

ProAct™ Gen 1 Position Sensor Update

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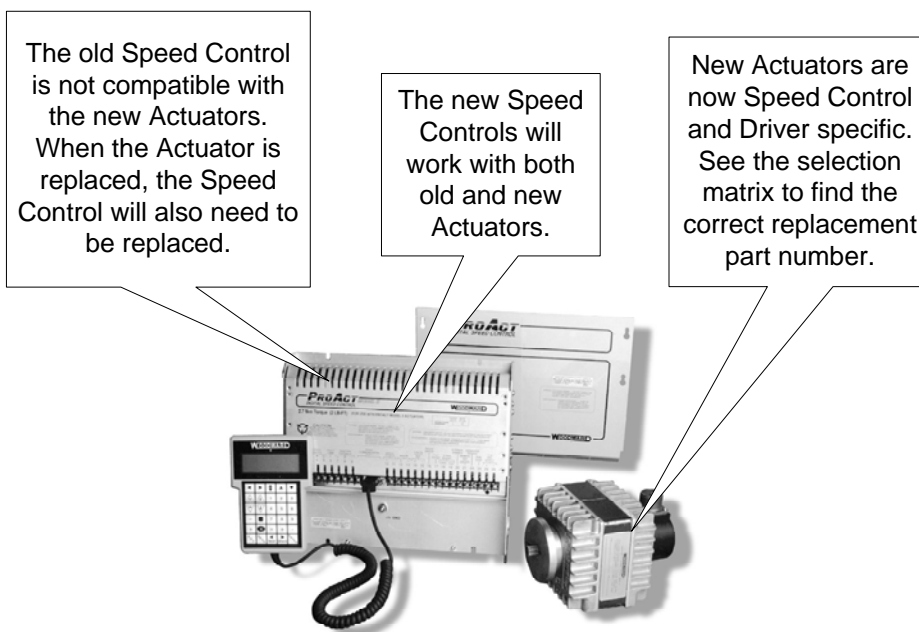
Background

The sensor used for position feedback in the ProAct Gen 1 actuators for years has been discontinued and is no longer available. A new position sensor has been designed into the ProAct Gen 1 actuators and, beginning in April, 2014, all ProAct Gen 1 actuators will be built using this new position sensor. This includes those built for new production and those sold as replacements for existing units already in the field.

Speed Control Applications

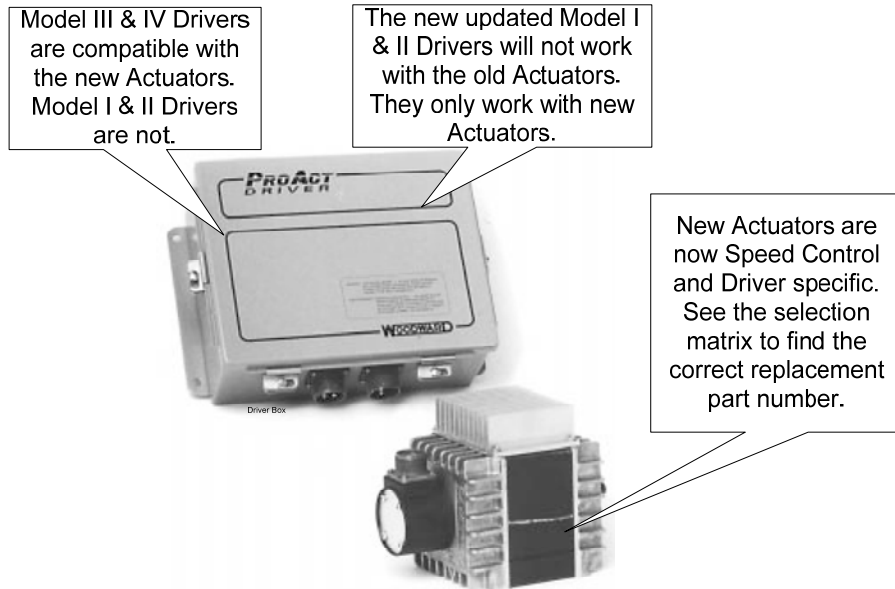
There are electrical differences between the previous position sensor and the new one. These differences affect the compatibility of the new ProAct Gen 1 actuators with existing ProAct Gen 1 Models I and II speed controls. The old ProAct speed control module does not supply enough electrical drive current to operate the new position sensor, which requires 13 mA max at 5 Vdc. If an older ProAct Gen 1 actuator needs to be replaced, the ProAct Gen 1 speed control must be replaced as well in order for it to be compatible with the new replacement actuator. However, the new ProAct Gen 1 speed control will work with both the older ProAct Gen 1 actuator and the new the ProAct Gen 1 actuator. The selection tables below identify existing part numbers and the direct replacement part numbers that need to be used.

