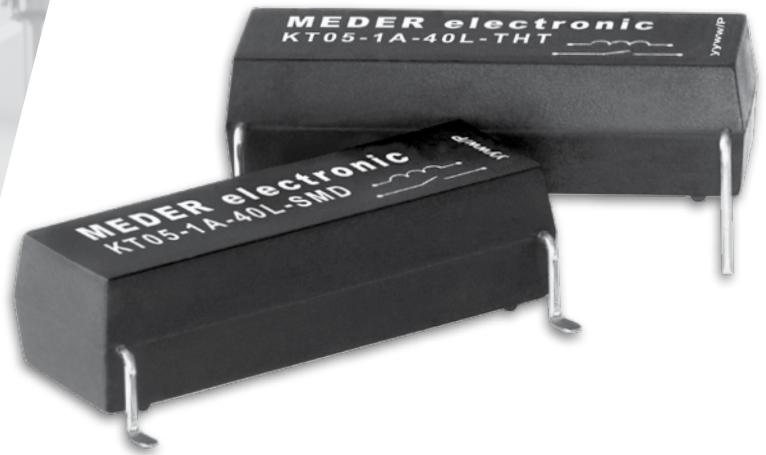
Standex Electronics

PARTNER | SOLVE | DELIVER®

Reed Relays & Optocouplers

PRODUCT LINE BROCHURE



Standex | Smart.

Partner, Solve, Deliver® "Solving your complex problems is why we exist."

CONTENTS

ABOUT STANDEX

Customer Focused Engineering Solutions. "Innovating for more than 50 years."

The Standex Electronics business, a division of Standex International Corporation (NYSE:SXI), has been providing solutions through high-performing products since the 1950's. Through growth, acquisition, strategically partnering with customers, and applying the latest engineering designs to the needs of our ever-changing world, Standex Electronics technology has been providing quality results to the end-user. The approach is achieved by partnering with customers to design and deliver individual solutions and products that truly address customers' needs.

Standex Electronics is headquartered in Cincinnati, Ohio, USA, Standex Electronics has nine manufacturing facilities in six countries, located in the United States, Germany, China, Mexico, the United Kingdom, and Japan.

That's **Standex** | Smart.

WHO WE ARE / WHERE WE PLAY

Powerfully transforming. "When failure is not an option, designers of critical electronic components rely on Standex and their decades of experience."

Standex Electronics is a worldwide market leader in the design, development and manufacture of custom magnetics and power conversion components and assemblies. Our work, growth, and dedication to providing reliable high-quality products through our engineering and manufacturing expertise go beyond products we ship.

We offer engineered product solutions for a broad spectrum of product applications in all major markets, including but not limited to:

- Aerospace & Military
- Alternative Energy
- Automotive (EV) & Transportation
- Electric Power & Utilities
- Medical
- Smart Grid & Metering
- Industrial & Power Distribution
- Test & Measurement
- Security & Safety
- Household & Appliances

Our values and what we believe align to the partner, solve, and deliver® approach. We produce parts but we are more than that. Connecting with your team as a strategic partner, listening to your challenges, and arriving at ways to solve your complex problems through our solutions are why we exist. We have custom capabilities that address your needs. Our team leverages our dynamic and diverse engineering expertise and other resources such as our global facilities for logistics and production.

50 YEARS of INNOVATION

Standex Electronics has been innovating for over 50 years by developing new products, partnering with customers, and expanding our global capabilities. We have also grown our global reach and local touch through synergistic acquisitions.

1960

1960 National Transistor
1969 Paul Smith Company

1970

1971 Comtelco
1973 Underwood Electric
1974 Van Products

1990

1998 ATR Coil / Classic Coil Winding

2000

2001 ATC-Frost Magnetics
2002 Cin-Tran
2003 Magnetico / Trans America
2004 Lepco
2008 BG Laboratories

2010

2012 Meder Electronic
2014 Planar Quality Corp.
2015 Northlake Engineering, Inc.®
2017 OKI Sensor Device Corp.
2018 Agile Magnetics

MEDER electronic
ATC-Frost Magnetics Inc.
BG Laboratories Incorporated
Magnetico Incorporated
NORTHLAKE ENGINEERING, INC.®
Agile Magnetics

OUR CAPABILITIES

ITAR INTERNATIONAL TRAFFIC IN ARMS REGULATIONS

IATF 16949

ISO9001 CERTIFIED

REGISTERED AS9100

MANUFACTURING

Automated Optical Inspection (AOI)
Auto AT Switch Sorting
SMT Line with Pick & Place & Reflow
Reed Switch Manufacturing
Reed Relay Design & Manufacturing
Automatic CNC Winding & Termination
Bobbin, Layer, & Self-Supporting Winding
Thermoplastic & Thermoset Overmolding
Wave & Selective Soldering
Low Pressure (Hot Melt) & Injection Molding
Potting - 2 Component
Reflow Oven – Multiple Zone Convection
Stainless Steel, Metal & Plastic Fabrication
Lean Manufacturing Principles
Complete, In-House Machine Shop

ENGINEERING

3-D CAD Modeling & 3-D Printing
Mechanical Design & Packaging
Rapid Prototyping
Magnetic Simulation Software
Mechanical, Thermal & FEA Analysis
Plastic Mold Flow Simulation
APQP Project Management

QUALITY & COMPLIANCE

AS9100, ISO9001 & IATF16949 Certifications
ITAR Compliance
Regulatory Agency Approvals
PPAP & First Article Inspection
SPC Data Collection
RoHS, REACH, UL, AEC-Q200, ATEX & IECEx

TESTING & LAB CAPABILITIES

High Voltage / Partial Discharge Testing
Specialized Lab Testing Equipment: Network Analyzers, Nanovoltmeters, Gauss / Teslameters, Fluxmeters, Picoammeters
Full Load & Temperature Rise Testing
2-D / 3-D Microfocus X-ray Inspection
Digital Microscopic Inspection
Burn-In & Life Testing
Thermal Shock & Temperature Cycling
Humidity, Salt Fog, & Solderability
Moisture Resistance & Seal Testing

REED RELAY SOLUTIONS

Customer Focused Engineering Solutions

high voltage & isolation

- Up to 10kVDC switching
- Up to 15kVDC isolation
- Switching currents up to 3 amps and carry currents up to 5 amps

high frequency

- Ability to carry RF signals from DC up to 7GHz
- Internal coaxial shields for 50 Ω impedance
- <0.3pF typical capacitance across open switch

high density

- Small thru-hole and SMT packages for closely stacked matrices
- Multiple pole packages for reduced material handling
- High voltage and high carry currents in standard packages

intrinsically safe

- ATEX/IECEx approved relays and optocouplers
- High isolation and non-arcing
- ATEX relays used for galvanic separation

low thermal

- Thermal offset <1µV
- Insulation resistance >10^12Ω
- High voltage isolation up to 1.5kVDC

general purpose

- Hermetically sealed reed switch technology
- Multitude of package sizes in SMT and thru-hole
- Long life expectancy and high insulation resistance

relay modules

- 4-8 pole relays in single package
- Built-in relay drivers and shift registers
- Up to 4GHz RF signals

PARTNER | SOLVE | DELIVER®

Our Approach

PARTNER // TEAMWORK

Dig deep into the customer's project and develop relationship through our thought leadership, expertise, team, and global footprint.

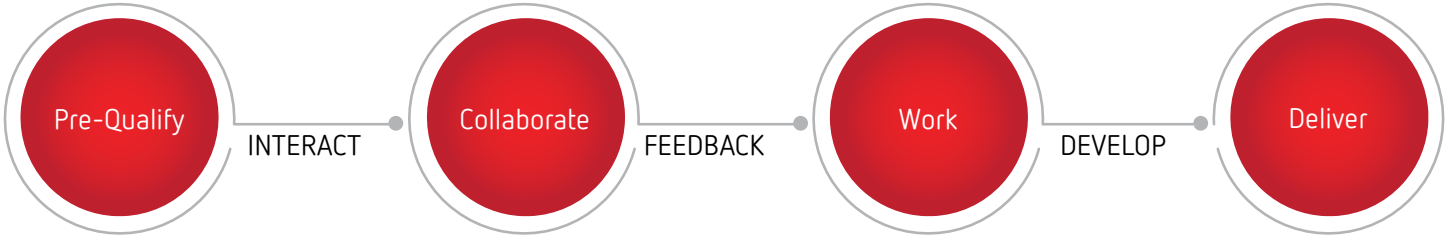
SOLVE // UNDERSTAND

Capabilities, lab, size, shape, power management, ranges, frequency, and more around how our capabilities can provide efficient, productive, designs & products.

DELIVER // QUALITY

Help customers win through our diverse products, dynamic capabilities, reliable high-quality magnetics solutions, and customer driven innovation and service.

