RH series Power Relays

SPDT through 4PDT, 10A contacts Midget power relays

The RH series are miniature power relays with a large capacity. The RH relays feature 10A contact capacity as large as the RR series and the same size as IDEC's miniature relays. The compact size saves space.

- Cadmium free contact relays available.
- Lloyd Register type approved.UL, CSA certified. EN compliant.



• See website for details on approvals and standards.



T	Ot. In		SPDT		DPDT
Termination	Sty l e	Part No.	Coil Voltage Code *	Part No.	Coil Voltage Code *
			AC6, AC12, AC24, AC50, AC100, DC6, DC12, DC24, DC48		AC6, AC12, AC24, AC50, AC100-110, AC200-220, DC6,
	Basic	RH1B-U* RH1B-UW*	DC100, DC110	RH2B-U* RH2B-UW*	DC12, DC24, DC48, DC100-110
			AC110, AC115, AC120	RHZB-UW*	AC110-120
With Indicator Plug-in Terminal			AC200, AC220, AC230, AC240		AC220 - 240
			AC6, AC12, AC24, AC50, AC100, DC6, DC12, DC24, DC48		AC6, AC12, AC24, AC50, AC100-110, AC200-220, DC6,
	With Indicator	RH1B-UL*	DC100, DC110	RH2B-UL* RH2B-ULW*	DC12, DC24, DC48, DC100-110
		RH1B-ULW*	AC110, AC115, AC120	RHZB-ULW*	AC110-120
			AC200, AC220, AC230, AC240	1	AC220-240
	Top Bracket Mounting	RH1B-UT* RH1B-UTW*	AC6, AC12, AC24, AC50, AC100, DC6, DC12, DC24, DC48		AC6, AC12, AC24, AC50, AC100-110, AC200-220, DC6,
			DC100, DC110	RH2B-UT* RH2B-UTW*	DC12, DC24, DC48, DC100-110
			AC110, AC115, AC120	RHZB-UTW*	AC110-120
			AC200, AC220, AC230, AC240	1	AC220-240
	With Diode	RH1B-UD*	DC6, DC12, DC24, DC48	RH2B-UD*	DC6, DC12, DC24, DC48,
	(DC coil only)	RH1B-UDW*	DC100	RH2B-UDW*	DC100-110
	With Indicator and	RH1B-ULD*	DC6, DC12, DC24, DC48	RH2B-ULD*	DC6, DC12, DC24, DC48,
	Diode (DC coil only)	RH1B-ULDW*	DC100, DC110	RH2B-ULDW*	DC100-110
			AC6, AC12, AC24, AC50, AC100, DC6, DC12, DC24, DC48		AC6, AC12, AC24, AC50, AC100-110, AC200-220, DC6,
	Basic	RH1V2-U*	DC100, DC110	RH2V2-U*	DC12, DC24, DC48, DC100-110
PC Board Terminal		RH1V2-UW*	AC110, AC115, AC120	RH2V2-UW*	AC110-120
i emina i			AC200, AC220, AC230, AC240]	AC220-240
	With Diode	RH1V2-UD*	DC6, DC12, DC24, DC48	RH2V2-UD*	DC6, DC12, DC24, DC48,
	(DC coil only)	RH1V2-UDW*	DC100	RH2V2-UDW*	DC100-110

[•] Part number ending with W is cadmium free.

Part No. Development

When ordering, specify the Part No. and coil voltage code.

