## **Data sheet**

## 6ES7513-1RL00-0AB0



SIMATIC S7-1500R, CPU 1513R-1PN, central processing unit with 300 KB work memory for program and 1.5 MB for data, 1st interface: PROFINET RT with 2-port switch, SIMATIC Memory Card required

General information	
Product type designation	CPU 1513R-1 PN
HW functional status	FS01
Firmware version	V2.9
Product function	
● I&M data	Yes; I&M0 to I&M3
<ul> <li>Isochronous mode</li> </ul>	No
Engineering with	
<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	V17 (FW V2.9) / V16 (FW V2.8) / V15.1 (FW V2.6)
Display	
Screen diagonal [cm]	3.45 cm
Control elements	
Number of keys	6
Mode selector switch	1
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Mains buffering	
<ul> <li>Mains/voltage failure stored energy time</li> </ul>	5 ms
Input current	
Current consumption (rated value)	0.7 A
Inrush current, max.	1.9 A; Rated value
l²t	0.02 A <sup>2</sup> ·s
Power loss	
Power loss, typ.	5.7 W
Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes
Work memory	
<ul><li>integrated (for program)</li></ul>	300 kbyte
• integrated (for data)	1.5 Mbyte
Load memory	
<ul> <li>Plug-in (SIMATIC Memory Card), max.</li> </ul>	32 Gbyte
Backup	
maintenance-free	Yes
CPU processing times	
for bit operations, typ.	80 ns
for word operations, typ.	96 ns

	400
for fixed point arithmetic, typ.	128 ns
for floating point arithmetic, typ.	512 ns
CPU-blocks	
Number of elements (total)	4 000; Blocks (OB, FB, FC, DB) and UDTs
DB	N 1
Number range	Number range: 1 to 59 999
• Size, max.	1.5 Mbyte; For non-optimized block accesses, the max. size of the DB is 64 KB
FB	2 22 22
Number range	0 65 535
• Size, max.	300 kbyte
FC Number and a second	0. 05 505
Number range     Class reserved.	0 65 535
• Size, max.	300 kbyte
OB	200 khuta
Size, max.  Number of free cycle OPs	300 kbyte
Number of free cycle OBs     Number of time player OBs	100
Number of time alarm OBs     Number of delay plans OBs	20
Number of delay alarm OBs     Number of cyclic interrupt OBs	20
Number of cyclic interrupt OBs     Number of process clarm OBs	20
Number of process alarm OBs     Number of startus OBs	50
Number of startup OBs     Number of sayachropous error OBs	100
Number of asynchronous error OBs     Number of asynchronous error OBs	4
Number of synchronous error OBs     Number of diagnostic clarm OBs	2
Number of diagnostic alarm OBs	1
Nesting depth	04
• per priority class	24
Counters, timers and their retentivity	
S7 counter	0.040
• Number	2 048
Retentivity	V
— adjustable	Yes
IEC counter	Annual Control
• Number	Any (only limited by the main memory)
Retentivity	V
— adjustable	Yes
S7 times	2.040
Number  Petertinity	2 048
Retentivity	Voc
— adjustable	Yes
IEC timer  ● Number	Any (only limited by the main memory)
	Any (only limited by the main memory)
Retentivity	Yes
adjustable  Data areas and their retentivity	165
	100 librates
Retentive data area (incl. timers, counters, flags), max.	128 kbyte
Flag	16 khuta
Size, max.      Number of cleak memories.	16 kbyte
Number of clock memories  Pote blocks	8; 8 clock memory bit, grouped into one clock memory byte
Data blocks	Von
Retentivity adjustable     Retentivity procest	Yes
Retentivity preset	No
Local data	C4 kh ta may 40 KD nas bla-li
• per priority class, max.	64 kbyte; max. 16 KB per block
Address area	0.040
Number of IO modules	2 048; max. number of modules / submodules
I/O address area	
• Inputs	32 kbyte; All inputs are in the process image
Outputs	32 kbyte; All outputs are in the process image
per integrated IO subsystem	
— Inputs (volume)	8 kbyte

Outpute (volume)	8 khyte
— Outputs (volume)	8 kbyte
Subprocess images  • Number of subprocess images may	32
Number of subprocess images, max.  Hardware configuration.	J2
Hardware configuration	1
Number of distributed IO systems	1
Number of IO Controllers	,
• integrated	1
Time of day	
Clock	
• Type	Hardware clock
Backup time	6 wk; At 40 °C ambient temperature, typically
Deviation per day, max.	10 s; Typ.: 2 s
Operating hours counter	40
Number	16
Clock synchronization	
• supported	Yes
on Ethernet via NTP	Yes
Interfaces	
Number of PROFINET interfaces	1
1. Interface	
Interface types	
• RJ 45 (Ethernet)	Yes; X1
<ul> <li>Number of ports</li> </ul>	2
integrated switch	Yes
Protocols	
• IP protocol	Yes; IPv4
PROFINET IO Controller	Yes
PROFINET IO Device	No
