733 Wiegand Interface Module

Description

The 733 Wiegand Interface Module allows you to use the powerful built-in access control capability of DMP panels to provide system codeless entry, and arming and disarming using access control readers. Easily connect the 733 Module to the panel keypad bus.

The 733 operates on either 12 VDC or 24 VDC input and provides four supervised, programmable zones. Zones 1, 2 and 3 can be programmed for a variety of burglary or access control applications and zone 4 can be programmed as a fire zone. Additionally, the module supplies a programmable Form C Single Pole Double Throw (SPDT) Door Strike relay, built-in piezo with remote annunciation output, data to panel LED, and a 4-position terminal for connecting one or more external Wiegand format readers.

The Form C relay draws up to 34mA of current and its contacts are rated for 1 Amp at 24 VDC. Refer to the **NC/C/NO** (**Dry Contact Relay**) and the **Isolation Relay** sections in this document for more information.

Mounting the 733 to Walls

The 733 ships installed in a decorative, high-impact plastic case that mounts directly to walls, backboards, or other flat surfaces. For easy installation, the case back and both ends have wire entrances. The bottom half of the plastic case contains two screw holes for mounting the case on single-gang switch boxes. It is recommended that you mount the 733 near the protected door.

Mounting the 733 in Panel Enclosures

You can also install the 733 in a panel enclosure using the standard 3-hole mounting configuration.

1. Mount the plastic standoffs to the enclosure using the three included Phillips head screws.
2. Insert the screws from the outside of the enclosure through the holes and into the plastic standoffs mounted inside the enclosure.
3. After tightening and securing the standoffs onto the enclosure, snap the 733 onto the standoffs.

Installing the 333 Suppressor

One Model 333 Suppressor is included with the 733 Module. Refer to Figure 1 and install the suppressor across the 733 Common (C) and Normally Open (NO) or Normally Closed (NC) terminals on J2. This suppressor replaces a diode that shipped with early 733 modules.

If the device being controlled by the relay is connected to the NO and C terminals, install the suppressor on the NO and C terminals as well. Conversely, if the device is connected to the NC and C terminals, install the 333 Suppressor on NC and C terminals. See Figure 1.

User Code Digits

Table 1 shows the various panel types, required operating modes for the arming/disarming feature, and the appropriate code configuration (4 or 5 digits) for each panel.   Refer to the Jumper Settings section to configure your 733 Module.

Operation	XR100/XR500 Series/XR2500F	XT Series	XRSuper6	XR20/XR40
Arms H/A	N/A	4-digit	4-digit	4-digit
Disarms H/A	4-digit	4-digit	4-digit	4-digit
Arms A/P	N/A	N/A	N/A	N/A
Disarms A/P	4-digit	4-digit	4-digit	4-digit
Arms Area(s)	N/A	N/A	—	N/A
Disarms Area(s)	4 or 5 digits	4-digit*	—	4-digit*
*During entry delay only —Not available on this panel type N/A Requires additional selection to arm				

