

## Surface Mount Reed Relays

Including coaxial types for up to 5GHz

### Features

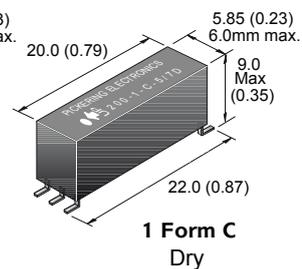
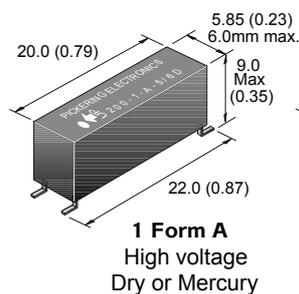
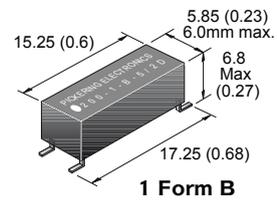
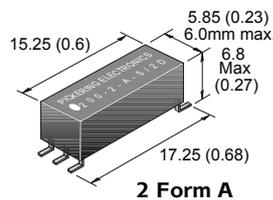
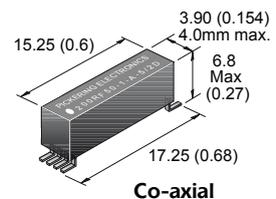
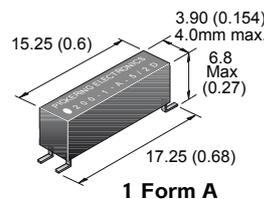
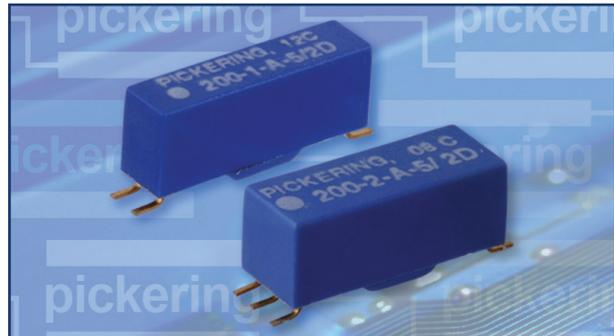
- **SoftCenter®** construction
- Highest quality instrumentation grade switches
- Encapsulated in plastic package with internal mu-metal screen for side-by-side mounting without magnetic interaction
- Insulation resistance greater than  $10^{12}$  ohms for Form A devices
- Dry and mercury wetted switches available
- Wide range of switch configurations - 1 Form A, 1 Form B, 2 Form A and 1 Form C
- For R.F. or high speed digital applications, 50 or 75 ohms coaxial devices are available in the same small package
- 3, 5, and 12 volt coils are standard, with or without internal diode
- 100% tested for dynamic contact resistance

The Series 200 is a complete range of surface mount reed relays. Both dry and mercury wetted switches are available in a wide range of configurations including coaxial types for RF up to 5GHz, or high speed digital switching with a step response time of less than 30ps. Please contact our technical department for supplementary RF data.

The special high temperature plastic package will withstand the temperatures associated with Infra-red or vapor phase reflow soldering processes. A flexible inner encapsulant protects the sensitive glass/metal reed switch seals - this is a very big advantage over the more usual hard moulded package.

### Switch Ratings - Dry switches

- 1 Form A (energize to make), 10 watts at 200V
- 1 Form A (energize to make), 15 watts at 200V
- 1 Form A (energize to make), 10 watts at 500V
- Coaxial 50Ω (energize to make), 10 watts at 200V
- Coaxial 75Ω (energize to make), 10 watts at 200V
- 1 Form B (energize to break), 10 watts at 200V
- 1 Form C (change-over), 3 watts at 200V
- 2 Form A (energize to make), 10 watts at 200V



mm (Inches)

### Switch Ratings - Mercury Wetted Switches

- 1 Form A (energize to make), 50 watts at 500V
- 1 Form A (Position insensitive), 50 watts at 500V

## Dry Reed - Series 200 switch ratings

The contact ratings for each switch type are shown below:

