



SIMATIC S7-1500, TM FAST Field Adaptable High-Speed Technology, programmable with Intel(R) Quartus(R) Prime software, 8xDI, 8xDQ, 4xDIQ 24 V, 8xRS485 DIQ, for extremely short response time of less than 1 μ s

General information	
Product type designation	TM FAST
Firmware version	V1.0
<ul style="list-style-type: none"> FW update possible 	Yes
Product function	
<ul style="list-style-type: none"> I&M data 	Yes; I&M0 to I&M3
<ul style="list-style-type: none"> Isochronous mode 	Yes
Engineering with	
<ul style="list-style-type: none"> STEP 7 TIA Portal configurable/integrated from version 	STEP 7 V17 with HSP or higher
<ul style="list-style-type: none"> PROFINET from GSD version/GSD revision 	GSDML V2.35
Installation type/mounting	
Rail mounting	Yes; S7-1500 mounting rail
Supply voltage	
Load voltage L+	
<ul style="list-style-type: none"> Rated value (DC) 	24 V
<ul style="list-style-type: none"> permissible range, lower limit (DC) 	19.2 V
<ul style="list-style-type: none"> permissible range, upper limit (DC) 	28.8 V
<ul style="list-style-type: none"> Reverse polarity protection 	Yes
Input current	
Current consumption, max.	100 mA; without load
Power	
Power available from the backplane bus	1.3 W
Power loss	
Power loss, typ.	4 W
Address area	
Address space per module	
<ul style="list-style-type: none"> Inputs 	32 byte
<ul style="list-style-type: none"> Outputs 	32 byte
Digital inputs	
Number of digital inputs	12; including 4 DIQs
Digital inputs, parameterizable	Yes
Input characteristic curve in accordance with IEC 61131, type 3	Yes
Input voltage	
<ul style="list-style-type: none"> Type of input voltage 	DC
<ul style="list-style-type: none"> Rated value (DC) 	24 V
<ul style="list-style-type: none"> for signal "0" 	-5 ... +5 V
<ul style="list-style-type: none"> for signal "1" 	+11 to +30V
<ul style="list-style-type: none"> permissible voltage at input, min. 	-5 V; -5 V continuous, -30 V brief reverse polarity protection
<ul style="list-style-type: none"> permissible voltage at input, max. 	30 V
Input current	

<ul style="list-style-type: none"> • for signal "1", typ. 	2.5 mA
Input frequency	
<ul style="list-style-type: none"> • For signal interface 24 V asymmetrical • For signal interface RS 422 symmetrical • For signal interface TTL (5 V) asymmetrical 	200 kHz 5 MHz 1 MHz
Input delay (for rated value of input voltage)	
<ul style="list-style-type: none"> • Minimum pulse width for program reactions 	application specific below 1 µs possible
for standard inputs	
<ul style="list-style-type: none"> — parameterizable — at "0" to "1", min. — at "1" to "0", min. 	Yes; customer defined / 0.001 / 0.003 / 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms 0.8 µs; for parameterization "customer defined = 0" 0.8 µs; for parameterization "none"
Cable length	
<ul style="list-style-type: none"> • shielded, max. 	100 m
Digital outputs	
Number of digital outputs	12; including 4 DIQs
Current-sinking	Yes; 8 push-pull outputs
Current-sourcing	Yes
Short-circuit protection	Yes; electronic/thermal
<ul style="list-style-type: none"> • Response threshold, typ. 	0.2 A; for DQ; 0.9 A for DIQ
Switching capacity of the outputs	
<ul style="list-style-type: none"> • with resistive load, max. 	0.1 A; 0.3 A for DIQs
Load resistance range	
<ul style="list-style-type: none"> • lower limit • upper limit 	240 Ω; 80 ohms for DIQs 12 kΩ
Output voltage	
<ul style="list-style-type: none"> • Type of output voltage • for signal "1", min. 	DC 23.2 V; L+ (-0.8 V), L+ (-1.3 V) for DIQs
Output current	
<ul style="list-style-type: none"> • for signal "1" rated value • for signal "1" permissible range, max. • for signal "1" minimum load current • for signal "0" residual current, max. 	0.1 A; 0.3 A for DIQs 0.12 A; 0.36 A for DIQs 2 mA 0.5 mA
Output delay with resistive load	
<ul style="list-style-type: none"> • "0" to "1", typ. • "1" to "0", typ. 	420 ns; for DQn 420 ns; for DQn
Switching frequency	
<ul style="list-style-type: none"> • with resistive load, max. • For signal interface 24 V asymmetrical • For signal interface RS 422 symmetrical • For signal interface TTL (5 V) asymmetrical 	200 kHz; 1 kHz for DIQs 200 kHz; 1 kHz for DIQs 2 MHz 200 kHz
Cable length	
<ul style="list-style-type: none"> • shielded, max. 	30 m
Encoder	
Interface types	
<ul style="list-style-type: none"> • TTL 5 V • RS 422 • Source/sink input • Input characteristic curve in accordance with IEC 61131, type 3 	Yes; 8 channels (direction switchable) Yes; 8 channels (direction switchable) Yes Yes
Isochronous mode	
Bus cycle time (TDP), min.	250 µs
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Substitute values connectable	Yes
Alarms	
<ul style="list-style-type: none"> • Diagnostic alarm 	Yes
Diagnoses	
<ul style="list-style-type: none"> • Monitoring the supply voltage • Wire-break • Short-circuit 	Yes Yes; for RS485/RS422/TTL Input Yes; Thermal overload protection

• Group error	Yes
Diagnostics indication LED	
• RUN LED	Yes; green LED
• ERROR LED	Yes; red LED
• MAINT LED	Yes; Yellow LED
• Monitoring of the supply voltage (PWR-LED)	Yes; green LED
• Channel status display	Yes; green LED
• for channel diagnostics	Yes; red LED
Potential separation	
Potential separation channels	
• between the channels	No
• between the channels and backplane bus	Yes
• Between the channels and load voltage L+	No
Isolation	
Isolation tested with	707 V DC (type test)
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	-30 °C
• horizontal installation, max.	60 °C
• vertical installation, min.	-30 °C
• vertical installation, max.	40 °C
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200MP system manual
Decentralized operation	
to SIMATIC S7-300	Yes
to SIMATIC S7-400	Yes
to SIMATIC S7-1200	Yes
to SIMATIC S7-1500	Yes
to standard PROFINET controller	Yes
Dimensions	
Width	35 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	300 g

last modified:

