。您可以随时检查设备状态或数据存储器的水平。通过网络接口还可查看诊断信息和软件状态，进行语言设置。通过网络浏览器可省去针对不同操作系统的调整。

• 一览无余

您可以用评估软件 ADS 以图形和表格方式评估所记录的驾驶数据。驾驶数据存储器的可修复任何分辨率的数据，因此尤其当您的记录驾驶数据分辨率较高时，它能够更容易地评估事件。

• Multiple platform options

DEUTA builds up a unified platform by means of REDBOX and achieves the variation of recorder. The solid foundation of all multi-function recorders stems from the core components, namely communication structure, microprocessor and memory module

• Globally applicable

With the network interface, REDBOX provides brand-new service solutions. You can examine device condition or data storage level at any time. The network interface also allows access to diagnostic information, software state and language setting. A web browser spares the adjustment of different operating systems.

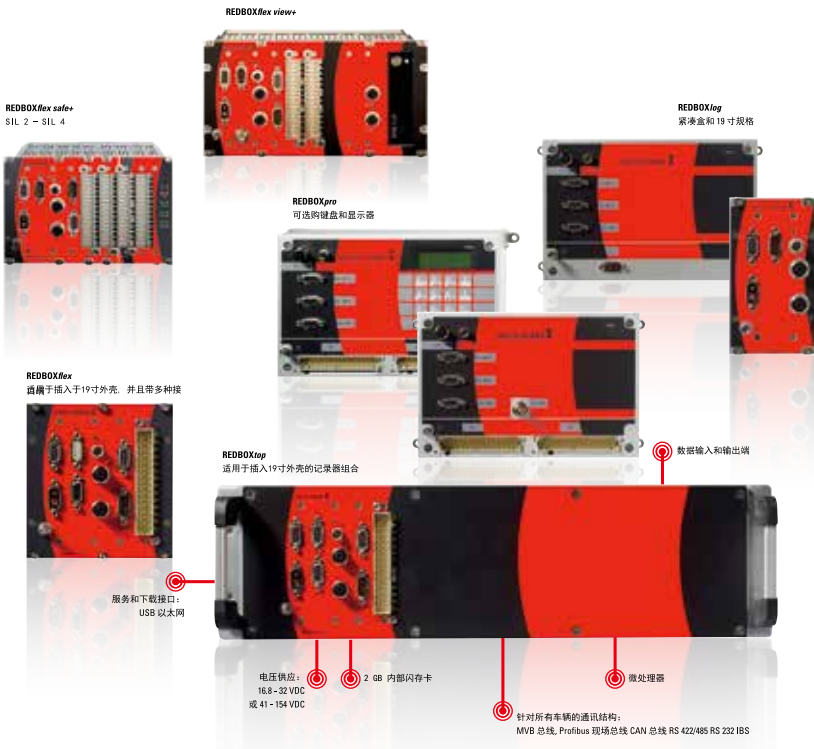
• Everything in a glance

You can use software ADS to evaluate driving data recorded by way of graphic and table. Driving data memory can repair data of various resolution. In this regard, high-resolution driving record will make evaluation easier.

PMU 产品特点 PMU Product Feature

PMU 为 REDBOX 多功能记录器家族补充了一个受保护的驾驶数据存储器的。特殊的外壳设计经过优化改良，能够承受特殊情形下的极端机械负荷和热力负荷。

PMU adds a protected data memorizer to REDBOX multi-function recorder family. The unique shell design, after optimization, can withstand extreme mechanical load and thermal load on special occasions.



可提供多款满足不同标准的 PMU 产品：

PMU22 符合标准 GM/RT24/72

PMU23 符合标准 IEEE Std.1482.1-1999

PMU24 符合标准 IEEE Std. 1482.1-1999 FRA 准则 49 (FRA 49 CFR 部分 229, § 229.135 附录 D)

PMU25 符合标准 IEEE Std 1482.1-1999

PMU product can be provided in different configuration to meet the following standard:

PMU22 comply GM/RT24/72

PMU23 comply IEEE Std.1482.1-1999

PMU24 comply IEEE Std. 1482.1-1999 FRA code 49 (FRA 49 CFR section 229, § 229.135 annex D)