Table 1: Panel Operating Modes and Code Configuration

Jumper Settings

Figure 1 shows the J4 location. If you are using 4-digit codes, place the 4/5 digit jumper (J4) across the two left pins. If you are using 5-digit codes, place the 4/5 digit jumper (J4) across the two right pins. Refer to the User Code Digits section to determine the setting for your installation.
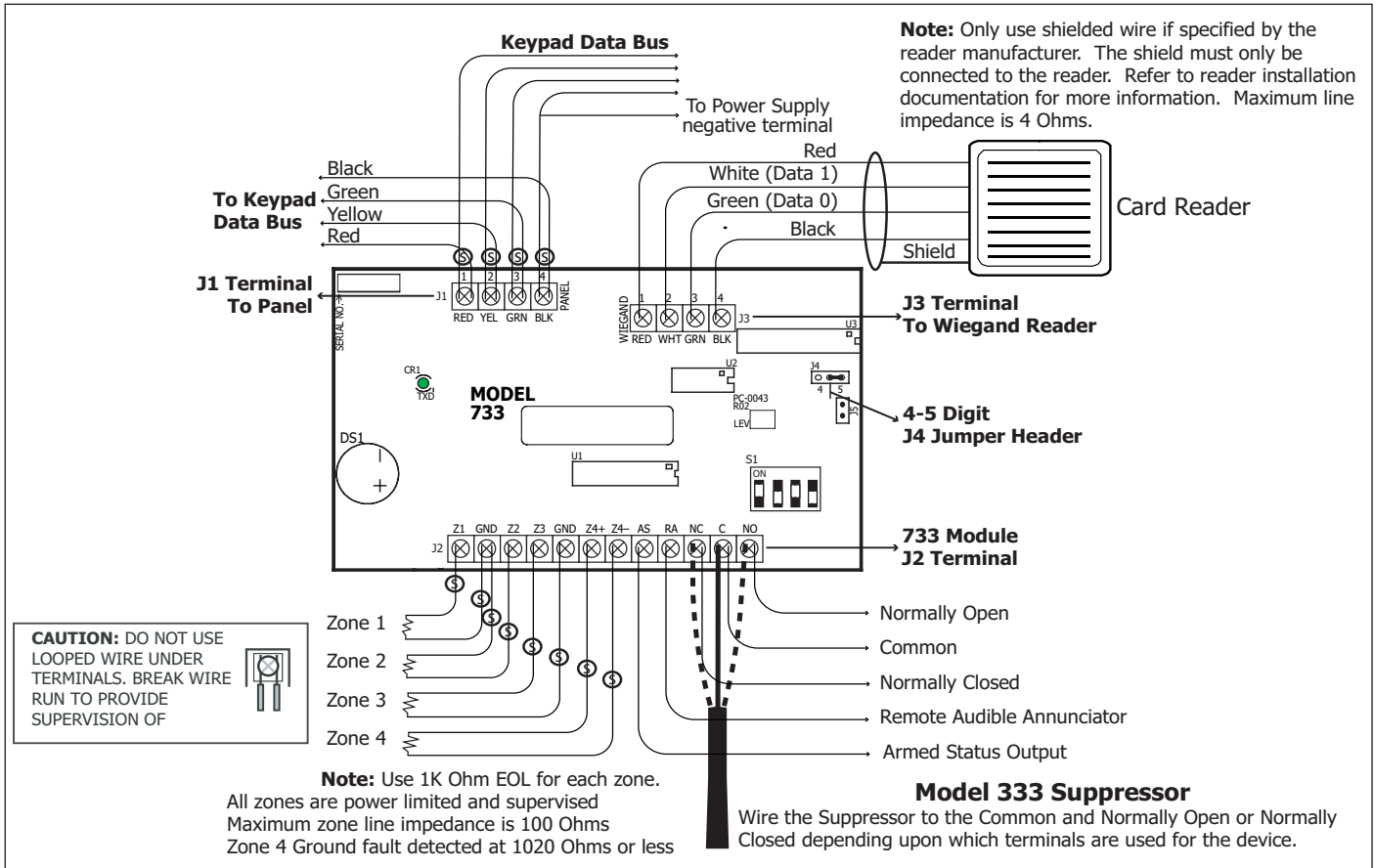

Figure 1: 733 Wiring Diagram

Set the 733 Module Address

The 733 is a supervised module and cannot operate in unsupervised mode.

The following panels automatically recognize the 733 switch settings:

- XRSuper6 and XR20 panels use addresses 1 to 4
- XR40 uses addresses 1 to 8
- XT Series panels uses addresses 1 to 5.

For XR100 Series, select any address from 1 to 8 in panel programming Device Setup. For XR500 Series and XR2500F operation, select any address from 1 to 16 in panel programming Device Setup. To change the current address, refer to Figure 2 and move the slide switches to the appropriate address positions.
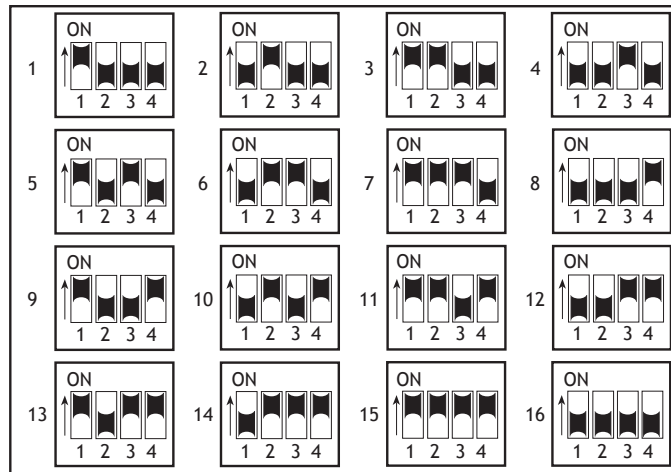

Figure 2: 733 Addresses

733 Module Wiring

The 733 connects to the keypad bus and a Wiegand format reader. Refer to this guide for proper wiring.

