## SIEMENS

## Data sheet

## 6ES7522-1BL01-0AB0



SIMATIC S7-1500, digital output module DQ 32x24V DC/0.5A HF; 32 channels in groups of 8; 4 A per group; single-channel diagnostics; substitute value, switching cycle counter for connected actuators. the module supports the safety-oriented shutdown of load groups up to SILCL2 acc. to EN 62061:2005 + A2:2015, and Category 3 / PL d according to EN ISO 13849-1:2015. front connector (screw terminals or push-in) to be ordered separately

General information		
Product type designation	DQ 32x24VDC/0.5A HF	
HW functional status	From FS02	
Firmware version	V1.1.0	
Product function		
● I&M data	Yes; I&M0 to I&M3	
<ul> <li>Isochronous mode</li> </ul>	Yes	
Prioritized startup	Yes	
Engineering with		
<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	V13 SP1 / -	
<ul> <li>STEP 7 configurable/integrated from version</li> </ul>	V5.5 SP3 / -	
<ul> <li>PROFIBUS from GSD version/GSD revision</li> </ul>	V1.0 / V5.1	
<ul> <li>PROFINET from GSD version/GSD revision</li> </ul>	V2.3 / -	
Operating mode		
• DQ	Yes	
<ul> <li>DQ with energy-saving function</li> </ul>	No	
• PWM	No	
<ul> <li>Cam control (switching at comparison values)</li> </ul>	No	
Oversampling	No	
• MSO	Yes	
<ul> <li>Integrated operating cycle counter</li> </ul>	Yes	
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; through internal protection with 7 A per group	
Input current		
Current consumption, max.	60 mA	
output voltage / header		
Rated value (DC)	24 V	
Power		
Power available from the backplane bus	1.1 W	
Power loss		
Power loss, typ.	3.5 W	
Digital outputs		
Type of digital output	Transistor	
Number of digital outputs	32	
Current-sourcing	Yes	

Toyon double participation         Yes           Short creat protection         Yes           Initiation of nucleore shutdown voltage to         L + (-53 V)           Controlling a digital input         Yes           Switching acades/ of the aduata         5 W           Index of marks beam and the aduata         5 W           Index of the aduata         5 M           Index of the aduata         5 A           Index of the aduata <th>Digital outputs, parameterizable</th> <th>Yes</th>	Digital outputs, parameterizable	Yes
• Response threshold, typ.     1 A       Linitation of Inductive shudown voltage to     L+ (-63 V)       Controlling a digital input     Yes       Switching capacity of the outputs     0.5 A       • out may bad, max.     5 W       Load resistance range     0.5 A       • over finith     42 D       • over finith     42 D       • over finith     12 KD       Obtative voltage range     0.5 A       • or signal "1", min.     L+ (-0.8 V)       Obtative voltage range, max.     0.5 A       • or signal "1" permissible range, max.     0.5 A       • or signal "1" permissible range, max.     0.5 A       • or signal "1" permissible range, max.     0.5 A       • or signal "1" rande value     0.0 ya       • "1" to "0", max.     500 ya       Paratil switching of two outputs     500 ya       • or or uprating     No       • or or uprating fequency     Vers       • with reside load, max.     0.5 Hz: According to EC 60947-5-1, DC-13       • with reside load, max.     0.5 Hz: According to EC 60947-5-1, DC-13       • of trigo: Infs     Vers (-1000, max.       • Our or per channel, max.     0.5 Hz: According to EC 60947-5-1, DC-13       • with reside load, max.     0.5 Hz: According to EC 60947-5-1, DC-13       • Our or per channel, max.     1.00 Hz<		
Limitation of inductive structions voltage to         L + (63 V)           Cantrolling a digital input         Yes           Switching agaaxiy of the outputs         0.5 A           • on targe food, max.         0.5 A           • on targe food, max.         5.W           Load ensistance range		
Controlling a digital input. Yes Switching capacity of the outputs • with resistive load, max. 0.5 A • on larmp Load, max. 5 W Load resistance range • lower limit. 49 0 • upper limit. 12 kD Couptor voltage • for signal "1", min. L + (+0.8 V) Couptor disay with resistive load • for signal "1" rated value • for signal messive load • for opating • for roduration control of a load Ves Switching frequency • with induve lead, max. • on larmp load, max. • Current per group, max. • Substative load, max. • Dilapostics function • subsided, max. • Dispostics function • subsided, max. • Dispostics function • Substative load, max. • Dispostics function • Dispostics function • Substative load, function • Dispostics function • Dispostics function • Dispostics function • Dispostics function • Substative load scinage (PDP, min. • Dispostics function • Dispostics function • Dispostics function • Dispostics function • Course to the satue sistely workspe • Web First K • Orignostics function • Dispostics function • Course to the satue sistely workspe • Frence it separation channels • Course to the satue sistely workspe • Frence it separation channels • Course to the satue sistely workspe • Frence it		
Switching capacity of the outputs         0.5 A           • with resistre load, max.         5 W           Load resistance range         0.0000           • lower limit         48 0           • output institute load, max.         5 W           • output institute load, max.         0.5 A           • output institute load, max.         0.5 A           • for signal "1" min.         0.1 (-0.8 V)           Output institute load, max.         0.5 A           • for signal "1" max.         0.5 A           • for signal "1" max.         0.5 A           • for signal "1" max.         0.5 M           • Output disty with resistre load         0.5 M           • Output disty with resistre load         0.5 mA           • Output disty with resistre load, max.         100 µs           • for ingening         No           • for reguraling         No           • for uppating         No           • for reguraling         No           • for uppating         No           • for reguraling         No <t< td=""><td></td><td></td></t<>		
