20-110/115
General Purpose Reed Relay Module

- 32 or 64 General Purpose Reed Relays with Individual Front Panel LED Status Indicators
- Wide Range: SPDT, SPST, and DPST Switching Configurations
- Screened Versions Available For Low Noise Applications
- Uses High Reliability Pickering Ruthenium Reed Relays For Maximum Performance
- Choice of Connector Types
- Switch up to 200Volts DC, 1Amp with 10W Max Power

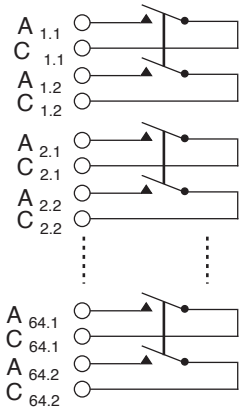
The 20-110/115 range of general purpose reed relay modules has a very wide choice of switch types and configurations to suit all applications. They are available in both Changeover and Normally Open configurations.

General purpose reed relays are suitable for the construction of small switching networks, for slaving up to larger switches or for operating external devices (e.g. lamps, solenoids etc.). To simplify inter-relay wiring interconnection points are built onto the circuit board thus easing the construction of complicated wiring (no big external looms...).

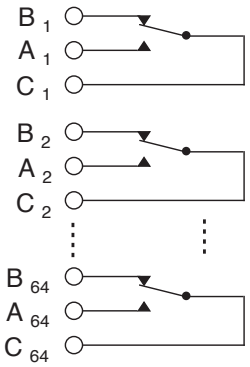
Range Description

20-110 32 or 64 Changeover Reed Relays with sputtered ruthenium contacts.

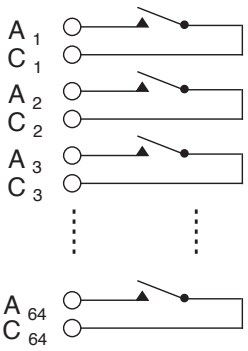
20-115 32 or 64 Normally Open Reed Relays, SPST or DPST configurations with sputtered ruthenium contacts.



64 x DPST
Reed Relay
(type 20-115-122)



64 x SPDT
Reed Relay
(type 20-110-121)



64 x SPST
Reed Relay
(type 20-115-121)

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20-110 Changeover Relay Switching Specification

Switch Type:	Ruthenium	Mercury wet ‡
Max Standoff Voltage:	200V†	200V†
Max Power:	3W	28W
Max Switch Current:	0.25A	1.0A
Max Carry Current:	1.2A	1.5A
Contact Resistance		
On:	<500mΩ	<500mΩ
Off:	>10^9Ω	>10^9Ω
Differential Thermal Offset:	<5µV	<10µV
Capacitance:		
Open Switch:	<6pF	<6pF
Switch-Switch:	<3pF	<3pF
Bandwidth (50Ω):	>15MHz	>15MHz
Max operate time:††	8ms	8ms
Max relay close time:	1.5ms	3.0ms
Max relay release time:	0.75ms	1.5ms
Expected Life		
Low power load:	>$1x10^8$	>$1x10^9$
Full power load:	>$5x10^6$	>$1x10^8$

† Higher voltage standoffs are available.

‡ Mercury Wet versions may be available to special order.

20-115 Relay Switching Specification

Switch Type:	Ruthenium	Mercury wet ‡
Max Standoff Voltage:	200V†	200V†
Max Power:	10W	50W
Max Switch Current:	0.5A	2.0A
Max Carry Current:	1.0A	4.0A
Contact Resistance		
On:	<500mΩ	<500mΩ
Off:	>10^9Ω	>10^9Ω
Differential Thermal Offset:	<5µV	<10µV
Capacitance:		
Open Switch:	<6pF	<6pF
Switch-Switch:	<3pF	<3pF
Bandwidth (50Ω):	>15MHz	>15MHz
Max operate time:††	8ms	8ms
Max relay close time:	1.5ms	3.0ms
Max relay release time:	0.75ms	1.5ms
Expected Life		
Low power load:	>$1x10^8$	>$1x10^9$
Full power load:	>$5x10^6$	>$1x10^8$

†† This is the time taken from the start of the IEEE-488 or RS-232 message to the closure of the relay (assuming fast IEEE-488 /RS-232 communication and no pending operations).