Our Custom Solutions Process



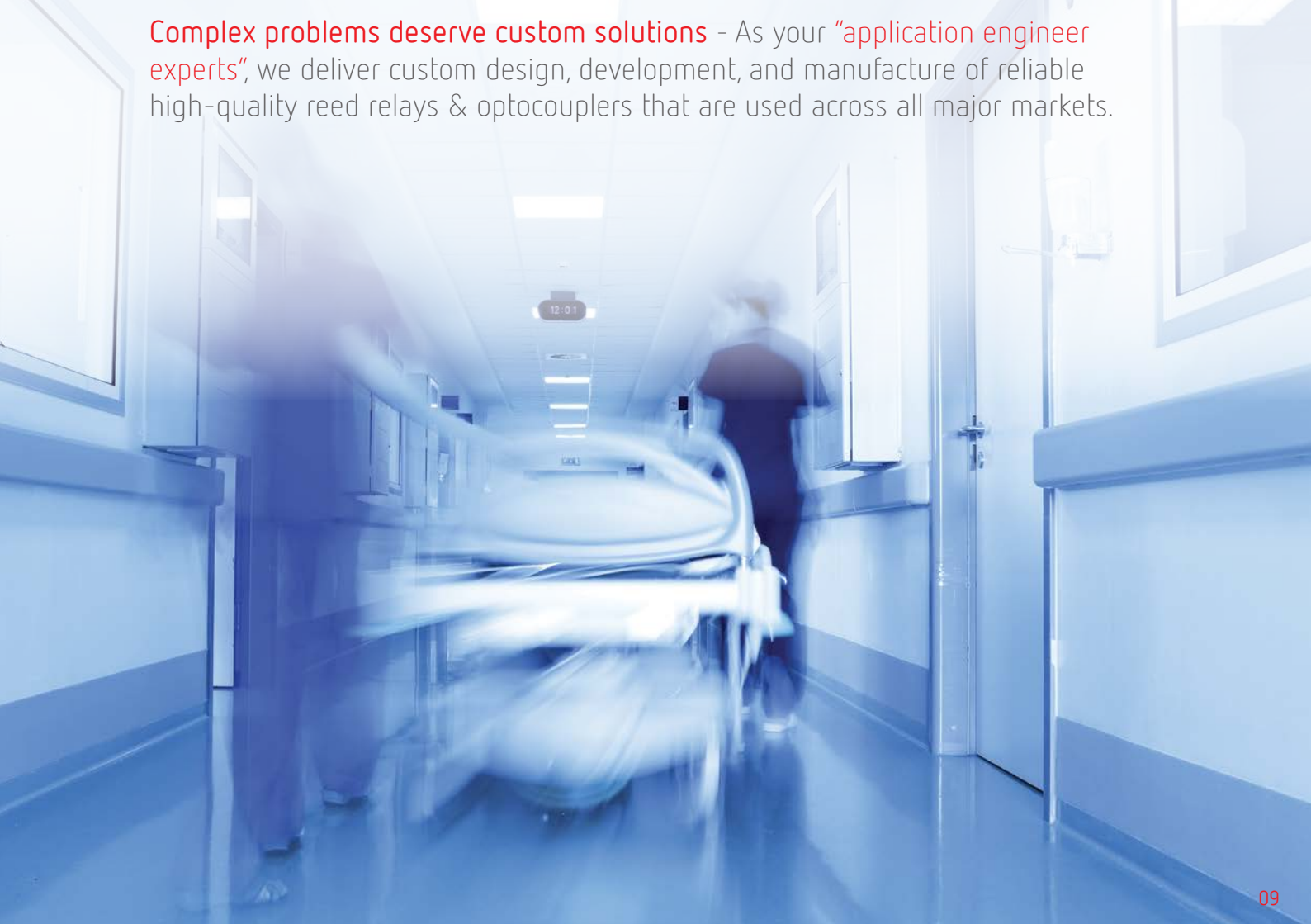
- Understand Application
- Define Design Targets
- No. of Switches & Form (A,B,C,E)
- Coil Voltage
- Max Voltage, Power, & Current
- Hot or Cold Switching
- Life Expectancy Requirements
- Isolation Requirements
- Impedance Limitations
- Temperature Range

- Certifications & Standards
- Open Engineering Team Dialogue
- Footprint, Special Pin-Outs
- Optimize Efficiency
- Electrical Modeling
- Preliminary Design Approval
- Identify Custom Components
- Creepage & Clearance Distances
- Generate Print & Quotation

- Final Design Approval
- Generate BOM
- Order Material
- Queue Samples
- Sample Build
- Test & Report
- Application Testing
- Feedback
- Repeat As Needed

- Production Order
- APQP
- FAI
- DFMEA & PFMEA
- Line Audit
- PPAP
- Delivery
- Sustaining Engineering

Complex problems deserve custom solutions - As your "application engineer experts", we deliver custom design, development, and manufacture of reliable high-quality reed relays & optocouplers that are used across all major markets.



REED RELAY TECHNOLOGY

"Fast switching in the hundreds of microseconds and long life capability that surpasses electromechanical relays."

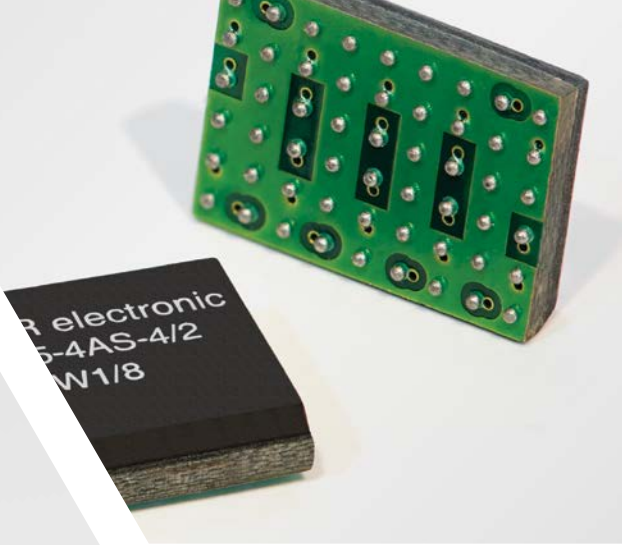
The Standex Electronics brand "MEDER electronic REED RELAYS" came as the result of the 2012 acquisition of MEDER electronic in Germany, where the production of high quality reed relays originated. Reed relays and reed sensors both use the reed switch as the heart of their switching mechanism. Therefore, all the features associated with Standex Electronics' reed switch technology are captured in MEDER electronic reed sensors and MEDER electronic reed relays. New applications continue to arise at a significant pace for both products because of the reed switch's unique switching capability.

Standex Electronics is the world's largest manufacturer of reed switches (>700M/yr) with >50% market share offering the most comprehensive listing of reed switches that cover the majority of low power switching requirements. Because reed switches are hermetically sealed (glass to metal seal) they are impervious to almost all environments. This opens up a vast number of applications where they are the only technology capable of meeting specific requirements where certain mechanical switches and semiconductor switches are environmentally limited.

MEDER electronic

REED RELAYS

A **STANDEX** ELECTRONICS BRAND



That's **Standex** | Strong.

standexelectronics.com

STANDEX ELECTRONICS UNIQUE ADVANTAGES

Global leader in reed relay manufacturing and world's largest reed switch manufacturer >50% market share

- Unique flat blade switches 4mm & 10mm for SMD processes
- High voltage vacuum version now available
- Highest industry quality and manufacturing volume
- Suitable for high-reliability automotive & ATE
- Long life expectancy, wider product range with form C, high voltage, etc.
- Most reliable in the market

In-house life testing capabilities

- Unique, proprietary life cycle testing technology
- Monitors and analyzes each cycle in real time
- Adjustable loads, from 1 milliwatts up to 100 watts
- Speeds of 100 hertz, 100 times per second

ELECTRICAL & MECHANICAL BENEFITS

Long life, billions (10^9) of operations (load dependent)

Multi-pole configurations up to 8 poles

Form A, B, C, and E versions

Stable low contact resistance <150 mΩ

High insulation resistance >10^14 Ω

Ability to switch up to 10,000 VDC

Breakdown voltages and dielectric strength up to 15kVDC

Carry currents up to 5 Amps continuous (10 Amps pulsed)

