

I/O systems

ET 200 systems for the control cabinet

ET 200SP - Fail-safe I/O modules

Digital F output module relay

Overview

The digital F electronic module relay 1 F-RQ 24 V DC/24...230 V AC/5 A has the following characteristics:

- 1 relay output (2 NO contacts)
- Total output current 5 A
- Rated load voltage 24 V DC and 24...230 V AC
- The control circuit of the two safety relays must be routed from the outside to the respective terminals.

The attainable safety integrity level is SIL3 (IEC 61508) when the control of the F-RQ module is implemented via a fail-safe output (e.g. ET 200SP 4F-DQ 24 V DC/2 A PROFIsafe).

Technical specifications

Article number	6ES7136-6RA00-0BF0 ET 200SP, F-RQ 1X24VDC/24...230VAC/5A ST
Product type designation	
General information	
Product function	
• I&M data	Yes; I&M0 to I&M3
Engineering with	
• STEP 7 TIA Portal can be configured/integrated as of version	V13
• STEP 7 can be configured/integrated as of version	V5.5 SP4 and higher
Supply voltage	
Type of supply voltage	24 V DC
Rated value (DC)	24 V; Coil voltage
Digital outputs	
Number of digital outputs	1
Limitation of inductive shutdown voltage to	No
Controlling a digital input	Yes
Switching capacity of the outputs	
• with resistive load, max.	5 A
• on lamp load, max.	25 W
Switching frequency	
• with resistive load, max.	2 Hz
• with inductive load, max.	0.1 Hz; See data in manual
• with inductive load (to IEC 60947-5-1, DC13), max.	0.1 Hz
• with inductive load (to IEC 60947-5-1, AC15), max.	2 Hz
Total current of the outputs (per module)	
horizontal installation	
- up to 40 °C, max.	5 A; Note derating data in the manual
- up to 50 °C, max.	4 A; Note derating data in the manual
- up to 60 °C, max.	3 A; Note derating data in the manual
vertical installation	
- up to 50 °C, max.	3 A; Note derating data in the manual

Article number	6ES7136-6RA00-0BF0 ET 200SP, F-RQ 1X24VDC/24...230VAC/5A ST
Relay outputs	
• Number of relay outputs	1; 2 NO contacts
• Rated input voltage of relay coil L+ (DC)	24 V
• Current consumption of relays (coil current of all relays), max.	70 mA
• external protection for relay outputs	yes; 6 A, see data in manual
• Relay approved acc. to UL 508	Yes; Pilot Duty B300, R300
Switching capacity of contacts	
- with inductive load, max.	see additional description in the manual
- with resistive load, max.	see additional description in the manual
- Thermal continuous current, max.	5 A
- Switching current, min.	1 mA
- Switching current after exceeding 300 mA, min.	10 mA
- Switching current after exceeding 300 mA, max.	5 A
- rated switching voltage (DC)	24 V
- rated switching voltage (AC)	230 V
Cable length	
• shielded, max.	500 m; for load contacts
• Unshielded, max.	300 m; for load contacts
• Control cable (input), max.	10 m
Diagnostic messages	
• Diagnostics	yes, firmware update
Diagnostics indication LED	
• RUN LED	Yes; green/red DIAG LED
• Channel status display	Yes; Green LED
Galvanic isolation	
Electrical isolation channels	
• between the channels and the backplane bus	Yes
Isolation	
Isolation checked with	2545V DC 2s (routine test)
Overvoltage category	III
tested with	
• between channels and backplane bus/supply voltage	DC 2545 V 2 s (routine test), impulse voltage test DC 7200 V / 5 positive and 5 negative pulses (type test)
• between backplane bus and supply voltage	707 V DC (type test)

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Standards, approvals, certificates	
Suitable for safety functions	Yes
Highest safety class achievable in safety mode	
<ul style="list-style-type: none"> Performance level according to EN ISO 13849-1:2008 Category acc. to ISO 13849-1:2008 SIL according to IEC 61508 Low demand (PFD) acc. to SIL2 Low demand mode: PFDavg High demand (PFH) acc. to SIL2 High demand/continuous mode: PFH 	PL e 4 SIL 3 < 1.00E-04, function test 1x per year < 1.00E-05, function test 1x per month < 1.00E-08 1/h, function test 1x per year < 6.00E-09 1/h, function test 1x per month

Article number	6ES7136-6RA00-0BF0 ET 200SP, F-RQ 1X24VDC/24...230VAC/5A ST
Dimensions	
Width	20 mm
Weights	
Weight, approx.	56 g

Ordering data

	Article No.
Digital F output module relay 1 F-RQ BU type F0, relay output (2 NO contacts), total output current 5 A, load voltages 24 V DC and 24...230 V AC; can be used up to SIL 3 / Category 4/ PL e if controlled via F-DQ	6ES7136-6RA00-0BF0
Supported BaseUnits	
BU20-P8+A4+0B BU type F0; BaseUnit (dark) with 8 process terminals to the module and an additional 4 internally jumpered AUX terminals (1 A to 4 A); for continuing the load group	6ES7193-6BP20-0BF0
Accessories	
S7 Distributed Safety programming tool V5.4 Task: Engineering tool for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, WinAC RTX F, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco Requirement: STEP 7 V5.3 SP3 and higher Floating license for 1 user Floating license for 1 user, license key download without software or documentation ¹⁾ ; e-mail address required for delivery	6ES7833-1FC02-0YA5 6ES7833-1FC02-0YH5

	Article No.
STEP 7 Safety Advanced V13 SP1 Task: Engineering tool for configuring fail-safe user programs for SIMATIC S7-1200 FC, S7-1500F, S7-300F, S7-400F, WinAC RTX F, ET 200SP F Controller, ET 200SP, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco Requirement: STEP 7 Professional V13 SP1 Floating license for 1 user Floating license for 1 user, license key download without software or documentation ¹⁾ ; e-mail address required for delivery	6ES7833-1FA13-0YA5 6ES7833-1FA13-0YH5
Reference identification label 10 sheets of 16 labels	6ES7193-6LF30-0AW0
Labeling strips 500 labeling strips on roll, light gray 500 labeling strips on roll, yellow 1000 labeling strips DIN A4, light gray 1000 labeling strips DIN A4, yellow	6ES7193-6LR10-0AA0 6ES7193-6LR10-0AG0 6ES7193-6LA10-0AA0 6ES7193-6LA10-0AG0
BU cover For covering empty slots (gaps); 5 units • 20 mm wide	6ES7133-6CV15-1AM0
Shield connection 5 shield supports and 5 shield terminals	6ES7193-6SC00-1AM0
Color-coded labels • Color code CC42, module-specific; for BaseUnit type F0; 10 units	6ES7193-6CP42-2MB0

¹⁾ For up-to-date information and download availability, see: <http://www.siemens.com/tia-online-software-delivery>