Reed Relay Type

The modules are fitted with instrument grade sputtered Ruthenium Reed Relays which are suitable for general purpose switching and particularly suited for low level signals. Mercury wetted switches may be available to special order.

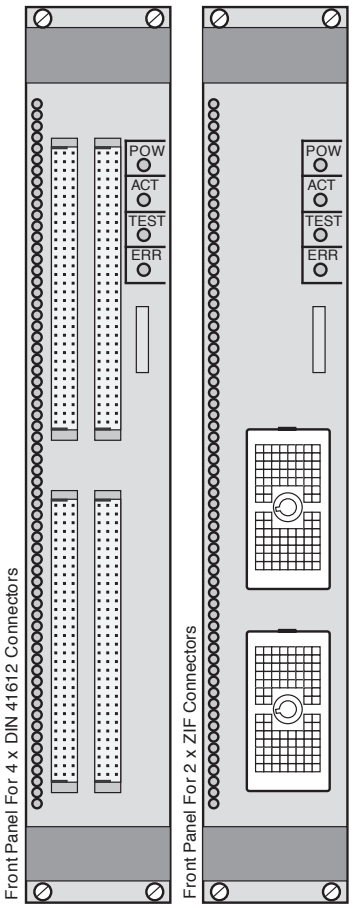
Spare Reed Relays are built onto the circuit board to facilitate easy maintenance with minimum downtime.

Programming

The 20-110/115 modules are simple to program either by single bit or by byte (8 bits).

ARESET a	Clear all outputs on module **a**
CLOSE a,b	Set bit number **b** on module **a**
DELAY t	Force a minimum delay of **t** milliseconds between two instructions
OPEN a,b	Clear bit number **b** on module **a**
RESET	Clear all bits/switches on all modules
VIEW? a[,b]	View status of module **a**, can be viewed at any time either as a word or by bit **b** as a logical value (1 or 0)
WRITE a,w	Send byte **w** to module **a** (address **a** contains both the module address and the position of the byte being changed: 1 to 8 for a 64 relay unit).

20-110/115 modules must be used in conjunction with the 10-921 interface module (They are not compatible with the older 10-920 interface).



Front Panel Layouts

On-Board Wiring Positions

To simplify inter-relay wiring, interconnection points are built onto the circuit board, thus easing the construction of complicated wiring assemblies (this avoids the need for complex external interconnection looms). Wiring points are also provided for the internal screened analogue buses (10 way and 24 way). Refer to schematic of relay PCB shown opposite.

Indicator LEDs

All modules have LED indicators for each relay, thus easing system programming and debugging.

Breadboard Area

The 20-110/115 has a small breadboard area, this is intended for applications where additional circuitry may need to be added by the user, e.g. signal conditioning or protection.