SIMATIC communication	Yes; Only Server
Open IE communication	Yes
Web server	No
Media redundancy	Yes
PROFINET IO Controller	
Services	
— PG/OP communication	Yes
<ul> <li>Isochronous mode</li> </ul>	No
— IRT	No
— PROFlenergy	Yes
<ul> <li>Number of connectable IO Devices, max.</li> </ul>	64
Interface types	
RJ 45 (Ethernet)	
• 100 Mbps	Yes
<ul> <li>Autonegotiation</li> </ul>	Yes
<ul> <li>Autocrossing</li> </ul>	Yes
Industrial Ethernet status LED	Yes
Protocols	
PROFIsafe	No
Number of connections	
<ul> <li>Number of connections, max.</li> </ul>	88
<ul> <li>Number of connections reserved for ES/HMI/web</li> </ul>	10
Redundancy mode	
Media redundancy	
— MRP	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0
<ul> <li>MRP interconnection, supported</li> </ul>	Yes; as MRP ring node according to IEC 62439-2 Edition 3.0
— MRPD	No
<ul> <li>Switchover time on line break, typ.</li> </ul>	200 ms; PROFINET MRP
<ul> <li>Number of stations in the ring, max.</li> </ul>	50; Only 16 are recommended, however
SIMATIC communication	
PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
<ul> <li>S7 routing</li> </ul>	No

- ST Communication as elevent  Open IE Communication  - TOP/IP  - Data length, max several passive connections per port, supported  - ISO-de-TCP (RECTIODO) - Data length, max several passive connections per port, supported  - ISO-de-TCP (RECTIODO) - Data length, max UDP - Data length, max UDP multicast - UDP multicast - Ves, Max. 5 multicast circuits - ONG - ONS - SIMMP - Ves - SIMMP - Ves - COPP - Ves - LLDP - Ves - LLDP - Ves - LLDP - Ves - ULDP - Ves - Ve	S7 communication, as server	Yes
Open LE communication  TCP/IP  Data length, max. — several passive connections per port, supported  SCO-mETC/(REC1006)  Data length, max. — UDP  Data length, max. — UDP Wes  UUDP  Data length, max. — UPP multicast — Ves — SNMP — Ves — SNMP — Ves — SNMP — Ves — SNMP — Ves — ULDP — Ves — Ves — Ves — Ves — UTTP — No — HTTP — No — HTTPS — No — OPC UA Client — OPC UA Server — No — Ves — SNMDBUS TCP — SNMDBUS T		
TOPIC  Data length, max.  — several passive connections per port, supported  (SiO-on-TCP (RFC-006)  — Data length, max.  (UDP  — Data length, max.  (UDP  — Data length, max.  — UPP multicast		INU
Data length, max several passive connections per port, supported Several passive connections per port, supported Several passive connections per port, supported Status length, max Several passive connections per port, supported Ves Data length, max UPP multicast UPP Medicast circuits UPP Ves DNS SNMP DOP Ves SNMP DOP Ves LLDP Ves LLDP Ves LLDP Ves UNDP Ves -	·	Von
several passive connections per port, supported  ISO-On-TCP (RPC1008) Datal length, max UDP Datal length, max UDP multicant Ves UDP multicant Ves Ves UDP multicant Ves		
FISO-on-TOP (RFC1008)	•	
- Data length, max.  ■ UDP  - Data length, max.  - UDP multicast  - UDP No  - DNS  - SNMP  - UDP  - SNMP  - UDP  - Ves  - ULIDP  - Ves  - ULIDP  - Ves  - ULIDP  - Ves  - Web server  - HTTP  - No  - HTTPS  - No  - OPC UA Client  - OPC UA Client  - OPC UA Server  - No  - MODBUS  - Yes; MODBUS TCP  - Iterations  - No  - MODBUS  - Ves; MODBUS TCP  - UDE multicast  - Ves  - Number of loging stations for message functions, max.  - Yes  Number of loadable program messages, max.  - Propiling or GRAPH  - Number of ismultaneously active program alams  - Number of program diams  - Number of program diams  - Number of program messages in RUN, max.  Number of loadable program messages in RUN, max.  - Number of loarning functions  - Number of program diams  - Number of variables, max.  - of which status variable, max.  - of which status variables, max.  - of which control variables, max.  - of which control variables, max.  - of which powerfail proof  - Forcing  - Forcin		
■ UDP		
Data langth, max.	•	
DHCP ONS ONS Yes SNMP Yes OCP LLDP Yes Web server  HTTP No HTTPS No OPC UA OPC UA Client OPC UA Client OPC UA Server  No OPC UA Server  N	-	
