## SIEMENS

## Data sheet

## 6ES7135-6HB00-0DA1



SIMATIC ET 200SP, Analog output module, AQ 2x U/I High Speed, suitable for BU type A0, A1, Color code CC00, channel diagnostics, 16 bit, +/-0.2%

Product type designation Product Spread (Product Spread (Produ	General information	
HW functional status     From FS06       usable BaseUnits     BU type A0, A1       Color code for module-specific color identification plate     CC00       Product function     • Isochronous mode       • Isochronous mode     Yes       Engineering with     V13 SP1       • STEP 7 TA Portal configurable/integrated from version     V13 SP1       • STEP 7 TA Portal configurable/integrated from version     V5 S SP3 / -       • PROFIBUS from GSD version/GSD revision     GSD Revision 5       Operating mode     •       • Oversampling     Yes; 2 channels per module       • MSO     No       Calibration possible in RUN     Yes       Reparameterization possible in RUN     Yes       Reted value (DC)     24 V       permissible range, lower limit (DC)     19.2 V       permissible range, upper limit (DC)     19.2 V       permissible range, upper limit (DC)     24.8 V       Reverse polanty protection     Yes       Current consumption, max.     90 mA; 2 channels current output 20 mA       Power loss, typ.     0.9 W       Address space per module, max.     4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)       Hardware configuration     Yes       Address space per module, max.     4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)		
usable BaseUnits         BU type A0, A1           Color code for module-specific color identification plate         CC00           Product function         CC00           • I&M data         Yes; I&M0 to I&M3           • Ischronous mode         Yes           Engineering with         V13 SP1           • STEP 7 TA Portal configurable/integrated from version         V15 S SP3 / -           • PROFIBUS from GSD version/GSD revision         GSD Revision 5           • PROFIBUS from GSD version/GSD revision         GSD Revision 5           • Oversampling         Yes; 2 channels per module           • MSO         No           Calibration possible in RUN         Yes           Calibration possible in RUN         Yes           Calibration possible in RUN         Yes           Permissible range, lower limit (DC)         24 V           permissible range, upper limit (DC)         28.8 V           Rever consumption (rated value)         45 mA; without load           Current consumption, max.         90 mA; 2 channels current output 20 mA           Power loss         -           Power loss, typ.         0.9 W           Address pace per module         4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)           • Mechanical coding element		
Color code for module-specific color identification plate       CC00         Product function       • I&M data       Yes; I&M0 to I&M3         • IsAM data       Yes; I&M0 to I&M3         • IsAM data       Yes; I&M0 to I&M3         • IsAM data       Yes; I&M0 to I&M3         • STEP 7 TIA Portal configurable/integrated from version       V13 SP1         • STEP 7 ronfigurable/integrated from version       V13 SP1         • PROFIBUS from GSD version/GSD revision       GSD Revision 5         • PROFINET from CSD version/GSD revision       GSD Revision 5         • Oversampling       Yes; 2 channels per module         • MSO       No         Citra Configuration in RUN       Yes         Reparameterization possible in RUN       Yes         Calibration possible in RUN       Yes         Calibration possible in RUN       Yes         Permissible range, lower limit (DC)       19.2 V         permissible range, lower limit (DC)       28.8 V         Reverse polarity protection       Yes         Input current       Current consumption (rated value)       45 mA; without load         Current consumption, max.       90 mA; 2 channels current output 20 mA         Power loss, typ.       0.9 W       Address space per module, max.         • Address space per m		
Product function     Yes; I&M0 to I&M3       • Isochronous mode     Yes       Engineering with     Yes       • STEP 7 TA Portal configurable/integrated from version     V13 SP1       • STEP 7 To configurable/integrated from version     V5 S SP3 / -       • PROFIBUS from GSD version/GSD revision     GSD Revision 5       • PROFINET from GSD version/GSD revision     GSDML V2.3       Operating mode     •       • Oversampling     Yes; 2 channels per module       • MSO     No       Cill - Configuration in RUN     Reparameterization possible in RUN       Reparameterization possible in RUN     No       Supply voltage     24 V       permissible range, lower limit (DC)     19.2 V       permissible range, upper limit (DC)     28.8 V       Reverse polarity protection     Yes       Input current     Current consumption (rated value)       Current consumption, max.     90 mA; 2 channels current output 20 mA       Power loss     Power loss, typ.       Power loss, typ.     0.9 W       Address space per module, max.     4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)       Hardware configuration     Yes       Automatic encoding     Yes       • Address space per module, max.     4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode) <td></td> <td></td>		
