

SOFTWARE FUNCTION & VERIFICATION

2H34 C UMX

FREQUENCY RELAY



Issue	Date	Summary of changes
A	10/05/2002	Initial issue.

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ARF	DG	DG	

3.0 FUNCTIONAL DESCRIPTION – C UMX

3.2 Standard Features

The 2H34 provides a range of standard features as described in the RMS Technical Bulletin which may be downloaded from:

www.rmspl.com.au/handbook/2H34.pdf

3.1.1 Frequency Set Points

Inputs:	63.5 or 110V AC
Setting stages:	4 independent stages
Setting range:	40 to 70Hz
Setting resolution:	0.05Hz (0.01Hz in μ MATRIXwin)
Accuracy:	+/-0.03Hz (70 to 121V) +/-0.10Hz (30 to 69V) +/-0.50Hz (14 to 29V)
Hysteresis:	0.05 to 0.5Hz
Frequency measuring time:	60ms (3 cycles)
Error in response time:	<5ms
Minimum operate time:	70ms (Including output relay delay)
Overfrequency function:	PU at set point DO at set point – hysteresis
Underfrequency function:	PU at set point DO at set point + hysteresis
Undervoltage lockout:	20 to 90V
Setting resolution:	0.1V steps

3.1.2 Setting Frequency Stages

The 2H34 relay provides four independent frequency setting stages as follows:

- a) Set under or over frequency detection
- b) Frequency set point
- c) Time delay
- d) Frequency reset hysteresis
- e) Frequency reset time delay

3.1.3 Relay Enable

A status input is provided to place the 2H34 in an enabled or inhibited condition.

Status Input Sense

The status input may be user configured such that application of a control voltage will enable the relay (Relay normally inhibited).

Alternatively the status input may be user configured such that removal of a control voltage will enable the relay (Relay normally enabled).

2H34 Enabled

The stage start conditions are only active when while the 2H34 relay is enabled. When the C UMX is installed, the “enable” output relay and front panel LED will pickup when the 2H34 is enabled.

2H34 Inhibited

The stage start conditions are not active when the 2H34 is inhibited. The undervoltage lockout function remains active to detect loss of the input signal.

3.1.4 Undervoltage Lockout

The 2H34 provides an Undervoltage lockout signal to automatically inhibit stage start conditions, which may be caused due to loss of the input signal. Settings are as follows:

- a) Undervoltage set point
- b) Time delay

Undervoltage Start

The time delay is initiated when the undervoltage set point is reached.

Undervoltage Time Out

Provided this start condition is maintained for the duration of the pre set time delay, the undervoltage output contact will pick up and the front panel LED indicator illuminated. While the undervoltage contact is picked up all stage start signals are inhibited.

Undervoltage Lockout Reset

The output contact and LED indication is self-reset once the start condition is removed.

3.2 Special Features of this Software UMX Version

The C UMX software operates on frequency threshold set points only.

The df/dt settings described in the 2H24 Data sheet do not apply to this version.

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 this guide:
www.rmspl.com.au/digital/uMATRIXInfo.pdf

To download further μ MATRIX software & documentation:
www.rmspl.com.au/uMATRIX.htm

5.0 Loading software, Calibration & Test

This section requires at least the following:
A PC with Windows 98 or later and at least one COM port.
UMatrixWin software.
The correct serial cable.
The ability to interrogate the relay via the front panel buttons.
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 UMX2H034C 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

The relay is now ready to calibrate. *Note: calibration is a factory function. If you are simply changing or re-loading a UMX, re-calibration is not necessary. The relay is deemed to be fully operational.*

5.2 Calibration using 'WinCal'

Test equipment required:
 As 5.0 plus
 Calibrated Test Set (Volts, Amps, Timing & Phase Angle)