Withstand shocks to 100g, vibrations 50-2,000Hz at 20g

Hermetically sealed switches

Operate times in the 500µs to 3 ms range

Suitable for high density matrix assembly

Wide array of coil resistances

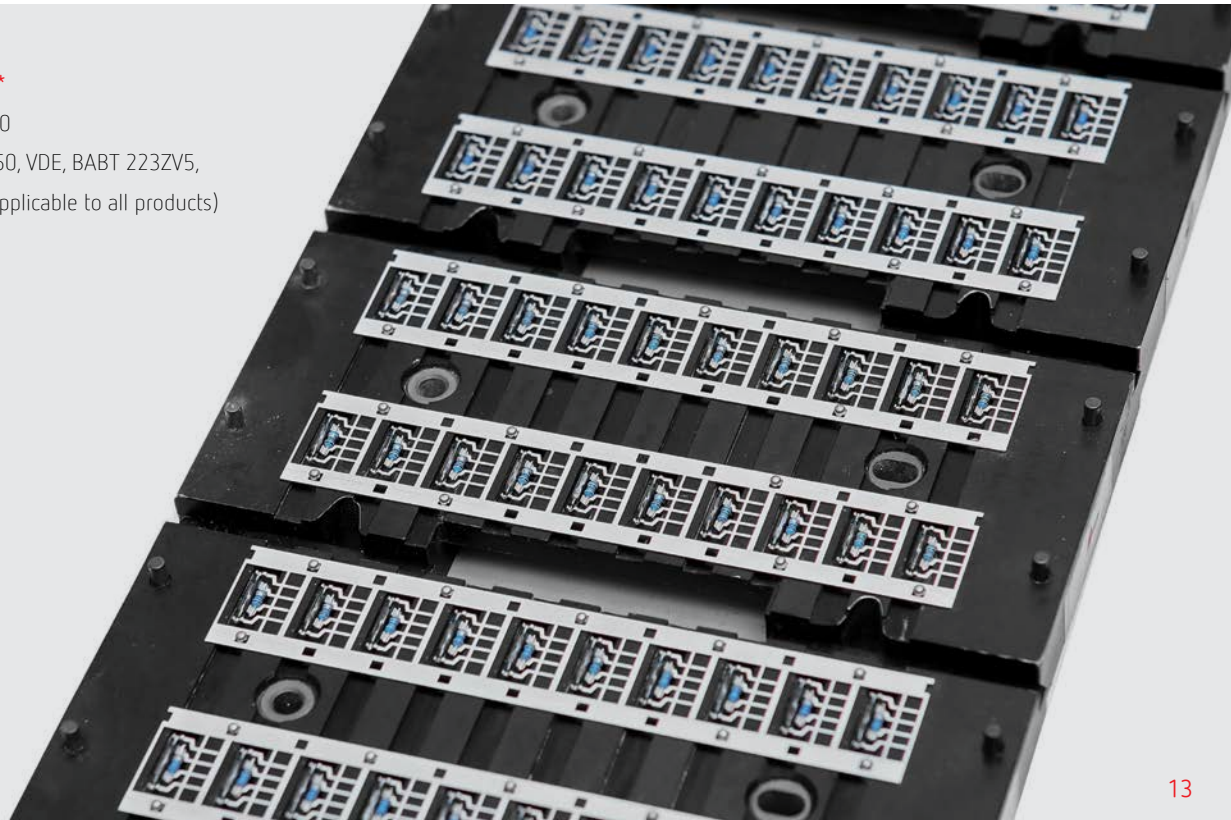
Large assortment of package styles and pin-outs

OUR PRODUCTS ARE RECOGNIZED*

Tested in accordance with AEC-Q200

In compliance with UL, CSA, EN60950, VDE, BABT 223ZV5,

ATEX & IECEx, RoHS, REACH (*not applicable to all products)



"Reed Relays are making headway in some of the most demanding applications and emerging markets."

We offer engineered reed relay solutions for a broad spectrum of product applications in all major markets. Battery charging, electric vehicles, solar inverters, medical, and test and measurement markets are just some of the areas where reed technology is gaining ground.

APPLICATIONS

Automotive, Electric & Hybrid Vehicles
- Battery Management Systems
- Battery Conditioning
- High Insulation Measurement

Renewable Energy - PV Systems
- Solar Inverters
- Power Distribution

Medical Equipment
- Surgical Generators
- Automated External Defibrillators
- Isolation Functions

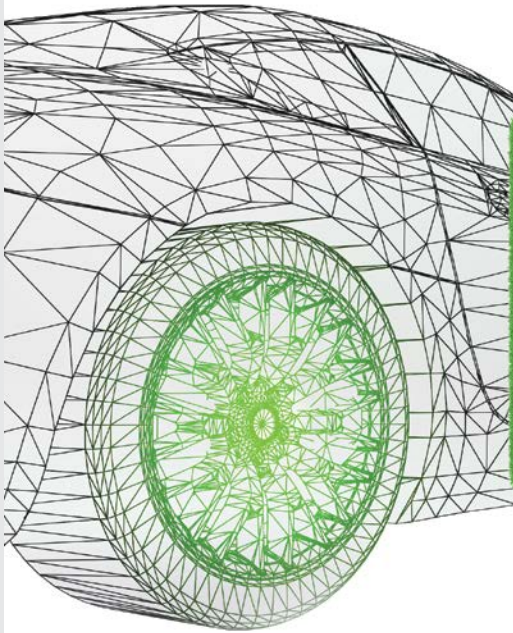
Test & Measurement
- Integrated Circuit Testers
- Automated & Precision Test Equipment
- Multiplexers, High Density Matrices

Intrinsic Safety
- Electronics, Mining, Oil & Gas Production
- Geothermal & Seismic Instrumentation

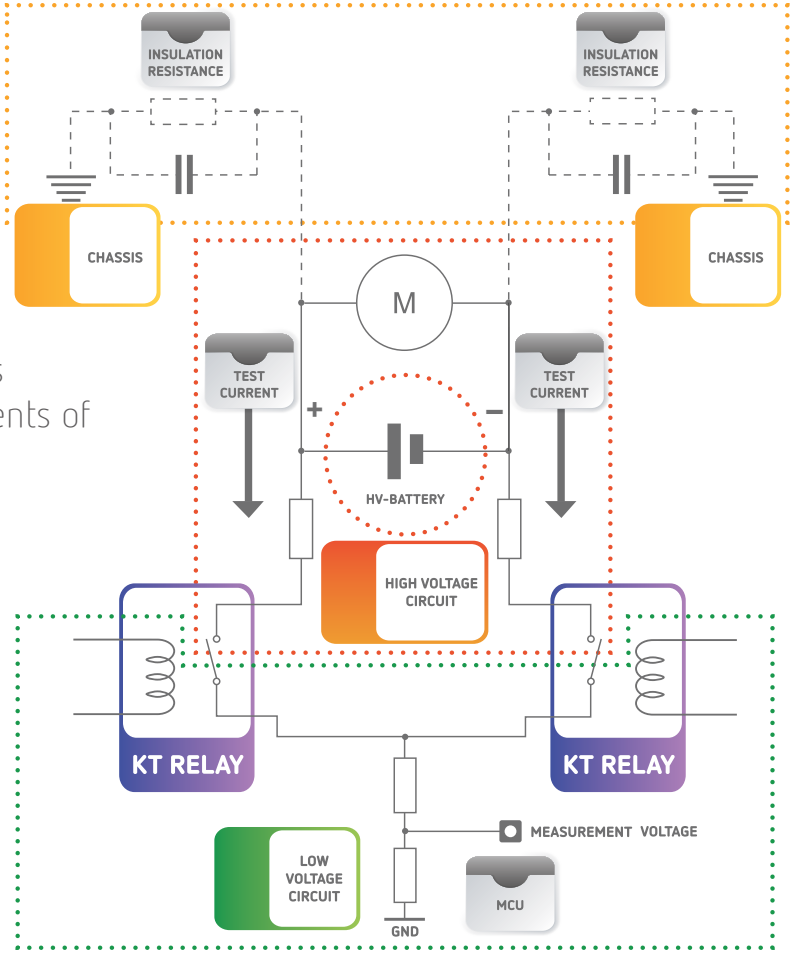
HIGH ISOLATION MEASUREMENT

KT Series (SMT/THT 30 x 11 x 9 mm)

- Switching voltage 1kVDC
- Breakdown voltage 4kVDC
- Dielectric strength (coil-contact) 7kVDC
- Creepage distance >17mm
- Air clearance 12mm
- Ambient range -40°C ~ +100°C
- Capable of 125°C internal temperature
- Millions of operations at 800V-1kVDC
- Tested in accordance with AEC-Q200
- UL94 approved



KT SERIES IN BATTERY MANAGEMENT SYSTEM



"When properly designed-in, the reed relays features will stand up to the high requirements of modern electric devices very well."

AEC-Q200

REED RELAY SELECTION GUIDE

Complex problems deserve custom solutions - "Custom parameters for design in a large array of packages."

Reed Relays are ideally used for switching applications requiring low and stable contact resistance, low capacitance, high insulation resistance, long life and small size. For specialty requirements such as high RF switching, very high voltage switching, extremely low voltage or low current switching, Reed Relays are ideal.

Custom-made relays are designed to offer specific features and parameters, such as a latching function, very high insulation resistance, different shielding options etc., and thereby appropriately complete our product range of standard relays.