• with resistive load, max.     0.5 Å       • on lamp bad, max.     5 W       Load resistance range     48 Ω       • opper limit     12 kΩ       Output voltage     -       • for signal ''1', min.     L (- (0.8 V)       Output disky with resistive load     0.5 Å       • for signal ''1' rated value     0.5 Å       • for signal with resistive load     Yes       • for opating     No       • for opating frequency     -       • with resistive load, max.     0.5 Hz; According to IEC 60947.5-1, DC-13       • on lamp load, max.     0.5 A; see additional description in the manual       • Current per rodue, max.     0.5 A; see additional description in the manual       • Current per rodue, max.     4.6 ksee additional description in the manual       • Current per rodue, max.     6.00 m       • current per modue, max.     1000 m </td <td></td> <td>Tes</td>		Tes
• olamp bad, max.         5 W           Load resistance range         •           • lower limit         48 D           • opper limit         12 kQ           • for signal "1", min.         Lef (-0.8 V)           • Output votige         •           • for signal "1", readual current, max.         0.5 A           • for signal "1", readual current, max.         0.5 RA           • O'to fo't, max.         0.5 RA           • O'to reguling         •           • O'to fo't, max.         0.00 µs           • O'to fo't, max.         0.00 µs           • O'to reguling         No           • O'to reguling         No           • for reguling         No           • oth residue load, max.         0.0 Hz           • with inductive load, max.         0.0 Hz           • oth residue load, max.         0.0 Hz           • Outre other channel, max.         100 Hz           • Current per radoue, max.         10 A see additional description in the manual           • Current per radoue, max.         100 M           • Current per radoue, max.         100 M           • Current per radoue, max.         100 N           • Current per radoue, max.         10 A see additional description in the manual		0.5.4
Load resistance range         40           • lower limit         42 kQ           Output voltage         -           • for signal "1", min.         L + (-0.8 V)           Output voltage         0.5 A           • for signal "1" rated value         0.5 A           • for signal "1" rated value         0.5 A           • for signal "1" reminisable range, max.         0.5 A           • for signal "1" reminisable range, max.         0.5 A           • for signal "1" rated value         0.5 A           • for rigic links         Yes           • for rigic links         Yes           • for rigic links         Yes           • out inductive load, max.         100 Hz           • with inductive load, max.         10 Hz           • Urier top roop, max.         4.7 see additional description in the manual           • Current per module, max.         100 h           • Current per module, max.         50 pe           • for rigic links         Yes	-	
• lower limit         48.0           • oupper limit         12 kΩ           • for signal "1", min.         L + (0.8 V)           • Output durates         0.5 A           • for signal "1" permissible range, max.         0.5 A           • for signal "1" reade value         0.5 A           • for signal "1" permissible range, max.         0.5 mA           Output durate value         0.5 A           • for signal "1" reade value         0.5 A           • for signal "1" reade value         0.5 A           • for signal "1" reade value         0.5 mA           Output durating of two outputs         •           • for logic links         Yes           • for logic links         Yes           • for redurdant control of a load         Yes           • with inductive load, max.         0.5 Hz; According to IEC 60947-5-1, DC-13           • our pre channel, max.         0.5 A; see additional description in the manual           • Current per channel, max.         0.5 A; see additional description in the manual           • Current per durate, max.         100 Hz           • Totat current of the outputs         •           • Current per module, max.         100 m           • Current per module, max.         60 m           • Subiching diverstore interrr		5 W
• upper limit         12 kQ           Output voltage         -           • for signal 1*1, min.         L + (0.8 V)           Output durrent         0.5 A           • for signal 1*1 reted value         0.5 M           • for signal 1*1 reted value         0.5 M           • for signal 1*1 reted value         0.5 M           • for logic Inhis         Ves           • for logic Inhis         No           • for redurdant control of a load         Ves           • for redurdant control of a load         Ves           • for redurdant control of a load         Ves           • our net piped, max.         0.5 A; see additional description in the manual           • Current per modue, max.         0.5 A; see additional description in the manual           • Current per modue, max.         100 for           • shielded, max.         500 m           Execution and activation time (TCO), min.         70 µs		40.0
Output Notinge         + (+ (-0.8 V)           • for signal *1* related value         0.5 A           • for signal *1* permissible range, max.         0.5 A           • for signal *1* permissible range, max.         0.5 mA           Output current.         • (*) (*) (*) (*) (*) (*) (*) (*) (*) (*)		
• for signal ***, min.         L + (-0.8 V)           Output current         0.5 A           • for signal *** permissible range, max.         0.5 A           • Or signal *** permissible range, max.         0.5 A           • Or signal ***         0.5 A           • Or signal ***         0.5 A           • Or signal ***         0.5 mA           Output delay with resistive load         •           • Or 10 ***         500 µs           Parallel switching of two outputs         •           • for rogic Inks         Yes           • for rogic Inks         Yes           • for rogic Inks         Yes           • off rodundant control of a load         Yes           • with inductive load, max.         0.5 hz; According to IEC 60947-5-1, DC-13           • on lamp load, max.         0.5 hz; see additional description in the manual           • Current per donene, max.         0.5 A; see additional description in the manual           • Current per module, max.         100 m           • on lamp load, max.         100 m           • on lamp lo		12 KΩ