DNS SNMP SNMP Yes CDCP FILIDP Yes  LILDP Yes  Webserver  HTTP NO OPC UA OPC UA Client OPC UA Server NO OPC UA Server NO OPC UA Server NO OPC UA Server NO STIMESSAGE functions  WOBBUS Yes: MODBUS TCP Socionous mode  Foundations  Number of login stations for message functions, max. Yes Number of login stations for messages, max. Program alarms Number of ondigurable program messages, max. Prolibag or GRAPH Number of simultaneously active program alarms Number of simultaneously active program alarms Number of alarms for system diagnostics Number of alarms for system diagnostics Number of backpoints Status block Yes: up to 8 simultaneously No Number of variables, max. — of which status variables, max. — of which status variables, max. — of which control variables, max. — of which powerfail-proof Forcing Forc		•
SIMIP ODCP STORY CLUP Yes  CLUP Web server  HITTP No HITTPS No OPC UA OPC UA Client OPC UA Server No Further protocols MODBUS Stockmonous mode  Equidistance ST message functions Number of login stations for message sin RUN, max. Program alarms Yes Number of loadable program messages, max. Program alarms Number of loadable program messages in RUN, max. Number of isimultaneously active program alarms Number of loadable program alarms Number of loadable program alarms Number of program lagens		
LILDP     Yes  Veb server      HTTP     No     HTTPS     No OPC UA Client     OPC UA Client     OPC UA Client     OPC UA Server  Further protocols     MODBUS     Yes; MODBUS TCP  Blackfororous mode  Equidistance     No SY message functions  Whither of configurable program messages, max. Program alarms     Yes Number of fondigurable program messages, max. Proliag or GRAPH Number of fondable program alarms     Number of fondable program alarms     Number of orgama alarms     Number of program alarms     Number of program alarms     Number of program alarms     Number of reads for system diagnostics  Tost commissioning functions  Joint commission (Team Engineering) No Status block     Yes; up to 8 simultaneously Single step No Number of breakpoints  Status/control variable     Variables     Number of variables, max.     — of which status variables, max.     — of which status variables, max.     — of which control variables, max.     — of which control variables, max.     — of which ontrol variables, max.     — of which ontrol variables, max.     — of which powerfail-proof     Number of configurable fraces     Number of variables, max.     — of which powerfail-proof     Number of variables, max.     — of which powerfail-proof     Number of configurable fraces     Number of configurable fraces     Number of configurable fraces		
Web server  HTTP  HTTP  HTTP  No  OPC UA  OPC UA Client  OPC UA Server  No  Further protocols  MODBUS  Fquidistance  Fquidistance  Fquidistance  For onig a latino sor message functions, max.  Program alarms  Number of login stations for messages, max.  Frogram alarms  Number of configurable program messages, max.  No  No  No  Frostage functions  Number of simultaneously active program latins  Number of program alarms  Number of proseptions  No  Status blooks  Yes: up to 8 simultaneously  Status variables  Yes  Variables  No  Number of variables, max.  Of which scatus variables, max.  Of which control variables, max.  Porcing, variables  Number of variables, max.  Pergrapheral inputs/outputs  Number of variables, max.  Pergrapheral inputs/outputs  Number of variables, max.  Of which powerfail-proof  Persent  Number of vorifiqurable Traces  Number of vorifiqurable Traces		
### HTTP  ### HTTP  ### No  ### OPC UA  ### OPC UA Server  ### NOBUS  ### NUMBER  ###		
HTTPS No OPC UA OPC UA Client OPC UA Server No Stuther protocols MODBUS Yes: MODBUS TCP  Scortronous mode Equidistance No S7 message functions Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Prolag or GRAPH Number of simultaneously active program alarms Number of alarms for system diagnostics Number of alarms for system diagnostics Number of alarms for system diagnostics Number of more system diagnostics Number of simultaneously active program alarms Number of simultaneously active program in Sample Status Status Commissioning functions Number of program in Sample Status S		Yes