Switch No	Switch form	Power rating	Max. switch current	Max. carry current	Max. switching volts	Life expectancy ops typical (see Note <sup>1</sup> below)	Operate time inc bounce (max)	Release time	Special features
1	A	15 W	1.0 A	1.2 A	200	10 <sup>9</sup>	0.5 ms	0.2 ms	General purpose
2	A or B	10 W	0.5 A	1.2 A	200	10 <sup>9</sup>	0.5 ms	0.2 ms	Low level
3	C	3 W	0.25 A	1.2 A	200	10 <sup>7</sup>	1.0 ms	0.5 ms	Change-over
4	A	10 W	0.5 A	1.2 A	500	10 <sup>8</sup>	0.5 ms	0.2 ms	High voltage

## Dry Relay - Coil data and type numbers

Device type	Package Number	Type Number	Coil (V)	Coil resistance	Max. contact resistance (initial)	Insulation resistance (minimum)		Capacitance (typical) (see Note <sup>2</sup> below)	
						Switch to coil	Across switch	Closed switch to coil	Across open switch
1 Form A (energize to make) Switch No. 1	1	200-1-A-5/1D 200-1-A-12/1D	5 12	500 Ω 1000 Ω	0.15 Ω	10 <sup>12</sup> Ω	10 <sup>12</sup> Ω	2.5 pF	0.1 pF
1 Form A (energize to make) Switch No. 2	1	200-1-A-3/2D 200-1-A-5/2D 200-1-A-12/2D	3 5 12	250 Ω 500 Ω 1000 Ω	0.12 Ω	10 <sup>12</sup> Ω	10 <sup>12</sup> Ω	2.5 pF	0.1 pF
1 Form A 50 Ω coaxial Switch No. 2	2	200RF50-1-A-5/2D	5	250 Ω	0.12 Ω	10 <sup>12</sup> Ω	10 <sup>12</sup> Ω	2.5 pF	0.1 pF
1 Form A 75 Ω coaxial Switch No. 2	2	200RF75-1-A-5/2D	5	250 Ω	0.12 Ω	10 <sup>12</sup> Ω	10 <sup>12</sup> Ω	2.5 pF	0.1 pF
1 Form A (energize to make) HV Switch No. 4	5	200-1-A-5/4D 200-1-A-12/4D	5 12	500 Ω 1000 Ω	0.15 Ω	10 <sup>12</sup> Ω	10 <sup>12</sup> Ω	2.5 pF	0.1 pF
1 Form C (change-over) Switch No. 3	6	200-1-C-5/3D 200-1-C-12/3D	5 12	500 Ω 1000 Ω	0.20 Ω	10 <sup>12</sup> Ω	10 <sup>11</sup> Ω	See Note <sup>3</sup>	See Note <sup>3</sup>
1 Form B (energize to break) Switch No. 2	4	200-1-B-5/2D 200-1-B-12/2D	5 12	750 Ω 1000 Ω	0.12 Ω	10 <sup>12</sup> Ω	10 <sup>12</sup> Ω	2.5 pF	0.1 pF
2 Form A (energize to make) Switch No. 2	3	200-2-A-5/2D 200-2-A-12/2D	5 12	400 Ω 1000 Ω	0.12 Ω	10 <sup>12</sup> Ω	10 <sup>12</sup> Ω	See Note <sup>3</sup>	See Note <sup>3</sup>

When an internal diode is required, the suffix D is added to the part number as shown in the table.

