Using a TVM for 0-10V Control in HWQS

Revision C—2/18

Overview

Fixtures that utilize 0 to 10 volt ballasts or drivers can be controlled with HomeWorks QS using a GRX-TVM2 (Ten Volt Module). This application note will discuss using TVMs with a TVM Kit (HW-TVMKIT-120 or 240) in the HomeWorks QS Architecture.

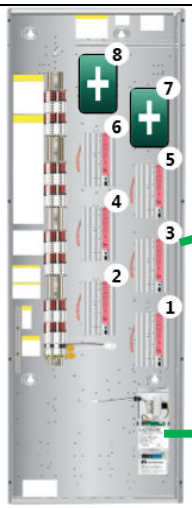
TVMs must be used in conjunction with a module/dimming card to provide a means to turn the ballast on and off. The TVM provides the low-voltage control signal to the ballast. The module/dimming card provides the switched line-voltage hot to the ballast. Each TVM can control 2 circuits, so you will need one RPM module for every 2 TVMs.

The purpose of this document is to explain how to set up the TVM and RPM 4U in the HomeWorks QS software and system architecture. (***See TVM Installation Instructions for more information on the TVM Kit and wiring***)

HomeWorks QS Software—Design Tab:

1. In the HomeWorks QS software (Design Tab—Define Equipment) place an HWI-PNL-8 (Or 8 RPM Breaker Panel) in the desired location.
2. Add the proper number of 4U Dimming Modules to represent the 24 maximum outputs from the possible 12 TVMs. For example for 24 TVM outputs you will need a 4U placed in panel positions 1 thru 6 (see step example below).

Feed-Through Panel Example :



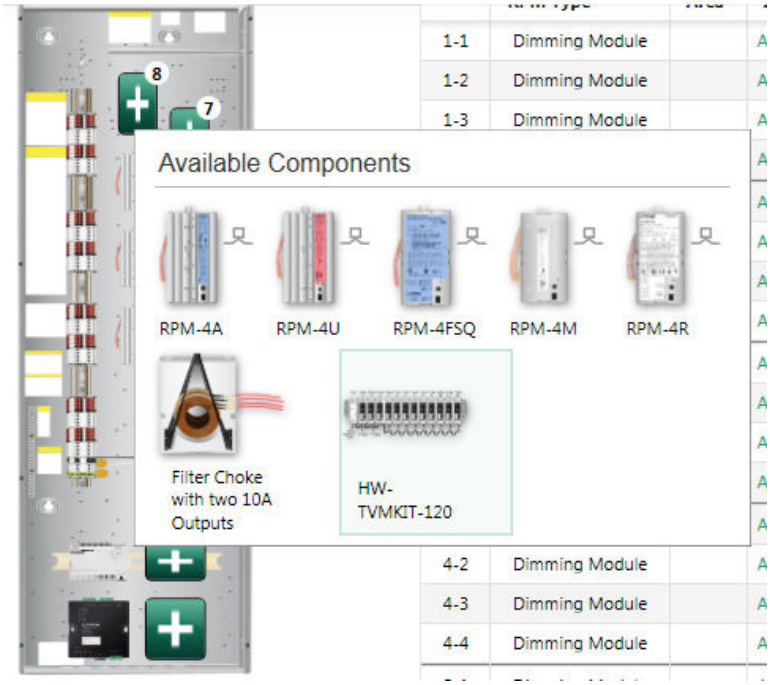
Feed-Through Panel—8 Module

(HWI-PNL-8)

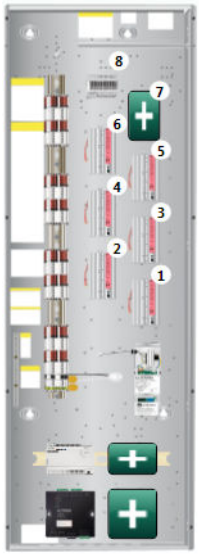
Model #: HW-RPM-4U-120
Description: Remote Power Module - 4 Phase Control Dimming Outputs

Model #: HWI-MI-120
Description: Module Interface (MI) Device

3. Add a TVM Kit to panel position 8. Older software revisions (5.0.0 or previous) do not support adding a TVM Kit or TVMs to the panel. This however only affects the bill of materials and not the ability to use TVMs in a project.



