

# Winbond WMS71xx Series Nonvolatile Digital Potentiometers with Up/Down (3-wire) Interface

## Product Bulletin

The WMS71xx is a series of 16, 32, 64, 128, 256 and 100-position non-volatile linear digital potentiometers available in 10K $\Omega$ , 50K $\Omega$  and 100K $\Omega$  resistance values. The WMS7100/1, WMS7110/1, WMS7120/1, WMS7130/1, WMS7140/1, WMS7170/1 series can be used as a three-terminal potentiometer or as a two terminal variable resistor in a wide variety of applications.

The output of each potentiometer is determined by the wiper position, which varies linearly between VA1 and VB1 terminal according to the content stored in the volatile Tap Register (TR) programmed through Up/Down (Increment/Decrement) interface. The channel has one non-volatile memory location (NVMEM0) that can be directly written to by users through the Up/Down interface. Power-on recall is also built in so the content of the NVMEM0 to Tap Register is automatically loaded.

The WMS7100, WMS7110, WMS7120, WMS7130, WMS7140, and WMS7170 devices pin out the resistor wiper directly. The WMS7101, WMS7111, WMS7121, WMS7131, WMS7141, and WMS7171 devices feature an output buffer with 3mA minimum drive capability.

All the WMS71xx devices are single channel devices offered in 8-pin PDIP, SOIC and MSOP packages. The WMS71xx devices operate over a wide operating voltage ranging from 2.7V to 5.5V. This series is the second in a family of digital potentiometers.

### Features:

- Drop-in replacements for many popular parts
- Available output buffer for WMS71x1 devices
- Single linear-taper channel
- 16, 32, 64, 128, 256 taps or 100 taps
- 10K, 50K and 100K end-to end resistance
- V<sub>SS</sub> to V<sub>DD</sub> terminal voltages
- Non-volatile storage of wiper positions with power-on recall
- Data storage and potentiometer control through Up/Down (3-wire) interface
- Package options:
  - 8-pin PDIP, SOIC or MSOP
- Industrial temperature range: -40 ~ 85°C
- Single supply operation 2.7V to 5.5V

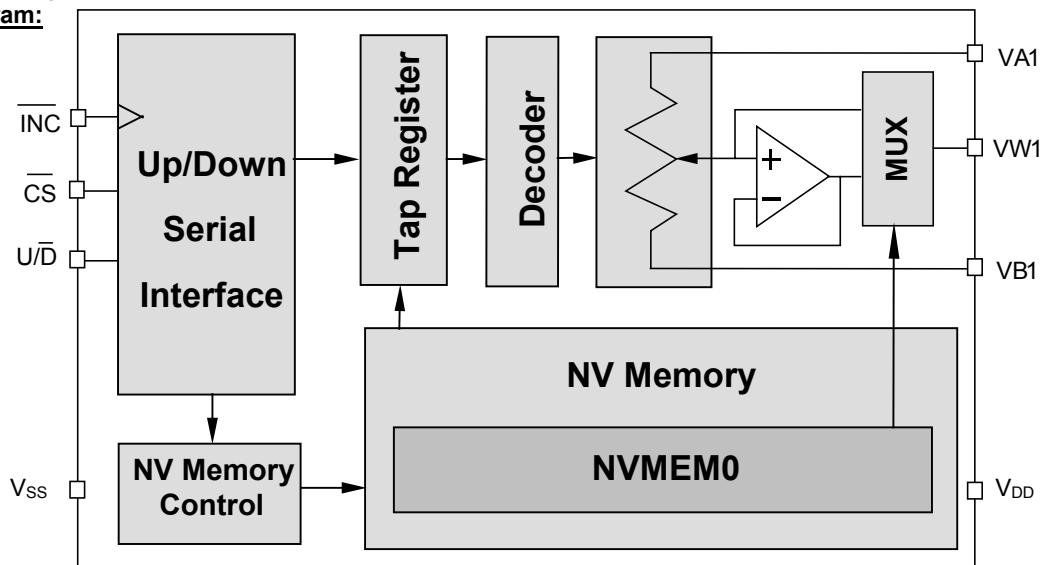
### Applications:

- Mechanical Potentiometer Replacement
- Laser Diode Biasing in Optical Networking
- DC Biasing for RF Amplifiers in Wireless Systems
- Biasing and Calibration of Analog Circuitry
- Operating Point Setting in Temperature Control Systems
- Power Supply Voltage Adjustment