(Example) RH2B-U AC100-110

> Part No. Coil Voltage Code

RH Series **Power Relays**

Termination	Style		3PDT		4PDT
Termination	Style	Part No.	Coil Voltage Code *	Part No.	Coil Voltage Code *
	Basic	RH3B-U* RH3B-UW*	AC6, AC12, AC24, AC50, AC100, AC200, DC6, DC12, DC24, DC48, DC100 AC110, AC115, AC120	RH4B-U* RH4B-UW*	AC6, AC12, AC24, AC50, AC100, AC200, DC6, DC12, DC24, DC48, DC100 AC110, AC115, AC120
			AC110, AC115, AC120 AC220, AC230, AC240, DC110		AC110, AC115, AC120 AC220, AC230, AC240, DC110
		RH3B-UL*	AC6, AC12, AC24, AC50, AC100, AC200	RH4B-UL*	AC6, AC12, AC24, AC50, AC100, AC200, DC6, DC12, DC24, DC48, DC100
	With Indicator	RH3B-ULW*	AC110, AC115, AC120, DC6, DC12, DC24, DC48, DC100	RH4B-ULW*	AC110, AC115, AC120
Plug-in Terminal			AC220, AC230, AC240, DC110		AC220, AC230, AC240, DC110
reminai	Top Bracket	RH3B-UT*	AC6, AC12, AC24, AC50, AC100, AC110, AC115, AC120, AC200, AC220,	RH4B-UT*	AC6, AC12, AC24, AC50, AC100, AC200, DC6, DC12, DC24, DC48, DC100
	Mounting	RH3B-UTW*	AC230, AC240, DC6, DC12,	RH4B-UTW*	AC110, AC115, AC120
			DC24, DC48, DC100, DC110		AC220, AC230, AC240, DC110
	With Diode (DC coil only)	RH3B-D*(Note) RH3B-DW*(Note)	DC6, DC12, DC24, DC48, DC100, DC110	RH4B-UD* RH4B-UDW*	DC6, DC12, DC24, DC48, DC100, DC110
	With Indicator and Diode (DC coil only)	RH3B-LD*(Note) RH3B-LDW*(Note)	DC6, DC12, DC24, DC48, DC100, DC110	RH4B-ULD* RH4B-ULDW*	DC6, DC12, DC24, DC48, DC100, DC110
	Basic	RH3V2-U* RH3V2-UW*	AC6, AC12, AC24, AC50, AC100, AC200, DC6, DC12, DC24, DC48, DC100	RH4V2-U*	AC6, AC12, AC24, AC50, AC100, AC200, DC6, DC12, DC24, DC48, DC100
		KH3V2-UVV*	AC110, AC115, AC120	RH4V2-UW*	AC110, AC115, AC120
			AC220, AC230, AC240, DC110		AC220, AC230, AC240, DC110
PC Board	Mala la dia atau	RH3V2-UL*	AC6, AC12, AC24, AC50, AC100, AC200	RH4V2-UL*	AC6, AC12, AC24, AC50, AC100, AC200, DC6, DC12, DC24, DC48, DC100
Terminal	With Indicator	RH3V2-ULW*	AC110, AC115, AC120, DC6, DC12, DC24, DC48, DC100	RH4V2-ULW*	AC110, AC115, AC120
			AC220, AC230, AC240, DC110		AC220, AC230, AC240, DC110
	With Diode (DC coil only)	RH3V2-D*(Note) RH3V2-DW*(Note)	DC6, DC12, DC24, DC48, DC100, DC110	RH4V2-UD* RH4V2-UDW*	DC6, DC12, DC24, DC48, DC100, DC110
	With Indicator and Diode (DC coil only)	RH3V2-LD*(Note) RH3V2-LDW*(Note)	DC6, DC12, DC24, DC48, DC100, DC110	RH4V2-ULD* RH4V2-ULDW*	DC6, DC12, DC24, DC48, DC100, DC110

Part No. Development When ordering, specify the Part No. and coil voltage code.

