

Animatics SmartMotor™ *with* DeviceNet Specifications:

Appendix: Pins A to G

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ACCESSING SMARTMOTOR™ I/O PINS A TO G

The Version 4 SmartMotor™ has I/O pins A through G. The DeviceNet Position Controller Device Profile, implemented by the DeviceNet SmartMotor™ does not include support for device I/O pins.

Animatics has included an additional, from the viewpoint of the DeviceNet protocol, vendor-specific class for the motors' I/O pins. This is class decimal 112. Each pin is an instance of this class, beginning with instance 1. Class Attribute IDs 1 through 4 provide for setting the pin to input or output, setting the output latch state, getting the digital input value, and getting the analog input value.

Note that setting a multiplexed pin to output will disable other uses of the pin in the motor. Particularly, limit pins C and D, upon being set to output through DeviceNet, would no longer function as limits. Setting the pins back to inputs through DeviceNet would not restore the limit function, which requires UCP and/or UDM commands. UCP and UDM may not be issued directly through DeviceNet.

The Position Controller Device Profile does not provide for DeviceNet I/O polling message access to classes other than the Position Controller class and the Position Controller Supervisor class.

The SmartMotor™ I/O class, decimal 112, must be accessed through DeviceNet Explicit Messages. Explicit messages are one-shot messages, as opposed to the I/O Polling Messages, which are continuously repeated.

SMARTMOTOR™ I/O CLASS 112 DECIMAL

SmartMotor I/O, Class 112 decimal, Instance 0 (Class 0)

Attribute ID	Access Rule	Name	DeviceNet Data Type	Description of Attribute	Get Action	Set Action
1	Get	Discrete Data	Array of byte	Array of Discrete Data bits for all defined instances. Bit 0 = Instance 1 Discrete Data		N/A

SmartMotor I/O, Class 112 decimal, Instance 1 (Pin A)

Attribute ID	Access Rule	Name	DeviceNet Data Type	Description of Attribute	Get Action	Set Action
1	Set	Function	USINT	0=output, 1=input		0: UAO 1: UAI
2	Set	Output Latch	BOOL	0=low, 1=high		0: UA=0 1: UA=1
3	Get	Discrete Data	BOOL	0=low, 1=high 4.76+ only*	RUA	N/A
4	Get	Analog Data	INT	0 to 1023	RUAA	N/A

SmartMotor I/O, Class 112 decimal, Instance 2 (Pin B)

Attribute ID	Access Rule	Name	DeviceNet Data Type	Description of Attribute	Get Action	Set Action
1	Set	Function	USINT	0=output, 1=input		0: UBO 1: UBI
2	Set	Output Latch	BOOL	0=low, 1=high		0: UB=0 1: UB=1
3	Get	Discrete Data	BOOL	0=low, 1=high 4.76+ only*	RUB	N/A

Attribute ID	Access Rule	Name	DeviceNet Data Type	Description of Attribute	Get Action	Set Action
4	Get	Analog Data	INT	0 to 1023	RUBA	N/A

SmartMotor I/O, Class 112 decimal, Instance 3 (Pin C)

Attribute ID	Access Rule	Name	DeviceNet Data Type	Description of Attribute	Get Action	Set Action
1	Set	Function	USINT	0=output, 1=input, 3=special (positive limit action)		0: UCO 1: UCI 2: UCP
2	Set	Output Latch	BOOL	0=low, 1=high		0: UC=0 1: UC=1
3	Get	Discrete Data	BOOL	0=low, 1=high 4.76+ only*	RUC	N/A
4	Get	Analog Data	INT	0 to 1023	RUCA	N/A

SmartMotor I/O, Class 112 decimal, Instance 4 (Pin D)

Attribute ID	Access Rule	Name	DeviceNet Data Type	Description of Attribute	Get Action	Set Action
1	Set	Function	USINT	0=output, 1=input, 3=special (negative limit action)		0: UDO 1: UDI 2: UDM
2	Set	Output Latch	BOOL	0=low, 1=high		0: UD=0 1: UD=1
3	Get	Discrete Data	BOOL	0=low, 1=high 4.76+ only*	RUD	N/A
4	Get	Analog Data	INT	0 to 1023	RUDA	N/A

SmartMotor I/O, Class 112 decimal, Instance 5 (Pin E)

Attribute ID	Access Rule	Name	DeviceNet Data Type	Description of Attribute	Get Action	Set Action
1	Set	Function	USINT	0=output, 1=input		0: UEO 1: UEI
2	Set	Output Latch	BOOL	0=low, 1=high		0: UE=0 1: UE=1
3	Get	Discrete Data	BOOL	0=low, 1=high 4.76+ only*	RUE	N/A
4	Get	Analog Data	INT	0 to 1023	RUEA	N/A

SmartMotor I/O, Class 112 decimal, Instance 6 (Pin F)

Attribute ID	Access Rule	Name	DeviceNet Data Type	Description of Attribute	Get Action	Set Action
1	Set	Function	USINT	0=output, 1=input		0: UFO 1: UFI
2	Set	Output Latch	BOOL	0=low, 1=high		0: UF=0 1: UF=1
3	Get	Discrete Data	BOOL	0=low, 1=high 4.76+ only*	RUF	N/A
4	Get	Analog Data	INT	0 to 1023	RUFA	N/A

SmartMotor I/O, Class 112 decimal, Instance 7 (Pin G)

Attribute ID	Access Rule	Name	DeviceNet Data Type	Description of Attribute	Get Action	Set Action
1	Set	Function	USINT	0=output, 1=input, 3=special (GO)		0: UGO 1: UGI 2: UG
2	Set	Output Latch	BOOL	0=low, 1=high		0: UG=0 1: UG=1
3	Get	Discrete Data	BOOL	0=low, 1=high 4.76+ only*	RUG	N/A
4	Get	Analog Data	INT	0 to 1023	RUGA	N/A

*** Note:**

Attribute ID 3, Get Digital Input, for Motor DeviceNet version 1.05 and below, is only supported in motors with 4.76 and 4.77 firmware.

It is not supported in motors with earlier firmware such as 4.15/4.75, 4.40, et cetera. For these motors, digital input is discernable by Attribute ID 4, Get Analog Data. If the returned value is approximately zero, the digital input is 0, and if the returned value is approximately 1023, the digital input is 1.