Output current         0.5 A           • for signal '1' permissible range, max.         0.5 A           • for signal '0' residual current, max.         0.5 mA           Output delay with resistive load         00 µs           • '1' to '0', max.         500 µs           Parallel switching of two outputs         500 µs           • for logic links         Yes           • for redundant control of a load         Yes           • for urganing         No           • of redundant control of a load         Yes           • with resistive load, max.         0.5 kt; According to IEC 60947-5-1, DC-13           • with inductive load, max.         0.5 kt; see additional description in the manual           • Current per group, max.         0.5 A ; see additional description in the manual           • Current per group, max.         4 A; see additional description in the manual           • Current per group, max.         100 m           • unshielded, max.         600 m           • unshielded, max.         600 m           • subscitus indor         70 µs           Execution and activation time (TCO), min.         250 µs           • Interrupts//diagnostics/status information         Yes           Diagnostics function         Yes           Substitut evalues connectable         Yes<		
for signal *1* rated value         of 5 A         for signal *1* permissible range, max.         0.5 A         Of signal *1* permissible range, max.         0.5 A         Of a         for signal *1* permissible range, max.         0.5 A         Otignut delay with resistive load         for log in the supply with resistive load         for log in the supply voltage         for log in the supply voltage         for log in the outputs         for upraining         for uprainini		L+ (-0.8 V)
<ul> <li>of r signal "" permissible range, max.</li> <li>0.5 A</li> <li>of r signal "" permissible range, max.</li> <li>0.6 mA</li> <li>Output delay with resistive load</li> <li>" To 'ro 'ro, max.</li> <li>000 µs</li> <li>Parallel switching of two outputs</li> <li>of ro logic links</li> <li>Yes</li> <li>for rografing</li> <li>No</li> <li>of or redundant control of a load</li> <li>Yes</li> <li>Switching frequency</li> <li>with resistive load, max.</li> <li>0.5 Hz; According to IEC 60947.5-1, DC-13</li> <li>or lang load, max.</li> <li>0.5 Hz; According to IEC 60947.5-1, DC-13</li> <li>or lang load, max.</li> <li>0.5 Hz; According to IEC 60947.5-1, DC-13</li> <li>or lang load, max.</li> <li>0.5 Hz; According to IEC 60947.5-1, DC-13</li> <li>or lang load, max.</li> <li>0.5 Hz; According to IEC 60947.5-1, DC-13</li> <li>or lang load, max.</li> <li>10 Hz</li> <li>Current per channel, max.</li> <li>0.5 A; see additional description in the manual</li> <li>Current per channel, max.</li> <li>0.5 A; see additional description in the manual</li> <li>Current per channel, max.</li> <li>0.5 M; see additional description in the manual</li> <li>Current per channel, max.</li> <li>0.5 M; see additional description in the manual</li> <li>Current per channel, max.</li> <li>0.5 M; see additional description in the manual</li> <li>Current per channel, max.</li> <li>0.5 Mit See additional description in the manual</li> <li>Current per channel, max.</li> <li>0.5 Mit See additional description in the manual</li> <li>Current per channel, max.</li> <li>0.5 Mit See additional description in the manual</li> <li>Current per channel, max.</li> <li>0.5 Mit See additional description in the manual</li> <li>See other to the outputs</li> <li>See other to the outputs</li> <li>Mit See additional description in the manual</li> <li>See other to the outputs<!--</td--><td></td><td></td></li></ul>		
<ul> <li>for signal *0" residual current, max.</li> <li>0.5 mA</li> <li>Otiput delay with resistive load</li> <li>*1" to *0", max.</li> <li>500 µs</li> <li>Parallel switching of two outputs</li> <li>for logic links.</li> <li>for uprating</li> <li>No</li> <li>for regrating</li> <li>with resistive load, max.</li> <li>00 Hz</li> <li>with inductive load, max.</li> <li>0.5 Hz; According to EC 60947-5-1, DC-13</li> <li>on lamp load, max.</li> <li>0.5 Hz; According to EC 60947-5-1, DC-13</li> <li>on lamp load, max.</li> <li>0.5 Hz; According to EC 60947-5-1, DC-13</li> <li>on lamp load, max.</li> <li>0.5 Hz; According to EC 60947-5-1, DC-13</li> <li>on lamp load, max.</li> <li>0.5 Hz; According to EC 60947-5-1, DC-13</li> <li>on lamp load, max.</li> <li>0.5 Hz; According to EC 60947-5-1, DC-13</li> <li>on lamp load, max.</li> <li>0.5 Hz; According to EC 60947-5-1, DC-13</li> <li>on lamp load, max.</li> <li>0.5 Hz; According to EC 60947-5-1, DC-13</li> <li>on lamp load, max.</li> <li>0.5 Hz; According to EC 60947-5-1, DC-13</li> <li>on lamp load, max.</li> <li>0.5 Hz; According to EC 60947-5-1, DC-13</li> <li>on lamp load, max.</li> <li>0.5 Hz; According to EC 60947-5-1, DC-13</li> <li>on lamp load, max.</li> <li>0.5 Hz; According to EC 60947-5-1, DC-13</li> <li>0.5 Hz; According to EC 60947-5-1, DC-13</li> <li>0.6 Nax.</li> <li>Current per module, max.</li> <li>Aciae additional description in the manual</li> <li>Current per module, max.</li> <li>Both resolution with extent to market to the additional description in the manual</li> <li>Education and additional description in the manual</li> <li>Education additional description in the manual</li> <li>Education additional description in the manual</li> <li>Education additional description in the manual</li> <li>Solotication the (TCO), min.</li> <li>250 µs</li> <li>Education the</li></ul>	-	
Output delay with resistive load         100 µs           • ''t' o'', ''', max.         100 µs           • ''t' o'', ''', max.         500 µs           Parallel switching of two outputs		
• "0" to "1", max.     100 µs       • "0" to "0", max.     500 µs       Parallel switching of two outputs     500 µs       • for logic links     Yes       • for logic links     Yes       • with resistive load, max.     100 Hz       • with resistive load, max.     0.5 Hz; According to IEC 60947-5-1, DC-13       • with inductive load, max.     0.5 Hz; According to IEC 60947-5-1, DC-13       • on lamp load, max.     10 Hz       • Current per channel, max.     0.5 A; see additional description in the manual       • Current per module, max.     10 A; see additional description in the manual       • Current per module, max.     100 m       • Current per module, max.     600 m       • Current per module, max.     600 m       • Sublided, max.     000 m       • unshielded, max.     600 m       • unshielded, max.     600 m       • subsidied, max.     1000 m       • Unsche for (TDP), min.     250 µs       Interrupts/diagnostics/status information     Yes       Diagnostics function     Yes       • Diagnostic alarm     Yes       • Maintenance interrupt     Yes       • Diagnostic alarm     Yes       • Monitoring the supply voltage     Yes; red LED       • RVIN LED     Yes; red LED       • RIVIN LED     Yes; r		0.5 mA