4. For this example, the Feed Through Panel has 24 0-10V outputs that need to be assigned in the HWQS software to the first 24 zones of the Feed-Through Panel starting with the first RPM-4U. **The "Load Type" should be assigned as a 0-10V, and the "Wattage" should be set to "0", otherwise the software will add a GRX-TVI interface to each output and which will output an incorrect signal to the load. The Interface field should show "GRX-TVM2 x-y" where x is the TVM2 number and y is the TVM2 zone number.** This example uses a LED 0-10V load type, but you may also control Fluorescent 0-10V loads as well. See step 5 for the TVM to RPM output mapping matrix.



Show Wattage Summary

	RPM Type	Area	Zone Name	Load #	Load Type	Wattage	Interface
1-1	Dimming Module	Control Room	Zone 01	001	LED 0-10V	0	GRX-TVM2 1-1
1-2	Dimming Module	Control Room	Zone 02	002	LED 0-10V	0	GRX-TVM2 1-2
1-3	Dimming Module	Control Room	Zone 03	003	LED 0-10V	0	GRX-TVM2 2-1
1-4	Dimming Module	Control Room	Zone 04	004	LED 0-10V	0	GRX-TVM2 2-2
2-1	Dimming Module	Control Room	Zone 05	005	LED 0-10V	0	GRX-TVM2 3-1
2-2	Dimming Module	Control Room	Zone 06	006	LED 0-10V	0	GRX-TVM2 3-2
2-3	Dimming Module	Control Room	Zone 07	007	LED 0-10V	0	GRX-TVM2 4-1
2-4	Dimming Module	Control Room	Zone 08	008	LED 0-10V	0	GRX-TVM2 4-2
3-1	Dimming Module	Control Room	Zone 09	009	LED 0-10V	0	GRX-TVM2 5-1
3-2	Dimming Module	Control Room	Zone 10	010	LED 0-10V	0	GRX-TVM2 5-2
3-3	Dimming Module	Control Room	Zone 11	011	LED 0-10V	0	GRX-TVM2 6-1
3-4	Dimming Module	Control Room	Zone 12	012	LED 0-10V	0	GRX-TVM2 6-2
4-1	Dimming Module	Control Room	Zone 13	013	LED 0-10V	0	GRX-TVM2 7-1
4-2	Dimming Module	Control Room	Zone 14	014	LED 0-10V	0	GRX-TVM2 7-2
4-3	Dimming Module	Control Room	Zone 15	015	LED 0-10V	0	GRX-TVM2 8-1
4-4	Dimming Module	Control Room	Zone 16	016	LED 0-10V	0	GRX-TVM2 8-2
5-1	Dimming Module	Control Room	Zone 17	017	LED 0-10V	0	GRX-TVM2 9-1
5-2	Dimming Module	Control Room	Zone 18	018	LED 0-10V	0	GRX-TVM2 9-2
5-3	Dimming Module	Control Room	Zone 19	019	LED 0-10V	0	GRX-TVM2 10-1
5-4	Dimming Module	Control Room	Zone 20	020	LED 0-10V	0	GRX-TVM2 10-2
6-1	Dimming Module	Control Room	Zone 21	021	LED 0-10V	0	GRX-TVM2 11-1
6-2	Dimming Module	Control Room	Zone 22	022	LED 0-10V	0	GRX-TVM2 11-2
6-3	Dimming Module	Control Room	Zone 23	023	LED 0-10V	0	GRX-TVM2 12-1
6-4	Dimming Module	Control Room	Zone 24	024	LED 0-10V	0	GRX-TVM2 12-2

5. The following matrix maps the relationship between TVM outputs and RPM outputs.

TVM #	TVM Output #	RPM #	RPM Output #
TVM 1	1	RPM 1	1
	2		2
TVM 2	1		3
	2		4
TVM 3	1	RPM 2	1
	2		2
TVM 4	1		3
	2		4
TVM 5	1	RPM 3	1
	2		2
TVM 6	1		3
	2		4
TVM 7	1	RPM 4	1
	2		2
TVM 8	1		3
	2		4
TVM 9	1	RPM 5	1
	2		2
TVM 10	1		3
	2		4
TVM 11	1	RPM 6	1
	2		2
TVM 12	1		3
	2		4

HomeWorks QS Software—Program and Activation Tabs:

1. The 0-10V outputs of the TVMs can be programmed to any system triggers (keypads, contact closures, timeclocks, etc.) or 3rd party control.
2. Activation of the TVM Panel on the HWQS Power Panel Link is determined by the physical address of the MI.

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