Triconex 3604E

Complete Product Information

This 24 VDC output module drives sixteen individually isolated field circuits through a triple-modular-redundant switching architecture.

Product configuration

Output points	16, non-commoned
Output architecture	TMR
Nominal field voltage	24 V DC
Field voltage range	22...45 V DC
Maximum point current	2 A
Surge rating	10 A for 10 ms
Logic power	<10 W
Maximum load leakage	2 mA
Point isolation	1500 V DC minimum
Field fuse	2.5 A fast-acting, one per output
Diagnostic pulse	500 microseconds typical; 2 ms maximum
Maximum diagnostic toggle rate	100 ms plus one scan
Backplane on-state drop	<3 V DC maximum at 2 A
Module indicators	PASS, FAULT, ACTIVE
Field alarm	LOAD/FUSE

Operating context

Triconex 3604E combines non-commoned outputs with voltage-loopback diagnostics. Its 2 A point rating and diagnostic pulses make the field termination and actual load response central to replacement acceptance.

Output voting

Independent TMR output paths are checked by voltage loopback.

Field separation

Non-commoned circuits require the correct per-point field-power arrangement.

Diagnostic response

A channel fault indication must be interpreted with the operating state and loopback results.

Engineering overview

The output circuitry votes the three channels and checks switch operation using voltage feedback. A FAULT indication can represent a channel fault while the voted output continues to operate. Maintenance decisions therefore need the diagnostic record and the state of the associated field device, rather than the LED alone.

The available voltage at a solenoid or other load is lower than the field supply because the output switch and termination cable contribute voltage drop. At full rated current the specified maximum drop grows from the backplane value to 5 V with a 10-foot external cable and 11 V with a 99-foot cable. Evaluate the actual termination length against the load pickup and hold-in requirements.

Output diagnostics momentarily exercise the switching paths. The connected device must tolerate the documented pulse duration without an unwanted process response. Any decision to disable output-voting diagnostics changes fault detection and belongs in the approved safety application and validation record.

Applications and system fit

Discrete safety actuation

Drives a compatible DC field circuit within its current, leakage and voltage-drop limits under the validated safety logic.

Separated field returns

Supports individually wired outputs when the selected non-commoned termination and per-point field power are retained.

Solenoid load review

Requires pickup, hold-in, inrush and diagnostic-pulse behavior to be evaluated for the actual connected actuator.

Tricon output maintenance

Restores a configured output position after its termination, logical assignment and approved spare-transfer sequence have been identified.

Installation precautions

Field power

Identify and isolate every applicable field supply, including supplies on unused non-commoned points.

Fuse coordination

Use the specified fast-acting field-termination fuse and investigate the reason for a blown fuse before restoration.

Load voltage

Calculate switch and cable drop at the real load current before accepting the circuit supply margin.

Diagnostic pulses

Prove that the actuator remains stable during the configured output diagnostics in the approved test state.

Inductive energy

Check the documented suppression and connected load arrangement before replacing a coil or output termination.

Safety validation

Retain the safety-function proof record and approved maintenance state throughout output-module work.

Technical questions

Can a FAULT indication on 3604E coexist with a working field output?	A diagnostic fault can identify one TMR channel while the voted circuit still supplies the intended output. Review the channel diagnosis and test the field device through the approved maintenance procedure before deciding the module state.
How should 3604E be checked for a solenoid that will not pick up?	Measure field supply and load voltage in the permitted test state, then include output-switch and termination-cable drop. Compare the result with the coil pickup requirement and inspect the fuse and return path.
Why must unused non-commoned points on 3604E be included in field-power review?	The guide requires field power on all points, including unused non-commoned points. Compare the termination drawing and supply wiring before treating an associated field alarm as an output failure.
What is the implication of connecting a pulse-sensitive actuator to 3604E?	The diagnostic exercise may produce a short pulse. Evaluate the documented pulse against actuator behavior and validate the actual safety-function response before commissioning.

Technical questions — continued

Does disabling OVD on 3604E leave the diagnostic assumptions unchanged?	Disabling output-voting diagnostics changes which output faults are detected. Record the setting and its approved safety justification, then perform the validation required by the application.
When can a replacement fuse be fitted for an output from 3604E?	First establish why the fuse opened and confirm circuit isolation. Check coil current, wiring faults and the specified fuse characteristic before restoring the field circuit.
How does termination-cable length affect acceptance of 3604E?	Longer termination wiring increases the worst-case drop between the module and field load. Use the applicable cable condition and actual current to verify both pickup and holding margin.
What must be retained when transferring a safety output to a spare 3604E?	Retain the logical output assignment, termination identity, module revision and diagnostic settings. Use the system-approved replacement sequence and record the field-device proof result.

Lifecycle status

3604E support stage	The current support phase for the exact 3604E hardware revision is unconfirmed.
Installed-system dependency	A replacement review must include the Tricon release, termination type and output-voting diagnostic settings.
Continued operation	Retain channel-fault history and the validated load response when planning spares or platform migration.
Supply scope	Apter Power availability is established for the offered 3604E separately from manufacturer support eligibility.

Available unit details

Offered reference	Triconex 3604E TMR digital output module.
Identity check	Compare the complete module label, hardware revision, dark-blue identity code and installed output position.
Included items	Field termination panels, interface cables and replacement fuses require separate confirmation.

Technical source and scope

Tricon v9-v11 Systems Planning and Installation Guide, 9700077-019, June 2014

The 3604E output ratings and diagnostic characteristics apply to the cited Tricon system configuration and compatible field termination. External cable voltage drop must be included in the load calculation.

Related product navigation

Triconex 8311

Engineering contact

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