## Mercury Reed: Series 200 switch ratings

The contact ratings for each switch type are shown below:

Switch No	Switch form	Power rating	Max. switch current	Max. carry current	Max. switching volts	Life expectancy ops typical (see Note <sup>1</sup> below)	Operate time (max)	Release time	Special features
6	A	50 W	2 A	3 A	500	10 <sup>8</sup>	2.0 ms	1.25 ms	Standard Mercury
8	A	50 W	2 A	3 A	500	10 <sup>8</sup>	2.0 ms	1.25 ms	Position insensitive

## Mercury Relay: Coil data and type numbers

Device type	Type Number	Coil (V)	Coil resistance	Max. contact resistance (initial)	Insulation resistance (minimum)		Capacitance (typical) (see Note <sup>2</sup> below)	
					Switch to coil	Across switch	Closed switch to coil	Across open switch
1 Form A (energize to make) Switch No. 6	200-1-A-5/6D 200-1-A-12/6D	5 12	140 Ω 500 Ω	0.075 Ω	10 <sup>12</sup> Ω	10 <sup>10</sup> Ω	4 pF	0.1 pF
1 Form A (energize to make) Position Insensitive Switch No. 8	200-1-A-5/8D 200-1-A-12/8D	5 12	140 Ω 500 Ω	0.100 Ω	10 <sup>12</sup> Ω	10 <sup>10</sup> Ω	4 pF	0.1 pF

When an internal diode is required, the suffix D is added to the part number as shown in the table.

### Note<sup>1</sup> Life expectancy

The life of a reed relay depends upon the switch load and end of life criteria. For example, for an 'end of life' contact resistance specification of 1 Ω, switching low loads (10 V at 10 mA resistive) or when 'cold' switching, typical life is approx 1 x 10<sup>9</sup> ops. At the maximum load (resistive), typical life is 1 x 10<sup>7</sup> ops. In the event of abusive conditions, e.g. high currents due to capacitive inrushes, this figure reduces considerably. Pickering will be pleased to perform life testing with any particular load condition.

### Note<sup>2</sup> Capacitance across open switch

This is measured with all other component leads connected to the guard terminal of the measuring bridge.

### Note<sup>3</sup> Capacitance values

The value will depend upon on the mode of connection/guarding of unused terminals. Please contact technical sales for details.

### Main contact:

UK Headquarters: email: [sales@pickeringrelay.com](mailto:sales@pickeringrelay.com) | Tel. +44 1255 428141

### Worldwide contacts:

USA: email: [ussales@pickeringtest.com](mailto:ussales@pickeringtest.com) | Tel. +1 781 897 1710

Germany: email: [desales@pickeringtest.com](mailto:desales@pickeringtest.com) | Tel. +49 89 125 953 160

China: email: [chinasales@pickeringtest.com](mailto:chinasales@pickeringtest.com) | Tel. +86 4008-799-765

For a full list of agents and representatives visit: [pickeringrelay.com/agents](http://pickeringrelay.com/agents)

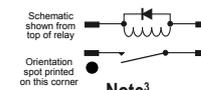


## Pin Configuration and Dimensional Data

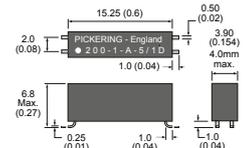
Dimensions in Millimeters (Inches in brackets)

### 1 Form A (Energize to make)

Package Number 1

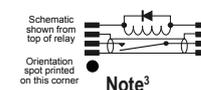


Note<sup>3</sup>

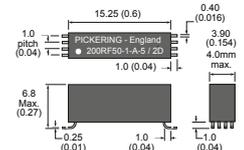


### 1 Form A (Coaxial)

Package Number 2

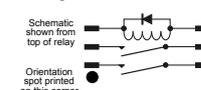


Note<sup>3</sup>

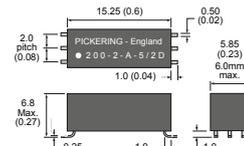


### 2 Form A (Energize to make)

Package Number 3

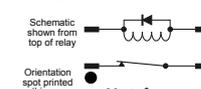


Note<sup>3</sup>

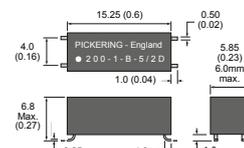


### 1 Form B (Energize to break)

Package Number 4

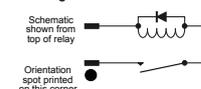


Note<sup>3</sup>

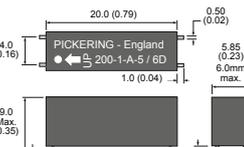


### 1 Form A (Energize to make)

Package Number 5

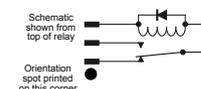


Note<sup>3</sup>

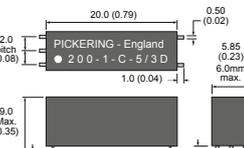


### 1 Form C (Changeover)

Package Number 6



Note<sup>3</sup>



Note<sup>2</sup>: When an optional diode is fitted the orientation spot end of the relay forms the positive connection.

