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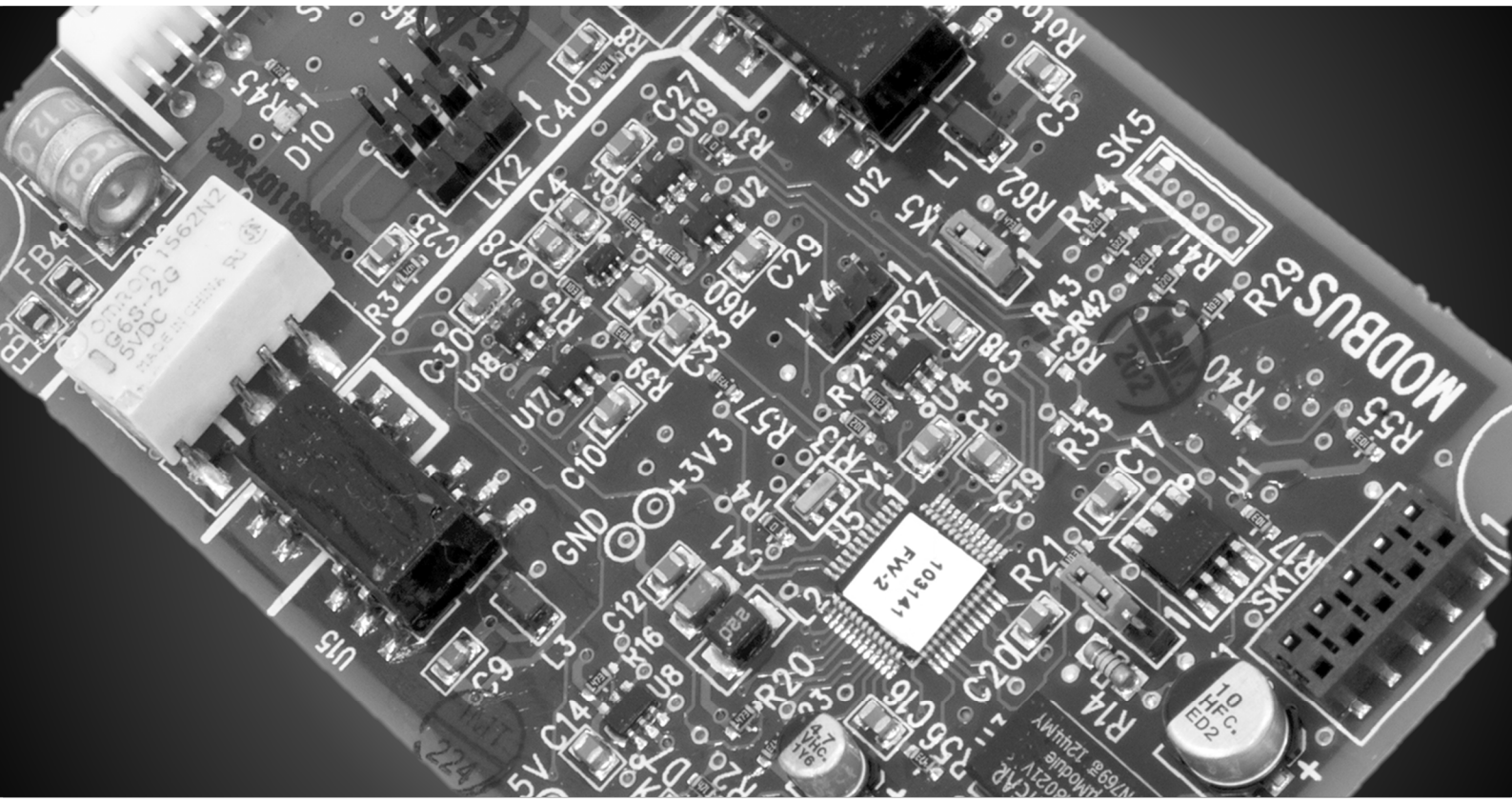
for Future Generations

MODBUS DATABASE A



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Technical Manual Appendix

The information in this database appendix document should be read and applied in conjunction with information contained in the Rotork Modbus mk3 Technical Manual (PUB091-004).

Modbus Database A is an alternative to the standard Modbus database for applications that require different data mapping. The database described in this manual is only applicable for applications where Modbus Database A is selected for use. This database is only applicable to Modbus cards with firmware version V101+ or higher.