Width and Dimensions

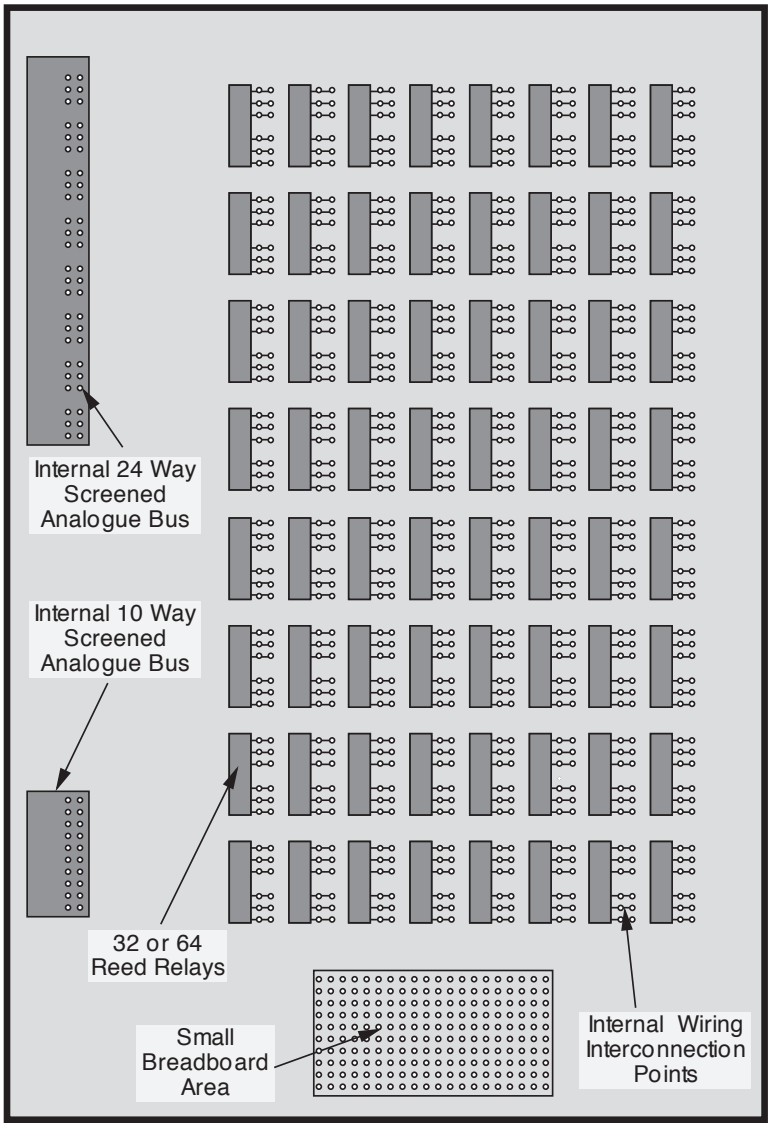
The General Purpose Reed Relay Module conforms to the 6U height (262mm) Eurocard standard and is housed in a 160mm deep screened plug-in module. Panel width is 1.8 Inches.

Connectors

Connections to all modules are made via front panel mounted connectors, there is a choice of DIN 41612 connectors (available for all versions) and 96-way ZIF types for lower density versions. Please refer to table below.

Built-In RS-232 Port

The 20-110 range also has a built in RS-232 port (9600 baud, XON/XOFF, 8 bit, no parity). This is provided on a 4 pin Molex datamate connector on the front panel. A separate adapter lead to allow use with a standard 9 pin D-type is available. The RS-232 port allows the module to be configured, controlled and monitored from any RS-232 terminal. This can be thus used as a very versatile debugging aid.



Connector and Front Panel Width Information

	No. of switch pins	No of Gnd pins	ZIF connector (96-way)		DIN 41612 (96-way)	
			No of connectors	Panel Width	No of connectors	Panel Width
32xSPDT	96	2	2	1.8”	4	1.8”
64xSPDT	192	4	-	-	4	1.8”
64xSPST	128	2	2	1.8”	4	1.8”
64xDPST	256	4	-	-	4	1.8”

20-110A Module Fitted With the Alternative ZIF Type Connectors

Operating/Storage Conditions

Operating Conditions

Operating Temperature:	0°C to 55°C
Humidity:	Up to 90% non-condensing
Altitude:	5000m

Storage and Transport Conditions

Storage Temperature:	-20°C to +75°C
Humidity:	Up to 90% non-condensing
Altitude:	15000m

Product Order Codes - DIN 41612 Connector

Changeover, 32 x SPDT, DIN 41612 conn.	**20-110-021**
Changeover, 64 x SPDT, DIN 41612 conn.	**20-110-121**
Normally open, 64 x SPST, DIN 41612 conn.	**20-115-121**
Normally open, 64 x DPST, DIN 41612 conn.	**20-115-122**

Product Order Codes - ZIF Connector

Changeover, 32 x SPDT, ZIF connector	**20-110A-221**
Normally open, 32 x DPST, ZIF connector	**20-115A-222**
Normally open, 64 x SPST, ZIF connector	**20-115A-321**

Note: All versions are fitted with Ruthenium Reed Relays, Mercury Wet Reeds may be available to special order.

Pickering Interfaces Environmental Policy:
Pickering Interfaces strive to fulfil all relevant environmental laws and regulations; as part of this we are very reluctant to supply switching modules containing Mercury Wetted switches. Please contact sales office for further details.

Mating Connectors

DIN 41612 Connector Crimp Pin	**10-967-001**
DIN 41612 Connector IDC Socket	**10-967-101**
96-way ZIF Connector	**10-964A-001**
ZIF Connector Pins, 100 off	**10-964A-801**

Latest Details

Please refer to our Web Site for Latest Product Details.
www.pickeringtest.com