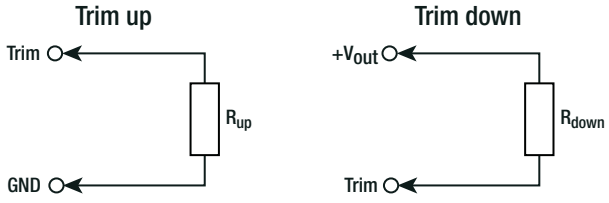
Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

OUTPUT VOLTAGE TRIMMING

The RPM series offers the feature of trimming the output voltage over a range between 0.9V and 6V by using external trim resistors. The values for trim resistors shown in trim tables below are according to standard E96 values; therefore, the specified voltage may slightly vary.



$Vout_{nom}$	= nominal output voltage	[VDC]
$Vout_{set}$	= trimmed output voltage	[VDC]
V_{ref}	= reference voltage	[VDC]
R_{up}	= trim up resistor	[Ω]
R_{down}	= trim down resistor	[Ω]
R_1, R_2, R_3	= internal resistors	[Ω]

$Vout_{nom}$	R_1	R_2	R_3	V_{ref}
3.3VDC	376kΩ	1kΩ	471kΩ	0.81VDC
5VDC	344kΩ		431kΩ	

Calculation:

$$R_{up} = \left[\frac{R_1}{Vout_{set} - V_{nom}} \right] - R_2$$

$$R_{down} = \left[\frac{(Vout_{set} - V_{ref}) \times R_3}{Vout_{nom} - Vout_{set}} \right]$$

Practical Example RPM3.3-2.0:

$$R_{up} = \left[\frac{376k}{4.3 - 3.3} \right] - 1k = \underline{\mathbf{375k\Omega}}$$

$$R_{down} = \left[\frac{(1.8 - 0.81) \times 471k}{3.3 - 1.8} \right] = \underline{\mathbf{311k\Omega}}$$

R_{up} according to E96 ≈ **374kΩ**

R_{down} according to E96 ≈ **309kΩ**

RPM3.3-2.0

Trim up

$Vout_{set}$ =	3.5	3.7	3.9	4.1	4.3	4.5	4.7	5.0	5.5	6.0	[VDC]
R_{up} (E96) ≈	1M87	931k	619k	464k	374k	309k	267k	221k	169k	137k	[Ω]

Trim down

$Vout_{set}$ =	3.0	2.7	2.5	2.2	2.0	1.8	1.5	1.2	1.0	0.9	[VDC]
R_{down} (E96) ≈	3M40	1M47	1M	590k	432k	309k	182k	86k6	39k2	17k4	[Ω]

RPM5.0-2.0

Trim up

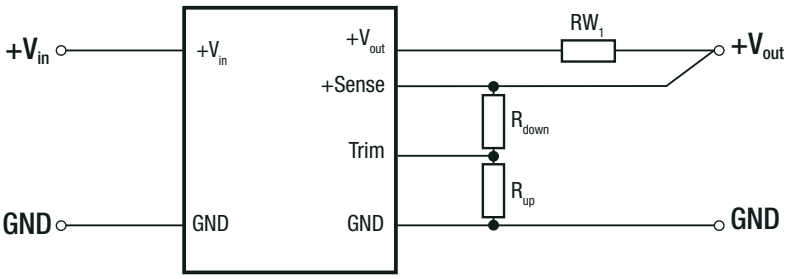
$Vout_{set}$ =	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	[VDC]
R_{up} (E96) ≈	2M21	1M33	976k	750k	619k	523k	453k	402k	357k	324k	[Ω]

Trim down

$Vout_{set}$ =	4.5	4.0	3.5	3.3	2.5	1.8	1.5	1.2	1.0	0.9	[VDC]
R_{down} (E96) ≈	3M16	1M37	768k	634k	294k	133k	84k5	44k2	20k5	9k53	[Ω]

Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

REMOTE SENSE



The output voltage can be adjusted via the trim and sense functions.
The maximum output voltage from Trim and Sense function combined is 5.5VDC. Derating may be required when using Trim and/or sense functions.

RW_1 ... wire losses +
R_{up} ... trim up resistor
R_{down} ... trim down resistor

REGULATIONS

Parameter	Condition	Value
Output Accuracy		±3.0% max.
Line Regulation	low line to high line, full load	0.25% typ. / ±3.0% max.
Load Regulation	0% to 100% load	0.5% typ. / 3.0% max.
Soft-Start Time		refer to soft-start capacitor calculation
Transient Response	100% - 10% load step recovery time	200mV max. 6ms typ.
	25% load step change recovery time	150mV max. 500µs typ.

Sequencing Multiple Modules

The SEQ pin can be used to program the rising edge of the output voltage. An internal current source charges a soft-start capacitor which is connected from the sequencing pin to GND. The following equation is used to calculate the soft-start capacitor:

C_{ss} = soft-start capacitor
I_{ss} = sum of all soft-start currents of all sequenced modules
t_{ss} = required soft-start time
n = number of RPMs

$$C_{ss} = \frac{t_{ss} \times I_{ss}}{1.25V} - n \times 3.3nF$$

Note: there is a 3.3nF internal soft-start capacitor, and there are different constant current sources in the modules which leads to different preset soft-start times.

I_{ss} [µA]			Preset soft-start time [µs]		
Min.	Typ.	Max.	Min.	Typ.	Max.
4.5	5.0	5.5	750	825	920

continued on next page