Specification Sheet U70000

Rugged Coaxial 1xN Relay Modules
Sizes 1x2 to 1x24 (DC-800MHz)
Series U70000, URS70000 and E70000

February 2021

General

The Series U70000 is a 1xN relay module available with various coaxial contact types and output counts and is controlled by discrete DC voltages. It is often embedded within an application and operated by an open drain driver or DAC controller. They may also be installed into the Model U11600 rack mount chassis pictured on this page.

The Series URS70000 is a 1xN relay comparable to the Series U70000 except with RS-232 serial port control and powered by a single DC supply. The E70000 is similar to the URS70000, but features an Ethernet remote control port and is powered by PoE (Power over Ethernet) or via a wide range DC power input. Both the RS70000 and E70000 can be embedded into a system or operated as stand alone devices via their remote access control and powered by available AC/DC wall mount power supplies.

The model U11600 3RU rack mount chassis provides power and control for up to 24 U70000 series relays. It comes complete with front panel display, remote control ports (GPIB and Serial), and power supply. Relay driver cards with top-side LED status indicators are installed for each U70000 series relay to be controlled within the system. Configuration status can be easily determined from the front panel display, remote control access, or the top-side LED indicators. The modular U11600 design makes expansion of the unit or replacement of components with available spares a simple procedure with low MTTR.

All of the Series U70000 products are unique in the relay industry due to their rugged design, unique in-line design, convenient mounting options, flexible control, and excellent shielding characteristics. As these units are made to order, custom features are available upon request for quantity orders.

USC acquired the Matrix Systems Corporation (MSC) U70000 & URS70000 products in April of 2007 and continues to manufacture the lines. USC has further expanded the product capability by adding a 10/100 Ethernet controlled version, the E70000, which provides broad remote control features and flexible power options. Although many of the units manufactured today are identical to those made by MSC, the model numbering has changed somewhat. If you are unsure what the new model number might be for an existing MSC product, feel free to contact our application staff for assistance. Note that not all combinations or sizes are available, and that exact reorders of most MSC units have a minimum order quantity of five.

Construction Notes

These relay modules are designed to maintain coaxial switching continuity over a wide range of critical and high environmental applications. The housings are constructed of precision machined aluminum alloy for structural integrity and hard anodized for durability. All signal paths are plated and the covers are gasketed for maximum EMI protection. The basic reed switch elements are hermetetically sealed in nitrogen filled gas envelopes and employ rhodium plated contacts to insure non-stick operation. The contact assemblies can be replaced in the field if needed.

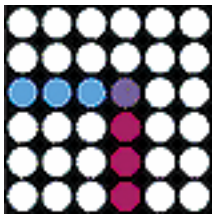
Applications

- Communication or ATE applications
- Airborne surveillance systems
- RF and IF signal switching with ultra high isolation
- Applications that require high shielding integrity
- Switching 1553B, DS-1, DS-3 or ECL
- Low leakage triaxial signals
- Pulse and analog switching

Features

- Rugged machined aluminum construction
- Two to twenty-four throws (SP2T to SP24T)
- DC controlled relay, serial port, or 10/100 Ethernet
- Control is isolated from signal path
- Continuous shielding continuity, high isolation
- Various signal connectors and voltages available
- Low EMI and VSWR

Model U11600 Controller
3RU rack mount controller chassis
(up to 24 relays)



Reliability Resiliency

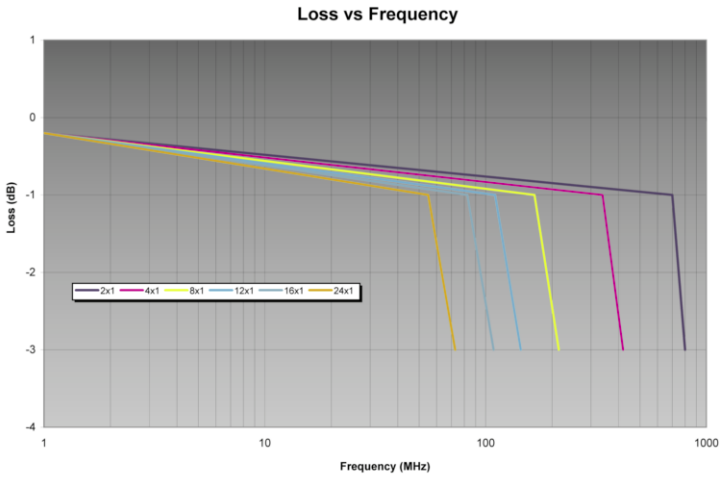
New
E70000
Coaxial relay
with 10/100 PoE
(1x4 shown)

Series URS70000
Coaxial relay with serial port
and wall mount power supply
(1x9 shown)

Series U70000
Coaxial relay
(1x24 shown)