PMU25 comply IEEE Std 1482.1-1999



KWR6 产品特点 KWR6 Product Feature

KWR6 是一种配备标准存储插件的时间记录器，可以连续记录机车运行数据。这种装置的存储方式可分为短期存储和长期存储。使得其应用领域很灵活。

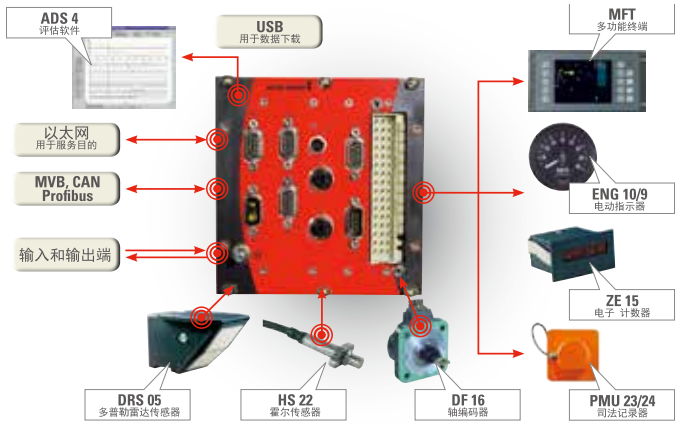
With standard memory device, KWR6 is a time recorder that allows continuous record of locomotive running data. KWR6 provides short-term and long-term data storage, thus the wide application field.



记录器产品应用 Recorder Product Application

多功能记录器可应用于标准轨距铁路、区间列车、有轨电车和火车头。它能够完美地集成到您的 ATP 和 ETCS 环境中。

The multi-function recorder can be applied to standard gauge railway, local train, tramcar and railway engine. It can be perfectly integrated into your ATP and ETCS environment.





>>>
机车信号

机车信号产品特点 Cab Signal series Product Feature



JT-CR-2000 型机车信号车载系统是上海德意达电子电器设备有限公司生产的新一代机车信号产品。该设备采用新工艺、新标准的一体化机箱设计，技术指标满足国家铁路局 TB/T 3287-2013 机车信号车载系统设备 要求，该系统通过了国家铁路局的技术审查并获得了运输安全设备生产行政许可。2015 年上海德意达公司通过了铁路产品认证中心（CRCC）机车信号铁路产品认证。

JT-CR-2000 型机车信号系统采用超大规模集成电路器件和数字信号处理技术，利用先进的频谱分析技术和时域处理技术，能够从强干扰中接收和处理 50Hz、25Hz 交流计数信号；可以处理电化区段和非电化段的移频和 UM71 信号。系统内置了大容量机车信号记录器功能和 GPRS 机车信号运行及报警数据无线网络实时传输功能，可以实现对机车信号运行情况的跟踪记录、实时监控和故障的实时报警。

