

# Animatics Smart Motor

## Information Sheet for Crimson v2.0

### Compatible Devices

- Animatics Smart Motor

### Verified Device

- SM1720M Version 4.15

### Accessible Data

ACRONYM	DESCRIPTION	FUNCTION
AMPS	User Maximum Current	Read/Write Value
A	Acceleration	Read/Write Value
Be	Error Exceeded Bit	Read Only
Bt	Move in Progress Status Bit	Read Only
Bo	Motor Off Bit	Read Only
Bw	Position Wrap-Around Occurred	Send Command
Brkeng	Engage Brake	Send Command
Brkrel	Release Brake	Send Command
Brksrv	Brake Engage/Release when Servo On/Off	Send Command
CLK	Software Internal Clock	Read/Write Value
CTR	External Pulse Counter	Read Only
D	Commanded Relative Move	Read/Write Value
ECHO	Echo Received Characters	Send Command
ECHOOFF	Echo Characters Off	Send Command
END	End Running Program	Send Command
E	Maximum Following Error	Read/Write Value
F	Buffered K's -> PID filter	Send Command
GSUB	Execute GOSUB (No Response)	Note 1
G	Go Command	Send Command
I	Last Index Position	Read Only
KA	Accel Feed Fwd coef. (kaff)	Read/Write Value
KD	Differential coef. (kd)	Read/Write Value
KG	Graviational Term (kg)	Read/Write Value
KI	Integral coef. (ki)	Read/Write Value
KL	Integral Limit term (kl)	Read/Write Value
KP	Proportional coef. (kp)	Read/Write Value

KS	Differential Sample Rate (ks)	Read/Write Value
MF0	Reset Counter	Send Command
MF1	Reset Counter-1 int. ct./ext. ct.	Send Command
MF2	Reset Counter-2 int. cts/ext. ct	Send Command
MF4	Reset Counter-4 int. cts/ext. ct	Send Command
MFR	MFMUL/MFDIV ratio-MFx counter mode	Send Command
MFDIV	Set Denominator for Ratio	Read/Write Value
MFMUL	Set Numerator for Ratio	Read/Write Value
MP	Set Buffered Position Mode	Send Command
MSR	MFMUL/MFDIV ratio-MS counter mode	Send Command
MS0	Enable Mode Step/Dir.-counter only	Send Command
MS	Enable Mode Step/Dir. Follow Enc2	Send Command
MT	Set/Apply Mode Torque	Send Command
MV	Set Buffered Velocity Mode	Send Command
OFF	Turn Motor Servo Off	Send Command
O	Set Origin	Read/Write Value
PE	Present Position Error	Read Only
P	Position	Read/Write Value
RSB	Status Byte - (S).0 to (S).7	Read Only
RUN	Run Stored User Program	Send Command
SADDR	Read or Change Unit Address	Read/Write
Sfast	Fast Stop	Send Command
SILENT	No Transmit to Aux Channel	Send Command
SLEEP	Ignore Host Commands	Send Command
SLEEP1	Ignore Aux Ch. Commands	Send Command
SSRN	SSRSP Current Response Number	Read Only - Note 3
SSRSP	GOSUB-String Response (WO)	Note 2
SSR01	SSRSP Response Word 1	Read Only - Note 4
SSR02	SSRSP Response Word 2	Read Only - Note 4
SSR03	SSRSP Response Word 3	Read Only - Note 4
SSR04	SSRSP Response Word 4	Read Only - Note 4
SSR05	SSRSP Response Word 5	Read Only - Note 4
SSR06	SSRSP Response Word 6	Read Only - Note 4
SSR07	SSRSP Response Word 7	Read Only - Note 4
SSR08	SSRSP Response Word 8	Read Only - Note 4
SSR09	SSRSP Response Word 9	Read Only - Note 4
SSR10	SSRSP Response Word 10	Read Only - Note 4
SSR11	SSRSP Response Word 11	Read Only - Note 4
SSR12	SSRSP Response Word 12	Read Only - Note 4
SSR13	SSRSP Response Word 13	Read Only - Note 4
SSR14	SSRSP Response Word 14	Read Only - Note 4
SSR15	SSRSP Response Word 15	Read Only - Note 4
SSR16	SSRSP Response Word 16	Read Only - Note 4
STACK	Reset Stack Pointer	Send Command
TALK1	Transmit to Aux Channel	Send Command