(Example) RH4B-U AC100

Part No. Coil Voltage Code

Coil Ratings

_	on ridings																		
	Ra	ted Volt	age (V)			F	Rated Cu	urrent (m	A) ±15%	at 20°C	:		(Coil Resis	stance (Ω	!)	Operation (against rate	Characteried values at	stics : 20°C)
	SPDT	DPDT	3PDT	4PDT		50Hz				60	Hz			±10% :	at 20°C		Max. Continuous	Min, Pickup	Dropout
	SPUI	DPDI SPDI 4PD	FD1 3FD1 4F	4PD1	SPDT	DPDT	3PDT	4PDT	SPDT	DPDT	3PDT	4PDT	SPDT	DPDT	3PDT	4PDT	Applied Voltage	Jileu Voltago Volta	Voltage
	6	6	6	6	170	240	330	387	150	200	280	330	18.8	9.34	6.4	5.8			
	12	12	12	12	86	121	165	196	75	100	140	165	76.8	39.3	25.3	23.1			
	24	24	24	24	42	60.5	81	98	37	50	70	83	300	152	103	84.5	1		
İ	50	50	50	50	20.5	28.9	39.5	47	18	24	34	40	1,280	676	460	340			
Ϋ́	100	100-110	100	100	10.5	10.3-11.8	20	23.5	9	9.1-10.0	17	20	5,220	3,360	1,940	1,560			
(50/60Hz)	110	_	110	110	9.6	_	18.1	21.6	8.4	_	15.5	18.2	6,950	_	2,200	1,800	110%		30%
(50	115	110-120	115	115	8.9	9.4-10.8	17.1	20.8	7.8	8.0-9.2	14.8	17.5	7,210	4,290	2,620	1,910			minimum
l S	120	<u> </u>	120	120	8.6	_	16.4	19.5	7.5	_	14.2	16.5	8,100	_	2,770	2,220			
	200	200-220	200	200	5.6	5.1-5.9	9.8	11.8	4.9	4.3-5.0	8.5	10	21,442	13,690	8,140	6,360			
İ	220	_	220	220	4.7	_	8.8	10.7	4.1	_	7.7	9.1	25,892	_	10,810	7,360			į į
İ	230	220-240	230	230	4.7	4.7-5.4	8.5	10.3	4.1	4.0-4.6	7.4	8.7	26,710	18,820	11,460	8,520			
	240	_	240	240	4.9	_	8.2	9.8	4.3	_	7.1	8.3	26,710	_	12,110	9,120			
	SPDT	DPDT	3PDT	4PDT	SF	TD	DP	DT	3P	DT	4P	DT	SPDT	DPDT	3PDT	4PDT			
	6	6	6	6	1	28	15	50	24	40	2!	50	47	40	25	24			
	12	12	12	12	6	64	7	5	1:	20	12	25	188	160	100	96			
12	24	24	24	24	3	32	37	7.5	6	0	6	2	750	640	400	388	110%	80% maximum	10% minimum
	48	48	48	48	1	18	18	3.8	3	10	3	1	2,660	2,560	1,600	1,550			
	100	100-110	100	100	1	10	8.2	9.0	14	1.5	1	5	10,000	12,250	6,900	6,670			
	110	_	110	110		8	-	_	12	2.8	1	5	13,800	_	8,600	7,340			

Note: No standard approval.
• Part number ending with W is cadmium free.

Contact Ratings

	Maximum Contact Capacity									
	Continuous Current	Allowable Co	ontact Power	Ra	ted Loa	d				
Contact		Resistive Load	Inductive Load	Voltage (V)	Res. Load	Ind. Load				
		1540VA AC 300W DC		110 AC	10A	7A				
SPDT	10A		990VA AC 210W DC	220 AC	7A	4.5A				
			21011 20	30 DC	10A	7A				
DPDT				110 AC	10A	7 . 5A				
3PDT 4PDT	10A	1650VA AC 300W DC	1100VA AC 225W DC	220 AC	7 . 5A	5A				
		00011 20		30 DC	10A	7.5A				

Note: Inductive load for the rated load — $\cos \emptyset = 0.3$, L/R = 7 ms

Approval Ratings

UL Ratings (silver cadmium oxide)