MEDER electronic REED RELAYS

	General Purpose			High Density Boards				
Reed Relay Series	BE	DIL	DIP	MS	SIL	UMS	CRR	RM05-8A-SP
Package / Mounting	Potted/THT	Potted/THT	Molded/THT	Molded/THT	Molded/THT	Molded/THT	Molded/SMD	Molded/THT
Contact Form	1-5A, 2 (B,C)	1-4A, 1 (B,C), 2 (A,C)	1 (A,B,C), 2A	1A	1 (A,B,C)	1A	1A	8A + shift register
Power rating Max. (W)	100	10	10	10	10	10	10	10
Switching voltage Max. (VDC)	1000	500	500	200	500	170	170	170
Switching current Max. (A)	1.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Carry current Max. (A)	2.5	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Breakdown voltage Min. (VDC)	2500	1000	1000	225	1000	210	210	210
Insulation resistance Min. (Ω)	10^13	10^11	10^10	10^10	10^10	10^10	10^11	10^10
Coil resistance Min-Max. (Ω)	140-8,000	500-10,000	500-2,000	280-700	200-2,000	400-500	70-150	8x500
Coil voltage(s)	5, 12, 24	5, 12, 24	3, 5, 12, 15, 24	5, 12	3, 5, 12, 15, 24	5	3, 5	5 (3.3 driver)
Options and features	Plastic/metal case Many pin-outs Up to 5 A switches	Mercury optional Int. mag shield Line sense 11kΩ coil Dielectric 4.25kVDC	Flyback diode Mercury optional IC compatible in-line Dielectric 4kVDC	Flyback diode Micro in-line	Flyback diode Mag shield	Ultra micro in-line Int. mag shield Flyback diode	Ball Grid Array (BGA) Int. mag shield Tape & Reel	Driver MAX4823 Kickback Protection, Serial Interface Compact size
Highlights & Certifications		c UL us	c UL us	c UL us	c UL us	c UL us	c UL us	
Ordering info on page(s)	19	19	19	19	20	20	20	20

Test & Measurement c UL us UL Approved Tape & Reel Packaging

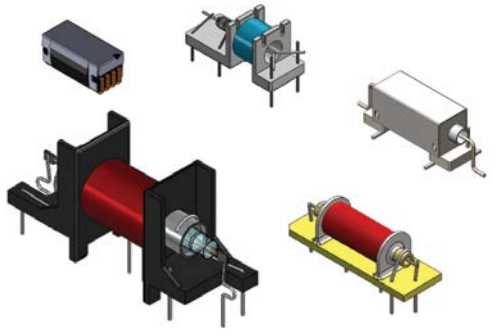
	High Density Boards	High Voltage & High Isolation					
Reed Relay Series	**SHV**	**KT**	**LI**	**SHV**	**BE/MRE**	**H**	**HE**
Package / Mounting	Molded/THT	Molded/SMD, THT	Potted/THT	Molded/THT	Potted/THT	Molded/Open Frame	Potted/THT, Cable
Contact Form	1A	1A	1A	1A	1A, 2A	1 (A,B)	1 (A,B) 2A
Power rating Max. (W)	100	100	100	100	100	50	50
Switching voltage Max. (VDC)	1000	1000	1000	1000	1000	10000	10000
Switching current Max. (A)	1.0	1.0	1.0	1.0	1.0	3.0	3.0
Carry current Max. (A)	2.5	2.5	2.5	2.5	2.5	5.0	5.0
Breakdown voltage Min. (VDC)	4000	4000	4200	4000	6000	15000	15000
Insulation resistance Min. (Ω)	10^10	10^11	10^12	10^10	10^14	10^14	10^13
Coil resistance min-Max. (Ω)	140-2,000	65-1,800	150-2,000	140-2,000	70-1,400	180-700	50-1,500
Coil voltage(s)	5, 12, 24	3, 5, 12, 24	5, 12, 24	5, 12, 24	5, 12, 24	12, 24	5, 12, 24
Options and features	Flyback diode Int. mag shield	Isolation 7kVDC High creepage/clearance Tape & Reel	Isolation 7kVDC High creepage/clearance	Flyback diode Int. mag shield	Plastic/metal case High creepage/clearance		Creepage distance >26mm
Highlights & Certifications		AEC-Q200					
Ordering info on page(s)	21	21	21	21	21	22	22

	High Voltage & High Isolation		High Frequency				Relay Modules	
Reed Relay Series	**HM**	**HI**	**CRF**	**HF**	**RM05-4A**	**SIL RF**	**RM05-8A-SP**	**RM05-4A**
Package / Mounting	Potted/THT	Open Frame/THT	Ceramic/SMD	Potted/THT	Molded/SMD	Molded/THT	Molded/THT	Molded/SMD
Contact Form	1 (A,B)	1A	1A	1 (A,B), 2A	4A	1A	8A + shift register	4A
Power rating Max. (W)	50	100	10	25	10	10	10	10
Switching voltage Max. (VDC)	10000	1000	170	500	170	200	170	170
Switching current Max. (A)	3.0	1.0	0.5	1.5	0.5	0.4	0.5	0.5
Carry current Max. (A)	5.0	2.5	1.0	5.0A@30MHz	0.5	0.5	0.5	0.5
Breakdown voltage Min. (VDC)	15000	3000	210	9000	210	230	210	210
Insulation resistance Min. (Ω)	10^13	10^14	10^10	10^11	10^10	10^9	10^10	10^10
Coil resistance Min-Max. (Ω)	10-1,650	140-3,000	70-150	40-1,000	185	500-1,000	8x500	185
Coil voltage(s)	5, 12, 24	5, 12	3, 5	5, 12, 24	5	5, 12	5 (3.3 driver)	5
Options and features	Creepage distance >32mm	High Insulation Resistance	7GHz <40ps rise 10µV thermal offset Int. mag shield Coax screen Z = 50Ω	Electrostatic and mag shield	<40ps rise Ball Grid Array (BGA)	High RF 1GHz Coax screen Z = 50Ω	Driver MAX4823 Kick-back Protection, Serial Interface Compact size	<40ps rise Ball Grid Array (BGA)
Highlights & Certifications								
Ordering info on page(s)	22	22	23	23	23	23	20	23

AEC-Q200 AEC-Q200 Tested · Battery Management · EV & Automotive · Hazardous Locations · Medical · Solar · Test & Measurement · UL Approved · Tape & Reel Packaging

	Special			
Reed Relay Series	**SHC**	**MRX**	**BT/BTS**	**DIP / SIL**
Description	**High Current** Compact with High Current switching and carrying capabilities	**Intrinsically Safe** Relays certified for Explosive Environments and Hazardous Locations	**Low Thermovoltage** Special internal design for very low Thermal Voltage Offset between Input and Output	**Low Coil Consumption** "HR" suffix = higher coil resistance than standard, hence need a lower current
Package / Mounting	Molded/THT	Molded/THT	Potted/THT	Potted/THT
Contact Form	1A	1 (A,B)	2A	1A
Power rating Max. (W)	50 (120)	10	100	10
Switching voltage Max. (VDC)	150	200	1000	200
Switching current Max. (A)	2.0	0.5	1.0	0.5
Carry current Max. (A)	5.0 (7.0 as a pulse)	1.0	2.0	1
Breakdown voltage Min. (VDC)	250	1500	1500	200
Insulation resistance Min. (Ω)	10^9	10^10	10^11	10^9
Coil resistance Min-Max. (Ω)	140 - 2,000	280-700	350-5,000	1,000 - 2,000
Coil voltage(s)	5, 12, 24	5, 12	5, 12, 24	5, 12
Options and features	Dielectric Strength 4kVDC, Int. Mag Shield Alternative for Mercury switches	Special pin-outs, Ex-Approved for Intrinsically Safe Circuits	Thermal Offset <1µV, Magnetic Shield Special Pinouts	Magnetic Shield, Flyback Diode
Highlights & Certifications				
Ordering info on page(s)	24	24	24	25

	Special		
Reed Relay Series	**BE**	**NP-CL / DIL-CL**	**SPL**
Description	**Latching** A short coil pulse closes contacts which remain un-changed until opposite pulse is present	**Current Loop** Sensitive relays activated by a current level in range of milliamperes	**Customized Design -** Customized and special relay designs on demand
Package / Mounting	Potted/THT	Potted/THT	
Contact Form	1E	1A	
Power rating Max. (W)	10	5	
Switching voltage Max. (VDC)	500	100	
Switching current Max. (A)	0.5	0.5	
Carry current Max. (A)	1.5	1	
Breakdown voltage Min. (VDC)	2000	100	
Insulation resistance Min. (Ω)	10^11	10^09	
Coil resistance Min-Max. (Ω)	850-5,000	4-9	
Coil voltage(s)	5, 12	Pull-In in mA range	
Options and features	Latching, 2 Input Coils, Metal Housing Magnetic Shield	Magnetic Shield 2 Coils Optional	
Highlights & Certifications			
Ordering info on page(s)	25	25	



ATEX Certified · Hazardous Locations · Test & Measurement · Telecomm

Note: All dimensions are in mm and tolerances according to ISO 2768-m. Please refer to the product datasheets on our website for full dimensions, specifications, tolerances, etc. Not all part number combinations are possible, consult the factory for more info. We reserve the right to make any changes according to technological progress or further developments.

