

Data sheet CPU 115DP (115-6BL23)

Technical data

Order no.	115-6BL23
Туре	CPU 115DP
General information	
Note	
Features	16 (20) inputs 16 (12) outputs from which are 2 PWM 50 kHz outputs 24 kB work memory, 32 kB load memory PROFIBUS-DP slave interface
Technical data power supply	
Power supply (rated value)	DC 24 V
Power supply (permitted range)	DC 20.428.8 V
Reverse polarity protection	✓
Current consumption (no-load operation)	160 mA
Current consumption (rated value)	1 A
Inrush current	58 A
²t	0.38 A²s
Max. current drain at backplane bus	0.8 A
Power loss	9 W
Reverse polarity protection	✓
Technical data digital inputs	
Number of inputs	16 (20
Cable length, shielded	1000 m
Cable length, unshielded	600 m
Rated load voltage	DC 24 V
Reverse polarity protection of rated load voltage	✓
Current consumption from load voltage L+ (without load)	-
Rated value	DC 24 V
Input voltage for signal "0"	DC 05 V
Input voltage for signal "1"	DC 1528.8 V
Input current for signal "1"	7 mA
Connection of Two-Wire-BEROs possible	✓
Max. permissible BERO quiescent current	1.5 mA
Input delay of "0" to "1"	3 ms
Input delay of "1" to "0"	3 ms
Input characteristic curve	IEC 61131-2, type 1
Initial data size	3 Byte
Technical data digital outputs	
Number of outputs	16 (12
Cable length, shielded	1000 m
Cable length, unshielded	600 m



Reverse polarity protection of rated load voltage -	Rated load voltage	DC 24 V	A YASKAWA COMPANY
Current consumption from load voltage L+ (without load) 50 mA Total current per group, horizontal configuration, 60°C 4 A Total current per group, vertical configuration 4 A Output voltage signal "1" at min. current L+ (-128 mV) Output voltage signal "1" at min. current L+ (-0.8 V) Output delay of "0" to "1" max. 100 µs Output delay of "0" to "1" max. 580 µs Minimum load current - Lamp load 5 W Switching frequency with resistive load max. 100 µs Switching frequency with inductive load max. 10 Hz Internal limitation of inductive shut-off voltage L+ (-52 V) Short-circult protection of output yes, electronic Trigger lawel 1 A Output data size 3 Byte Technical data counters Number of counters 4 Counter width 32 Bit Maximum port frequency 30 kHz Mode place Image: A frection Mode place / direction Image: A frection Mode price measurement - Gate input avail		-	
Total current per group, horizontal configuration, 40°C		50 mA	
Total current per group, horizontal configuration 4 A Total current per group, vertical configuration 4 A Output voitage eignal "1" at min. current L+ (-126 mV) Output voitage eignal "1" at min. current L+ (-0.8 V) Output develope signal "1" at max. current L+ (-0.8 V) Output delay of "1" to "0" max. 100 μs Minimum load current - Lamp load 5 W Switching frequency with resistive load max. 1000 Hz Switching frequency with resistive load max. 10 Hz Infernal limitation of inductive shut-off voitage L+ (-52 V) Short-circuit protection of output yes, electronic Trigger level 1 A Output data size 3 Byte Technical data counters Number of counters 4 Counter width 32 Bit Maximum input frequency 30 kHz Maximum pout frequency 30 kHz Mode pulse / direction √ Mode pulse / direction √ Mode period measurement - Gate input available - <td></td> <td>4 A</td> <td></td>		4 A	
Total current per group, vertical configuration		4 A	
Output voitage signal "1" at max. current L+ (-125 mV) Output current at signal "1", rated value 0.5 A Output delay of "0" to "1" max. 100 µs Output delay of "1" to "0" max. 350 µs Minimum load current - Lamp load 5 W Switching frequency with resistive load max. 1000 Hz Switching frequency with inductive load max. 0.5 Hz Switching frequency on lamp load max. 10 Hz Internal limitation of inductive shut-off voitage L+ (-52 V) Short-circuit protection of output yes, electronic Tegger level 1 A Output data size 3 Byte Technical data counters Number of counters 4 Counter width 32 Bit Maximum input frequency 30 kHz Mode pulse √ Mode pulse √ Mode pulse √ Mode prequency counter - Mode frequency counter - Mode frequency counter - Mode frequency counter - <td< td=""><td></td><td>4 A</td><td></td></td<>		4 A	
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Internal limitation of inductive shut-off voltage L+ (-52 V) Short-circuit protection of output yes, electronic Trigger level 1 A Output data size 3 Byte Technical data counters Number of counters 4 Counter width 32 Bit Maximum input frequency 30 kHz Maximum count frequency 30 kHz Mode incremental encoder 4 Mode pulse / direction 4 Mode pulse / direction 4 Mode pulse / direction 5 Mode pulse / direction 5 Mode pulse / direction 6 Mode pulse / direction 7 Mode pulse / direction 7 Mode pulse / direction 8 Mode pulse / direction 9 Mode pulse / direction 1 Mode priod measurement 1 Gate input available 2 Latch input available 3 Latch input available 1 Counter output available 2 Status display yes Istatus display yes Process alarm yes Diagnostic interrupt yes Diagnostic interrupt yes Diagnostic functions no Diagnostics information read-out possible Supply voltage display green LED Group error display red SF LED Channel error display 1 Isolation	* ' '	max. 10 Hz	
Short-circuit protection of output Trigger level 1 A Output data size 3 Byte Technical data counters Number of counters Number of counters 4 Counter width 32 Bit Maximum input frequency 30 kHz Maximum count frequency 30 kHz Mode incremental encoder Mode pulse / direction Diagnitary available Counter output available Status display yes Process alarm yes Process alarm yes Diagnostic interrupt yes Diagnostic interrupt yes Diagnostic functions no Diagnostics information read-out possible Supply voltage display green LED Group error display red SF LED Channel error display Isolation		L+ (-52 V)	
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Channel error display none Isolation		green LED	
Channel error display none Isolation	Group error display	red SF LED	
Isolation		none	
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Between channels and backplane bus	✓	A YASKAWA COMPANY
Insulation tested with	DC 500 V	
PWM data		
PWM channels	2	
PWM time basis	-	
Period length	-	
Minimum pulse width		
PtP communication		
Load and working memory		
Load memory, integrated	32 KB	
Load memory, maximum	32 KB	
Work memory, integrated	24 KB	
Work memory, maximal	24 KB	
Memory divided in 50% program / 50% data	-	
Memory card slot	MMC-Card with max. 512 MB	
Hardware configuration		
Racks, max.	1	
Modules per rack, max.	4	
Number of integrated DP master	-	
Number of DP master via CP	4	
Operable function modules	4	
Operable communication modules PtP	4	
Operable communication modules LAN	-	
Command processing times		
Bit instructions, min.	0.25 µs	
Word instruction, min.	1.2 μs	
Double integer arithmetic, min.	2.6 µs	
Floating-point arithmetic, min.	50 μs	
Timers/Counters and their retentive characteristi	cs	
Number of S7 counters	256	
S7 counter remanence	adjustable 0 up to 64	
S7 counter remanence adjustable	C0 C7	
Number of S7 times	256	
S7 times remanence	adjustable 0 up to 128	
S7 times remanence adjustable	not retentive	
Data range and retentive characteristic		
Number of flags	8192 Bit	
Bit memories retentive characteristic adjustable	adjustable 0 up to 256	
Bit memories retentive characteristic preset	MB0 MB15	
Number of data blocks	2047	
Max. data blocks size	16 KB	
Number range DBs	1 2047	
Max. local data size per execution level	1024 Byte	
Max. local data size per block	1024 Byte	