Panel terminal block

Connect the supervised 4-wire keypad bus to the Panel terminals marked Red, Yellow, Green, and Black as shown in Figure 1. If you are continuing the wire run to another 733 Module or to a keypad, connect both wires of the same color under the same terminal as shown in Figure 1.

Wiegand terminal block

Figure 1 shows a reader with wires colors Red, White, Green, and Black. The wire colors may be different for the reader being installed. Connect the reader wires to J3 terminals 1, 2, 3, and 4. As shown in Figure 1, the Green wire provides D0, or Data Zero, and the White wire provides D1, or Data One. The Red wire provides 12 VDC output and the Black wire is ground. Refer to the literature provided with the reader for wire coding, wire distance, cable type (such as shielded), and other specifications. If you are powering the readers from an auxiliary power source, refer to **12 VDC Access Control Readers** later in this document.

Zone terminals

Terminal Zone 1 and Zone 2 are burglary protection zones. Zone 3 is for Request to Exit features discussed in the **Zone 3 Request to Exit** section. Use the GND terminals as common terminals for the zones. Zone 4 terminal provides a non-powered Class B, Style A ungrounded zone suitable for connection to fire devices such as 4-wire smoke detectors and heat detectors. Use the supplied DMP Model 311 1k Ohm End-of-Line resistors on each zone.

AS (Armed Status)

The AS terminal provides a common unsupervised switched ground for a visual or audible armed status indicator that turns on when the area Armed Status is sent to the 733 such as SYSTEM ON or ALL SYSTEM ON. Connect the negative side of an Armed Status output to J2 terminal AS. The AS terminal may stay grounded up to 20 seconds after the system disarms. Power Limited, maximum current 50mA.

RA (Remote Annunciation)

The RA terminal provides a common unsupervised switched ground for a remote annunciator (RA) that turns on when the 733 on-board piezo turns on. Connect the negative side of a remote annunciator to J2 terminal RA. The remote annunciator activates when the RA switches to ground. The remote annunciator silences when the RA restores. Power Limited, maximum current 50mA @ 30 VDC.

NC/C/NO (Dry Contact Relay)

The 733 also provides an internal Form C SPDT relay for controlling door strikes or magnetic locks. The three relay terminals on J2 marked NC C NO allow you to connect the device wiring to the relay for control by the module. See Figures 4 and 5 for proper door strikes and magnetic locks wiring.

Note: The Form C relay draws up to 35mA of current. The contacts are rated for 1 Amp resistive at 24 VDC. When connecting multiple locks to the Form C relay, the total current for all locks cannot exceed 1 Amp. If the total current for all locks exceeds 1 Amp, problems may arise and the relay may become latched. Install an isolation relay to allow multiple locks. For information on wiring isolation relays, see the **Isolation Relay** section of this guide.

Wiring Specifications for Keypad Bus

1. DMP recommends using 18 or 22-gauge **unshielded** wire for all keypad and LX-Bus circuits. **Do not** use twisted pair or shielded wire for LX-Bus and keypad bus data circuits. All 22-gauge wire must be connected to a power-limited circuit and jacket wrapped.

2. On keypad bus circuits, to maintain auxiliary power integrity when using 22-gauge wire do not exceed 500 feet. When using 18-gauge wire do not exceed 1,000 feet. To increase the wire length or to add devices, install an additional power supply that is listed for Fire Protective Signaling, power limited, and regulated (12 VDC nominal) with battery backup.
   Note: Each panel allows a specific number of supervised keypads. Add additional keypads in the unsupervised mode. Refer to the panel installation guide for the specific number of supervised keypads allowed.