Parameter	R/W	Function Code	Address Register/Bit	Details
Open valve	Write	05, 15	Bit 0	Coil write, coil readback using 01 – function code 01, readback value 1 at limit
Close valve	Write	05, 15	Bit 1	Coil write, coil readback using 01 – function code 01, readback value 1 at limit
Valve opened	Read	2	Bit 0	0 – Not at open limit 1 – At open limit
Valve closed	Read	2	Bit 1	0 – Not at close limit 1 – At close limit
Set Point Reached	Read	2	Bit 2	0 – Moving, moved by Open/Close command, in Local or Stop mode 1 – Set point reached (Remote mode only)
Not ready remote	Read	2	Bit 3	0 – Ready for remote control 1 – Not ready for remote control (Control selector set to Local or Stop mode)
Valve opening	Read	2	Bit 4	0 – Not opening 1 – Opening (Local, remote or hand operation)
Valve closing	Read	2	Bit 5	0 – Not closing 1 – Closing (Local, remote or hand operation)
General Fault	Read	2	Bit 7	0 – No fault 1 – Fault (Monitor Relay indication. One or more of the following conditions is true: actuator is in local or stop mode, thermostat has tripped, mains power phase is lost)
Thermostat trip	Read	2	Bit 8	0 – Thermostat OK 1 – Thermostat tripped (Actuator motor temperature too high due to excessive continuous operation, motor stalling or extremely high ambient temperature)
Phase Loss	Read	2	Bit 9	0 – Phase OK 1 – Phase lost (One or more mains power supply phases missing)
Remote selected	Read	2	Bit 10	0 – Remote control mode not selected 1 – Remote control mode selected
Local selected	Read	2	Bit 11	0 – Local control mode not selected 1 – Local control mode selected
Reserved	Read	2	Bit 12 - 15	Future use
Position of valve % (0-1000)	Read	2	Bit 16 - 31	Valve position: Data returned as a value 0 – 1000 representing 0.0% to 100.0%, 0x0000 to 0x03E8
Torque trip close	Read	2	Bit 35	0 – Torque trip not detected in close direction 1 – Torque trip detected in close direction (Actuator torque is higher than the configured closing torque limit. Does not apply at the end of travel when torque seating is selected)
Torque trip open	Read	2	Bit 36	0 – Torque trip not detected in open direction 1 – Torque trip detected in open direction (Actuator torque is higher than the configured opening torque limit. Does not apply at the end of travel when torque seating is selected)
Valve opened	Read	4	1000 / bit 0	0 – Not at open limit 1 – At open limit
Valve closed	Read	4	1000 / bit 1	0 – Not at close limit 1 – At close limit
Set Point Reached	Read	4	1000 / bit 2	0 – Moving, moved by Open/Close command, in Local or Stop mode 1 – Set point reached (Remote mode only)
Not ready remote	Read	4	1000 / bit 3	0 – Ready for remote control 1 – Not ready for remote control (Control selector set to Local or Stop mode)

Parameter	R/W	Function Code	Address Register/Bit	Details
Valve opening	Read	4	1000 / bit 4	0 – Not opening 1 – Opening (Local, remote or hand operation)
Valve closing	Read	4	1000 / bit 5	0 – Not closing 1 – Closing (Local, remote or hand operation)
General Fault	Read	4	1000 / bit 7	0 – No fault 1 – Fault (Monitor Relay indication. One or more of the following conditions is true: actuator is in local or stop mode, thermostat has tripped, mains power phase is lost)
Thermostat trip	Read	4	1000 / bit 8	0 – Thermostat OK 1 – Thermostat tripped (Actuator motor temperature too high due to excessive continuous operation, motor stalling or extremely high ambient temperature)
Phase Loss	Read	4	1000 / bit 9	0 = Phase OK 1 = Phase lost (One or more mains power supply phases missing)
Remote selected	Read	4	1000 / bit 10	0 – Remote control mode not selected 1 – Remote control mode selected
Local selected	Read	4	1000 / bit 11	0 – Local control mode not selected 1 – Local control mode selected
Reserved	Read	4	1000 / bit 14	Future use
Reserved	Read	4	1000 / bit 15	Future use
Position of valve % (0-1000)	Read	4	1001	Valve position Data returned as a value 0 – 1000 representing 0.0% to 100.0%, 0x0000 to 0x03E8
Open valve	Write	06, 16	1000 / bit 8	Register bit write, i.e. data = 0x0100 to energise
Close valve	Write	06, 16	1000 / bit 9	Register bit write, i.e. data = 0x0200 to energise
Position control enabled*	Write	06, 16	1000 / bit 10	Register bit write, i.e. data = 0x0400 to energise
Fieldbus reset	Write	06, 16	1000 / bit 11	Register bit write. Clears Open, Close and Position Enable bits, i.e. write = 0x0800 to clear commands
Position % (0-1000)	Write	06, 16	1001	Valve set point position command Data written as a value 0 – 1000 representing 0.0% to 100.0%, 0x0000 to 0x03E8
Fieldbus enable local	Write	06, 16	1002 / bit 8	Register bit write command to enable/disable Local control 0x0100 = enable Local control
Emergency Shut Down (ESD)	Write	06, 16	1002 / bit 14	Register bit write ESD command. Write 0x4000 to send an ESD command
Partial valve stroke test	Write	06, 16	1002 / bit 15	Register bit write PST command. Write 0x8000 to send a partial stroke command
Digital Output 1	Write	06, 16	1003 / bit 8	Register bit write
Digital Output 2	Write	06, 16	1003 / bit 9	Register bit write
Digital Output 3	Write	06, 16	1003 / bit 10	Register bit write
Digital Output 4	Write	06, 16	1003 / bit 11	Register bit write
Reserved	Write	06, 16	1003 / bit 12	Future use
Reserved	Write	06, 16	1003 / bit 13	Future use
Reserved	Write	06, 16	1003 / bit 14	Future use
Reserved	Write	06, 16	1003 / bit 15	Future use

* When 1000 / bit 2 is set, 1000 / bit 0 and 1000 / bit 1 are ignored.

FC03 matches data from FC04 with a read offset of 32 (decimal), i.e. the registers start at 1032 (decimal). FC06 and FC16 commands can be read with FC03 at the same data base points.

Data from FC03 and FC04 register reads is returned in “little endian format”, i.e. low byte first and high byte second, rather than the standard register format of high byte first and low byte second.

FC06 and FC16 commands must remain energised for the duration of the action. De-energising during movement will cause the actuator to stop.

Data locations not present in this table will read zero and the data is invalid.

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