• "1" to "0", max.     500 μs       Parallel switching of two outputs     •       • for logic links     Yes       • for redundant control of a load     Yes       Switching frequency     •       • with resistive load, max.     100 Hz       • with inductive load, max.     0.5 Hz: According to IEC 60947-5-1, DC-13       • on lamp load, max.     0.5 A: see additional description in the manual       • Current per channel, max.     0.5 A: see additional description in the manual       • Current per channel, max.     0.5 A: see additional description in the manual       • Current per moutle, max.     100 m       • Current per moutle, max.     100 m       • current per moutle, max.     600 m       • subielded, max.     600 m       • subielded, max.     600 m       • subielded, max.     600 m       • subsidied, max.     600 m       • Substitute values connectable     Yes       • Bus cycle time (TDP), min.     70 μs       • Diagnostics function     Yes       • Diagnostics function     Yes       • Maintenance interrupt     Yes       • Diagnostic function     Yes       • Monitoring the supply voltage     Yes       • Monitoring the supply voltage     Yes; red LED       • Wirk-break     Yes; red LED       • FRROR LED		
Parallel switching of two outputs     Yes       • for logic links     Yes       • for regundant control of a load     Yes       Switching frequency     •       • with resistive load, max.     100 Hz       • with inductive load, max.     0.5 Hz; According to IEC 60947-5-1, DC-13       • on lamp load, max.     100 Hz       • Current for the outputs     0.5 A; see additional description in the manual       • Current per channel, max.     0.5 A; see additional description in the manual       • Current per module, max.     1000 m       • Current per module, max.     1000 m       • Current per module, max.     1000 m       • Shielded, max.     600 m       • unshielded, max.     600 m       • unshielded, max.     250 µs       Interrupts/diagnostics/status information     250 µs       Diagnostic alarm     Yes       • Diagnostic alarm     Yes       • Monitoring the supply voltage     Yes       • Wire-break     Yes       • Substitute values connectable     Yes       • Wire-break     Yes       • Diagnostic alarm     Yes       • Monitoring the supply voltage (PWR-LED)     Yes; green LED       • ERROR LED     Yes; red LED       • Monitoring the supply voltage (PWR-LED)     Yes; red LED       • Contannel diagnostics </td <td></td> <td></td>		
<ul> <li>For logic links</li> <li>Yes</li> <li>for uprating</li> <li>No</li> <li>For redundant control of a load</li> <li>Yes</li> <li>Switching frequency</li> <li>with inductive load, max.</li> <li>00 Hz</li> <li>with inductive load, max.</li> <li>05 Hz, According to IEC 60947-5-1, DC-13</li> <li>on lamp load, max.</li> <li>10 Hz</li> <li>Total current of the outputs</li> <li>Current per channel, max.</li> <li>0.5 A; see additional description in the manual</li> <li>Current per group, max.</li> <li>4 A; see additional description in the manual</li> <li>Current per module, max.</li> <li>1000 m</li> <li>unshielded, max.</li> <li>000 m</li> <li>Bochronous mode</li> <li>Execution and activation time (TCO), min.</li> <li>260 μs</li> <li>Interrupts/diagnostics/status information</li> <li>Diagnostic function</li> <li>Yes</li> <li>Substitute values connectable</li> <li>Yes</li> <li>Maintenance interrupt</li> <li>Yes</li> <li>Diagnostic alarm</li> <li>Yes</li> <li>Short-orcuit</li> <li>Yes</li> <li>Substitute values connectable</li> <li>Yes</li> <li>Monitoring the supply voltage</li> <li>Yes</li> <li>Short-orcuit</li> <li>Yes</li> <li>Diagnostic alarm</li> <li>Yes</li> <li>Short-orcuit</li> <li>Yes</li> <li>Short-orcuit</li> <li>Yes</li> <li>Short-orcuit</li> <li>Yes</li> <li>Obignostic alarm</li> <li>Yes</li> <li>Short-orcuit</li> <li>Yes</li> <li>Short-orcuit</li> <li>Yes</li> <li>Corcue perfor</li> <li>Yes</li> <li>Short-orcuit</li> <li>Yes</li> <li>Short-orcuit</li> <li>Yes, red LED</li> <li>Yes; red LED</li></ul>		500 µs
<ul> <li>For uprating</li> <li>No</li> <li>For redundant control of a load</li> <li>Yes</li> <li>Within registive load, max.</li> <li>0.5 Hz; According to IEC 60947-5-1, DC-13</li> <li>on lamp load, max.</li> <li>10 Hz</li> <li>or lamp load, max.</li> <li>10 Hz</li> <li>Current per doup, max.</li> <li>0.5 A; see additional description in the manual</li> <li>Current per group, max.</li> <li>4 A; see additional description in the manual</li> <li>Current per module, max.</li> <li>10 A; see additional description in the manual</li> <li>Current per module, max.</li> <li>Current per module, max.</li> <li>Current per module, max.</li> <li>Steiled, max.</li> <li>Ste</li></ul>		
for redundant control of a load     Switching frequency     with inductive load, max.     100 Hz     with inductive load, max.     101 Hz     Total current of the outputs     Current per channel, max.     0.5 A; see additional description in the manual     Current per group, max.     Current per module, max.     Cable length     Current per module, max.     Cable length     Current per module, max.     Color m     current per module, max.     Cable length     Current per module, max.     Cable length     Current per module, max.	-	
Switching frequency <ul> <li>with resistive load, max.</li> <li>100 Hz</li> <li>on lamp load, max.</li> <li>10 Hz</li> </ul> Total current of the outputs           • Current per channel, max.         0.5 Hz; According to IEC 60947-5-1, DC-13           • Current per channel, max.         0.5 A; see additional description in the manual           • Current per channel, max.         0.5 A; see additional description in the manual           • Current per module, max.         16 A; see additional description in the manual           • Current per module, max.         1000 m           • shielded, max.         1000 m           • unshielded, max.         600 m           Isochronous mode <ul> <li>Execution and activation time (TCO), min.</li> <li>Zb y b</li> </ul> Interrupts/diagnostics/status information         Yes           Substitute values connectable         Yes           Alarms         Vire-break           • Maintenance interrupt         Yes           Diagnoses <ul> <li>FRNOR LED</li> <li>Yes; green LED</li> <li>Yes; green LED</li> <li>Yes; green LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Yes; green LED</li> <li>Or channel status display</li> <li>Yes; red LED</li> <li>Or channel status display</li></ul>	<ul> <li>for uprating</li> </ul>	No