3. Maximum distance for any one bus circuit (length of wire) is 2,500 feet regardless of the wire gauge. This distance can be in the form of one long wire run or multiple branches with all wiring totaling no more than 2,500 feet. As wire distance from the panel increases, DC voltage on the wire decreases. Maximum number of LX-Bus devices per 2,500 feet circuit is 40.

4. Maximum voltage drop between the panel (or auxiliary power supply) and any device is 2.0 VDC. If the voltage at any device is less than the required level, add an auxiliary power supply to the circuit. When voltage is too low, the devices cannot operate properly.

For additional information refer to the panel's Installation Guide, the 710/710F Installation Sheet (LT-0310), and/or the LX-Bus/Keypad Bus Wiring Application Note (LT-2031).

Enrolling Users

DMP 693, 793, 7063, 7063A, 7073, 7073A, 7163 and 7173 LCD keypads can be used to enroll users. You may also use Remote Link™ or System Link™ with an Admin Reader to quickly enroll users in the system. The 733 cannot be used to enroll users.

Access Control Feature

The 733 Module allows users to present an access credential, such as a card or keyfob, to an access control reader. The reader then sends the user code information to the 733 Module that reads the user code and verifies its authority with the panel. After verifying the code has the proper authority, the 733 Module powers its on-board Form C relay releasing a door strike or magnetic lock.

Door contact zone with Soft-Shunt™

If the door being released by the 733 Module is protected (contacted), provide a 40-second Soft-Shunt™ entry/exit timer by connecting the contact wiring to Zone 2 on the 733 Module. Once the on-board Form C relay activates, the user has five seconds to open the door connected to Zone 2. The zone is then shunted for 40 seconds.

After 30 seconds elapse, the 733 Module sounds its built-in piezo alerting the user the Soft-Shunt™ timer is about to expire. If the door is still open at the end of the 40-second timer a zone fault is sent to the panel for Zone 2.
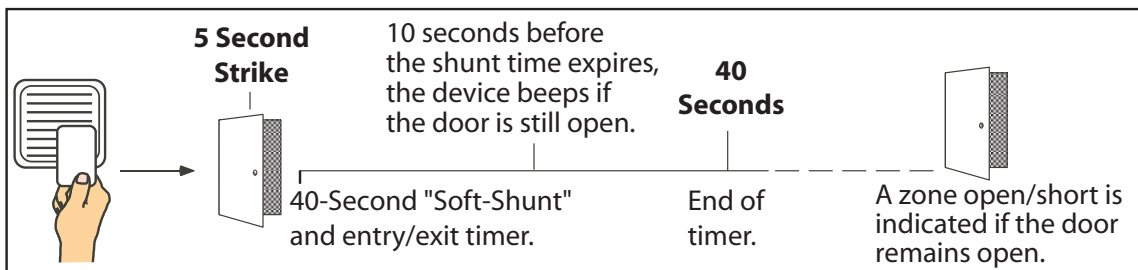

Figure 3: Soft-Shunt™ Timeline

Zone 3 Request to Exit

Also connect a PIR, other motion sensing device, or a mechanical switch to Zone 3 on the module to provide Request-to-Exit (REX) capability to the system. When Zone 3 is **shorted**, the on-board Form C relay activates for 5 seconds. During this time, the user can open the protected door to start the 40-second Soft-Shunt™ entry/exit timer. After five seconds, the relay restores the door to its locked state.

The 733 Module with firmware version 103 (4/25/01) and higher provides a shunt-only option for REX on Zone 3. When Zone 3 is **opened** from a normal state, only a Soft-Shunt occurs: the on-board relay is not activated.

This shunt-only option uses two methods of Request-to-Exit. The first REX device provides the 40-second Soft-Shunt entry/exit timer. The second REX device, or manual device such as a door knob, unlocks the door.

As an example of the shunt-only configuration, a door to an office is locked 24 hours a day. Users pass a REX motion detector positioned by the door to begin the 40-second exit timer. Within 5 seconds the user must then manually activate a second device, such as a REX device or manual door knob, to unlock the door. If the door is opened after 5 seconds, the zone goes into alarm.

After 30 seconds elapse, the 733 Module begins sounding its built-in piezo alerting the user that the Soft-Shunt is about to expire. If the door is still open at the end of the 40-second Soft-Shunt timer a zone fault is sent to the panel for Zone 2.