Blocks

Number of OBs	14
Maximum OB size	16 KB
Total number DBs, FBs, FCs	-
Number of FBs	1024
Maximum FB size	16 KB
Number range FBs	0 1023
Number of FCs	1024
Maximum FC size	16 KB
Number range FCs	0 1023
Maximum nesting depth per priority class	8
Maximum nesting depth additional within an error OB	1

Time

Real-time clock buffered	✓
Clock buffered period (min.)	30 d
Type of buffering	Vanadium Rechargeable Lithium Battery
Load time for 50% buffering period	20 h
Load time for 100% buffering period	48 h
Accuracy (max. deviation per day)	10 s
Number of operating hours counter	8
Clock synchronization	-
Synchronization via MPI	-
Synchronization via Ethernet (NTP)	-

Address areas (I/O)

Input I/O address area	1024 Byte
Output I/O address area	1024 Byte
Process image adjustable	-
Input process image preset	128 Byte
Output process image preset	128 Byte
Input process image maximal	128 Byte
Output process image maximal	128 Byte
Digital inputs	8192
Digital outputs	8192
Digital inputs central	148
Digital outputs central	144
Integrated digital inputs	16 (20
Integrated digital outputs	16 (12
Analog inputs	512
Analog outputs	512
Analog inputs, central	32
Analog outputs, central	16
Integrated analog inputs	-
Integrated analog outputs	-

Communication functions

PG/OP channel





Global data communication	A YASKAWA COMPAN
Number of GD circuits, max.	4
Size of GD packets, max.	22 Byte
S7 basic communication	√
S7 basic communication, user data per job	76 Byte
S7 communication	✓
S7 communication as server	✓
S7 communication as client	-
S7 communication, user data per job	160 Byte
Number of connections, max.	16
Functionality Sub-D interfaces	
Type	MP²l
Type of interface	RS485
Connector	Sub-D, 9-pin, female
Electrically isolated	-
MPI	✓
MP²I (MPI/RS232)	√
DP master	-
DP slave	-
Point-to-point interface	-
Type of interface Connector	DP RS485 Sub-D 9-nin female
Connector	Sub-D, 9-pin, female
Electrically isolated	✓
MPI	-
MP²I (MPI/RS232)	-
DP master	<u> </u>
DP slave	yes
Point-to-point interface	-
Functionality MPI	
Number of connections, max.	16
PG/OP channel	✓
Routing	-
Global data communication	✓
S7 basic communication	√
S7 communication	✓
S7 communication as server	✓
S7 communication as client	-
Transmission speed, min.	19.2 kbit/s
Transmission speed, max.	187.5 kbit/s
Functionality PROFIBUS slave	
PG/OP channel	-



Routing	_ A YASKAWA COMPANY
S7 communication	-
S7 communication as server	-
S7 communication as client	-
Direct data exchange (slave-to-slave communication)	-
DPV1	-
Transmission speed, min.	9.6 kbit/s
Transmission speed, max.	12 Mbit/s
Automatic detection of transmission speed	-
Transfer memory inputs, max.	64 Byte
Transfer memory outputs, max.	64 Byte
Address areas, max.	1
User data per address area, max.	64 Byte
Housing	
Material	PPE / PA 6.6
Mounting	Profile rail 35 mm
Mechanical data	
Dimensions (WxHxD)	152.4 mm x 76 mm x 48 mm
Weight	330 g
Environmental conditions	
Operating temperature	0 °C to 60 °C
Storage temperature	-25 °C to 70 °C
Certifications	
UL508 certification	yes