• i&M data     Yes; I&M0 to I&M3       • isochronous mode     Yes       Engineering with     •       • STEP 7 TA Portal configurable/integrated from version     V13 SP1       • STEP 7 To Portal configurable/integrated from version     V55 SP3 / -       • ROFIBUS from GSD version/GSD revision     GSD Revision 5       • PROFIBUT from GSD version/GSD revision     GSD Revision 5       • Operating mode     •       • Oversampling     Yes; 2 channels per module       • MSO     No       Calibration possible in RUN     Yes       Reparameterization possible in RUN     Yes       Calibration possible in RUN     Yes       Reted value (DC)     24 V       permissible range, upper limit (DC)     24.8.0       Reverse polarity protection     Yes       Input current     Current consumption (rated value)       Current consumption, max.     90 mA; 2 channels current output 20 mA       Power loss     -       Power loss     -       Power loss     -       Address space per module, max.     4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)       + Address space per module     Yes       • Address space per module     Yes       • Address space per module     Yes       • Address space per module     Yes <tr< td=""><td></td><td>CCUU</td></tr<>		CCUU
• Isochronous mode     Yes       Engineering with		
Engineering with       V13 SP1         • STEP 7 TA Portal configurable/integrated from version       V13 SP1         • STEP 7 configurable/integrated from version       V55 SP3 / -         • PROFIBUS from GSD version/GSD revision       GSD Revision 5         • PROFINET from GSD version/GSD revision       GSDML V2.3         Operating mode       -         • NSO       No         CiR - Configuration in RUN       Yes; 2 channels per module         • KSO       No         Calibration possible in RUN       Yes         Calibration possible in RUN       Yes         Calibration possible in RUN       Yes         Permissible range, lower limit (DC)       24 V         permissible range, upper limit (DC)       28.8 V         Reverse polarity protection       Yes         Input current       -         Current consumption (rated value)       45 mA; without load         Current consumption, max.       90 mA; 2 channels current output 20 mA         Power loss, typ.       0.9 W         Address space per module       -         • Address space per module       4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)         Hardware configuration       Yes         • Type of mechanical coding element       Yes		
• STEP 7 TIA Portal configurable/integrated from version       V13 SP1         • STEP 7 configurable/integrated from version       V5.5 SP3 / -         • PROFIBUS from GSD version/GSD revision       GSD Revision 5         • PROFINET from GSD version/GSD revision       GSDML V2.3         Operating mode       •         • Oversampling       Yes; 2 channels per module         • MSO       No         Calibration in RUN       Yes         Reparameterization possible in RUN       Yes         Calibration possible in RUN       No         Supply voltage       -         Rated value (DC)       24 V         permissible range, upper limit (DC)       19.2 V         permissible range, upper limit (DC)       28.8 V         Reverse polarity protection       Yes         Input current       -         Current consumption (rated value)       45 mA; without load         Current consumption, max.       90 mA; 2 channels current output 20 mA         Power loss       -         Power loss, typ.       0.9 W         Address space per module       4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)         Hardware configuration       Yes         Automatic encoding       -         • Mechanical		Yes
• STEP 7 configurable/integrated from version     V5.5 SP3 / -       • PROFIRUS from GSD version/GSD revision     GSD Revision 5       • PROFINET from GSD version/GSD revision     GSDML V2.3       Operating mode     -       • Oversampling     Yes; 2 channels per module       • MSO     No       CIR - Configuration in RUN     Reparameterization possible in RUN       Reparameterization possible in RUN     Yes       Calibration possible in RUN     No       Supply voltage     -       Participation in RUN     Yes       Rated value (DC)     24 V       permissible range, lowper limit (DC)     19.2 V       permissible range, upper limit (DC)     28.8 V       Reverse polarity protection     Yes       Input current     -       Current consumption (rated value)     45 mA; without load       Current consumption, max.     90 mA; 2 channels current output 20 mA       Power loss     -       Power loss (typ.     0.9 W       Address area     -       Address space per module     -       • Address space per module, max.     4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)       Hardware configuration     -       Automatic encoding     -       • Type A     -       Analog outputs		
PROFIBUS from GSD version/GSD revision     GSD Revision 5     PROFINET from GSD version/GSD revision     GSDML V2.3 Operating mode     Vers 2 channels per module     MSO     No CR - Configuration in RUN Reparameterization possible in RUN Yes Calibration possible in RUN No CR - Versampling Vers Calibration possible in RUN Yes Calibration possible in RUN No Supply voltage Rated value (DC) 24 V permissible range, lower limit (DC) 28.8 V Reverse polarity protection Yes Input current Current consumption (rated value) 45 mA; without load Current consumption, max. 90 mA; 2 channels current output 20 mA Power loss Power loss Power loss, typ. Address space per module Address space per module Address space per module Address space per module Address area Address space per module Vers Address area Xutomatic encoding Machanical coding element Yes Xutomatic encoding Machanical coding element Xes Xutomaticencoding Xes Xutomatic encoding Xes Xutomaticencoding Xes Xutomat		
