

## Standard Controls for Steam Turbines

Control	Peak 150	2301D-ST	505	505 Enhanced	505E
<b>Typical Application</b>	Mechanical drive turbines with 1 actuator	Generator drive turbines with 1 actuator	Generator or mechanical drive single-inlet turbines with 1 or 2 actuators	Generator or mechanical drive single-inlet turbines with 1 or 2 actuators	Extraction / admission; generator or mechanical drive turbines with 2 actuators
<b>Key Features</b>	Low cost, NEMA D control, remote speed set, NEMA 4X	Low cost, NEMA D control, internal aux controller, remote speed set, internal load sharing	Low cost, NEMA D control, internal aux and cascade controller, remote speed set, NEMA 4X enclosure	Low cost, same as 505 plus master / backup redundancy capability and additional functionality to enhance plant operation, NEMA 4X enclosure	Low cost, NEMA D control, internal cascade controller, remote speed set, NEMA 4X enclosure
<b>Certifications</b>	Class I, Div 2, Groups A, B, C, D	CE Marked; Marine listed; opt. Class I, Div 2, Groups A, B, C, D	CE Marked; Class I, Div 2, Groups A, B, C, D	CE Marked; Class I, Div 2, Groups A, B, C, D	CE Marked; Class I, Div 2, Groups A, B, C, D
<b>Configure with</b>	External hand held programmer	Download from PC	Front panel or download from PC	Front panel or download from PC	Front panel or download from PC
<b>Display</b>	Front panel	None, use PC monitor or DCS	Front panel or use PC monitor or DCS	Front panel or use PC monitor or DCS	Front panel or use PC monitor or DCS
<b>Input Power</b>	24/125 Vdc 120 Vac	24 Vdc	24/125 Vdc 120/230 Vac	24/125 Vdc 120/230 Vac	24/125 Vdc 120/230 Vac
<b>Speed Input</b>	2 MPUs	1 MPU	2 MPUs or prox probes	2 MPUs or prox probes	2 MPUs or prox probes
<b>Generator Load Sharing</b>	None	Yes CTs/PTs + LS lines	None, use DSLC™ or EGCP-3	None, use DSLC or EGCP-3	None, use DSLC or EGCP-3
<b>Analog Inputs</b>	1	2 configurable	6 configurable	6 configurable	6 configurable
<b>Discrete Inputs</b>	8	8 with 3 configurable	16 with 12 configurable	16 with 12 configurable	16 with 12 configurable
<b>Analog Outputs</b>	2 with 1 configurable	1 configurable	6 configurable	6 configurable	6 configurable
<b>Discrete Outputs</b>	4 with 2 configurable	4 configurable	8 with 6 configurable	8 with 6 configurable	8 with 6 configurable
<b>Actuator Outputs</b>	1 4–20 / 20–160 mA	1 0–20 / 4–20 / 0–200 / 20–200 mA	2 4–20 / 20–160 mA	2 4–20 / 20–160 mA	2 4–20 / 20–160 mA
<b>Digital Communications Ports</b>	1 RS-232/422/485 (Modbus® *) + 1 hand-held programmer port	1 RS-232/422 configuration or Modbus port	2 RS-232/422/485 (Modbus) + 1 configuration port	2 RS-232/422/485 (Modbus) + 1 configuration port	2 RS-232/422/485 (Modbus) + 1 configuration port
<b>Prod. Spec.</b>	85549	03297	85005	03348	85005
<b>Manual</b>	85565	26184	85017	26347	85018

Control	505CC-2	505DE	505LST	5009
<b>Typical Application</b>	Compressor drive single inlet / single auto extraction turbines driving a compressor train with single or dual recycle valves	Single inlet / single auto extraction / double auto extraction generator or mechanical drive turbines with 1, 2, or 3 actuators	Large power-generation-based reheat steam turbines with up to 4 modulating valves or 6 with external drivers	Extraction / admission; generator or mechanical drive turbines with 2 actuators
<b>Key Features</b>	Low cost turbine & compressor control with integral compressor performance control and compressor-based process control	Field-configurable, based on 505/505E, Internal aux and cascade controllers, multiple decoupling modes, optional system redundancy	Low cost, speed, throttle pressure, valve position control, full arc / partial arc transfer, valve testing, valve limiters, NEMA 4X enclosure	505/505E functionality in a TMR (triple modular redundant) configuration
<b>Certifications</b>	CE Marked; European Class I, Zone 2, Group IIC; N. Amer. UL Class I, Div 2, Groups A, B, C, D	CE Marked; Class I, Div 2, Groups A, B, C, D	CE Marked; Class I, Div 2, Groups A, B, C, D	CE Marked; Class I, Div 2, Groups A, B, C, D
<b>Configure with</b>	Download from PC	Download from PC	Front panel or download from PC	Download from PC
<b>Display</b>	None, use PC monitor or DCS	None, use PC monitor or DCS	Front panel or use PC monitor or DCS	None, use PC monitor or DCS
<b>Input Power</b>	24 Vdc	125 Vdc 120/230 Vac	24/125 Vdc 120/230 Vac	2 power supplies 24/125 Vdc 120/230 Vac
<b>Speed Input</b>	2 MPUs or prox probes	4 MPUs or prox probes	2 MPUs or prox probes	4 MPUs or prox probes
<b>Generator Load Sharing</b>	N/A	None, use DSLC or EGCP-3	None, use DSLC or EGCP-3	None, use DSLC or EGCP-3
<b>Analog Inputs</b>	21 with 10 configurable	16 configurable	6 dedicated	8 configurable
<b>Discrete Inputs</b>	24 with 16 configurable	48 with 12 configurable	16 dedicated	24 with 20 configurable
<b>Analog Outputs</b>	6 configurable	8 configurable	4 dedicated	4 configurable
<b>Discrete Outputs</b>	12 with 10 configurable	24 with 6 configurable	8 dedicated	12 with 10 configurable
<b>Actuator Outputs</b>	4 2 (4–20 / 20–200 mA) 2 (4–20 mA)	4 4–20 / 20–200 mA option ±200 mA	4 4–20 mA	2 4–20 / 20–160 mA, single or dual coil
<b>Digital Communications Ports</b>	4 Ethernet (OPC or Modbus) 2 CANopen 2 RS-232/422/485 (Modbus)	2 Ethernet (OPC or Modbus) 1 RS-232/422/485 (Modbus)	2 RS-232/422/485 (Modbus) + 1 configuration port	2 RS-232/422/485 (Modbus) + 1 configuration port
<b>Prod. Spec.</b>	03298	03312	03259	85578
<b>Manual</b>	26240	26361	26440	85580

\*—Modbus is a trademark of Schneider Automation Inc.



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2007/10/Fort Collins