

Standard Controls for Steam Turbines

Control	Peak 150	2301D-ST	505	505 Enhanced
Typical Application	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
Key Features	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
Certifications	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
Configure with	External hand held programmer	Download from PC	Front panel or download from PC	Front panel or download from PC
Display	Front panel	None, use PC monitor or DCS	Front panel or use PC monitor or DCS	Front panel or use PC monitor or DCS
Input Power	24/125 Vdc 120 Vac	24 Vdc	24/125 Vdc 120/230 Vac	24/125 Vdc 120/230 Vac
Speed Input	2 MPUs	1 MPU	2 MPUs or prox probes	2 MPUs or prox probes
Generator Load Sharing	None	Yes CTs/PTs + LS lines	None, use DSLC™ or EGCP-3	None, use DSLC or EGCP-3
Analog Inputs	1	2 configurable	6 configurable	6 configurable
Discrete Inputs	8	8 with 3 configurable	16 with 12 configurable	16 with 12 configurable
Analog Outputs	2 with 1 configurable	1 configurable	6 configurable	6 configurable
Discrete Outputs	4 with 2 configurable	4 configurable	8 with 6 configurable	8 with 6 configurable
Actuator Outputs	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
Digital Communications Ports	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
Prod. Spec.	85549	03297	85005	03348
Manual	85565	26184	85017	26347

Control	505E	505CC-2	505DE	5009FT
Typical Application	Extraction / admission; generator or mechanical drive turbines with 2 actuators	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	Critical generator or mechanical drive steam turbines with 1 or 2 actuators
Key Features	Low cost, NEMA D control, internal cascade controller, remote speed set, NEMA 4X enclosure	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	505/505E functionality in a TMR (triple modular redundant) configuration
Certifications	CE Marked; Class I, Div 2, Groups A, B, C, D	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; Ordinary Locations
Configure with	Front panel or download from PC	Download from PC	Download from PC	Download from PC
Display	Front panel or use PC monitor or DCS	None, use PC monitor or DCS	None, use PC monitor or DCS	HMI optional or use PC monitor or DCS
Input Power	24/125 Vdc 120/230 Vac	24 Vdc	125 Vdc 120/230 Vac	2 power supplies 24/125 Vdc 120/230 Vac
Speed Input	2 MPUs or prox probes	2 MPUs or prox probes	4 MPUs or prox probes	4 MPUs or prox probes
Generator Load Sharing	None, use DSLC or EGCP-3	N/A	None, use DSLC or EGCP-3	None, use DSLC or EGCP-3
Analog Inputs	6 configurable	21 with 10 configurable	16 configurable	8 programmable
Discrete Inputs	16 with 12 configurable	24 with 16 configurable	48 with 12 configurable	24 1 dedicated, 23 programmable
Analog Outputs	6 configurable	6 configurable	8 configurable	4 programmable
Discrete Outputs	8 with 6 configurable	12 with 10 configurable	24 with 6 configurable	12 1 dedicated, 11 programmable
Actuator Outputs	2 4–20 / 20–160 mA	4 2 (4–20 / 20–200 mA) 2 (4–20 mA)	4 4–20 / 20–200 mA option ± 200 mA	2 4–20 / 20–160 mA, single or dual coil
Digital Communications Ports	2 RS-232/422/485 (Modbus) + 1 configuration port	4 Ethernet (OPC or Modbus) 2 CANopen 2 RS-232/422/485 (Modbus)	2 Ethernet (OPC or Modbus) 1 RS-232/422/485 (Modbus)	6 Ethernet 19/100 Base T +3 RS-232/422/485 (Modbus)
Prod. Spec.	85005	03298	03312	85578
Manual	85018	26240	26361	85580

*—Modbus is a trademark of Schneider Automation Inc.



PO Box 1519, Fort Collins CO, USA 80522-1519
Ph: +1 (970) 482-5811

1000 East Drake Road, Fort Collins CO 80525
Fax: +1 (970) 498-3058

www.woodward.com

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