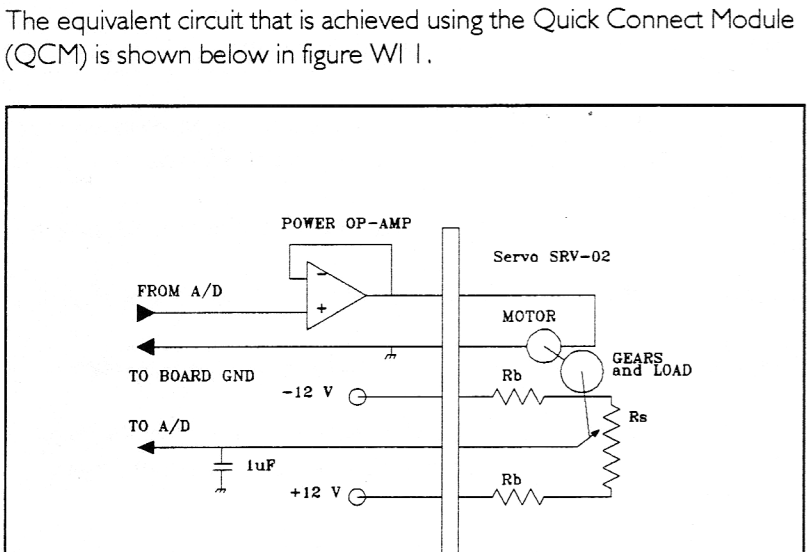
PARAMETER	SYMBOL	VALUE	UNITS	PARAMETER	SYMBOL	VALUE	UNITS
MOTOR TORQUE CONSTANT BACK EMF CONSTANT	Kt,Kb,Km	0.00767	Nm/amp V/(rad/sec)	120 TOOTH GEAR INERTIA	J120	$2.27e^{-5}$	Kgm^2
EFFICIENCY	Eff	0.9		72 TOOTH GEAR INERTIA	J72	$1.4e^{-6}$	Kgm^2
ARMATURE RESISTANCE	Rm	2.6	Ω	24 TOOTH GEAR INERTIA	J24	$1.0e^{-7}$	Kgm^2
ARMATURE INDUCTANCE	Lm	0.18	mHenry	POTEN-TIOMETER RESISTANCE	Rs	10	KΩ
MAXIMUM VOLTAGE	Vmax	6.0	Volts	BIAS VOLTAGE	Vb	+/- 12	Volts
INTERNAL GEAR RATIO	Kgi	14:1		BIAS RESISTORS	Rb	7.15	KΩ
EXTERNAL GEAR RATIO (low) EXTERNAL GEAR RATIO (high)	Kge	1:1 5:1		RANGE	N/A	+/- 176	Deg
GEAR RATIO	Kg = Kgi*Kge	14:1 70:1		SENSITIVITY	S	0.0284	V/deg
LOAD INERTIA DISC ARM AT CENTRE ARM AT END	Jl	0.00003 0.000275 0.001	Kgm^2	ARMATURE INERTIA	Jm	$3.87e^{-7}$	Kgm^2

The equivalent circuit that is achieved using the Quick Connect Module (QCM) is shown below in figure WI 1.



WI- 1 Wiring the SRV-02 servo motor & potentiometer

CAUTION

High frequency voltage applied to a (any) motor will eventually damage the gearbox or the brushes. The most likely source for high frequency noise is derivative feedback. If the derivative feedback gain is too high, a noisy voltage will be fed to the motor. You should have a band-limited differentiator rather than a pure differentiator running in the feedback loop (See section 4.5). If you hear a "buzz" in the motor you are feeding high frequency noise to the motor and will damage it. Turn the motor off immediately and reconsider your design! Select a low pass filter frequency that eliminates the "buzz" or reduce the derivative gain. Always have an anti-aliasing filter connected to the input of the A/D. This could simply be a capacitor as shown in the wiring diagrams. The capacitor will filter out high frequency noise before it is processed.