BE 00 - 0 X 00 - X

General Purpose

Rated Power Max. 100W/1000VDC/1A | Coil Resistance Ω 140-8,000

1	Nominal Voltage:	05, 12, 24
2	Contact Quantity:	1-5A, 1-2B, 1-2C
3	Contact Form:	A, B, C
4	Switch Model:	66, 85, 90
5	Housing Option:	(P)lastic, (M)etal, (V) High Insulation

*Option (V) offers 4.5kVDC dielectric coil to contact

Highlights

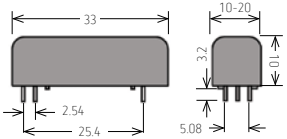
Up to 5A Switches

Many Pinouts

Switching1kVDC

Breakdown 2.5kVDC

High IR 10^13Ω



DIL 00 - 0 X 00 - 00 X

General Purpose

Rated Power Max. 10W/500VDC/0.5A | Coil Resistance Ω 500-10,000

1	Nominal Voltage:	05, 12, 24
2	Contact Quantity:	1-4A, 1B, 1C, 2A, 2C
3	Contact Form:	A, B, C
4	Switch Model:	66, 75, 90
5	Pin-Out:	13, 15, 21, 51, 62, 63
6	Option:	L(M), D(Q), E(R), F(S) ()=verion with magnetic shield

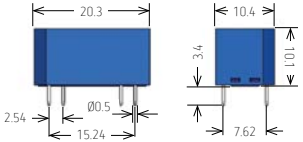
*HR = High Resistance (not available in 24V coil), CL=Current Loop

Highlights

Line Sense 11kΩ Coil

Dielectric 4.25kVDC

IR 10^11Ω



DIP 00 - 0 X 00 - 00 X

General Purpose

Rated Power Max. 10W/500VDC/0.5A | Coil Resistance Ω 500-2,000

1	Nominal Voltage:	05, 12, 15, 24
2	Contact Quantity:	1, 2
3	Contact Form:	A, B, C
4	Switch Model:	72, 75, 90
5	Pin-Out:	10, 11, 12, 13*, 19, 21, 51
6	Option:	L(M), D(Q), E(R), F(S) ()=version with magnetic shield

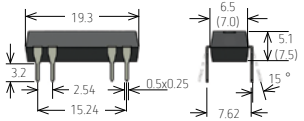
*Breakdown voltage contact to coil 4kVDC

Highlights

Dielectric 4kVDC

IC Compatible in-line

IR 10^10Ω



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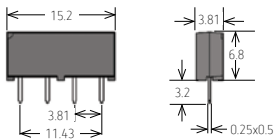
High Density Boards

Rated Power Max. 10W/200VDC/0.5A | Coil Resistance Ω 280-700

1	Nominal Voltage:	05, 12
2	Contact Quantity:	1
3	Contact Form:	A
4	Switch Model:	87
5	Pin-Out:	75
6	Option:	L Standard, D Diode, (HR)=High Resistance coil

Highlights

IR 10^11Ω



Test & Measurement

UL Approved

MEDER electronic
REED RELAYS

Note: All dimensions are in mm and tolerances according to ISO 2768-m. Please refer to the product datasheets on our website for full dimensions, specifications, tolerances, etc. Not all part number combinations are possible, consult the factory for more info. We reserve the right to make any changes according to technological progress or further developments.

SIL 00 - 1 X 00 - 00 XXX

High Density Boards

Rated Power Max. 10W/500VDC/0.5A | Coil Resistance Ω 200-2,000

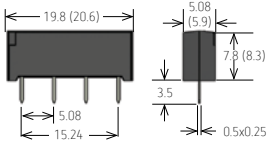
1	Nominal Voltage:	03, 05, 12, 15, 24
2	Contact Quantity:	1
3	Contact Form:	A, B, C (Form C in 5V only)
4	Switch Model:	72, 75, 90
5	Pin-Out:	71, 73 (73 = 4kV Dielectric)
6	Option:	L, M, D, Q, (HR)=High Resistance coil

L=No option, D=Diode, M=Mag Shield, Q=D+M

Highlights

Dielectric 4kVDC

IR 10^11Ω



CRR 00 - 1 A X - (250)

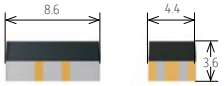
High Density Boards

Rated Power Max. 10W/170VDC/0.5A | Coil Resistance Ω 70-150

1	Nominal Voltage:	03, 05
2	Contact Quantity:	1
3	Contact Form:	A
4	Mount:	S (BGA), empty = standard
5	T&R Qty:	empty=1,000pcs standard, 250=250pcs option

Highlights

IR 10^11Ω



UMS 05 - 1 A 80 - 75 XXX

High Density Boards

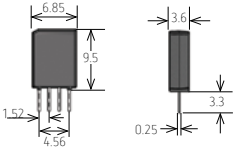
Rated Power Max. 10W/170VDC/0.5A | Coil Resistance Ω 400-500

1	Nominal Voltage:	05
2	Contact Quantity:	1
3	Contact Form:	A
4	Switch Model:	80
5	Pin-Out:	75
6	Option:	L Standard, D Diode

Highlights

Internal Mag Shield

IR 10^10Ω



RM 05 - 8 A - SP

High Density Boards/Relay Modules

Rated Power Max. 10W/170VDC/0.5A | Coil Resistance Ω 500

1	Nominal Voltage:	05
2	Contact Quantity:	8 + shift register
3	Contact Form:	A
4	Pin-out:	SP=Standard in-line pin-out 2x2mm

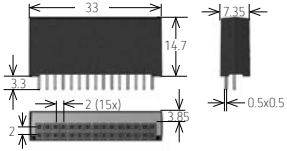
Driver MAX4823 Kickback Protection, Serial Interface, Compact size

Highlights

Relay Module

8-pole RF Low Profile

8-channel



Test & Measurement | UL Approved | Tape & Reel Packaging

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KT 00 - 1 A - 40 X - XXX

High Voltage & Isolation

Rated Power Max. 100W/1000VDC/1A | Coil Resistance Ω 65-1,800

1	Nominal Voltage:	03, 05, 12, 24
2	Contact Quantity:	1
3	Contact Form:	A
4	Layout:	40
5	Option:	L (Standard), D (Diode)
6	Mounting:	SMD, THT

High creepage & clearance distances

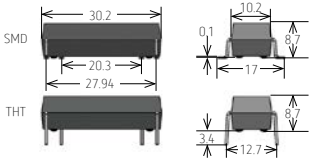
Highlights

Switching1kVDC

Breakdown 4kVDC

High IR 10^11Ω

Dielectric 7kVDC



LI 00 - 1 A 00

High Voltage & Isolation

Rated Power Max. 100W/1000VDC/1A | Coil Resistance Ω 150-2,000

1	Nominal Voltage:	05, 12, 24
2	Contact Quantity:	1
3	Contact Form:	A
4	Switch Model:	85

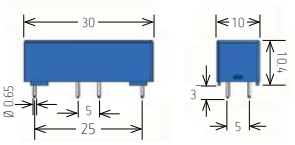
Highlights

Switching1kVDC

Breakdown 4.5kVDC

High IR 10^12Ω

Dielectric 7kVDC



SHV 00 - 1 A 85 - 78 X0K

High Voltage & Isolation

Rated Power Max. 100W/1000VDC/1A | Coil Resistance Ω 140-2,000

1	Nominal Voltage:	05, 12, 24
2	Contact Quantity:	1
3	Contact Form:	A
4	Switch Model:	85
5	Pin-out:	78
6	Option:	L (Standard), D (Diode)
7	Breakdown Voltage:	2KVDC, 3KVDC, 4KVDC

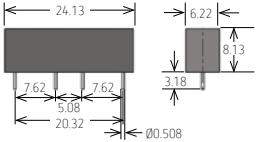
Highlights

Alternative for Mercury Wetted

Breakdown 4kVDC

High IR 10^10Ω

Int. Magnetic Shield



BE/MRE 00 - 0 X 00 - X

High Voltage & Isolation

Rated Power Max. 100W/1000VDC/1A | Coil Resistance Ω 70-1,400

1	Nominal Voltage:	05, 12, 24
2	Contact Quantity:	1, 2
3	Contact Form:	A
4	Switch Model:	85
5	Housing Option:	(P)lastic, (M)etal, (V) High Insulation

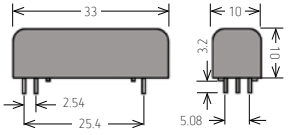
Isolation Voltage up to 6 kVDC

Highlights

Switching1kVDC

Breakdown 6kVDC

High IR 10^14Ω



AEC-Q200 Tested | Battery Management | EV & Automotive | Solar | Test & Measurement | UL Approved | Tape & Reel Packaging

MEDER electronic
REED RELAYS

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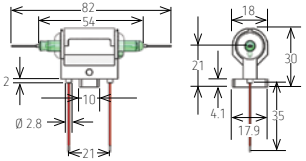
H 00 - 1 X 00

High Voltage & Isolation

Rated Power Max. 50W/10,000VDC/3A | Coil Resistance Ω 180-700

1	Nominal Voltage:	12, 24
2	Contact Quantity:	1
3	Contact Form:	A, B
4	Switch Model:	69, 83

Highlights
Switching10kVDC
Breakdown 15kVDC
High IR 10^14Ω



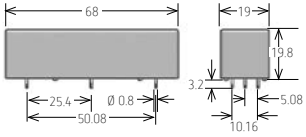
HM 00 - 1 X 00 - 000

High Voltage & Isolation

Rated Power Max. 50W/10,000VDC/3A | Coil Resistance Ω 10-1,650

1	Nominal Voltage:	05, 12, 24
2	Contact Quantity:	1
3	Contact Form:	A, B
4	Switch Model:	69, 83
5	Pin-out:	02, 03, 150, 300 (150 and 300mm axial cables)

Highlights
Switching10kVDC
Breakdown 15kVDC
High IR 10^12Ω
Leakage Dist. >32mm
Axial Wire Leads Optional