### Evaluation System:

- Standalone evaluation/development board

### WMS71xx Family Block Diagram:

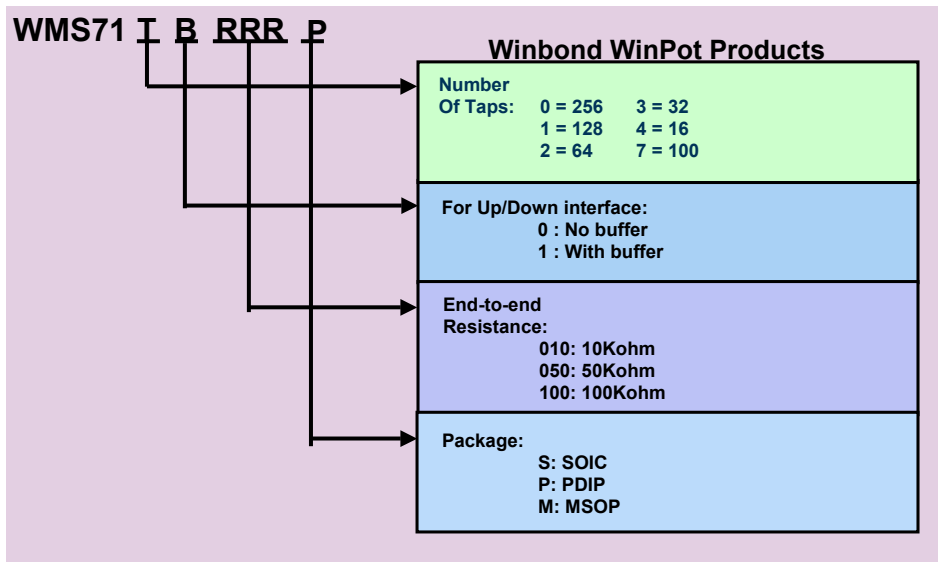


**WinPot WMS71xx Selection Table:**

*Part Number	# of Channels	# of Taps	Interface	End-to-End R (Kohm)	NVM	Terminal Voltage	Operating Voltage	Output Buffer	Availability		Package Options
									Samples	Production	
*WMS7100	1	256	UP/DOWN	10,50,100	Y	VSS ~VDD	2.7 ~5.5V	No	Jun '03	Q3 '03	8-PDIP/SOIC/MSOP
*WMS7101	1	256	UP/DOWN	10,50,100	Y	VSS ~VDD	2.7 ~5.5V	Yes	Jun '03	Q3 '03	8-PDIP/SOIC/MSOP
*WMS7110	1	128	UP/DOWN	10,50,100	Y	VSS ~VDD	2.7 ~5.5V	No	Jun '03	Q3 '03	8-PDIP/SOIC/MSOP
*WMS7111	1	128	UP/DOWN	10,50,100	Y	VSS ~VDD	2.7 ~5.5V	Yes	Jun '03	Q3 '03	8-PDIP/SOIC/MSOP
*WMS7120	1	64	UP/DOWN	10,50,100	Y	VSS ~VDD	2.7 ~5.5V	No	Jun '03	Q3 '03	8-PDIP/SOIC/MSOP
*WMS7121	1	64	UP/DOWN	10,50,100	Y	VSS ~VDD	2.7 ~5.5V	Yes	Jun '03	Q3 '03	8-PDIP/SOIC/MSOP
*WMS7130	1	32	UP/DOWN	10,50,100	Y	VSS ~VDD	2.7 ~5.5V	No	Jun '03	Q3 '03	8-PDIP/SOIC/MSOP
*WMS7131	1	32	UP/DOWN	10,50,100	Y	VSS ~VDD	2.7 ~5.5V	Yes	Jun '03	Q3 '03	8-PDIP/SOIC/MSOP
*WMS7140	1	16	UP/DOWN	10,50,100	Y	VSS ~VDD	2.7 ~5.5V	No	Jun '03	Q3 '03	8-PDIP/SOIC/MSOP
*WMS7141	1	16	UP/DOWN	10,50,100	Y	VSS ~VDD	2.7 ~5.5V	Yes	Jun '03	Q3 '03	8-PDIP/SOIC/MSOP
*WMS7170	1	100	UP/DOWN	10,50,100	Y	VSS ~VDD	2.7 ~5.5V	No	Jul '03	Q3 '03	8-PDIP/SOIC/MSOP
*WMS7171	1	100	UP/DOWN	10,50,100	Y	VSS ~VDD	2.7 ~5.5V	Yes	Jul '03	Q3 '03	8-PDIP/SOIC/MSOP

\* Refer to Numbering Scheme

**WinPot WMS71xx Numbering Scheme:**



**To order products or for more information:**

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 Winbond WMS720X-0808