	F	Resistiv	е	Ge	eneral u	se	Horse Power Rating		
Voltage	RH1 RH2	RH3	RH4	RH1 RH2	RH3	RH4	RH1 RH2	RH3	RH4
240V AC	10A	7 . 5A	7 . 5A	7A	6.5A	5A	1/3 HP	1/3 HP	_
120V AC	_	10A	10A	_	7.5A	7 . 5A	1/6 HP	1/6 HP	_
30V DC	10A	10A	_	7A	_	_	_	_	_
28V DC	_	_	10A	_	_	_	_	_	_

UL Ratings (cadmium free)

	Resistive			General use			Horse Power Rating		
Voltage	RH1 RH2	RH3	RH4	RH1 RH2	RH3	RH4	RH1 RH2	RH3	RH4
240V AC	10A	10A	10A	10A	10A	10A	1/3 HP	1/3 HP	_
120V AC	_	_	_	_	_	_	1/6 HP	1/6 HP	_
30V DC	10A	10A	10A	7A	I	I	_	_	I

CSA Ratings (Silver cadmium oxide/cadmium free)

Voltage	Resistive				General use				Horse Power Rating
	RH1	RH2	RH3	RH4	RH1	RH2	RH3	RH4	RH1, 2, 3
240V AC	10A	10A	10A	10A	7A	7A	7A	5A	1/3 HP
120V AC	10A	10A	10A	10A	7.5A	7.5A	_	7.5A	1/6 HP
30V DC	10A	10A	10A	10A	7A	7.5A	_	_	_

TÜV Ratings (silver cadmium oxide/cadmium free)