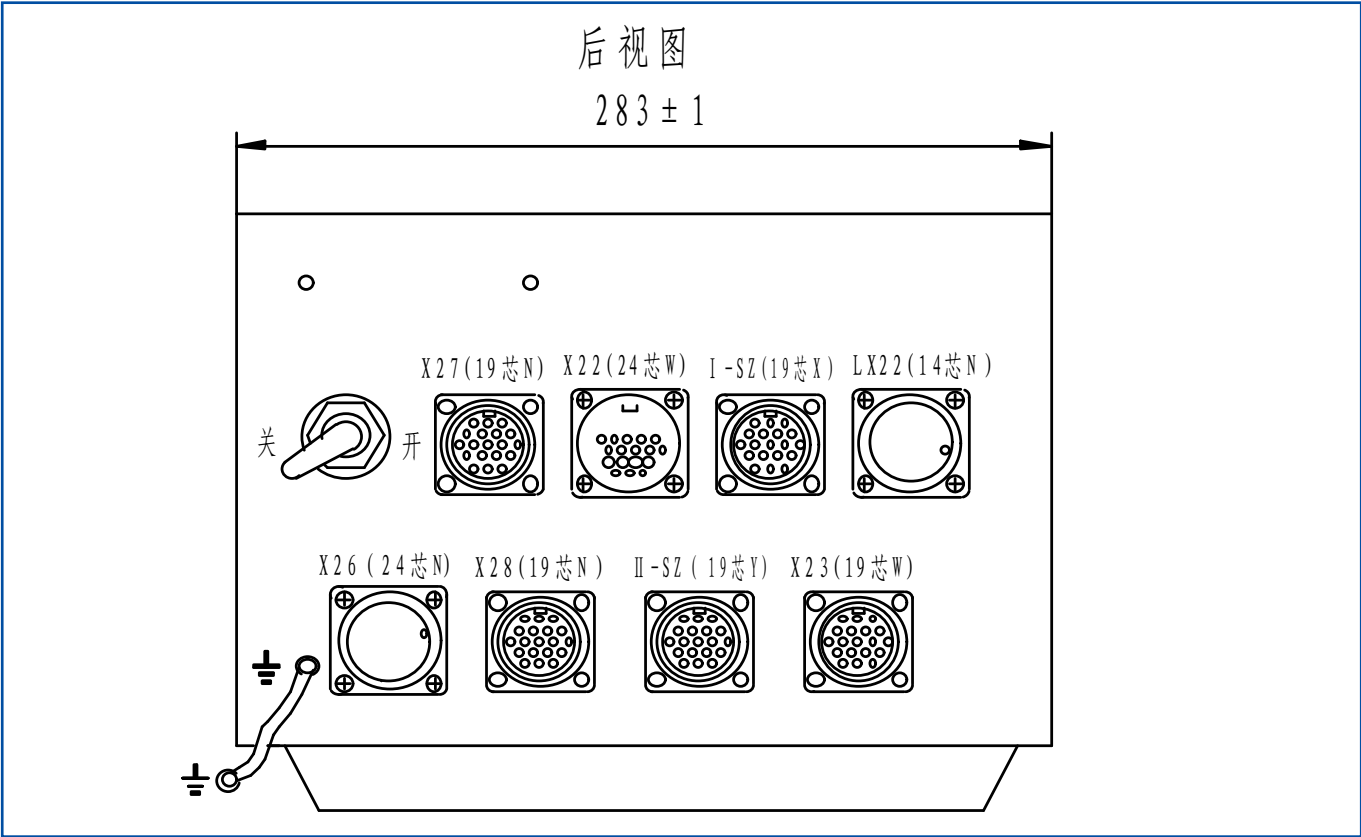
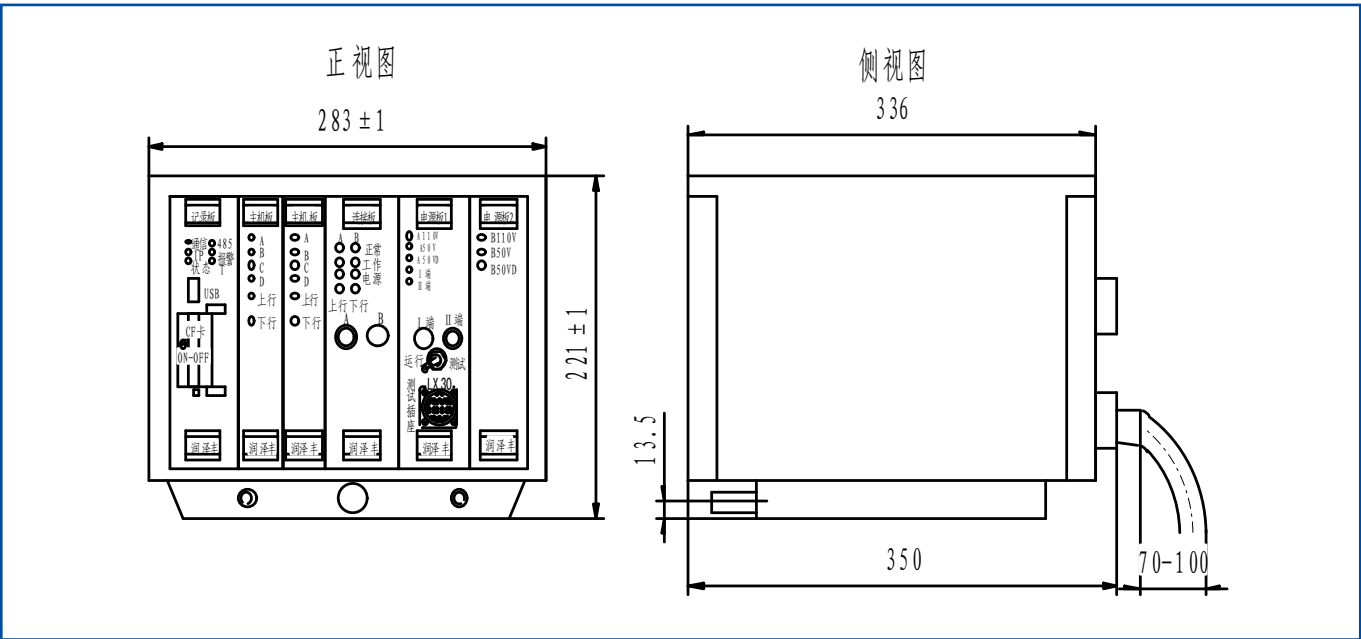
系统满足铁路信号故障 - 安全原则。