12/24 VDC Access Control Readers

Power the 733 Module from either a 12 VDC or 24 VDC input voltage without any board changes. The 12 VDC power can be provided by the Command Processor™ panel or from a separate listed burglary and fire alarm auxiliary power supply. All 24 VDC power must be provided by a separate auxiliary power supply or the auxiliary output of a 24 VDC panel. Do not ground the power supply to the 733 or Command Processor™ panel.

Direct Voltage Output to Reader

If you are powering the 733 from 12 VDC power, the voltage output for the Wiegand reader is also 12 VDC, 200mA power limited. If you are powering the 733 from 24 VDC power, the voltage output for the Wiegand reader is also 24 VDC. Do not ground the power supply to the 733 or Command Processor™ panel.

The 733 contains an on-board current limiting device that protects the power input to the 733 from shorts on external wiring.

Magnetic Lock and Door Strike Wiring

Control door switches and magnetic locks by using the Form C relay on the 733 Module. Use an additional power supply to power door strikes and magnetic locks. Refer to Figures 4 and 5 for wiring information.
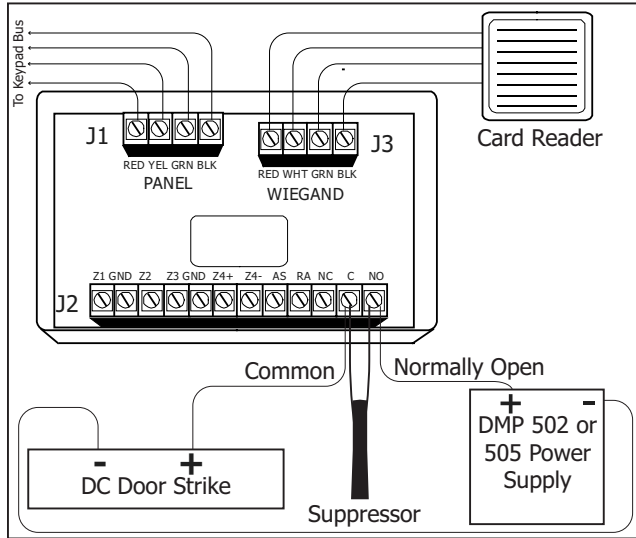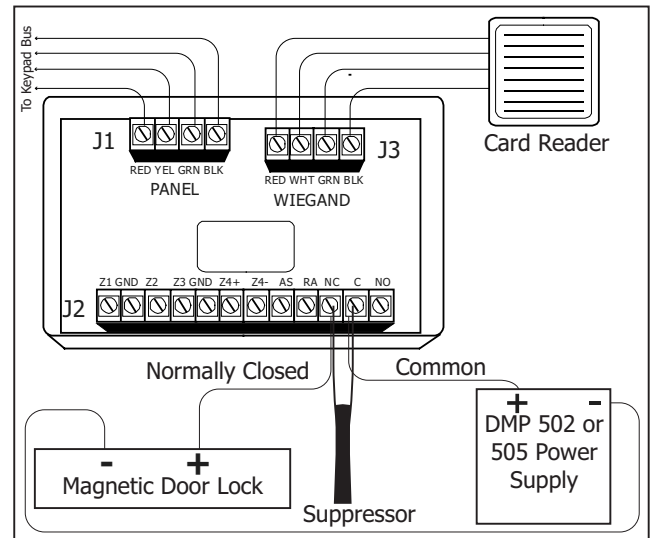