HTTPS OPC UA OPC UA OPC UA Client OPC UA Server No No Further protocols MODBUS MODBUS Yes; MODBUS TCP  Sociaronous mode Equidistance No Sy message functions Number of login stations for message functions, max. Program alarms Yes Number of configurable program messages, max. Sociaronous mode Further of configurable program messages, max. Program alarms Yes Number of login stations for message functions, max. Program alarms Yes Number of program messages in RUN, max. Sociaronous program messages are generated by the "Program_Alarm" block, Problag or GRAPH Number of simultaneously active program alarms Number of simultaneously active program alarms Number of lalarms for system diagnostics Number of lalarms for system diagnostics Number of broatpain alarms Number of broatpain alarms Number of broatpain functions  Joint commission (Team Engineering) No Status block Yes; up to 8 simultaneously Single step No Number of breakpoints Status/control variable Ves Variables Number of variables, max. Of which status variables, max. Of which control vari		
OPC UA  OPC UA Server  OPC UA Server  Further protocols  MODBUS  Fequidistance  No  S7 message functions  Number of login stations for message functions, max.  Program alarms  Number of configurable program messages, max.  Number of loginal program messages in RUN, max.  Number of loginal program messages in RUN, max.  Number of simultaneously active program alarms  Number of program alarms  Number of program alarms  Number of program alarms  Number of lamms for system diagnostics  Number of lams for system diagnostics  No  Number of program alarms  Number of lams for system diagnostics  No  Number of lams for system diagnostics  No  Status block  Status-control variables  Ves; up to 8 simultaneously  Status-control variables, max.  of which control variables, max.  of which status variables, max.  of which control variables, max.  of which control variables, max.  Of which control variables, max.  Percing  Forcing		
OPC UA Server No OPC UA Server No OPC UA Server No Struther protocols  • MODBUS Yes; MODBUS TCP    Specification outs mode		No
● OPC UA Server Further protocols  ● MODBUS Syes; MODBUS TCP    Socitronous mode		
Further protocols  MODBUS  MODBUS  Sochronous mode  Equidistance  No  S7 message functions  Number of login stations for message functions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  Number of simultaneously active program alarms  Number of program alarms  Number of program alarms  Number of program alarms  Number of simultaneously active program alarms  Number of simultaneously active program diagnostics  No  Number of simultaneously active program diagnostics  100  Tost commissioning functions  Joint commission (Team Engineering)  No  Status block  Yes; up to 8 simultaneously  Single step  No  No  No  Status/control variable  Vas  Number of breakpoints  Status/control variable  Variables  Number of variables, max.  — of which status variables, max.  — of which control variables, max.  — of which operation of the peripheral inputs/outputs  Peripheral inputs/outputs  Peripheral inputs/outputs  Number of variables, max.  1000  — persent  Number of configurable Traces  Number of configurable Traces  Number of configurable Traces  Number of configurable Traces		
MODBUS  Socknows mode  Equidistance  No  Timessage functions  Number of login stations for message functions, max.  Program alarms  Number of configurable program messages, max.  Program elarms  Number of loadable program messages in RUN, max.  Number of loadable program messages in RUN, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  Number of program alarms  Number of program alarms  Number of program alarms  Number of program elarms  Number of program elarms  Number of program alarms  Number of program alarms  Number of program alarms  Number of program alarms  Number of program in program elarms  Number of program elarms  Number of program elarms  Number of simultaneously stitle program elarms  Number of simultaneously  Status block  Yes; up to 8 simultaneously  Single step  No  Number of breakpoints  Status/control  Status/control variable  Status/control variables  Number of variables, max.  — of which status variables, max.  — of which status variables, max.  — of which control variables, max.  Diagnostic buffer  Persent  Number of variables, max.  1000  Peripheral inputs/outputs  Number of variables, max.  1000  Traces  Number of configurable Traces  Number of configurable Traces		No
Sochronous mode		