3D Models: Interactive models of Pickering relay products can be downloaded here: [pickeringrelay.com/3d-models](http://pickeringrelay.com/3d-models)

## Mercury Relays

With the exception of the position insensitive type, mercury relays should be mounted vertically in the direction of the arrow.

## Order Code

200 - 1 - A - 5 / 2 D

Series \_\_\_\_\_

Number of reeds \_\_\_\_\_

Switch form \_\_\_\_\_

Coil voltage \_\_\_\_\_

Switch number (See table adjacent) \_\_\_\_\_

Diode if fitted (Omit if not required) \_\_\_\_\_

## Help

If you need any technical advice or other help, for example, any special tests that you would like carried out, please do not hesitate to contact our Technical Sales Department. We will always be pleased to discuss Pickering relays with you. email: [techsales@pickeringrelay.com](mailto:techsales@pickeringrelay.com)

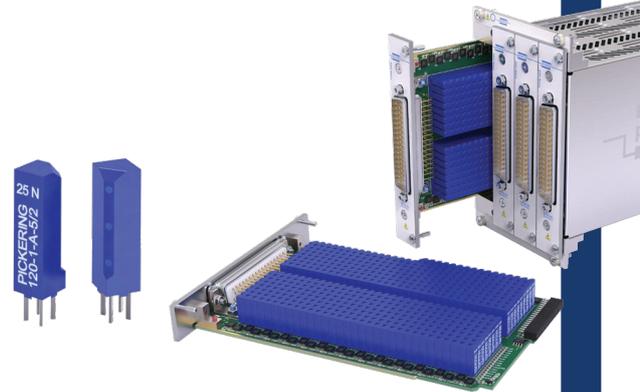
Please ask us for a FREE evaluation sample.

# Why Pickering Electronics?

## Because Quality Matters

Pickering Electronics continue to lead the high-end reed relay market through innovative product design, high performance components and exceptional quality control.

Part of the privately-owned Pickering Group, company operations employ around 200 staff across quality accredited factories in the UK and Czech Republic, supplying demanding Aerospace, Infrastructure, Test & Measurement and ATE applications worldwide.



**Reliability through quality** – 50 Year reputation for exceptional product life longevity derived from continuous staged manufacturing inspection, strenuous full range thermal cycling and 100% testing for all operating parameters.



**Reliability through design** – Environmentally compliant designs and unique Softcenter® technology combine to create an optimised assembly that minimises internal lifetime stresses, extending working life and contact stability.



**Switching Performance** – Compared with common bobbin based products, our formerless coil constructions maximise magnetic efficiency resulting in faster switching speeds, optimal switching action and several orders of extended lifetime at operational extremes.



**Cost & Size Performance** – Industry leading mu-metal magnetically screened packages deliver ultra-high PCB packing densities, saving significant cost and space.



**Designers toolkit** – Free samples, worldwide tech support and an unrivalled range of specialist and custom devices, Pickering engineers work alongside customers to deliver problem solving solutions for complex and challenging applications.



**Quality Assurance and compliance** - certified to ISO 9001-2015 and audited by the British Standards Institution. Committed to RoHS & REACH compliance.



**Distribution** – An established global network of group sales offices supported by local agents and distributors, Pickering operate an established logistical supply chain worldwide.



**The Pickering Group** – Employing around 400 staff across 8 sites in the UK and CZ, Pickering Electronics are a key technology partner for Pickering Interfaces and Pickering Connect, supporting the design and manufacture of high performance modular signal switching and simulation systems.