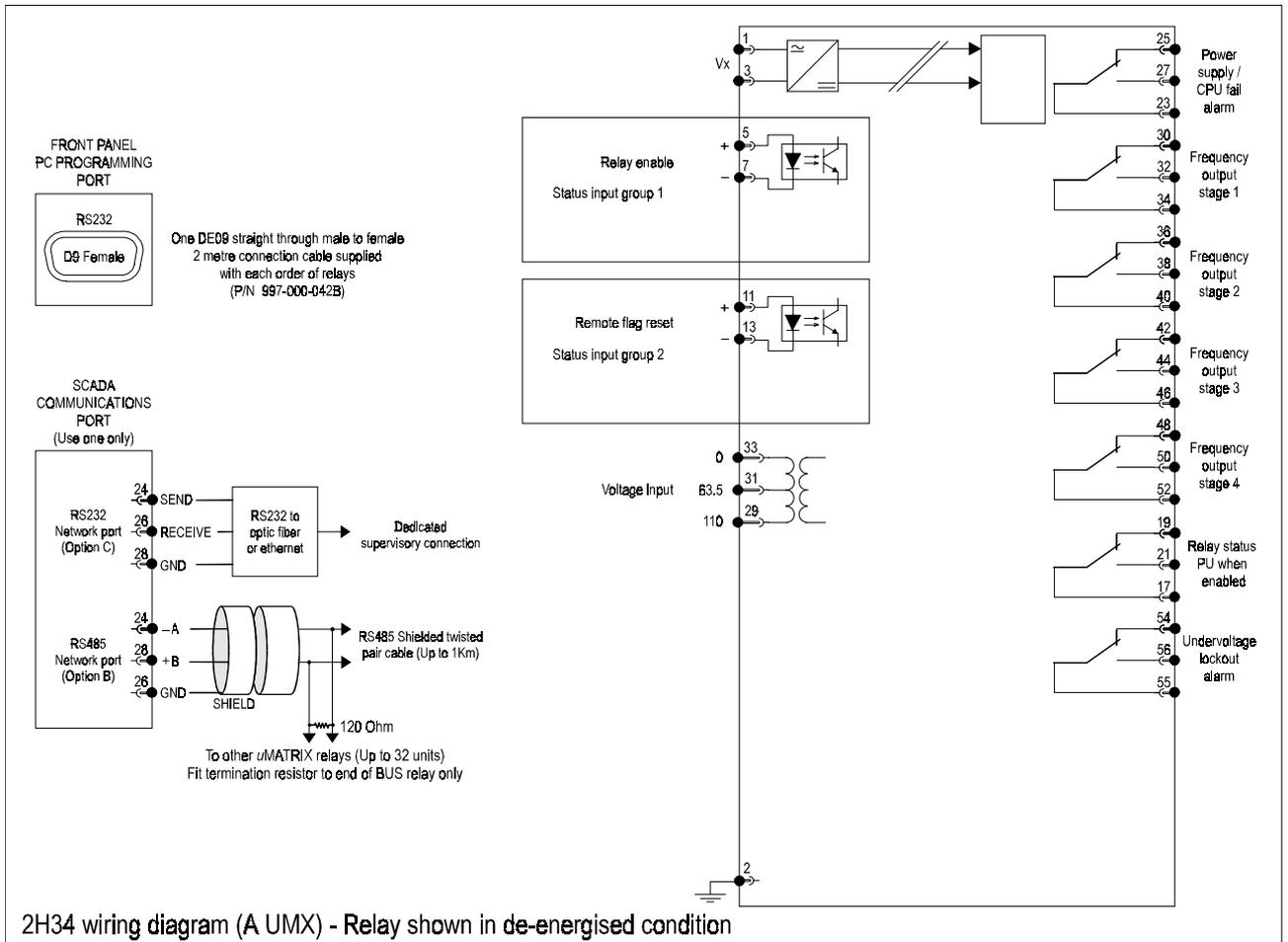
- a) With the test set and PC connected to the relay, start Wincal, select uMatrix – Connect.
- b) Select uMatrix – Calibrate and follow the prompts. When completed, verify the following parameters.
- c) Check frequency display reading accuracy:

@110VAC	MINIMUM	MAXIMUM	NOMINAL Hz	ACTUAL A	ACTUAL B	ACTUAL C
	49-97	50.03	50.0			
@50VAC	MINIMUM	MAXIMUM	NOMINAL Hz	ACTUAL A	ACTUAL B	ACTUAL C
	49.90	50.10	50.0			
@20VAC	MINIMUM	MAXIMUM	NOMINAL Hz	ACTUAL A	ACTUAL B	ACTUAL C
	49.50	50.50	50.0			

If the relay settings in the above are correct, the relay is deemed to be fully operational.

TESTED BY : _____ DATE : _____

7.0 CONNECTION DIAGRAM



2H34 wiring diagram (A UMX) - Relay shown in de-energised condition