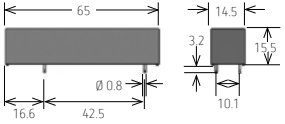
HE 00 - 0 X 00 - 000

High Voltage & Isolation

Rated Power Max. 50W/10,000VDC/3A | Coil Resistance Ω 50-1,500

1	Nominal Voltage:	05, 12, 24
2	Contact Quantity:	1, 2
3	Contact Form:	A, B
4	Switch Model:	69, 83
5	Pin-out:	02, 03, 150, 300 (150 and 300mm axial cables)

Highlights
Switching10kVDC
Breakdown 15kVDC
High IR 10^12Ω
Leakage Dist. >26mm
Axial Wire Leads Optional



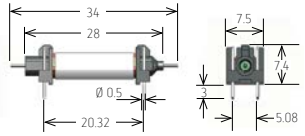
HI 00 - 1 A 00

High Voltage & Isolation

Rated Power Max. 100W/1000VDC/1A | Coil Resistance Ω 140-3,000

1	Nominal Voltage:	05, 12
2	Contact Quantity:	1
3	Contact Form:	A
4	Switch Model:	66, 75, 85

Highlights
Switching1kVDC
High IR 10^14Ω



Medical Test & Measurement

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CRF 00 - 1 A X - (250)

High Frequency

Rated Power Max. 10W/170VDC/0.5A | Coil Resistance Ω 70-150

1	Nominal Voltage:	03, 05
2	Contact Quantity:	1
3	Contact Form:	A
4	Mount:	S (BGA), empty = standard
5	T&R Qty:	empty=1,000pcs standard, 250=250pcs option

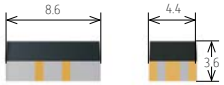
Highlights

7GHz >40ps rise

Coax screen Z = 50Ω

Low thermal offset 10μV typ.

IR 10^11Ω



RM 05 - 4 A S - 0/0

High Frequency/Relay Modules

Rated Power Max. 10W/170VDC/0.5A | Coil Resistance Ω 185

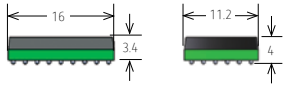
1	Nominal Voltage:	05
2	Contact Quantity:	4
3	Contact Form:	A
4	Solder Balls:	S (BGA)
5	Input:	4
6	Output:	2, 4

Highlights

4-pole Low Profile

>40ps rise

IR 10^10Ω



HF 00 - 1 A - 54 - 0

High Frequency

Rated Power Max. 25W/500VDC/1.5A | Coil Resistance Ω 40-1,000

1	Nominal Voltage:	05, 12, 24
2	Contact Quantity:	1
3	Contact Form:	A
4	Switch Model:	54
5	Breakdown Voltage:	5, 6, 8, 9

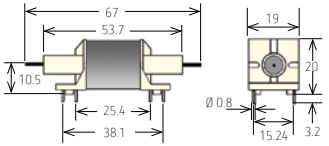
Complete Electrostatic and Magnetic Shielding

Highlights

Carry current 5A@30MHz

Breakdown up to 9kVDC

IR 10^11Ω



SIL 00 - 1 A 72 - 74 X

High Frequency

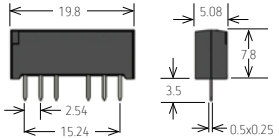
Rated Power Max. 10W/200VDC/0.4A | Coil Resistance Ω 500-1,000

1	Nominal Voltage:	05, 12
2	Contact Quantity:	1
3	Contact Form:	A
4	Switch Model:	72
5	Pin-Out:	74
6	Option:	L (Standard), D (Diode)

Highlights

1GHz RF

Coax screen for Z=50Ω Impedance



Battery Management | Test & Measurement | UL Approved | Tape & Reel Packaging

MEDER electronic
REED RELAYS

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SHC 00 - 1 A 82 - 78 X

1 2 3 4 5 6

Special - High Current

Rated Power Max. 50W/150VDC/2.0A | Coil Resistance Ω 140-2,000

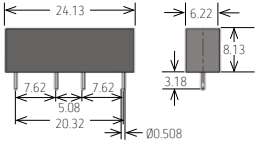
1	Nominal Voltage:	05, 12, 24
2	Contact Quantity:	1
3	Contact Form:	A
4	Switch Model:	82
5	Pin-Out:	78
6	Option:	L Standard, D Diode

Highlights

5A Carry Current (7A Pulsed)

Breakdown 250VDC

IR 10^9Ω



MRX 00 - 0 X 00

1 2 3 4

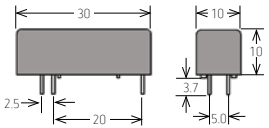
Special - Intrinsically Safe

Rated Power Max. 10W/200VDC/0.5A | Coil Resistance Ω 280-700

1	Nominal Voltage:	05, 12
2	Contact Quantity:	1
3	Contact Form:	A, B
4	Switch Model:	71, 79, 90

Highlights

Breakdown 1.5kVDC



BT/BTS 00 - 2 A 00

1 2 3 4

Special - Low Thermal

Rated Power Max. 100W/1000VDC/1A | Coil Resistance Ω 350-5,000

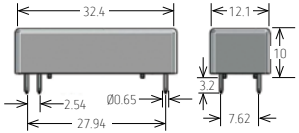
1	Nominal Voltage:	05, 12, 24
2	Contact Quantity:	2
3	Contact Form:	A
4	Switch Model:	66, 75, 45 (BTS)

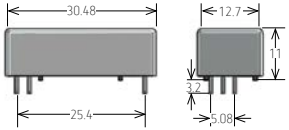
Highlights

Switching1kVDC

Breakdown 1.5kVDC

Thermal Offset <1µV





ATEX Certified | Hazardous Locations | Test & Measurement

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MEDER electronic REED RELAYS

DIP/SIL 00 - 0 X 00 - 00 XHR

Special - Low Coil Consumpion

Rated Power Max. 10W/200VDC/0.5A | Coil Resistance Ω 1,000-2,000

1	Nominal Voltage:	05, 12,
2	Contact Quantity:	1
3	Contact Form:	A
4	Switch Model:	72
5	Pin-Out:	DIP = 12, 13, 51, SIL = 71
6	Option:	L, (M), = Standard D, (Q) = Diode () = Magnetic Shield

Coil power consumption 25 - 72 mW

Highlights
IR 10^9Ω
Breakdown 200VDC
Magnetic Shield
Diode

*For dimensions refer to the standard DIP (p19) and SIL (p23) section

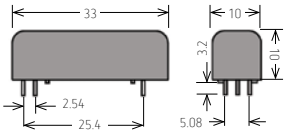
BE 00 - 0 X 00 - X

Special - Latching

Rated Power Max. 100W/1000VDC/1A | Coil Resistance Ω 500-800

1	Nominal Voltage:	05, 12, 24
2	Contact Quantity:	1E, 2A+2B
3	Contact Form:	(A+B), E
4	Switch Model:	66, 85
5	Housing Option:	(M)etal

Highlights
Latching
Switching 500V
Breakdown 2kVDC
IR 10^12Ω



NP-CL/DIL-CL 1 A 00 - 0000 - 000

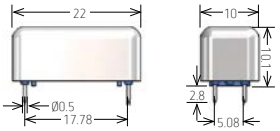
Special

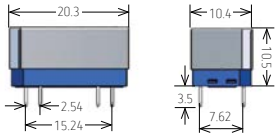
Rated Power Max. 10W/200VDC/0.5A | Coil Resistance Ω 4-18

	Pull-In in mA range	
1	Contact Quantity:	1
2	Contact Form:	A
3	Switch Model:	66, 81
4	Coil Resistance:	4/4, 9, 10, 15, 18
5	Pin-Out:	DIL = 13, 15, 18 NP = 210, 213, 218

Standard Pull-In Current = 15 mA

Highlights
Magnetic Shield
2 Coils Optional
Current Loop Relays Activated by small current





OPTOCOUPLER SELECTION GUIDE

"Optocouplers Handle Hazardous Environments And Meet ATEX Intrinsically Safe Requirements."

Often times electronic equipment is required to carry out certain functions in potentially explosive atmospheres. To prevent potential ignition of the explosive atmosphere via a spark or arc in these environments, all components must be selected very carefully. Components meeting these requirements are generally referred to as intrinsically safe. These components must be tested such that they will not become an ignition point when subjected to short circuits or adjacent component failures. They must also switch to a defined state when subjected to overload conditions. Our 522-03-i, 525-03-0-i, 535-04-0-i, and 567-70-i Optocoupler and MRX reed relay series (page 24) are all ideal for this environment.