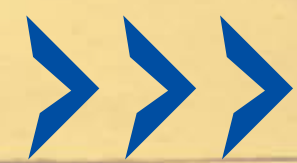
This new generation of JT-CR-2000 type SAGCSD is designed by Shanghai DEUTA Electronic & Electrical Equipment Co., Ltd.. It is designed by adopting new technology and standard integration crate, Technical indicators meet the railway bureau Cab signal TB/T 3287-2013 vehicle system equipment requirements, The system has passed the technical examination of the Railways bureau and obtained the administrative license for the production of the railway transportation safety equipment. In 2015 Shanghai DEUTA passed the Cab signal railway product certification of CRCC.

JT-CR-2000 Cab signal system is designed by adopting the latest high-speed super-large scale integrated circuit parts and a modern digital signal processing technique, using advanced technology of frequency spectrum analysis and time domain processing technology to from strong interference in receiving and 50Hz, 25Hz ac counting signal processing, processing of electrified section and non electric section of the frequency shift and UM71 signal. And alarm wireless data real-time transmission system, built-in high capacity of locomotive signal recorder function and GPRS locomotive signal operation can realize the real-time alarm signal operation of locomotive track record, real-time monitoring and fault.

The system meets the Fail-safe principle for railway signals .

外型图 outside drawing





测试系统

JZ-1 校验台产品说明 JZ-1 Test bench Specification

JZ-1 校验台可以测试霍尔传感器、光电传感器、数模盒和单 / 双针速度表设备，测试内容如下：

- 主要用于自动或手动测试最多 4 通道光电速度传感器，以及机车用霍尔传感器（已有 60 齿标准齿轮）输出脉冲的占空比、相位差、脉冲信号的高 / 低电平值和每个通道的输出脉冲总数，以检查在不同转速情况下传感器输出特性是否符合产品标准。测试数据和判据可以打印和保存。
- 用于自动或手动测试各种规格单 / 双针速度表，以测试其准确性和里程计的功能。
- 用于测试各种规格数模转换盒，以检测其输出电流（0 到 20 毫安范围）、供电电压（给速度传感器）、里程计的准确性。
- 通过 PC 机上运行软件就可对电机进行在其最高转速之内的任意转速控制，达到光电速度传感器测试转速控制精度。

JZ-1 test bench allows tests of Hall sensor, photoelectric sensor, digital analog converter and single/doublepointer speedometer in the following aspects.

- Automatic or manual test of up to 4-channel photoelectric speed sensor, and locomotive Hall sensor (60 standard gear) output pulse duty ratio, phase difference, high/low pulse signal level and the total pulse output from each channel; examination of sensor output characteristic under various rotating speed. Test data and criterion can be printed and saved.
- Automatic or manual test of single/double pointer speedometer of all kinds for precision and speedometer function.
- Test of digital analog converter of all kinds for output current (0-20mA), service voltage (to speed sensor) and speedometer precision.
- PC software can control motor rotation rate within the speed range with the precision the same as a photoelectric speed sensor.

JZ-1 校验台产品外观 JZ-1 Test bench Appearance



JZ-1 校验台产品构成 JZ-1 Test bench 产品构成

- 转速校验台本体(包括相应接口: 光电速度传感器测试接口 1 至 2 个, 检测光电速度传感器时要求采用水平安装型式数模转换盒接口; 单 / 双针速度表接口; 数模转换盒接口; 15VDC 和 24VDC 以及 110VDC 输出接口; 转速、电流手动调整旋钮; 两路波形信号输出接口; 220VAC 插座; 以及相关手动操作按钮)。其中核心部件步进电机要求采用进口品牌;
- 配套电脑用于安装专用测量软件;
- 配套打印机用于打印测试结果数据;
- 定制专用放置转速校验台和电脑以及打印机的操作台。

- test bench body (including interfaces: 1-2 photoelectric speed sensor test interface, horizontal mounting digital analog converter interface upon photoelectric speed sensor test; single/double pointer speedometer interface; digital analog converter interface; 15VDC, 24VDC and 110VDC output interface; speed and current manual control button, duplex waveform signal output interface; 220VAC socket; and other manual buttons). The stepper motor for core components is imported brand;
- Provide computer for special measurement software;
- Provide printer for test results;
- Customized work station for speed test bench, computer and printer.