T	Buffered Torque Magnitude	Read/Write Value
UAI	Port A -> Input Port	Send Command
UBI	Port B -> Input Port	Send Command
UCI	Port C -> Input Port	Send Command
UDI	Port D -> Input Port	Send Command
UEI	Port E -> Input Port	Send Command
UFI	Port F -> Input Port	Send Command
UGI	Port G -> Input Port	Send Command
UG2	Reset Port G to Synch. GO	Send Command
UAO	Port A -> Output Port	Send Command
UBO	Port B -> Output Port	Send Command
UCO	Port C -> Output Port	Send Command
UDO	Port D -> Output Port	Send Command
UEO	Port E -> Output Port	Send Command
UFO	Port F -> Output Port	Send Command
UGO	Port G -> Output Port	Send Command
UCP	Port C -> right limit input	Send Command
UDM	Port D -> left limit input	Send Command
UA	Set Voltage on Port A	Read/Write Value
UB	Set Voltage on Port B	Read/Write Value
UC	Set Voltage on Port C	Read/Write Value
UD	Set Voltage on Port D	Read/Write Value
UE	Set Voltage on Port E	Read/Write Value
UF	Set Voltage on Port F	Read/Write Value
UG	Set Voltage on Port G	Read/Write Value
Vel	Commanded Velocity	Read/Write Value
V(aaa-zzz)	Variables aaa through zzz (26 items)	Read/Write Values
V(aa-zz)	Variables aa through zz (26 items)	Read/Write Values
V(a-z)	Variables a through z (26 items)	Read/Write Values
WAKE	Terminate Sleep State	Send Command
WAKE1	Terminate Sleep1 State	Send Command
Wstat	Status Word - (W).0 to (W).15	Read Only
X	Ramp Stop	Send Command
ZAll	Software Reset-Everything	Send Command
Za	Reset Current Limit Violation	Send Command
Zb	Reset Serial Data Parity Error	Send Command
Zc	Reset Comms Buffer Overflow	Send Command
Zd	Reset User Math Overflow	Send Command
Zf	Reset Comms Framing Error	Send Command
Zl	Reset Left Limit Seen	Send Command
Zr	Reset Right Limit Seen	Send Command
Zs	Reset Command Syntax Error	Send Command
Zu	Reset Array Out of Range	Send Command
Zw	Reset Wrap-Around Indication	Send Command
ZSB	Reset User System Bits	Send Command

## NOTES:

1. GSUB – This is a write only – the programmer arranges for the number of the appropriate subroutine to be used.  
Example: Var1 is assigned to GOSUB. Var1 = 127 will request that subroutine 127 be executed. This will not look for a response.
2. SSRSP – This is a write only – the programmer arranges for the number of the appropriate subroutine to be used. This expects a maximum of 64 characters to be returned, 4 each in SSR01 through SSR16. See notes 3 and 4 for additional information. Reading SSRSP will return hex FFFFFFFF, to permit additional writes of the same subroutine number.
3. SSRN – This is a read only value – this holds the number of the most recent SSRSP instruction executed, allowing the programmer to identify what subroutine data is currently available in the response words. See Note 4.
4. SSR01-SSR16 – The 16 of these are read only values. Each contains 4 bytes of the entire string returned by the most recent SSRSP command, as denoted by the number in SSRN. This permits string responses of up to 65 characters. If the string exceeds 64 characters, only the first 64 are collected. The first, fifth, ninth, ... 61<sup>st</sup>, character will be in the most significant byte of the corresponding data item. The programmer can use the value read from SSRN to identify the most recent SSRSP command sent, in order to store the string in the appropriate location.

Example:

Strings of 10 characters are to be returned from 2 distinct subroutines, numbered 98 and 99. The programmer would set up a String Array, named StrArr, of size 2, and SSR01 through SSR03 ( space for 12 characters ). After sending SUBRS with either 98 or 99, a program would be run:

```
// Beginning of Program
If ( SSRN < 98 || SSRN > 99 ) return;
TempVar = SSRN-98;
StrArr[TEMPVAR] = "";
StrArr[TEMPVAR] += SSR01>>24;
StrArr[TEMPVAR] += SSR01>>16;
StrArr[TEMPVAR] += SSR01>>8;
StrArr[TEMPVAR] += SSR01;
StrArr[TEMPVAR] += SSR02>>24;
StrArr[TEMPVAR] += SSR02>>16;
StrArr[TEMPVAR] += SSR02>>8;
StrArr[TEMPVAR] += SSR02;
StrArr[TEMPVAR] += SSR03>>24;
StrArr[TEMPVAR] += SSR03>>16;
// End of Program
```

StrArr[0] will hold the data from subroutine 98.  
 StrArr[1] will hold the data from subroutine 99.

The above program is the straight line way of putting the data into the string. The experienced programmer, when faced with long strings, might copy the 16 values into another array, and write for-loops to copy the data in a less space consuming fashion. Once the Carriage Return is detected, it, and all subsequent locations through the end of SSR16 are set to 0, in order to guarantee suitable termination for the string.

### Cable Information

<b>G3 RS232 Port</b>	<b>Animatics Prgming Cable</b>
TxD – 5	RxD – 3
RxD – 2	TxD – 2
0V – 3 and/or 4	5

<b>G3 RS232 Port</b>	<b>Animatics RS232 Port</b>
TxD – 5	RxD – 4
RxD – 2	TxD – 3
0V – 3 and/or 4	5