Voltage	RH1	RH2	RH3	RH4
240V AC	10A	10A	7 . 5A	7 . 5A
30V DC	10A	10A	10A	10A

AC: $\cos \emptyset = 1.0$, DC: L/R = 0 ms

Specifications

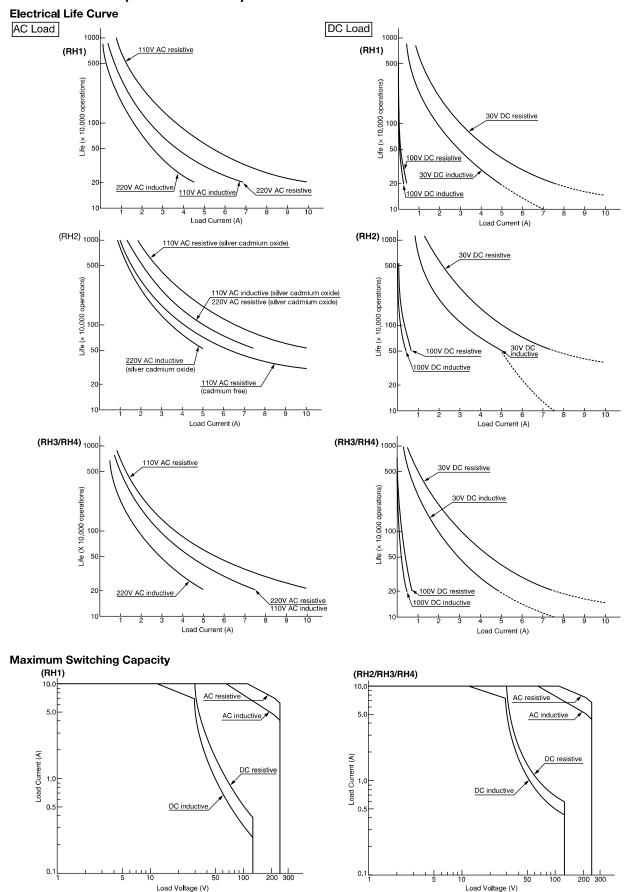
Specification	13	Tour transfer to the state of t			
Contact Material		Silver cadmium oxide/cadmium free (Ag-alloy)			
0.0111001010101010	*1	50 mΩ maximum			
Minimum Applicable L	1	24V DC, 30 mA; 5V DC, 100 mA (reference value)			
Operate Time *2	SPDT/DPDT	20 ms maximum			
Operate Time *2	3PDT/4PDT	25 ms maximum			
Release Time *2	SPDT/DPDT	20 ms maximum			
nejease fillle *2	3PDT/4PDT	25 ms maximum			
	SPDT	AC: 1.1 VA (50 Hz), 1 VA (60 Hz), DC: 0.8W			
Power Consumption	DPDT	AC: 1.4 VA (50 Hz), 1.2 VA (60 Hz), DC: 0.9W			
(approx.)	3PDT	AC: 2 VA (50 Hz), 1.7 VA (60 Hz), DC: 1.5W			
	4PDT	AC: 2.5 VA (50 Hz), 2 VA (60 Hz), DC: 1.5W			
Insulation Resistance		100 MΩ minimum (500V DC megger)			
	SPDT	Between live and dead parts: 2000V AC, 1 minute *3 Between contact and coil: 2000V AC, 1 minute Between contacts of the same pole: 1000V AC, 1 minute			
Dielectric Strength	DPDT/3PDT/4PDT	Between live and dead parts: 2000V AC, 1 minute Between contact and coil: 2000V AC, 1 minute Between contacts of different poles:2000V AC, 1 minute Between contacts of the same pole: 1000V AC, 1 minute			
Operating Frequency		Electrical: 1,800 operations/h maximum Mechanical: 18,000 operations/h maximum			
Vibration Resistance		Damage limits: 10 to 55 Hz, amplitude 0.5 mm Operating extremes: 10 to 55 Hz, amplitude 0.5 mm			
Shock Resistance		Damage limits: 1,000 m/s² Operating extremes: 200 m/s² (SPDT, DPDT) 100 m/s² (3PDT, 4PDT)			
Mechanical Life		50,000,000 operations minimum			
Electrical Life	DPDT	Silver cadmium oxide contact: 500,000 operations minimum (110V AC, 10A) Cadmium free (Ag-alloy) contact: 300,000 operations minimum			
	SPDT/3PDT/4PDT	200,000 operations minimum (110V AC, 10A)			
Operating	SPDT	-25 to +50°C (no freezing)			
Temperature *4	DPDT/3PDT/4PDT	-25 to +40°C (no freezing)			
Operating Humidity		45 to 85% RH (no condensation)			
Storage Temperature		-55 to +70°C (no freezing)			
Storage Humidity		45 to 85% RH (no condensation)			
Weight (approx.)		SPDT: 24g, DPDT: 37g, 3PDT: 50g, 4PDT: 74g			
Natar Abaya yalyan ara					

Note: Above values are initial values.

- *1: Measured using 5V DC, 1A voltage drop method
- *2: Measured at the rated voltage (at 20°C), excluding contact bouncing Release time of relays with diode: 40 ms maximum
- ms maximum
 *3: Relays with indicator or diode: 1000V
 AC, 1 minute
- *4: For use under different temperature conditions, refer to Continuous Load Current vs. Operating Temperature Curve. The operating temperature range of relays with indicator or diode is -25 to +40°C.

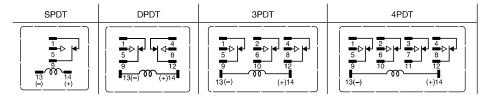
RH Series Power Relays

Characteristics (Reference Data)

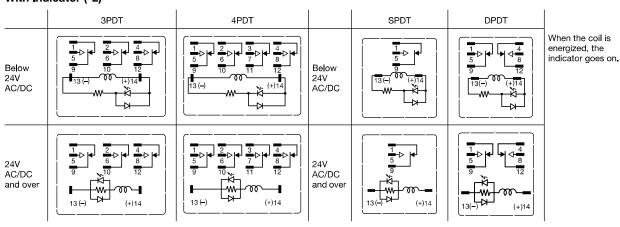


Internal Connection (Bottom View)