Equidistance No  7 message functions  Number of login stations for message functions, max. 32  Program alarms Yes  Number of configurable program messages, max. 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH  Number of loadable program messages in RUN, max. 2 500  Number of simultaneously active program alarms  Number of program alarms 300  Number of program alarms 100  **Number of program alarms 100  **Status functions 100  Status block Yes; up to 8 simultaneously  Single step No  Number of breakpoints 8; Breakpoints are only supported in RUN-Solo status  Status/control **  Status/control variable Yes  Number of variables, max. 200; per job  Forcing Yes  Forcing, variables, max. 200; per job  Forcing  Forcing, variables, max. 200; per job  Forcing, variables, max. 200  Peripheral inputs/outputs  Number of variables, max. 200  Diagnostic buffer  **present Yes  Number of entries, max. 100  — of which powerfail-proof  Traces  Number of configurable Traces 4		Yes; MODBUS TCP
Number of login stations for message functions, max.  Program alarms  Number of login stations for messages, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of loadable program alarms  Number of simultaneously active program alarms  Number of simultaneously active program alarms  Number of alarms for system diagnostics  No  Number of alarms for system diagnostics  Test commissioning functions  Joint commission (Team Engineering)  No  Status block  Single step  No  Number of breakpoints  Status/control variable  Variables  Number of variables, max.  — of which status variables, max.  — of which control variables, max.  — of which status variables, max.  — of which control variables, max.  — of which partiables, max.  — of which partiables, max.  Diagnostic buffer  • present  • Number of entries, max.  — of which powerfail-proof  Traces  • Number of configurable Traces  • Number of configurable Traces  • Number of configurable Traces	Isochronous mode	
Number of login stations for message functions, max.  Program alarms  Number of configurable program messages, max.  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  Number of simultaneously active program alarms  Number of alarms for system diagnostics  Number of alarms for system diagnostics  Test commissioning functions  Joint commission (Team Engineering)  No Status block  Yes; up to 8 simultaneously  Single step  No Number of breakpoints  Status/control  Status/control variable  Variables  Number of variables, max.  — of which status variables, max.  — of which control variables, max.  — of which control variables, max.  — of which status variables, max.  — of which ontrol variables, max.  Diagnostic buffer  Peripheral inputs/outputs  Peripheral inputs/outputs  Number of entries, max.  — of which powerfall-proof  Traces  Number of configurable Traces  Number of configurable Traces  4	Equidistance	No
Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  2 500  Number of loadable program messages in RUN, max.  • Number of simultaneously active program alarms  • Number of program alarms  • Number of simultaneously active program alarms  • Number of simultaneously active program alarms  • Number of program alarms  • Number of program alarms  • Number of program dalarms  • Number of program alarms  300  • Number of program dalarms  blook  Test commissioning functions  Joint commission (Team Engineering)  No  Status block  Yes; up to 8 simultaneously  Single step  No  Number of breakpoints  Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.  — of which status variables, max.  — of which control variables, max.  — of which control variables, max.  Peripheral inputs/outputs  • Number of variables, max.  200; per job  Forcing  • Forcing, variables  • Number of variables, max.  — 200  Diagnostic buffer  • present  • Number of entries, max.  — of which powerfail-proof  Traces  • Number of configurable Traces  4	S7 message functions	
Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  Number of program alarms  Number of program alarms  Number of alarms for system diagnostics  Test commissioning functions  Joint commission (Team Engineering)  No  Status block  Yes; up to 8 simultaneously  Single step  No  Number of breakpoints  Status/control  Status/control  Status/control variable  Variables  Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Porcing  Forcing  Forcing  Forcing  Forcing  Forcing  Forcing  Forcing  Peripheral inputs/outputs  Ness are generated by the "Program_Alarm" block, Probleg or GRAPH  Status (Control variables)  No  No  Status of Was simultaneously  No  Status of RUN-Solo status  Status/control variable  No  Number of breakpoints  Status/control variable  Yes  Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  Yes  Peripheral inputs/outputs  Peripheral inputs/outputs  Number of variables, max.  200  Diagnostic buffer  Present  Number of entries, max.  — of which powerfail-proof  No  Traces  Number of configurable Traces  4	Number of login stations for message functions, max.	32
Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  Number of simultaneously active program alarms  Number of program alarms  Number of alarms for system diagnostics  100  Test commissioning functions  Joint commission (Team Engineering)  No Status block  Yes; up to 8 simultaneously  Single step  No Number of breakpoints  Status/control  Status/control variable  Variables  Number of variables, max.  of which status variables, max.  of which control variables, max.  Forcing  Forcing  Forcing  Forcing  Forcing  Peripheral inputs/outputs  Number of variables, max.  200: per job  Peripheral inputs/outputs  Number of variables, max.  200: Diagnostic buffer  Persent  Number of entries, max.  - of which powerfail-proof  Number of variables Traces  Number of configurable Traces  Number of configurable Traces	Program alarms	Yes
Number of simultaneously active program alarms  Number of program alarms Number of program alarms Number of program alarms Number of alarms for system diagnostics  100  Test commissioning functions  Joint commission (Team Engineering) No Status block Yes; up to 8 simultaneously Single step No Number of breakpoints 8; Breakpoints are only supported in RUN-Solo status  Status/control  Status/control variable Yes Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  Number of variables, max. Of which status variables, max. Of which control variables, max. 200; per job Forcing Forcing Forcing Forcing, variables Number of variables, max. 200 Diagnostic buffer  present Number of entries, max. Of which powerfail-proof 500  Traces Number of configurable Traces  Number of configurable Traces	Number of configurable program messages, max.	
<ul> <li>Number of program alarms</li> <li>Number of alarms for system diagnostics</li> <li>100</li> <li>Test commissioning functions</li> <li>Joint commission (Team Engineering)</li> <li>No</li> <li>Status block</li> <li>Yes; up to 8 simultaneously</li> <li>Single step</li> <li>No</li> <li>Number of breakpoints</li> <li>8; Breakpoints are only supported in RUN-Solo status</li> <li>Status/control</li> <li>Status/control variable</li> <li>Variables</li> <li>Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters</li> <li>Number of variables, max.</li> <li>of which status variables, max.</li> <li>200; per job</li> <li>Forcing</li> <li>Forcing</li> <li>Forcing, variables</li> <li>Number of variables, max.</li> <li>200</li> <li>Diagnostic buffer</li> <li>present</li> <li>Number of entries, max.</li> <li>of which powerfall-proof</li> <li>500</li> <li>Traces</li> <li>Number of configurable Traces</li> <li>4</li> </ul>	Number of loadable program messages in RUN, max.	2 500
Number of alarms for system diagnostics  Joint commissioning functions  Joint commission (Team Engineering)  Status block  Yes; up to 8 simultaneously  Single step  No  Number of breakpoints  Status/control  Status/control variable  Variables  Number of variables, max.  of which status variables, max.  of which control variables, max.  Porcing  Forcing  Forcing  Forcing  Peripheral inputs/outputs  Number of variables, max.  200; per job  200; per job  Forcing  Peripheral inputs/outputs  Number of variables, max.  1000  present  Number of entries, max.  of which powerfail-proof  Number of configurable Traces  Number of configurable Traces  Number of configurable Traces	Number of simultaneously active program alarms	
Test commissioning functions  Joint commission (Team Engineering)  Status block  Yes; up to 8 simultaneously  Single step  No  Number of breakpoints  8; Breakpoints are only supported in RUN-Solo status  Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  200; per job  Forcing  • Forcing  • Forcing, variables  • Number of variables, max.  200  Diagnostic buffer  • present  • Number of entries, max.  — of which powerfail-proof  Traces  • Number of configurable Traces  4	<ul> <li>Number of program alarms</li> </ul>	300