JL-3 雷达速度传感器仿真系统 JL-3 Radar Speed Sensor Simulation System

JL-3 雷达速度传感器仿真系统，是为了模拟多普勒雷达的工作环境，从而在实验室内测试雷达的特性而设计的。仿真系统由 PC 机程序控制伺服电机按既定转速运转，电机通过皮带传动带动驱动一个滚轴带动粘有反射材料的输送带按要求速度运行，用于雷达传感器的模拟测试。

JL-3 radar speed sensor simulation system is designed for simulating the operation environment of the Doppler radar and testing the function of radar in laboratory rom. The simulation system uses a servo motor which controlled by PC program operating at a fixed rotation speed, and the motor drives a transfer belt with reflecting material glued on it at the required speed.



具有以下特点 Highlight

- JL-3 通过皮带转动模拟雷达运行时对于路面的相对运动，仿真列车运行的真实速度。
 - JL-3 的雷达安装支架可以进行三维空间的调节，仿真雷达安装角度。
 - JL-3 系统提供数据输出接口，能够保存完整的测试数据供用户存档。
 - JL-3 提供有好的用户设置界面，便捷地对仿真系统进行设置。
- JL-3 use a rotating belt to simulate relative movement to the ground when the radar works, and to simulate the real speed of running train.
 - The radar bracket of JL-3 can be adjusted in three dimensional space, in order to simulate the angle of installation.
 - JL-3 provides data output interface, which can store complete testing results for user.
 - JL-3 has friendly setting interface and user can set the system conveniently.

详细技术参数 Detail Technical parameters

转速范围:	0 – 2000rpm。对应的皮带速度为 0-70 公里 / 小时
皮带速度控制精度:	≤ ±0.2 公里 / 小时
可测量的方波脉冲频率输入通道数:	可定制
可测量的方波脉冲特性:	输出幅度: 9V ≤高电平≤ 15V; 低电平≤ 2V 脉冲占空比: 10% -90% 3.5
输出电源:	2 路 x 15V ± 5%/500mA

串型通信接口:	RS232 接口: 1 个。用于和用户系统通信 RS485 接口: 1 个。用于接收来自雷达速度传感器的数据信息
方波脉冲输出通道:	1 路。 用于控制伺服电机
监测电机反馈频率通道:	1 路
工作电源:	三相 380VAC/7.5KVA (最大值)
保护:	具有电源输出过流、短路保护功能
工作温度:	0℃ ~ 55℃
储存温度:	-20℃ ~ 70℃
噪声:	≤ 100dB (距离设备 2 米)
水密性:	JL-3 转速台: IP10; JL-3 控制柜: 无; JL-3 可移动悬挂架: 无
重量:	约 800Kg
结构尺寸:	JL-3 转速台: 长 2100× 宽 970× 高 700 mm JL-3 控制柜: 长 660× 宽 660× 高 1600 mm JL-3 可移动悬挂架: 长 1480× 宽 695.5× 高 1451.182 mm

Rotation speed range:	0 – 2000rpm。Corresponding belt speed range is 0-70 Km/h
Belt speed control accuracy:	≤ ±0.2 Km/h
The number of measurable square wave:	customizable
The characteristic of measurable square wave pulse:	Signal amplitude: 9V ≤ high level ≤ 15V; low level ≤ 2V Pulse duty factor: 10% -90% 3.5
Power output:	2 channels x 15V ± 5%/500mA
Serial communication interfaces:	RS232 interface: 1. Used for communicating with user system RS485 interface: 1. Used for receiving data information from radar speed sensor
Output channels of square wave pulse:	1 channel. Used for the servo motor
Feedback frequency channel of monitoring motor:	1 channel
Working power:	Three phase 380VAC/7.5KVA (maximum value)
Protection:	Has power output over current and short circuit protection.
Working temperature:	0℃ ~ 55℃
Storage temperature:	-20℃ ~ 70℃
Noise:	≤ 100dB (2 meters away from device)
Water tightness:	JL-3 rotation speed desk: IP10; JL-3 control cabinet: No JL-3 moveable suspension bracket: No
Weight:	Approx.800Kg
Dimension:	JL-3rotation speed desk: length 2100 × width 970 × height 700 mm JL-3 control cabinet: length 660 × width 660 × height 1600 mm JL-3 moveable suspension bracket: length 1480 × width 695.5 × height 1451.182 mm