



2V164G Relay Software

Links to Other Documents

User Guide: http://www.rmspl.com.au/userguide/2v164_user_guide.pdf

Software Downloads: <http://www.rmspl.com.au/digital/umatrix.htm>

Version Control

Issue	Date	Summary of changes
G	31/10/2011	UMX updated.
B	29/04/2003	Correct undervoltage alarm and blocking set points.
C	26/06/2003	UMX updated
D	21/08/2009	UMX updated
E	01/04/2010	UMX updated
F	29/09/2011	Tap Position Indicator input & output terminals add to connection diagram

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1.0 OVERVIEW

The 2V164 Voltage Regulator Relay continuously monitors the transformer output voltage & current. It provides "RAISE" & "LOWER" control commands to the on-load tap changer such that the load centre is automatically maintained within acceptable limits. Small variations in supply frequency will not affect the system performance.

The 2V164 relay is built on the Micro MATRIX digital platform. The standard Micro MATRIX human machine interface (HMI) is combined with fully solid-state voltage sensing & measuring circuitry to provide high accuracy, simple set up & flexible operation. Self-monitoring is carried out by hardware & software watchdogs.

The TPI inputs, output relays & opto isolated status inputs form the essential barriers against high voltage line transients while a switchmode auxiliary supply provides a wide operating range.

A programming port is provided for ease of establishing relay settings using a PC & μ MATRIXwin.

2.0 SOFTWARE VERSION CONTROL REGISTER

The following table is a register of the changes for the **UMX2V164G.umx** file.

DATE	SOFTWARE	CHANGES	BIOS	FIRST HARDWARE
23/03/2003	04.00	Initial release of G UMX.	04.xx	2V164K6
29/04/2003	04.30	Correct undervoltage alarm and blocking set points.	04.xx	
25/06/2003	05.00	Major UMX upgrade	05.xx	
17/08/2009	05.11	Update Phase correction algorithm	05.xx	
29/03/2010	05.30	CR0924 - Improve Current channel linearity	05.xx	
27/10/2011	05.31	CR1080 - Fix LDC Group display	05.xx	



3.0 DESCRIPTION – UMX2V164G.UMX

3.1 Standard Features

The 2V164 provides a range of standard features as described in the RMS Technical Bulletin which may be downloaded from:

www.rmspl.com.au/handbook/2v164.pdf

3.2 Special Features of the 'G' Software UMX Version

3.2.1 TPI Feedback Mode

When a tap change command is output to the OLTC, the tap change fail timer is started. If a single tap change restores the sensed voltage to a balanced condition the relay is reset. If the sensed voltage remains in error the interval time delay will start based on one of the three methods described below: The required operating mode is selected using the UMX order code.

VOLTAGE MONITORING (Automatic mode) UMX2V164 (As per UMX A).

In this mode the 2V164 provides a 1s output pulse to initiate a tap change. This output pulse is then repeated at a rate set by the Interval Timer setting until the sensed voltage has moved back to a balanced condition. This is the simplest connection method as it does not require a hard-wired contact between the OLTC & the VRR.

The output pulse may be selected as continuous for application with linear voltage regulators. The output pulse is reset once the sensed voltage moves back to the balanced condition & the interval timer delay does not function.

For information on the two other methods, see the 2V164 data sheet or the UMX2V164B & UMX2V164C documents.

3.2.2 Undervoltage Blocking

An undervoltage blocking function (60-110V) is combined with a definite time delay (0-60s). Undervoltage blocking suppresses tap change operations during a system breakdown to avoid the tap changer mechanism from being driven to the top tap.

The G UMX does not have an output contact associated with the Under Voltage Blocking function.

In under voltage blocking the message **** U/V BLOCKED **** is displayed on the HMI.

3.2.3 Undervoltage Alarm Output

The Over Current Blocking function available on the A, B and C UMX versions has been replaced on the G version with an Under Voltage Alarm function (60-110V). Unlike the Under Voltage Blocking function, this function has a self reset alarm contact output and does not block tap change commands. A front panel U/V Alarm LED flashes during timing & goes solid when the timer expires.

3.2.4 Alternate LDC Setting Group

An alternate group (LDC 2) for LDC resistance and reactance settings may be entered into the LDC menu with this UMX. Status Input 5 (SI5 on the wiring diagram), is used to toggle between the LDC setting groups.

When the LDC 2 Group is selected output contact 7 will pick up to signal this operational mode.

When an LDC mode is selected (Other than OFF), the message:

**** LDC Group 1 ** or ** LDC Group 2 **** is displayed on the HMI as determined by the 'Alternate LDC Group' input status.



4.0 USER INTERFACE

Refer to the μ MATRIX Users Guide for detailed instructions on the operation of the user interface.

To download a PDF version of the guide uMatrix: www.rmspl.com.au/digital/umatrixinfo.pdf

To download a PDF version of the guide uMatrix-S: www.rmspl.com.au/digital/umatrix-s_info.pdf

To download USB VCP drivers for uMatrix-S: www.rmspl.com.au/umatrix.htm

5.0 LOAD SOFTWARE

Loading a UMX requires at least the following:

A PC with Windows 2000 or later and at least one COM (uMatrix) or USB (uMatrix-S) port.
(Note: USB comms require drivers to be installed on your PC. See section 4.0 downloads.)

UMatrixWin software.

The correct communications cable.

A general understanding of how UMX and UMP files work with the relay.

Settable parameters will be overwritten by loading a new UMX file. They can however, be saved to a UMP file and then returned to the relay later. To learn how to do this, refer to the uMatrix Userguide.

5.1 Loading the UMX

Before loading the UMX2V164G software, ensure that it is compatible with your hardware. Download the compatibility list from the RMS website at:

www.rmspl.com.au/digital/compatibility.pdf

Now ensure that the bios version in the relay matches the table in section 2.0 of this document. (If the bios version is different, you may not be able to load this UMX. Contact RMS for support.)

Load the UMX via the front panel COM port using the 'uMatrixWin' software. Now ensure that the UMX version matches the table in section 2.0.

To interrogate for versions, press 'SET' and 'DATA' buttons simultaneously, then select 'Version Page'. Alternatively, use uMatrixWin – Options – Utilities.

Check versions

5.2 Customer Default UMP

Load customer UMP file as per the Job Card. If no UMP file is requested, write N/A in check box.

UMP file name

The Relay is now ready for field use.

SOFTWARE INSTALLED BY :

DATE :

6.0 CONNECTION DIAGRAM