Joint commission (Team Engineering)  Status block  Yes; up to 8 simultaneously  No  Number of breakpoints  8; Breakpoints are only supported in RUN-Solo status  Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  200; per job  Forcing  • Forcing  • Forcing, variables  • Number of variables, max.  200  Diagnostic buffer  • present  • Number of entries, max.  — of which powerfail-proof  Traces  • Number of configurable Traces  4	<ul> <li>Number of alarms for system diagnostics</li> </ul>	100
Status block Single step No Number of breakpoints 8; Breakpoints are only supported in RUN-Solo status  Status/control  • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. 200; per job  Forcing • Forcing • Forcing • Forcing, variables, max. • Number of variables, max.  • Number of variables, max.  1000  Traces • Number of configurable Traces  4	Test commissioning functions	
Status block Single step No Number of breakpoints 8; Breakpoints are only supported in RUN-Solo status Status/control  • Status/control variable • Variables • Number of variables, max. — of which status variables, max. 200; per job  Forcing • Forcing • Forcing, variables, max. • Number of variables, max.  • Number of variables, max.  Forcing • Forcing, variables • Number of variables, max.  1000  Diagnostic buffer • present • Number of entries, max. — of which powerfail-proof  Traces • Number of configurable Traces • Number of configurable Traces	Joint commission (Team Engineering)	No
Number of breakpoints  8; Breakpoints are only supported in RUN-Solo status  Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  200; per job  Forcing  • Forcing  • Forcing  • Forcing Yes  • Number of variables, max.  200; per job  Yes  Peripheral inputs/outputs  • Number of variables, max.  200  Diagnostic buffer  • present  • Number of entries, max.  — of which powerfail-proof  Traces  • Number of configurable Traces  • Number of configurable Traces		Yes; up to 8 simultaneously
Number of breakpoints  8; Breakpoints are only supported in RUN-Solo status  Status/control  Status/control variable  Ves Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  Number of variables, max.  Of which status variables, max.  Of which control variables, max.  Porcing Forcing Forcing Forcing Forcing Peripheral inputs/outputs  Number of variables, max.  200  Diagnostic buffer  Peresent Present Number of entries, max.  Of which powerfail-proof  Traces  Number of configurable Traces  Number of configurable Traces	Single step	
Status/control  Status/control variable  Variables  Number of variables, max.  — of which status variables, max.  — of which control variables, max.  200; per job  Forcing  Forcing  Forcing  Forcing, variables  Number of variables, max.  200  Diagnostic buffer  Ves  Number of entries, max.  1 000  — of which powerfail-proof  Traces  Number of configurable Traces  4		8; Breakpoints are only supported in RUN-Solo status
<ul> <li>Variables</li> <li>Number of variables, max.</li> <li>— of which status variables, max.</li> <li>— of which control variables, max.</li> <li>Erorcing</li> <li>Forcing, variables</li> <li>Number of variables, max.</li> <li>Peripheral inputs/outputs</li> <li>Number of variables, max.</li> <li>Present</li> <li>Number of entries, max.</li> <li>— of which powerfail-proof</li> <li>Traces</li> <li>Number of configurable Traces</li> </ul>		
<ul> <li>Variables</li> <li>Number of variables, max.</li> <li>— of which status variables, max.</li> <li>— of which control variables, max.</li> <li>Erorcing</li> <li>Forcing, variables</li> <li>Number of variables, max.</li> <li>Peripheral inputs/outputs</li> <li>Number of variables, max.</li> <li>Present</li> <li>Number of entries, max.</li> <li>— of which powerfail-proof</li> <li>Traces</li> <li>Number of configurable Traces</li> </ul>		Yes
<ul> <li>Number of variables, max.  — of which status variables, max.  — of which control variables, max.  200; per job  200; per job  Forcing  Forcing  Forcing  Forcing, variables  Number of variables, max.  200  Diagnostic buffer  present  Number of entries, max.  1000  — of which powerfail-proof  Traces  Number of configurable Traces  4</li> </ul>		