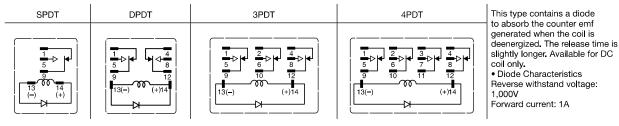
Basic



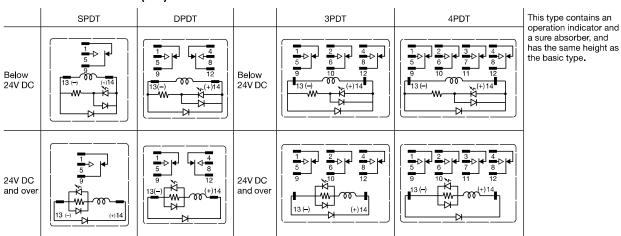
With Indicator (-L)



With Diode (-D)



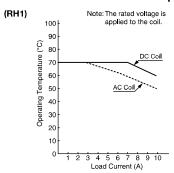
With Indicator and Diode (-LD)

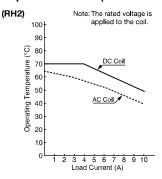


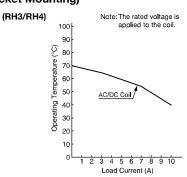
RH Series Power Relays

Characteristics (Reference Data)

Continuous Load Current vs. Operating Temperature Curve (Basic and Top Bracket Mounting)



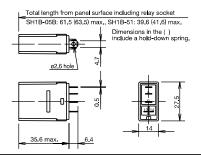




Dimensions

SPDT Plug-in Terminal RH1B-U/RH1B-UL/RH1B-UD/ULD





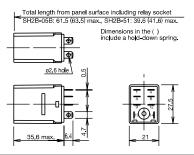
Applicable Socket and Hold-down Spring

Applicable Cocket and Hold-down opining								
Soc	Hold-down							
Mounting Style	Part No.	Spring						
DIN Rail Mount Socket	SH1B-05*	SFA-101 SFA-202						
Panel Mount Socket								
PC Board Mount Socket	SH1B-62	SFA-301 SFA-302						

DPDT Plug-in Terminal RH2B-U/RH2B-UL/RH2B-UD/RH2B-ULD







Applicable Socket and Hold-down Spring

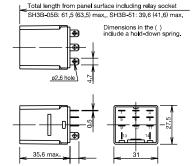
Sock	ret	Hold-down		
Mounting Style	Mounting Style Part No.			
DIN Rail Mount Socket	SH2B-05 * (Note)	SFA-202 SFA-101		
Panel Mount Socket	SH2B-51	SY4S-51F1 SFA-302(Note) SFA-301(Note)		
PC Board Mount Socket	SH2B-62	(SY4S-02F1)		

Note: Not applicable with SH2B-62.

• (SY4S-02F1) is for the relay with check button.

3PDT Plug-in Terminal RH3B-U/RH3B-UL/RH3B-D/RH3B-LD





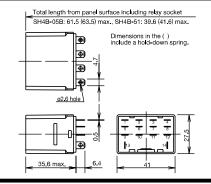
Applicable Socket and Hold-down Spring

Applicable occretialia from down opinig								
Soc	Socket							
Mounting Style	Part No.	Spring						
DIN Rail Mount Socket	SH3B-05*	SFA-101 SFA-202						
Panel Mount Socket	SH3B-51	SY4S-51F1 SFA-301 SFA-302 (SH3B-05F1)						
PC Board Mount Socket	SH3B-62							

• (SH3B-05F1) is for the relay with check button.