Figure 4: Door Strike Wiring

Figure 5: Magnetic Lock Wiring

Isolation Relay

The 1 Amp programmable Form C Relay can control a device that draws less than 1 Amp current. If a device draws more than 1 Amp of current, or the sum of all devices controlled by the Form C Relay exceeds 1 Amp, an isolation relay or a 734 Module must be used. Refer to Figures 6 and 7 for isolation relay wiring.
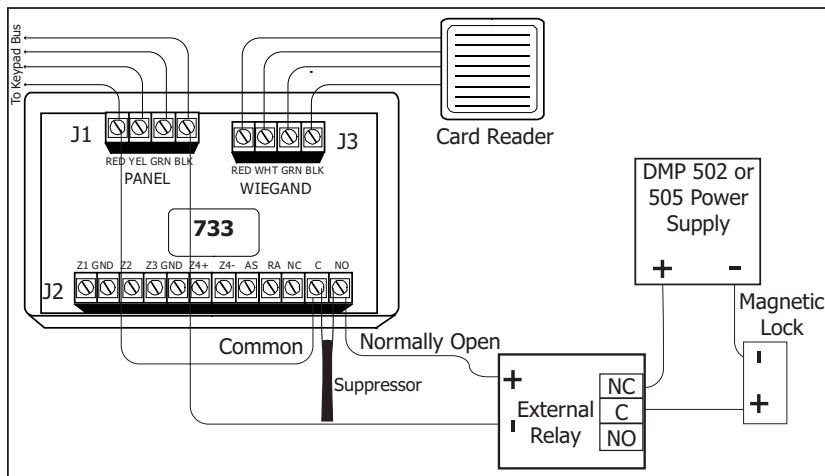

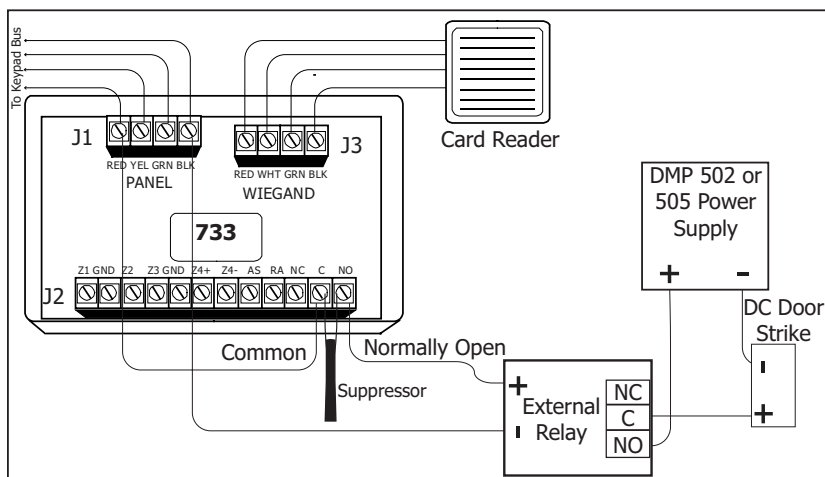Figure 6: Isolation Relay and Magnetic Lock

Figure 7: Isolation Relay and Door Lock

Compliance Listing Specifications

UL Commercial Fire
The Model 733 Interface Module must be used in conjunction with at least one listed DMP keypad.

Any Auxiliary Power Supplies must be regulated, power limited, and listed for Fire Protective Signaling Service.

UL Access Control
For Access Control applications, configuring as fail-safe or fail-secure shall be determined by the local Authority Having Jurisdiction (AHJ). This system is not intended to be used in place of listed panic hardware.

Accessories
Proximity Readers
PP-6005B	ProxPoint® Plus
MP-5365	MiniProx™
PR-5455	ProxPro® II
MX-5375	MaxiProx®
TL-5395	ThinLine II®

Proximity Credentials
1306	DMP Prox Patch
1306PW	Prox Patch™
1326	ProxCard II® Card
1346	ProxKey II® Access Device
1351	ProxPass®
1386	ISOProx II® Card

Specifications

Primary Power	8.5 VDC to 28.5 VDC
Current Draw	
Standby	30mA + 1.6mA per active zone
Alarm	30mA + 20mA with Annunciator ON + 2mA per active zone
Zone Voltage	5 VDC, max 2mA
Dimensions	4.5" W x 2.75" H x 1.75" D

Compatibility
XT Series, XRSuper6/XR20/XR40, XR100, XR500 Series, or XR2500F panels

Listings and Approvals
FCC Part 15

California State Fire Marshall (CSFM)

New York City (FDNY COA #6055)

Underwriters Laboratory (UL) Listed
Commercial Burglar and Fire Accessory Zone Expander Signaling Device with Access Control

ANSI/UL 294	Access Control System Units
ANSI/UL 1610	Central Station Burglar
ANSI/UL 985	Household Fire-warning
ANSI/UL 864	Fire-protective Signalling
ANSI/UL 1023	Household Burglar
ANSI/UL 609	Local Burglar
ANSI/UL 365	Police Connected Burglar
ANSI/UL 1076	Proprietary Burglar

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