• with resistive load, max.       100 Hz         • with inductive load, max.       0.5 Hz; According to IEC 60947-5-1, DC-13         • Total current of the outputs       10 Hz         • Current per channel, max.       0.5 A; see additional description in the manual         • Current per channel, max.       16 A; see additional description in the manual         • Current per module, max.       16 A; see additional description in the manual         • Current per module, max.       16 A; see additional description in the manual         • Current per module, max.       1000 m         • sinelded, max.       1000 m         • unshielded, max.       600 m         • sus cycle time (TDP), min.       250 µs         Bus cycle time (TDP), min.       250 µs         Interrupts/diagnostics/status information       Yes         Diagnostics function       Yes         Alarms       •         • Diagnostic alarm       Yes         • Maintenance interrupt       Yes         • Monitoring the supply voltage       Yes         • Monitoring the supply voltage       Yes         • Ron-circuit       Yes         • Stor-circuit       Yes         • Ron-circuit       Yes         • Ron-circuit       Yes; green LED         • Ron-c	<ul> <li>for redundant control of a load</li> </ul>	Yes
<ul> <li>with inductive load, max.</li> <li>0.5 Hz; According to IEC 60947-5-1, DC-13</li> <li>on lamp load, max.</li> <li>10 Hz</li> <li>Total current of the outputs</li> <li>Current per channel, max.</li> <li>Current per group, max.</li> <li>A; see additional description in the manual</li> <li>Current per module, max.</li> <li>16 A; see additional description in the manual</li> <li>Current per module, max.</li> <li>Cable length</li> <li>shielded, max.</li> <li>600 m</li> <li>esheided, max.</li> <li>600 m</li> <li>esheided, max.</li> <li>600 m</li> <li>esheided, max.</li> <li>600 m</li> <li>esheided, max.</li> <li>1000 m</li> <li>obst mode</li> <li>Execution and activation time (TCO), min.</li> <li>70 µs</li> <li>Bus cycle time (TDP), min.</li> <li>250 µs</li> <li>Interrupts/diagnostics/status information</li> <li>Diagnostic slunction</li> <li>Yes</li> <li>Substitute values connectable</li> <li>Yes</li> <li>Diagnostic alarm</li> <li>Ves</li> <li>Alarms</li> <li>Oliagnostic alarm</li> <li>Yes</li> <li>Diagnostic alarm</li> <li>Yes</li> <li>Chan estatus display</li> <li>Yes; green LED</li> <li>Yes; red LED</li></ul>	Switching frequency	
• on lamp load, max.     10 Hz       Total current of the outputs     0.5 A; see additional description in the manual       • Current per group, max.     4 A; see additional description in the manual       • Current per module, max.     16 A; see additional description in the manual       • Current per module, max.     16 A; see additional description in the manual       • Current per module, max.     1000 m       • unshielded, max.     600 m       Isochronous mode     Execution and activation time (TCO), min.       Execution and activation time (TCO), min.     70 µs       Bus cycle time (TDP), min.     250 µs       Interrupts/diagnostics/status information     Yes       Diagnostic struction     Yes       Alarms     •       • Diagnostic atarm     Yes       • Maintenance interrupt     Yes       Diagnoses     Yes       • Wire-break     Yes       • Nonitoring the supply voltage     Yes; green LED       • RUN LED     Yes; red LED       • RUN LED     Yes; red LED       • Mainter LED     Yes; green LED       • Monitoring of the supply voltage (PWR-LED)     Yes; green LED       • Monitoring of the supply voltage (PWR-LED)     Yes; green LED       • Monitoring of the supply voltage (PWR-LED)     Yes; green LED       • Orannel status display     Yes; red LED	<ul> <li>with resistive load, max.</li> </ul>	100 Hz
Total current of the outputs         • Current per channel, max.       0.5 A; see additional description in the manual         • Current per group, max.       4 A; see additional description in the manual         • Current per module, max.       16 A; see additional description in the manual         Cable length       16 A; see additional description in the manual         • bitelded, max.       1000 m         • unshielded, max.       600 m         Isochronous mode       250 μs         Execution and activation time (TCO), min.       250 μs         Interrupts/diagnostics/status information       1000 m         Diagnostics function       Yes         Substitute values connectable       Yes         Alarms       Yes         • Diagnostic alarm       Yes         • Maintenance interrupt       Yes         Diagnoses       Yes         • Wrie-break       Yes         • Short-circuit       Yes         • RUN LED       Yes; green LED         • ERROR LED       Yes; green LED         • Maintoning of the supply voltage (PWR-LED)       Yes; green LED         • Maint LED       Yes; green LED         • RUN LED       Yes; green LED         • Channel status display       Yes; green LED	<ul> <li>with inductive load, max.</li> </ul>	0.5 Hz; According to IEC 60947-5-1, DC-13
• Current per channel, max.       0.5 A; see additional description in the manual         • Current per group, max.       4 A; see additional description in the manual         • Current per module, max.       16 A; see additional description in the manual         Cable length       1000 m         • shielded, max.       600 m         • unshielded, max.       600 m         • shielded, max.       600 m         Isochronous mode       Execution and activation time (TCO), min.         Zodu et me (TDP), min.       250 µs         Interrupts/diagnostics/status information       Yes         Diagnostic function       Yes         Substitute values connectable       Yes         Alarms       •         • Diagnostic alarm       Yes         • Maintenance interrupt       Yes         • Maintenance interrupt       Yes         • Maintenance interrupt       Yes         • Bagnostic indication LED       Yes; green LED         • RUN LED       Yes; red LED         • ERROR LED       Yes; green LED         • Mainting of the supply voltage (PWR-LED)       Yes; green LED         • KAIN LED       Yes; green LED         • FAROR LED       Yes; green LED         • Kontoning of the supply voltage (PWR-LED)       Yes;	<ul> <li>on lamp load, max.</li> </ul>	10 Hz