	Intrinsically Safe				Special		
Optocoupler Series	522	525	535	567	521	528	530
Description	Small housing with creepage distance of 12 mm and Isolation 4000VDC	Compact housing with creepage distance of 14.5 mm and Isolation 4000VDC	Optocoupler with Darlington Output and Current Transfer Ratio of 300%	Optocoupler with Schmitt Trigger as Output ensures transmission frequency up to 500kHz	Stable Optocoupler with a higher creepage distance of 25.4 mm and Isolation 6,000VDC	Two Optocouplers integrated into one housing with high Isolation of 10,000VDC	Slim housing with extra high Isolation from 10,000 to 22,000VDC
Output	Transistor	Transistor	Darlington	Schmitt Trigger	Transistor	Two transistors	Transistor
Package / Mounting	Potted / THT	Potted / THT	Potted / THT	Potted / THT	Potted / THT	Potted / THT	Potted / THT
Isolation Voltage Input / Output Min. (VDC)	4,000	4,000	4,000	4,000	6,000	10,000	10,000 - 20,000
Creeping Distance, Air Path I / O Min. (mm)	12	14.5	14.5	14.5	24.5	42	34
Current Transfer Ratio Ic / If (If = 10mA) Min. (A)	0.5	0.5	3.0	-	0.5	0.9	0.5
Transmission frequencies up to (KHz)	85	50	2	500	50	50	50
Insulation resistance input / output up to (Ω)	10^12	10^12	10^13	10^13	10^13	10^13	10^13
Ambient Temperature (°C)	-40 to 85	-40 to 85	-40 to 85	-20 to 85	-40 to 85	-40 to 85	-40 to 85
Options and features	Small size	Small size	High current transfer ratio	Fast switching time	High creepage distance	Two optocouplers in one housing	Extra high voltage isolation
Highlights & Certifications							
Ordering info on page(s)	28	28	29	29	30	30	31

ATEX Certified IECEx Certified Hazardous Locations

Important Notice: The scope of the technical and application information included in this catalog is necessarily limited. Operating environments and conditions can materially affect the operating results of Standex Electronics products. Users must determine the suitability of any Standex Electronics component for their specific application, including the level of reliability required, and are solely responsible for the function of the end-use product.

TYPICAL OPTOCOUPLER FEATURES

- Galvanic separation between input & output circuits
- Analog & digital signal transfer is possible
- Marginal coupling capacities between input & output
- Minor output delay times compared to relays
- Long life due to non-abrasive mechanical wear
- Isolation resistance between input & output up to 10^13Ω
- Magnetic fields do not impact operation
- A photodiode makes very short cycle times (microseconds) possible, with up to 500 KHz
- Isolation voltage between input & output up to 22 kVDC
- Able to invert the output signal during transfer
- Lifetime factor increased by a factor of 10, if the LED is used with < 50% of the nominal current
- Resistant against voltage drop
- ATEX & IECEx certified

MEDER electronic
REED RELAYS

Note: All dimensions are in mm and tolerances according to ISO 2768-m. Please refer to the product datasheets on our website for full dimensions, specifications, tolerances, etc. Not all part number combinations are possible, consult the factory for more info. We reserve the right to make any changes according to technological progress or further developments.

522

Intrinsically Safe

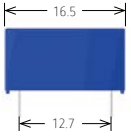
Insulation resistance input /output up to 10^12 Ω, Transmission frequencies up to 85KHz

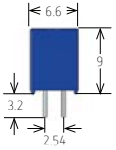
Turn On/Off Time (µsec)	5.5/4.2
Collector-Emitter Voltage Max. (VDC)	32
Forward Voltage U^f max. (VDC)	1.5
DC Forward Current I^f max. (mA)	75
Emitter Power Dissipation P^{tot} max. (mW)	170
Collector Power Dissipation P^{tot} max. (mW)	100
Output	Transistor
Isolation Voltage Input/Output Min. (VDC)	4,000
Turn On/Off Creeping Distance, Air Path I/O Min. (mm)	12
Current Transfer Ratio Ic/If (If = 10mA) Min. (A)	0.5

Highlights

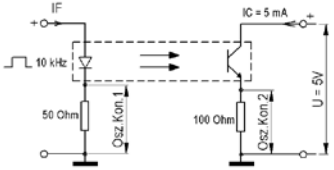
Protection: II(1)G [Ex ia Ga] IIC

Small Package

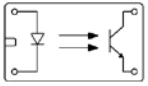




Test Circuit



Layout (Top View)



525

Intrinsically Safe

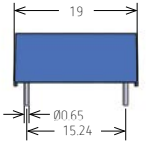
Insulation resistance input /output up to 10^12 Ω, Transmission frequencies up to 50KHz

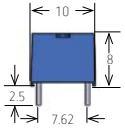
Turn On/Off Time (µsec)	5.5/4.2
Collector-Emitter Voltage Max. (VDC)	32
Forward Voltage U^f max. (VDC)	1.5
DC Forward Current I^f max. (mA)	100
Emitter Power Dissipation P^{tot} max. (mW)	170
Collector Power Dissipation P^{tot} max. (mW)	100
Output	Transistor
Isolation Voltage Input/Output Min. (VDC)	4,000
Turn On/Off Creeping Distance, Air Path I/O Min. (mm)	14.5
Current Transfer Ratio Ic/If (If = 10mA) Min. (A)	0.5

Highlights

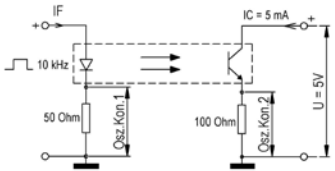
Protection: II(1)G [Ex ia Ga] IIC

Small Package

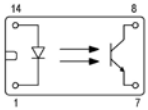




Test Circuit



Layout (Top View)



ATEX Certified | IECEx Certified | Hazardous Locations

Note: All dimensions are in mm and tolerances according to ISO 2768-m. Please refer to the product datasheets on our website for full dimensions, specifications, tolerances, etc. Not all part number combinations are possible, consult the factory for more info. We reserve the right to make any changes according to technological progress or further developments.

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535

Intrinsically Safe

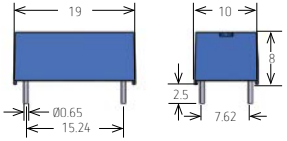
Insulation resistance input /output up to 10^13 Ω, Transmission frequencies up to 2KHz

Turn On/Off Time (µsec)	19.5/212
Collector-Emitter Voltage Max. (VDC)	32
Forward Voltage U^f max. (VDC)	1.5
DC Forward Current I^f max. (mA)	100
Emitter Power Dissipation P^{tot} max. (mW)	170
Collector Power Dissipation P^{tot} max. (mW)	100
Output	Darlington
Isolation Voltage Input/Output Min. (VDC)	4,000
Turn On/Off Creeping Distance, Air Path I/O Min. (mm)	14.5
Current Transfer Ratio Ic/If (If = 10mA) Min. (A)	3.0

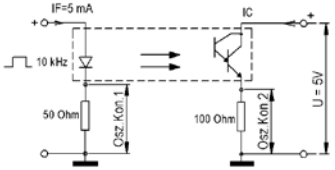
Highlights

Protection: II(1)G [Ex ia Ga] IIC

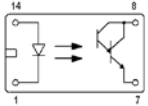
High Current Transfer Ratio



Test Circuit



Layout (Top View)



567

Intrinsically Safe

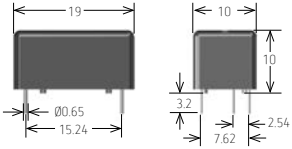
Insulation resistance input /output up to 10^12 Ω, Transmission frequencies up to 500KHz

Turn On/Off Time (µsec)	0.5/0.5
Collector-Emitter Voltage Max. (VDC)	-
Forward Voltage U^f max. (VDC)	-
DC Forward Current I^f max. (mA)	45
Emitter Power Dissipation P^{tot} max. (mW)	-
Collector Power Dissipation P^{tot} max. (mW)	85
Output	Schmitt Trigger
Isolation Voltage Input/Output Min. (VDC)	4,000
Turn On/Off Creeping Distance, Air Path I/O Min. (mm)	14.5
Current Transfer Ratio Ic/If (If = 10mA) Min. (A)	-

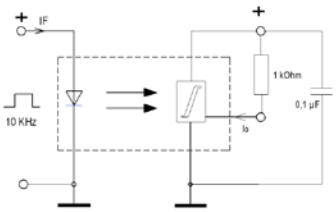
Highlights

Protection: II(1)G [Ex ia Ga] IIC

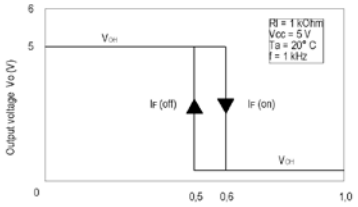
Fast Switching Time



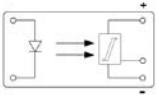
Test Circuit



Transfer Characteristics (IFT)



Layout (Top View)



ATEX Certified | IECEx Certified | Hazardous Locations

MEDER electronic
REED RELAYS

Note: All dimensions are in mm and tolerances according to ISO 2768-m. Please refer to the product datasheets on our website for full dimensions, specifications, tolerances, etc. Not all part number combinations are possible, consult the factory for more info. We reserve the right to make any changes according to technological progress or further developments.