The new speed control must be configured to match the settings that were in the old speed control. Ideally, all the configuration setting used to set up the original ProAct Gen 1 speed control were recorded in each unit's manual so they can be re-entered into the new ProAct Gen 1 speed control. If the original settings were not recorded, use hand-held programmer 9907-205 to view the settings in the original unit and record them so they can be re-entered into the new unit. There is no automated way to re-enter these settings, and the hand-held programmer must be used to enter the settings back into the new unit.



Driver Only Applications

In certain applications, a separate speed control provides an actuator position demand signal to a ProAct Gen 1 driver module, which in turn controls the position of a ProAct Gen 1 actuator. The existing ProAct Gen 1 Model III and Model IV driver modules have sufficient drive current capability to interface with the new ProAct Gen 1 actuators and do not need to be replaced. However, the ProAct Gen 1 Models I and II driver modules do not function properly under all conditions with the new ProAct Gen 1 actuators and must be replaced with upgraded units. The Woodward part numbers changed for the Models I and II driver modules. Reference Table 5 for a list of affected Woodward part numbers.



Summary

ProAct Gen 1 Model I and II Units:

- Old speed controls only work with old actuators.
- New speed controls will work with both old and new actuators.
- Old drivers only work with old actuators.
- New drivers only work with new actuators.

ProAct Gen 1 Model III and IV Units:

- There are no Model III and IV speed controls.
- The Model III and IV drivers have not changed and will work with both old and new actuators.

Please reference Table 1 for a list of old and new actuators.

Due to the specific output characteristics of the new position sensor, it is important to replace an older ProAct Gen 1 actuator with the newer direct replacement ProAct Gen 1 actuator identified in the selection table below.

The following selection tables provide a cross-reference from existing part numbers to new replacement part numbers.

Table 1. Actuator—Replacement Selection

Note: ProAct I actuators may be replaced by ProAct II actuators. However, since ProAct II actuators have greater output torque, the overall system dynamics may need to be re-adjusted depending on the application.

Old Actuator Part Number	Description	New Actuator Part Number— for Use in Speed Control Applications	New Actuator Part Number— for Use in Driver Applications
8405-009	Actuator—ProAct III, CW, MS Connector	N/A	8405-062
8405-010	Actuator—ProAct III, CW, Conduit Connector	N/A	8405-083
8405-011	Actuator—ProAct III, CCW, MS Connector	N/A	8405-084
8405-013	Actuator—ProAct IV, CW, MS Connector	N/A	8405-085
8405-014	Actuator—ProAct IV, CW, Conduit Connector	N/A	8405-063
8405-015	Actuator—ProAct IV, CCW, MS Connector	N/A	8405-086
8405-016	Actuator—ProAct IV, CCW, Conduit Connector	N/A	8405-092
8405-020	Actuator—ProAct I, CW, MS Connector	8405-065	8405-064
8405-021	Actuator—ProAct I, CW, Conduit Connector	8405-067	8405-066
8405-022	Actuator—ProAct I, CCW, MS Connector	8405-089	8405-088
8405-024	Actuator—ProAct II, CW, MS Connector	8405-069	8405-068
8405-025	Actuator—ProAct II, CW, Conduit Connector	8405-071	8405-070
8405-026	Actuator—ProAct II, CCW, MS Connector	8405-073	8405-072
8405-039	Actuator—ProAct II, CW, Smooth Shaft, MS Connector	8405-075	8405-074
8405-040	Actuator—ProAct II, CW, D-Shaft, MS Connector	8405-077	8405-076
8405-041	Actuator—R.H. Large Throttle ProAct III	N/A	8405-082
8405-042	Actuator—L.H. Large Throttle ProAct III	N/A	8405-087
8405-050	Actuator—ProAct II, CCW, MS Connector, for Flo-Tech Throttle Only	8405-081	8405-080
8405-052	Actuator—ProAct II, CW, Conduit Connector, Threaded Shaft Hole	8405-079	8405-078
8405-150	Actuator—ProAct II, CCW, MS Connector, No Return Spring	8405-091	8405-090

N/A = Not Applicable

Table 2. Speed Control—Replacement Selection

Note: The new speed control uses the same manual as the old speed control.