<ul> <li>Current per group, max.</li> <li>4 A; see additional description in the manual</li> <li>Current per module, max.</li> <li>16 A; see additional description in the manual</li> <li>Cable length</li> <li>shielded, max.</li> <li>1000 m</li> <li>unshielded, max.</li> <li>600 m</li> <li>Isochronous mode</li> <li>Execution and activation time (TCO), min.</li> <li>70 µs</li> <li>Bus cycle time (TDP), min.</li> <li>250 µs</li> <li>Interrupts/diagnostics/status information</li> <li>Diagnostic s/status information</li> <li>Yes</li> <li>Alarms</li> <li>O Diagnostic alarm</li> <li>Yes</li> <li>Monitoring the supply voltage</li> <li>Yes</li> <li>Short-circuit</li> <li>Group error</li> <li>Yes</li> <li>Diagnostic indication LED</li> <li>Yes; green LED</li> <li>KRNN LED</li> <li>Yes; red LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Yes; green LED</li> <li>Channel status display</li> <li>Yes; green LED</li> <li>Channel status display</li> <li>Yes; green LED</li> <li>Channel status display</li> <li>Yes; green LED</li> <li>Yes; red LED</li> <li>Yes; red LED</li> <li>Potential separation channels</li> </ul>	Total current of the outputs	
• Current per module, max.       16 A; see additional description in the manual         Cable length       1000 m         • unshielded, max.       600 m         Isochronous mode       70 μs         Execution and activation time (TCO), min.       70 μs         Bus cycle time (TDP), min.       250 μs         Interrupts/diagnostics/status information       70 μs         Diagnostic sinction       Yes         Substitute values connectable       Yes         Alarms          • Diagnostic alarm       Yes         • Maintenance interrupt       Yes         Diagnoses       Yes         • Monitoring the supply voltage       Yes         • Wire-break       Yes         • Short-circuit       Yes         • Group error       Yes         Diagnostics indication LED       Yes; green LED         • RUN LED       Yes; red LED         • Monitoring of the supply voltage (PWR-LED)       Yes; green LED         • Monitoring of the supply voltage (PWR-LED)       Yes; green LED         • Monitoring of the supply voltage (PWR-LED)       Yes; green LED         • Monitoring of the supply voltage (PWR-LED)       Yes; green LED         • for channel diagnostics       Yes; red LED	<ul> <li>Current per channel, max.</li> </ul>	0.5 A; see additional description in the manual
Cable length       1000 m         • shielded, max.       600 m         Isochronous mode       1000 m         Execution and activation time (TCO), min.       70 µs         Bus cycle time (TDP), min.       250 µs         Interrupts/diagnostics/status information       1000 m         Diagnostics function       Yes         Substitute values connectable       Yes         Alarms       0 Diagnostic alarm         • Diagnostic alarm       Yes         • Maintenance interrupt       Yes         • Monitoring the supply voltage       Yes         • Wire-break       Yes         • Short-circuit       Yes         • Group error       Yes         Diagnostic indicaton LED       Yes; green LED         • ERROR LED       Yes; red LED         • Maintenang of the supply voltage (PWR-LED)       Yes; green LED         • Monitoring of the supply voltage (PWR-LED)       Yes; green LED         • Channel status display       Yes; red LED         • for module diagnostics       Yes; red LED         • for module diagnostics <td< td=""><td><ul> <li>Current per group, max.</li> </ul></td><td>4 A; see additional description in the manual</td></td<>	<ul> <li>Current per group, max.</li> </ul>	4 A; see additional description in the manual
<ul> <li>shielded, max.</li> <li>unshielded, max.</li> <li>600 m</li> <li>isochronous mode</li> <li>Execution and activation time (TCO), min.</li> <li>250 µs</li> <li>Interrupts/diagnostics/status information</li> <li>Diagnostic function</li> <li>Yes</li> <li>Substitute values connectable</li> <li>Yes</li> <li>Alarms</li> <li>Diagnostic alarm</li> <li>Yes</li> <li>Maintenance interrupt</li> <li>Yes</li> <li>Substitute values connectable</li> <li>Yes</li> <li>Diagnostic alarm</li> <li>Yes</li> <li>Substitute supply voltage</li> <li>Yes</li> <li>Sond-circuit</li> <li>Yes</li> <li>Sond-circuit</li> <li>Yes</li> <li>Diagnostic indication LED</li> <li>FRROR LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Yes; green LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Yes; green LED</li> <li>Channel status display</li> <li>Yes; green LED</li> <li>Yes; red LED</li> </ul>	Current per module, max.	16 A; see additional description in the manual
• unshielded, max.       600 m         Isochronous mode         Execution and activation time (TCO), min.       70 µs         Bus cycle time (TDP), min.       250 µs         Interrupts/diagnostics/status information         Diagnostics function       Yes         Substitute values connectable       Yes         Alarms       •         • Diagnostic alarm       Yes         • Maintenance interrupt       Yes         Diagnoses       •         • Wire-break       Yes         • Short-circuit       Yes         • Group error       Yes         Diagnostic indication LED       Yes; green LED         • RUN LED       Yes; Yellow LED         • Monitoring of the supply voltage (PWR-LED)       Yes; green LED         • Monitoring of the supply voltage (PWR-LED)       Yes; green LED         • Channel status display       Yes; green LED         • for rohannel diagnostics       Yes; red LED         • for module diagnostics       Yes; red LED <t< td=""><td>Cable length</td><td></td></t<>	Cable length	