4PDT Plug-in Terminal RH4B-U/RH4B-UL/RH4B-UD/RH4B-ULD



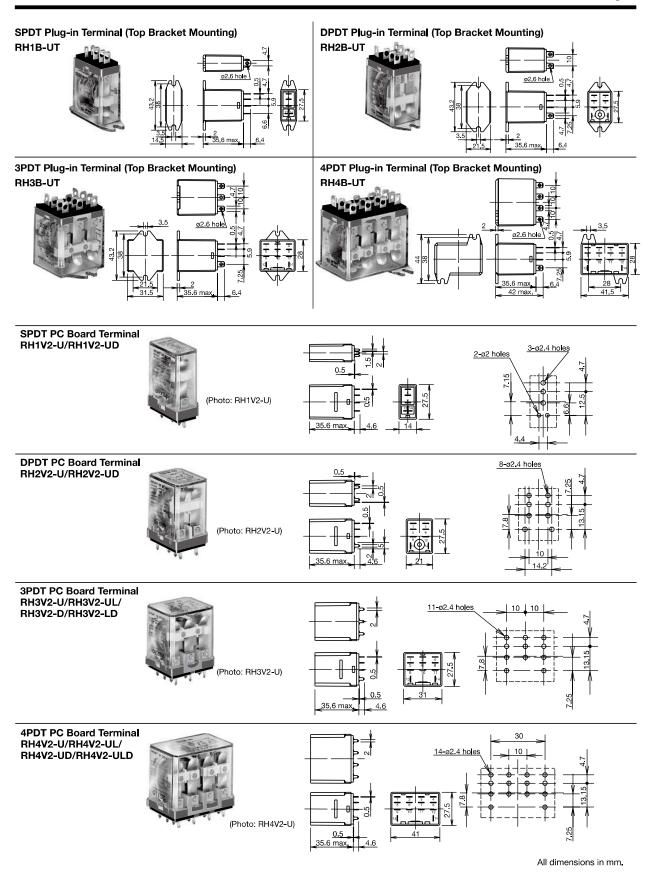


Applicable Socket and Hold-down Spring

Socket		Hold-down
Mounting Style	Part No.	Spring
DIN Rail Mount Socket	SH4B-05*	SFA-101 SFA-202
Panel Mount Socket	SH4B-51	SY4S-51F1 (Note) SFA-301 SFA-302 (SH4B-02F1)
PC Board Mount Socket	SH4B-62	

Note: Use two SY4S-51F1 hold-down springs for the SH4B-51 socket.

• (SH4B-02F1) is for the relay with check button.



EP5385A-RH_June 2022

Ordering Terms and Conditions

Thank you for using IDEC Products.

By purchasing products listed in our catalogs, datasheets, and the like (hereinafter referred to as "Catalogs") you agree to be bound by these terms and conditions. Please read and agree to the terms and conditions before placing your order.

1. Notes on contents of Catalogs

- (1) Rated values, performance values, and specification values of IDEC products listed in this Catalog are values acquired under respective conditions in independent testing, and do not guarantee values gained in combined
 - Also, durability varies depending on the usage environment and usage conditions.
- (2) Reference data and reference values listed in Catalogs are for reference purposes only, and do not guarantee that the product will always operate appropriately in that range.
- (3) The specifications / appearance and accessories of IDEC products listed in Catalogs are subject to change or termination of sales without notice, for improvement or other reasons.
- (4) The content of Catalogs is subject to change without notice.