Old Speed Control	Description	Manual	New Speed Control
8400-010	ProAct Model II Speed (Non UL Pkg)	04121	8400-059
8400-015 *	ProAct mA Control (0–200 mA Act Out)	04177	Special Case—See Note Below *
8400-055	ProAct Fuel Limit	04121	8400-061
9905-462	ProAct Model I Speed	04121	9907-1289
9905-463	ProAct Model II Speed	04121	9907-1290
9905-792	ProAct Plus 4–20 mA Fuel Limiter	04121	9907-1291

* ProAct Speed Control 8400-015 does not need to change. It connects to an intermediate ProAct Driver, which in turn is then connected to the ProAct Actuator. The actuator needs to be matched to a ProAct Driver and not to the 8400-015 ProAct Speed Control. Select a new actuator for use in Driver Applications.

Table 3. Items that Used the Old Actuators—Replacement Selection**Note:** The New Top Level Part Numbers include the new actuator.

Old Top Level Part Number	Description	Old Actuator Used in This Top Level Part Number	New Top Level Part Number if Using a SPEED CONTROL	New Top Level Part Number if Using a DRIVER
8235-177	Control—120 mm Bore, Throttle Body w/ ProAct II, w/ MS Connector	8405-050	8235-399	8235-398
8235-178	Control—107 mm Bore, Throttle Body w/ ProAct II, w/ MS Connector	8405-050	8235-249	8235-248
8235-181	Control—135 mm Bore, Throttle Body w/ ProAct II, w/ MS Connector	8405-050	8235-402	8235-400
8235-185	Control—120 mm Bore, Throttle Body w/ ProAct II, w/ MS Connector, No Return Spring	8405-150	8235-406	8235-404
8300-244	Actuator—ProAct I (8405-021 w/ Connector Kit and Sumi-Tube)	8405-021	8300-717	8300-716

Table 4. Actuator / Driver Systems that Changed**Note:** Old actuators and drivers are not interchangeable with the new actuators and drivers. Both the actuator and driver must be replaced at the same time in order to work together.

Old Top Level Part Number	Description	Old Actuator used in this Top Level Part Number	Old Driver used in this Top Level Part Number	New Top Level Part Number	New Actuator used in this Top Level Part Number	New Driver used in this Top Level Part Number
8256-238	Actuator—ProAct II (4–20 mA, CON DRV, M/S ACT, CW ACT)	8405-024	8400-020	8256-259	8405-068	8400-704
8256-242	Actuator—ProAct II (20–160 mA, CON DRV, M/S ACT, CW ACT)	8405-024	8400-011	8256-260	8405-068	8400-706

Table 5. Items Where the Upper Level Part Numbers did not Change

Note: The bill of materials was changed to include the new actuators and new drivers. The top level part number's revision was advanced to reflect changing to the new actuator.