Isochronous mode         Execution and activation time (TCO), min.       70 µs         Bus cycle time (TDP), min.       250 µs         Interrupts/diagnostics/status information         Diagnostics function       Yes         Substitute values connectable       Yes         Alarms          • Diagnostic alarm       Yes         • Maintenance interrupt       Yes         Diagnoses          • Monitoring the supply voltage       Yes         • Short-circuit       Yes         • Group error       Yes         Diagnostics indication LED       Yes; green LED         • RUN LED       Yes; red LED         • Monitoring of the supply voltage (PWR-LED)       Yes; green LED         • Monitoring of the supply voltage (PWR-LED)       Yes; green LED         • Channel status display       Yes; green LED         • for channel diagnostics       Yes; red LED         • for module diagnostics       Yes; re	<ul> <li>shielded, max.</li> </ul>	1 000 m
Execution and activation time (TCO), min.       70 µs         Bus cycle time (TDP), min.       250 µs         Interrupts/diagnostics/status information       Diagnostics function         Diagnostics function       Yes         Substitute values connectable       Yes         Alarms       Yes         Oliagnostic alarm       Yes         Maintenance interrupt       Yes         Diagnoses       Yes         • Monitoring the supply voltage       Yes         • Short-circuit       Yes         • Group error       Yes         Diagnostics indication LED       Yes; green LED         • RUN LED       Yes; red LED         • Monitoring of the supply voltage (PWR-LED)       Yes; green LED         • Monitoring of the supply voltage (PWR-LED)       Yes; green LED         • Channel status display       Yes; green LED         • for channel diagnostics       Yes; red LED         • for module diagnostics       Yes; red LED	<ul> <li>unshielded, max.</li> </ul>	600 m
Bus cycle time (TDP), min.       250 µs         Interrupts/diagnostics/status information       Yes         Diagnostics function       Yes         Substitute values connectable       Yes         Alarms       Yes         • Diagnostic alarm       Yes         • Maintenance interrupt       Yes         Diagnoses       Yes         • Monitoring the supply voltage       Yes         • Short-circuit       Yes         • Short-circuit       Yes         • Group error       Yes; green LED         • RUN LED       Yes; red LED         • ERROR LED       Yes; green LED         • Monitoring the supply voltage (PWR-LED)       Yes; green LED         • for channel status display       Yes; green LED         • for channel diagnostics       Yes; red LED         • for module diagnostics       Yes; red LED         • for channel diagnostics       Yes; red LED         • for module diagnostics       Yes; red LED	Isochronous mode	
Bus cycle time (TDP), min.       250 µs         Interrupts/diagnostics/status information       Yes         Diagnostics function       Yes         Substitute values connectable       Yes         Alarms       Yes         • Diagnostic alarm       Yes         • Maintenance interrupt       Yes         Diagnoses       Yes         • Monitoring the supply voltage       Yes         • Short-circuit       Yes         • Short-circuit       Yes         • Group error       Yes; green LED         • RUN LED       Yes; red LED         • ERROR LED       Yes; green LED         • Monitoring the supply voltage (PWR-LED)       Yes; green LED         • for channel status display       Yes; green LED         • for channel diagnostics       Yes; red LED         • for module diagnostics       Yes; red LED         • for channel diagnostics       Yes; red LED         • for module diagnostics       Yes; red LED	Execution and activation time (TCO), min.	70 μs
Interrupts/diagnostics/status information         Diagnostics function       Yes         Substitute values connectable       Yes         Alarms <ul> <li>Diagnostic alarm</li> <li>Yes</li> <li>Maintenance interrupt</li> <li>Yes</li> <li>Monitoring the supply voltage</li> <li>Vire-break</li> <li>Short-circuit</li> <li>Group error</li> <li>Yes</li> <li>Diagnostics indication LED</li> <li>RUN LED</li> <li>Yes; green LED</li> <li>Yes; red LED</li> <li>Yes; Yellow LED</li> <li>Monitoring the supply voltage (PWR-LED)</li> <li>Yes; green LED</li> <li>Channel status display</li> <li>Yes; red LED</li> <li>Yes; red LED</li></ul>	Bus cycle time (TDP), min.	250 µs
Diagnostics function       Yes         Substitute values connectable       Yes         Alarms       Yes         Alarns       Yes         • Diagnostic alarm       Yes         • Maintenance interrupt       Yes         Diagnoses       Yes         • Monitoring the supply voltage       Yes         • Monitoring the supply voltage       Yes         • Monitoring the supply voltage       Yes         • Short-circuit       Yes         • Group error       Yes         Diagnostics indication LED       Yes; green LED         • RUN LED       Yes; red LED         • Barnol LED       Yes; red LED         • Monitoring of the supply voltage (PWR-LED)       Yes; green LED         • Monitoring of the supply voltage (PWR-LED)       Yes; green LED         • Channel status display       Yes; green LED         • for channel diagnostics       Yes; red LED         • for module diagnostics       Yes; red LED		
Substitute values connectable       Yes         Alarms <ul> <li>Diagnostic alarm</li> <li>Maintenance interrupt</li> <li>Yes</li> <li>Maintenance interrupt</li> <li>Yes</li> <li>Monitoring the supply voltage</li> <li>Yes</li> <li>Monitoring the supply voltage</li> <li>Yes</li> <li>Short-circuit</li> <li>Yes</li> <li>Group error</li> <li>Group error</li> <li>Yes</li> <li>Diagnostics indication LED</li> <li>ERROR LED</li> <li>Yes; green LED</li> <li>Yes; Yellow LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Yes; green LED</li> <li>Channel status display</li> <li>Yes; red LED</li> <li>for channel diagnostics</li> <li>Yes; red LED</li> <li>for channel diagnostics</li> <li>Yes; red LED</li> <li>Yes; green LED</li> <li>Yes; red LED</li></ul>		Yes
Alarms       Yes         • Diagnostic alarm       Yes         • Maintenance interrupt       Yes         Diagnoses       Yes         • Monitoring the supply voltage       Yes         • Wire-break       Yes         • Short-circuit       Yes         • Group error       Yes         Diagnostics indication LED       Yes; green LED         • RUN LED       Yes; red LED         • ERROR LED       Yes; Yellow LED         • Maintrig of the supply voltage (PWR-LED)       Yes; green LED         • Monitoring of the supply voltage (PWR-LED)       Yes; green LED         • Channel status display       Yes; green LED         • for channel diagnostics       Yes; red LED         • for module diagnostics       Yes; red LED         • for thannel diagnostics       Yes; red LED         • for thannel diagnostics       Yes; red LED         • for module diagnostics       Yes; red LED         • for thannel diagnostics       Yes; red LED         • for thannel diagnostics       Yes; red LED         • for thannel diagnostics		