RF DIGITAL ANALOG

U70000 202102



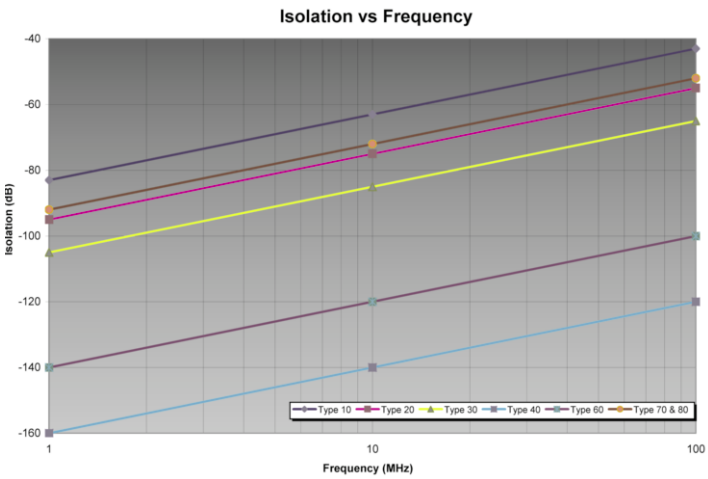


TABLE 1

U70000 Model Number Definition

U7[CC][NT]-[V][D][X]

Example: U72512-1PA (contact 25, 1x12, 24vdc, diodes with common positive and SMA's)

[CC] - Contact Configuration Type & Ratings
- 10 - Standard (normally open) 100vdc, 250ma, 10W
- 25 - Standard (self-terminating type, 50 ohm) 4vdc, 250ma, 1/3W
- 27 - Standard (self-terminating type, 75 ohm) 4vdc, 250ma, 1/3W
- 30 - Medium isolation (normally open) 100vdc, 250ma, 10W
- 40 - High isolation (normally open) 28vdc, 250ma, 3W
- 65 - High isolation (self-terminating, 50 ohm) 4vdc, 250ma, 1/3W
- 67 - High isolation (self-terminating, 75 ohm) 4vdc, 250ma, 1/3W
- 70 - Mercury wetted (normally open) 500vdc, 1A, 35W (Note 5)
- 90 - Standard with Triaxial connector (BJ77) 100vdc, 250ma, 10W

[NT] - Number of throws
- 02 - 1x2
- 04 - 1x4
- 08 - 1x8
- 12 - 1x12
- 16 - 1x16
- 24 - 1x24

[V] - Coil voltage (nominal)
- 1 - 24vdc to 28vdc (1000 ohm coils)
- 2 - 15vdc (500 ohm coils)
- 5 - 5vdc (135 ohm coils with NO series polarity protection diode included: P or N option)

[D] - Coil suppression diodes
- 0 - Not included
- P - Suppression diodes included with coil common positive
- N - Suppression diodes included with coil common negative

[X] - Extra options
- A - SMA signal connectors (only on contact types 10, 25, 27 & 65)
- F - F-Type signal connectors (only on contact types 10, 27)
- T - TNC signal connectors (only on contact types 10, 25, & 65)
- I - Insulated coaxial shield (only on contact types 10, 25, 27 & 70)
- S - Insulated & switched coaxial shield (only contact types 10, 25, 27, 70)
- L - Lockscrews on control connector so mate can be secured

U70000 NOTES:

1. The I or S options are not available on the optional signal connectors or the contact type 90 (triaxial).
2. The "expander" port is not available any longer.
3. No mating connectors or hardware are included.
4. Contact type 70 must be mounted with signal connectors facing up.
5. Due to new environmental laws, USC may or may not be able to sell relays with mercury wetted contacts. Spec was 2A, 50W. Connectors must be within 20 deg of up.
6. For installing into the U11600 chassis, the "-1" coil voltage is needed.
7. Type 27 and 67 use the standard 50 ohm MSC connector.
8. Switching speed is <1mS (dry) and <3mS (mercury wetted).

TABLE 2

URS70000 & E70000 Model Number Definition

URS7[CC][NT]-[X]
E7[CC][NT]-[X]

Example: URS71008-A (contact 10, 1x8, and SMA connectors)

[CC] - Contact Configuration Type & Ratings
- 10 - Standard (normally open) 100vdc, 250ma, 10W
- 25 - Standard (self-terminating type, 50 ohm) 4vdc, 250ma, 1/3W
- 27 - Standard (self-terminating type, 75 ohm) 4vdc, 250ma, 1/3W
- 30 - Medium isolation (normally open) 100vdc, 250ma, 10W
- 40 - High isolation (normally open) 28vdc, 250ma, 3W
- 65 - High isolation (self-terminating, 50 ohm) 4vdc, 250ma, 1/3W
- 67 - High isolation (self-terminating, 75 ohm) 4vdc, 250ma, 1/3W
- 70 - Mercury wetted (normally open) 500vdc, 1A, 35W (Note 5)
- 90 - Standard with Triaxial connector (BJ77) 100vdc, 250ma, 10W

[NT] - Number of throws
- 02 - 1x2
- 04 - 1x4
- 08 - 1x8
- 12 - 1x12
- 16 - 1x16
- 24 - 1x24

[X] - Extra options
- A - SMA signal connectors (only on contact types 10, 25, 27 & 65)
- F - F-Type signal connectors (only on contact types 10, 27)
- T - TNC signal connectors (only on contact types 10, 25, & 65)
- I - Insulated coaxial shield (only on contact types 10, 25, 27 & 70)
- S - Insulated & switched coaxial shield (only contact types 10, 25, 27, 70)

URS70000 & E70000 NOTES:

1. The I or S options are not available on the optional signal connectors or the contact type 90 (triaxial).
2. The "expander" port is not available any longer.
3. No mating connectors or hardware are included.
4. Contact type 70 must be mounted with signal connectors facing up.
5. Due to new environmental laws, USC may or may not be able to sell relays with mercury wetted contacts. Spec used to be 2A, 50W.
7. Type 27 and 67 use the standard 50 ohm MSC connector.

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