Top Level Part Numbers that Don't Change	Description
8235-172	Control—135 mm Bore, Throttle Body w/ ProAct III w/ MS Connector
8235-314	Control—135 mm Throttle Body w/ ProAct III, w/ MS Connector (Magnaplated Housing And Throttle Plate)
8256-204	Actuator—ProAct IV (4–20 mA, Con Drv, Con Act, CW Act)
8256-205	Actuator—ProAct IV (4–20 mA, Con Drv, Con Act, CCW Act)
8256-206	Actuator—ProAct IV (4–20 mA, Con Drv, M/S Act, CW Act)
8256-207	Actuator—ProAct IV (4–20 mA, Con Drv, M/S Act, CCW Act)
8256-208	Actuator—ProAct IV (20–160 mA, Con Drv, Con Act, CW Act)
8256-209	Actuator—ProAct IV (20–160 mA, Con Drv, Con Act, CCW Act)
8256-210	Actuator—ProAct IV (20–160 mA, Con Drv, M/S Act, CW Act)
8256-211	Actuator—ProAct IV (20–160 mA, Con Drv, M/S Act, CCW Act)
8256-212	Actuator—ProAct IV (4–20 mA, M/S Drv, Con Act, CW Act)
8256-213	Actuator—ProAct IV (4–20 mA, M/S Drv, Con Act, CCW Act)
8256-214	Actuator—ProAct IV (4–20 mA, M/S Drv, M/S Act, CW Act)
8256-215	Actuator—ProAct IV (4–20 mA, M/S Drv, M/S Act, CCW Act)
8256-216	Actuator—ProAct IV (20–160 mA, M/S Drv, Con Act, CW Act)
8256-217	Actuator—ProAct IV (20–160 mA, M/S Drv, Con Act, CCW Act)
8256-218	Actuator—ProAct IV (20–160 mA, M/S Drv, M/S Act, CW Act)
8256-219	Actuator—ProAct IV (20–160 mA, M/S Drv, M/S Act, CCW Act)
8256-220	Actuator—ProAct III (4–20 mA, Con Drv, Con Act, CW Act)
8256-222	Actuator—ProAct III (4–20 mA, Con Drv, M/S Act, CW Act)
8256-223	Actuator—ProAct III (4–20 mA, Con Drv, M/S Act, CCW Act)
8256-224	Actuator—ProAct III (20–160 mA, Con Drv, Con Act, CW Act)
8256-226	Actuator—ProAct III (20–160 mA, Con Drv, M/S Act, CW Act)
8256-227	Actuator—ProAct III (20–160 mA, Con Drv, M/S Act, CCW Act)
8256-228	Actuator—ProAct III (4–20 mA, M/S Drv, Con Act, CW Act)
8256-230	Actuator—ProAct III (4–20 mA, M/S Drv, M/S Act, CW Act)
8256-231	Actuator—ProAct III (4–20 mA, M/S Drv, M/S Act, CCW Act)
8256-232	Actuator—ProAct III (20–160 mA, M/S Drv, Con Act, CW Act)
8256-234	Actuator—ProAct III (20–160 mA, M/S Drv, M/S Act, CW Act)
8256-235	Actuator—ProAct III (20–160 mA, M/S Drv, M/S Act, CCW Act)
8256-253	Actuator—ProAct IV (8405-014 w/ Connector Kit)
8256-255	Actuator—ProAct III (0-200 mA, MS Drv, Con Act, CW Act)
8256-256	Actuator—ProAct IV (0-200 mA, MS Drv, Con Act, CW Act)
8256-258	Actuator—ProAct IV w/ Connector Kit (10 ft Long Wire Leads)
8300-210	System—5.250" Hyd Amp/ProAct III
8300-211	System—5.250" Hyd Amp/ProAct III
8300-217	Actuator—ProAct IV System
8300-223	System—ProAct IV
8440-1812	Control—System
8915-962	System—Flo-Tech 135 III & PWM Driver
8920-151	Kit—CLC Interface

Table 6. ProAct Gen 1 Model I and II Replacement Drivers Which Work with New ProAct Gen 1 Actuators

Old ProAct Gen 1 Model I & II Actuator Driver Part Numbers	Description	New ProAct Gen 1 Model I & II Actuator Driver Part Numbers
8400-011	Control—0–200 mA ProAct Driver IP56	8400-706
8400-016	Control—1 kHz PWM ProAct II Driver IP56	8400-703
8400-020	Control—4–20 mA ProAct Driver IP56	8400-704
8400-025	Control—4–20 mA ProAct Driver Non-IP56	8400-704 *
8400-702	Control—0–200 mA ProAct II Driver Non-IP56	8400-706 *

* These units are IP56 versions and can be used to replace non-IP56 versions.

Table 7. Items Inactivated with No Drop-in Replacement

Note: Contact Woodward to identify a possible replacement.