• Diagnostic alarm       Yes         • Maintenance interrupt       Yes         Diagnoses       •         • Monitoring the supply voltage       Yes         • Wire-break       Yes         • Short-circuit       Yes         • Group error       Yes         Diagnostics indication LED       Yes; green LED         • RUN LED       Yes; red LED         • ERROR LED       Yes; Yellow LED         • Maintring of the supply voltage (PWR-LED)       Yes; green LED         • Channel status display       Yes; green LED         • for channel diagnostics       Yes; red LED         • for module diagnostics       Yes; green LED         • for module diagnostics       Yes; red LED         • for module diagnostics		100
• Maintenance interrupt       Yes         Diagnoses		Yes
Diagnoses       Yes         • Monitoring the supply voltage       Yes         • Wire-break       Yes         • Short-circuit       Yes         • Group error       Yes         Diagnostics indication LED       Yes; green LED         • RUN LED       Yes; red LED         • ERROR LED       Yes; Yellow 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         • for module diagnostics       Yes; red LED         • for module diagnostics       Yes; red LED         Potential separation       Yes; red LED	-	
• Monitoring the supply voltage       Yes         • Wire-break       Yes         • Short-circuit       Yes         • Group error       Yes         Diagnostics indication LED       Yes; green LED         • RUN LED       Yes; red LED         • ERROR LED       Yes; Yellow LED         • Monitoring of the supply voltage (PWR-LED)       Yes; green LED         • Monitoring of the supply voltage (PWR-LED)       Yes; green LED         • for channel status display       Yes; green LED         • for channel diagnostics       Yes; red LED         • for module diagnostics       Yes; red LED         Potential separation       Yes; red LED		
• Wire-breakYes• Short-circuitYes• Group errorYesDiagnostics indication LEDYes; green LED• RUN LEDYes; red LED• ERROR LEDYes; red LED• MAINT LEDYes; Yellow LED• Monitoring of the supply voltage (PWR-LED)Yes; green LED• Channel status displayYes; green LED• for channel diagnosticsYes; red LED• for module diagnosticsYes; red LED• for module diagnosticsYes; red LED• Potential separationPotential separation channels		Yes
<ul> <li>Short-circuit</li> <li>Short-circuit</li> <li>Group error</li> <li>Yes</li> <li>Diagnostics indication LED</li> <li>RUN LED</li> <li>RUN LED</li> <li>Yes; green LED</li> <li>ERROR LED</li> <li>Yes; red LED</li> <li>MAINT LED</li> <li>Yes; Yellow LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Yes; green LED</li> <li>Channel status display</li> <li>Yes; red LED</li> <li>for channel diagnostics</li> <li>Yes; red LED</li> <li>for module diagnostics</li> <li>Yes; red LED</li> <li>Potential separation channels</li> </ul>		
• Group error       Yes         Diagnostics indication LED       • RUN 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         • for module diagnostics       Yes; red LED         • Potential separation       Yes; red LED		
Diagnostics indication LED       Yes; green LED         • RUN LED       Yes; red 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         • for module diagnostics       Yes; red LED         • Potential separation       Potential separation channels		
• RUN LEDYes; green LED• ERROR LEDYes; red LED• MAINT LEDYes; Yellow LED• Monitoring of the supply voltage (PWR-LED)Yes; green LED• Channel status displayYes; green LED• for channel diagnosticsYes; red LED• for module diagnosticsYes; red LED• for module diagnosticsYes; red LED• Potential separationYes; red 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         • for module diagnostics       Yes; red LED         • for module diagnostics       Yes; red LED         • Potential separation       Yes; red LED		Ves: green 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         • for module diagnostics       Yes; red LED         • for module diagnostics       Yes; red LED         • Potential separation       Yes; red LED		
Monitoring of the supply voltage (PWR-LED) Yes; green LED     Channel status display Yes; green LED     for channel diagnostics Yes; red LED     for module diagnostics Yes; red LED     Potential separation Potential separation channels		
Channel status display Yes; green LED     for channel diagnostics Yes; red LED     for module diagnostics Yes; red LED  Potential separation  Potential separation channels		
• for channel diagnostics         Yes; red LED           • for module diagnostics         Yes; red LED           Potential separation         Potential separation channels		-
for module diagnostics Yes; red LED Potential separation Potential separation channels		-
Potential separation Potential separation channels	-	
Potential separation channels	-	Yes; red LED
between the channels     No		
	<ul> <li>between the channels</li> </ul>	No

e between the channels, in groups of	0	
between the channels, in groups of	8	
between the channels and backplane bus	Yes	
Isolation		
Isolation tested with	707 V DC (type test)	
Standards, approvals, certificates		
Suitable for safety functions	No	
Suitable for safety-related tripping of standard modules	Yes; From FS02	
Highest safety class achievable for safety-related tripping of standard modules		
<ul> <li>Performance level according to ISO 13849-1</li> </ul>	PL d	
<ul> <li>Category according to ISO 13849-1</li> </ul>	Cat. 3	
<ul> <li>SILCL according to IEC 62061</li> </ul>	SILCL 2	
Ambient conditions		
Ambient temperature during operation		
<ul> <li>horizontal installation, min.</li> </ul>	-30 °C; From FS03	
<ul> <li>horizontal installation, max.</li> </ul>	60 °C	
<ul> <li>vertical installation, min.</li> </ul>	-30 °C; From FS03	
vertical installation, max.	40 °C	
Altitude during operation relating to sea level		
<ul> <li>Installation altitude above sea level, max.</li> </ul>	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual	
Dimensions		
Width	35 mm	
Height	147 mm	
Depth	129 mm	
Weights		
Weight, approx.	280 g	
last modified:	4/19/2021 🖸	