2. Note on applications

- (1) If using IDEC products in combination with other products, confirm the applicable laws / regulations and standards.
 - Also, confirm that IDEC products are compatible with your systems, machines. devices, and the like by using under the actual conditions. IDEC shall bear no liability whatsoever regarding the compatibility with IDEC products.
- (2) The usage examples and application examples listed in Catalogs are for reference purposes only. Therefore, when introducing a product, confirm the performance and safety of the instruments, devices, and the like before use. Furthermore, regarding these examples, IDEC does not grant license to use IDEC products to you, and IDEC offers no warranties regarding the ownership of intellectual property rights or non-infringement upon the intellectual property rights of third parties.
- (3) When using IDEC products, be cautious when implementing the following.
 - i. Use of IDEC products with sufficient allowance for rating and performance
 - Safety design, including redundant design and malfunction prevention design that prevents other danger and damage even in the event that an IDEC product fails
 - Wiring and installation that ensures the IDEC product used in your system, machine, device, or the like can perform and function according to its specifications
- (4) Continuing to use an IDEC product even after the performance has deteriorated can result in abnormal heat, smoke, fires, and the like due to insulation deterioration or the like. Perform periodic maintenance for IDEC products and the systems, machines, devices, and the like in which they are used.
- (5) IDEC products are developed and manufactured as general-purpose products for general industrial products. They are not intended for use in the following applications, and in the event that you use an IDEC product for these applications, unless otherwise agreed upon between you and IDEC, IDEC shall provide no guarantees whatsoever regarding IDEC products.
 - Use in applications that require a high degree of safety, including nuclear power control equipment, transportation equipment (railroads / airplanes / ships / vehicles / vehicle instruments, etc.), equipment for use in outer space, elevating equipment, medical instruments, safety devices, or any other equipment, instruments, or the like that could endanger life or
 - Use in applications that require a high degree of reliability, such as provision systems for gas / waterworks / electricity, etc., systems that operate continuously for 24 hours, and settlement systems
 - Use in applications where the product may be handled or used deviating from the specifications or conditions / environment listed in the Catalogs, such as equipment used outdoors or applications in environments subject to chemical pollution or electromagnetic interference If you would like to use IDEC products in the above applications, be sure to consult with an IDEC sales representative.

3. Inspections

We ask that you implement inspections for IDEC products you purchase without delay, as well as thoroughly keep in mind management/maintenance regarding handling of the product before and during the inspection.

4. Warranty

(1) Warranty period

The warranty period for IDEC products shall be one (1) year after purchase or delivery to the specified location. However, this shall not apply in cases where there is a different specification in the Catalogs or there is another agreement in place between you and IDEC.

(2) Warranty scope

Should a failure occur in an IDEC product during the above warranty period for reasons attributable to IDEC, then IDEC shall replace or repair that product, free of charge, at the purchase location / delivery location of the product, or an IDEC service base. However, failures caused by the following reasons shall be deemed outside the scope of this warranty.

- The product was handled or used deviating from the conditions / environment listed in the Catalogs
- The failure was caused by reasons other than an IDEC product
- iii. Modification or repair was performed by a party other than IDEC
- iv. The failure was caused by a software program of a party other than
- v. The product was used outside of its original purpose
- Replacement of maintenance parts, installation of accessories, or the like was not performed properly in accordance with the user's manual and
- vii. The failure could not have been predicted with the scientific and technical standards at the time when the product was shipped from
- viii. The failure was due to other causes not attributable to IDEC (including cases of force majeure such as natural disasters and other disasters) Furthermore, the warranty described here refers to a warranty on the IDEC product as a unit, and damages induced by the failure of an IDEC product are excluded from this warranty.

5. Limitation of liability

The warranty listed in this Agreement is the full and complete warranty for IDEC products, and IDEC shall bear no liability whatsoever regarding special damages, indirect damages, incidental damages, or passive damages that occurred due to an IDEC product.

6. Service scope

The prices of IDEC products do not include the cost of services, such as dispatching technicians. Therefore, separate fees are required in the following cases.

- (1) Instructions for installation / adjustment and accompaniment at test operation (including creating application software and testing operation, etc.)
- (2) Maintenance inspections, adjustments, and repairs
- (3) Technical instructions and technical training
- (4) Product tests or inspections specified by you

The above content assumes transactions and usage within your region. Please consult with an IDEC sales representative regarding transactions and usage outside of your region. Also, IDEC provides no guarantees whatsoever regarding IDEC products sold outside your region.

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