<ul> <li>— of which status variables, max.</li> <li>— of which control variables, max.</li> <li>Eorcing</li> <li>Forcing</li> <li>Forcing, variables</li> <li>Peripheral inputs/outputs</li> <li>Number of variables, max.</li> <li>Diagnostic buffer</li> <li>present</li> <li>Number of entries, max.</li> <li>Number of entries, max.</li> <li>— of which powerfail-proof</li> <li>Traces</li> <li>Number of configurable Traces</li> <li>4</li> </ul>		parameter, management of an arrangement of a second and a second a second and a second a second and a second a second and a second a second a second
- of which control variables, max.  Porcing  Forcing  Forcing  Forcing, variables  Number of variables, max.  Peripheral inputs/outputs  Number of variables, max.  200  Diagnostic buffer  present  Number of entries, max.  1 000  - of which powerfail-proof  Traces  Number of configurable Traces  4		200: per job
Forcing  Forcing  Forcing  Forcing, variables  Forcing, variables  Number of variables, max.  Diagnostic buffer  present  Number of entries, max.  Traces  Number of configurable Traces  Yes  Number of configurable Traces  Yes  4		
<ul> <li>Forcing</li> <li>Forcing, variables</li> <li>Peripheral inputs/outputs</li> <li>Number of variables, max.</li> <li>Diagnostic buffer</li> <li>present</li> <li>Number of entries, max.</li> <li>of which powerfail-proof</li> <li>Traces</li> <li>Number of configurable Traces</li> </ul>		
<ul> <li>Forcing, variables</li> <li>Number of variables, max.</li> <li>Diagnostic buffer</li> <li>present</li> <li>Number of entries, max.</li> <li>of which powerfail-proof</li> <li>Traces</li> <li>Number of configurable Traces</li> </ul>		Yes
<ul> <li>Number of variables, max.</li> <li>Diagnostic buffer</li> <li>present</li> <li>Number of entries, max.</li> <li>of which powerfail-proof</li> <li>Traces</li> <li>Number of configurable Traces</li> <li>4</li> </ul>	-	
Diagnostic buffer  • present  • Number of entries, max.  — of which powerfail-proof  Traces  • Number of configurable Traces  4	-	
<ul> <li>present</li> <li>Number of entries, max.</li> <li>— of which powerfail-proof</li> <li>Traces</li> <li>Number of configurable Traces</li> <li>4</li> </ul>	·	200
<ul> <li>Number of entries, max.</li> <li>— of which powerfail-proof</li> <li>Traces</li> <li>Number of configurable Traces</li> <li>4</li> </ul>	_	Voc
— of which powerfail-proof 500  Traces  ● Number of configurable Traces 4		
Traces  • Number of configurable Traces  4		
Number of configurable Traces     4		500
Memory size per trace, max.     512 kbyte		
		512 kbyte
Interrupts/diagnostics/status information	Interrupts/diagnostics/status information	
Diagnostics indication LED	Diagnostics indication LED	
• RUN/STOP LED Yes	RUN/STOP LED	Yes
• ERROR LED Yes	• ERROR LED	Yes

MAINT LED	Yes
Connection display LINK TX/RX	Yes
Supported technology objects	
Motion Control	No
Controller	
PID_Compact	Yes; Universal PID controller with integrated optimization
• PID_3Step	Yes; PID controller with integrated optimization for valves
• PID-Temp	Yes; PID controller with integrated optimization for temperature
Counting and measuring	Yes
Ambient conditions	
Ambient temperature during operation	
horizontal installation, min.	0 °C
horizontal installation, max.	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off
<ul> <li>vertical installation, min.</li> </ul>	0 °C
• vertical installation, max.	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °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 manual
onfiguration / header	
configuration / programming / header	
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	No
— GRAPH	Yes
Know-how protection	
User program protection/password protection	Yes
Copy protection	No
Block protection	Yes
Access protection	
protection of confidential configuration data	Yes
Password for display	Yes
Protection level: Write protection	Yes
Protection level: Read/write protection	Yes
Protection level: Complete protection	Yes
programming / cycle time monitoring / header	
• lower limit	adjustable minimum cycle time
• upper limit	adjustable maximum cycle time
Dimensions	
Width	35 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	430 g
last modified:	8/7/2023 🗗

6ES75131RL000AB0 Page 5/5