Top Level Item Number	Description—Inactive
5448-457	Cabinet Aux—Gas Engine Simulator/Cabinet Aux
8235-159	Control—135 mm Bore, Throttle Body w/ ProAct II, w/ Conduit Connector
8235-170	Control—107 mm Bore, Throttle Body w/ ProAct II w/ Conduit Connector
8235-171	Control—120 mm Bore, Throttle Body w/ ProAct II w/ Conduit Connector
8235-183	Control—135 mm Bore, Throttle Body w/ ProAct III, w/ Conduit Connector
8235-255	Control—135 mm Bore, Throttle Body w/ ProAct II, w/ MS Connector, No Return Spring
8235-256	Control—75 mm Bore, Throttle Body, w/ ProAct II, w/ MS Connector (ProAct ITB)
8235-258	Control—95 mm Bore, Throttle Body, w/ ProAct II, w/ MS Connector (ProAct ITB)
8256-221	Actuator—ProAct III (4–20 mA, Con Drv, Con Act, CCW Act)
8256-225	Actuator—ProAct III (20–160 mA, Con Drv, Con Act, CCW Act)
8256-229	Actuator—ProAct III (4–20 mA, M/S Drv, Con Act, CCW Act)
8256-233	Actuator—ProAct III (20–160 mA, M/S Drv, Con Act, CCW Act)
8256-236	Actuator—ProAct II (4–20 mA, Con Drv, Con Act, CW Act)
8256-237	Actuator—ProAct II (4–20 mA, Con Drv, Con Act, CCW Act)
8256-239	Actuator—ProAct II (4–20 mA, Con Drv, M/S Act, CCW Act)
8256-240	Actuator—ProAct II (20–160 mA, Con Drv, Con Act, CW Act)
8256-241	Actuator—ProAct II (20–160 mA, Con Drv, Con Act, CCW Act)
8256-243	Actuator—ProAct II (20–160 mA, Con Drv, M/S Act, CCW Act)
8256-244	Actuator—ProAct II (4–20 mA, S/M Drv, Con Act, CW Act)
8256-245	Actuator—ProAct II (4–20 mA, S/M Drv, Con Act, CCW Act)
8256-246	Actuator—ProAct II (4–20 mA, S/M Drv, M/S Act, CW Act)
8256-247	Actuator—ProAct II (4–20 mA, S/M Drv, M/S Act, CCW Act)
8256-248	Actuator—ProAct II (20–160 mA, S/M Drv, Con Act, CW Act)
8256-249	Actuator—ProAct II (20–160 mA, S/M Drv, Con Act, CCW Act)
8256-250	Actuator—ProAct II (20–160 mA, S/M Drv, M/S Act, CW Act)
8256-251	Actuator—ProAct II (20–160 mA, S/M Drv, M/S Act, CCW Act)
8256-252	Actuator—ProAct II (20–160 mA, Con Drv, Con Act, CW Act)
8261-083	System—Upper Level
8262-086	System—Engine Simulator/723/721/ProAct
8262-258	System—R755
8262-528	System—R771
8262-563	System—NetCon Turbine 1 (Standby Set)
8262-564	System—NetCon Turbine 2 (Gt2)
8262-565	System—NetCon Turbine 3 (Gt1)
8300-215	Actuator—ProAct I (8405-021 w/ Connector Kit)
8300-216	Actuator—ProAct II (8405-025 w/ Connector Kit)
8300-222	Actuator—ProAct II w/ Harness Kit
8400-017	Control—0–5 V ProAct II Driver IP56
8400-018	Control—13–20 mA ProAct II Driver IP56
8400-019	Control—4–13 mA ProAct II Driver IP56
8400-021	Control—1 kHz PWM ProAct II Driver Non IP56
8400-022	Control—0–5 V ProAct II Driver Non IP56
8400-023	Control—13–20 mA ProAct II Driver Non IP56

Top Level Item Number	Description—Inactive
8400-024	Control—4–13 mA ProAct II Driver Non IP56
8400-025	Control—4–20 mA ProAct II Driver Non IP56
8400-054	Control—ProAct Model I Speed Control w/ Fuel Limit
8400-058	ProAct Speed Control w/ Fuel Limit (General Sale)
8400-702	Control—0–200 mA ProAct II Driver Non IP56
8405-012	Actuator—ProAct III, CCW, Conduit Connect
8405-023	Actuator—ProAct I, CCW, Conduit Connect
8405-027	Actuator—ProAct II, CCW, Conduit Connect
8405-028	Actuator—ProAct I, CW, MS Connect
8405-030	Actuator—ProAct I, CCW, MS Connect
8405-036	Actuator—ProAct II, CW, MS Connector
8405-037	Actuator—ProAct II, CW, Metric Mtg, MS Connect
8405-044	Actuator—ProAct III, CW, Return Spring, MS Connect
8405-045	Actuator—ProAct III, CCW, Return Spring, MS Connect
8405-049	Actuator—R.H. Large Throttle ProAct III, w/ Conduit Connector
8405-051	Actuator—ProAct I, CW, Conduit Connect, Threaded Shaft Hole
8405-054	Actuator—ProAct IV, CW, Conduit Connect
8405-151	Kit—ProAct II Actuator Plus Connector
8915-899	System—Flo-Tech 120 w/ ProAct II & Driver
8915-961	System—Flo-Tech 135 w/ ProAct II & Driver
8915-990	System—Flo-Tech 120 w/ ProAct II & Driver
8918-072	Skid—1907 SLV w/o CDP w/ ProAct and LSOV
9907-180	Control—ProAct Model II Speed
9907-255	ProAct Model II Speed
9907-809	ProAct, Short Chassis

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