521

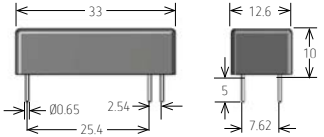
Special

Insulation resistance input /output up to 10^13 Ω, Transmission frequencies up to 50KHz

Turn On/Off Time (µsec)	5.5/4.2
Collector-Emitter Voltage Max. (VDC)	32
Forward Voltage U^f max. (VDC)	1.5
DC Forward Current I^f max. (mA)	100
Emitter Power Dissipation P^{tot} max. (mW)	170
Collector Power Dissipation P^{tot} max. (mW)	100
Output	Transistor
Isolation Voltage Input/Output Min. (VDC)	6,000
Turn On/Off Creeping Distance, Air Path I/O Min. (mm)	24.5
Current Transfer Ratio Ic/If (If = 10mA) Min. (A)	0.5

Highlights

High Creepage Distance



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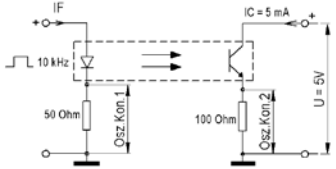
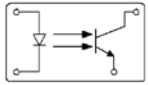


Layout (Top View)



528

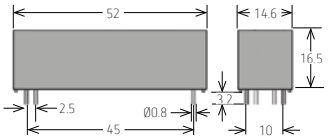
Special

Insulation resistance input /output up to 10^12 Ω, Transmission frequencies up to 50KHz

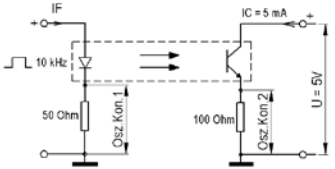
Turn On/Off Time (µsec)	5.5/4.2
Collector-Emitter Voltage Max. (VDC)	70
Forward Voltage U^f max. (VDC)	1.5
DC Forward Current I^f max. (mA)	100
Emitter Power Dissipation P^{tot} max. (mW)	170
Collector Power Dissipation P^{tot} max. (mW)	100
Output	Two Transistors
Isolation Voltage Input/Output Min. (VDC)	10,000
Turn On/Off Creeping Distance, Air Path I/O Min. (mm)	42
Current Transfer Ratio Ic/If (If = 10mA) Min. (A)	0.9

Highlights

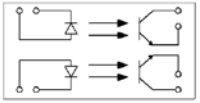
2 Optocouplers in one package



Test Circuit



Layout (Top View)



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530

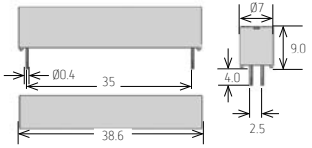
Special

Insulation resistance input /output up to 10^13 Ω, Transmission frequencies up to 50KHz

Turn On/Off Time (µsec)	5.5/4.2
Collector-Emitter Voltage Max. (VDC)	32
Forward Voltage U^f max. (VDC)	1.5
DC Forward Current I^f max. (mA)	100
Emitter Power Dissipation P^{tot} max. (mW)	170
Collector Power Dissipation P^{tot} max. (mW)	100
Output	Transistor
Isolation Voltage Input/Output Min. (VDC)	10,000 - 20,000 (22,000 Option)
Turn On/Off Creeping Distance, Air Path I/O Min. (mm)	34
Current Transfer Ratio Ic/If (If = 10mA) Min. (A)	0.5

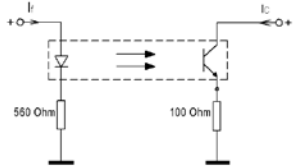
Highlights

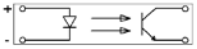
Extra high Isolation Voltage



Test Circuit

Layout (Top View)





Standex | Smart.

MEDER electronic
REED RELAYS
A STANDEX ELECTRONICS BRAND

ECARS & ALTERNATIVE ENERGY

"Reliable, energy efficient, and high isolation control"

Standex Electronics reed relays meet the requirements for proper isolation control within photovoltaic systems and the internal measurement systems of electric vehicles. Especially for measuring isolation resistance across several components within a power system for solar market applications or prior to grid connection. They also assist in detecting current leaks, saving power and preventing injuries.

GENERAL REQUIREMENTS - APPLICATION DEPENDENT

High Isolation between control and load circuit (KT, LI)
High Isolation across contacts (KT, LI)
Capability of switching high voltage up to 1kVDC
Capability of carrying very low current (leakage current detection)
High Reliability
Long Lifetime
Compact Size
High Creepage & Clearance Distance
Following the norms IEC 60664-1, ISO 6469-3 and IEC 62109-1/2

AEC-Q200 c UL us RoHS REACH COMPLIANCE

APPLICATIONS

- Battery Management Systems
- Solar Inverters
- Power Distribution
- Battery Conditioning
- Smart Grid

CUSTOMER CONFIGURATIONS

- Customized nominal voltage of coil
- High coil resistance for low consumption
- THT and SMD mounting
- Life Time Testing dependent on Load
- Customized Marking

Standex | Strong.

MEDER electronic
REED RELAYS
A STANDEX ELECTRONICS BRAND

TEST & MEASUREMENT

"Passing fast digital pulses with excellent Isolation"

Switching both low and high level loads, and passing fast digital pulses (picosecond range) in a 50 ohm impedance environment, while offering excellent isolation are just a few of the features that make Standex Electronics reed relays idealy suited in Test & Measurement applications.

GENERAL REQUIREMENTS - APPLICATION DEPENDENT

Perfect Isolation between coil/contact and across the open switch (KT, LI, SHV, BE, HI, H, HE, HM)
Capability of switching both low and high level loads
Internal Magnetic Shield for High Density Assembly (CRF, CRR, UMS, RM, SHV, SHC)
High Reliability and Long Lifetime
Low Leakage Currents
Fast Operation Time
High Frequency Signals (CRF, RM-4A, SIL-RF, HF)
Low Thermal Offset Voltage (BT/BTS)
Contact Capacitance 0.3 pF (CRR, CRF, UMS)

cULus RoHS REACH COMPLIANCE

APPLICATIONS

- Insulation Testers
- Digital Multimeter (DMM) & Oscilloscopes
- Semiconductor Testers
- Multiplexers & Data Selectors
- Matrix Switches
- Automated test Equipment
- Cable Harnesses Testers
- Embedded PCB Testers

CUSTOMER CONFIGURATIONS

- Customized series MRE, SPL and many others
- Open designs for very high IR coil to contact >10^14
- High Creepage & Clearance Distances
- Electrostatic Screen and Magnetic Shield optional
- Switching RF signals up to 7 GHz
- Internal Magnetic Shield for High Density Assembly
- Customized coil voltage and pin-outs
- High coil resistance for low consumption
- Latching version with one or two coils

That's **Standex** | Strong.

Standex | Smart.

MEDER electronic
REED RELAYS
A STANDEX ELECTRONICS BRAND

MEDICAL

"Reliably carry high voltage and frequency signals while providing vital galvanic isolation."

Most of today's modern hospitals around the world are now equipped with new state of the art surgical operating rooms. Only reed relay technology is equipped to handle the high frequency, high current, and high voltage isolation requirements in a reliable and safe manner in medical equipment such as surgical generators and automated external defibrillators.

GENERAL REQUIREMENTS - APPLICATION DEPENDENT

High Isolation between control and load circuit
High Isolation across contacts
High Creepage & Clearance Distances
Capable of handling high voltage
High Reliability
Long Lifetime
Following the norms IEC 60601-1, IEC 61010 and IEC 60255-27

RoHS REACH COMPLIANCE

APPLICATIONS

- HF Surgical Generators
- Automated External Defibrillators
- Isolation Functions

CUSTOMER CONFIGURATIONS

- Open designs for very high IR coil to contact >10^14
- Creepage & Clearance Distances on demand
- Electrostatic Screen and Magnetic Shield optional
- Magnetic Shield for High Density Assembly
- Customized coil voltage and pin-outs
- High coil resistance for low consumption

Standex | Strong.

MEDER electronic
REED RELAYS
A STANDEX ELECTRONICS BRAND

INTRINSICALLY SAFE

"Isolation up to 4 kVDC and non-arcing environments"

Our line of optocouplers can safely handle input/output isolation as high as 4,000 VDC that have met and been certified for the stringent requirements of ATEX. They offer insulation resistances as high as 10^13 ohms, operate in less than 10 µsec, and creepage distances from input to output are up to 14.5 mm. (see page 26 for more info)

GENERAL REQUIREMENTS - APPLICATION DEPENDENT

Intended for use in Systems in Potentially Explosive Atmospheres
ATEX certified: KIWA 18ATEX0017U (Directive 2014/34/EU), Protection: II(1)G [Ex ia Ga] IIC
In compliance with EN60079-0:2012+A11:2013 and EN60079-11:2012
IECEx certified: KIWA 18.0009U, Protection: [Ex ia Ga] IIC
High Isolation Voltage between Input and Output up to 4 kVDC
Isolation resistance up to 10^13 Ohm
Fast Switching Time in microseconds
High Reliability and Long Lifetime due to non-abrasive mechanical wear
Long creepage distances
Marginal coupling capacities between input and output
Magnetic fields do not impact operation

RoHS REACH COMPLIANCE

APPLICATIONS

- Electronics for Mining
- Oil & Gas Production
- Geothermal Instrumentation
- Seismic Instrumentation
- Test & Measurement
- Any Non-arcing Environment

CUSTOMER CONFIGURATIONS

- Additional certifications on demand
- High Voltage and Isolation Resistance Extensions
- Temperature and Humidity Testing
- Size modifications on demand
- Customized Pin-outs
- Customized Laser Marking

That's **Standex** | Strong.

Standex Electronics

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