• PROFINET from GSD version/GSD revision       GSDML V2.3         Operating mode       •         • Oversampling       Yes; 2 channels per module         • MSO       No         Calibration in RUN         Reparameterization possible in RUN       Yes         Calibration possible in RUN       No         Support of the colspan="2">Support of the colspan="2">Support of the colspan="2">Configuration in RUN         Reparameterization possible in RUN       Yes         Calibration possible in RUN       No         Support of the colspan="2">Support of the colspan="2">Configuration in RUN         Reparameterization possible in RUN       Yes         Calibration possible range, lower limit (DC)       24 V         permissible range, lower limit (DC)       28.8 V         Reverse polarity protection       Yes         Input current       Current consumption (rated value)       45 mA; without load         Current consumption, max.       90 mA; 2 channels current output 20 mA       Power loss, typ.         Power loss, typ.       0.9 W       Address space per module       4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)         Hardware configuration       Yes       Automatic encoding       Mechanical coding element         • Type of mechanical coding ele		
Operating mode       Yes; 2 channels per module            • MSO       No         CIR - Configuration in RUN       Reparameterization possible in RUN         Reparameterization possible in RUN       Yes         Calibration possible in RUN       No         Supply voltage       No         Rated value (DC)       24 V         permissible range, lower limit (DC)       19.2 V         permissible range, upper IIICC)       28.8 V         Reverse polarity protection       Yes         Input current       Current consumption (rated value)         Current consumption, max.       90 mA; 2 channels current output 20 mA         Power loss       Power loss, typ.         Power loss, typ.       0.9 W         Address space per module       4 byte; + 1 byte for Ql information (32 bytes in the oversampling operating mode)         Hardware configuration       Yes         Automatic encoding       Yes         • Mechanical coding element       Yes         • Type of mechanical coding element       Type A         Analog outputs       2		
• Oversampling     Yes; 2 channels per module       • MSO     No       CIR - Configuration in RUN     Yes       Reparameterization possible in RUN     Yes       Calibration possible in RUN     No       Supply voltage     Reted value (DC)       Permissible range, lower limit (DC)     24 V       permissible range, upper limit (DC)     19.2 V       permissible range, upper limit (DC)     28.8 V       Reverse polarity protection     Yes       Input current     Current consumption (rated value)       Current consumption, max.     90 mA; 2 channels current output 20 mA       Power loss, typ.     0.9 W       Address area     4 byte; + 1 byte for Ql information (32 bytes in the oversampling operating mode)       Hardware configuration     Yes       Automatic encoding     Yes       • Mechanical coding element     Yes       • Type of mechanical coding element     Yes       • Type of mechanical coding element     Type A       Analog outputs     2		GSDML V2.3
• MSO     No <b>CiR - Configuration in RUN</b> Yes       Calibration possible in RUN     Yes       Calibration possible in RUN     No <b>Supply voltage</b> Rated value (DC)       Parmissible range, lower limit (DC)     19.2 V       permissible range, upper limit (DC)     28.8 V       Reverse polarity protection     Yes       Input current     Current consumption (rated value)       Current consumption, max.     90 mA; 2 channels current output 20 mA       Power loss     Power loss, typ.       Power loss, typ.     0.9 W       Address space per module     4 byte; + 1 byte for Ql information (32 bytes in the oversampling operating mode)       Hardware configuration     Yes       Automatic encoding     Yes       • Nechanical coding element     Yes       • Type of mechanical coding element     Yes       • Type of mechanical coding element     Type A       Analog outputs     2	Operating mode	
CiR - Configuration in RUN       Yes         Calibration possible in RUN       No         Supply voltage       No         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         Input current       Current consumption (rated value)       45 mA; without load         Current consumption, max.       90 mA; 2 channels current output 20 mA         Power loss       Power loss, typ.       0.9 W         Address space per module       4 byte; + 1 byte for Ql information (32 bytes in the oversampling operating mode)         Hardware configuration       Yes         Automatic encoding       Yes         • Mechanical coding element       Yes         • Type of mechanical coding element       Yes         • Number of analog outputs       2		Yes; 2 channels per module
Reparameterization possible in RUN       Yes         Calibration possible in RUN       No         Supply voltage       No         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         Input current       Current consumption (rated value)         Current consumption, max.       90 mA; 2 channels current output 20 mA         Power loss       Power loss, typ.         Power loss, typ.       0.9 W         Address space per module       4 byte; + 1 byte for Ql information (32 bytes in the oversampling operating mode)         Hardware configuration       Yes         Automatic encoding       Yes         • Mechanical coding element       Yes         • Type of analog outputs       2		No
Calibration possible in RUN       No         Supply voltage       Rated value (DC)         Permissible range, lower limit (DC)       19.2 V         permissible range, upper limit (DC)       28.8 V         Reverse polarity protection       Yes         Input current       Current consumption (rated value)         Current consumption (rated value)       45 mA; without load         Current consumption, max.       90 mA; 2 channels current output 20 mA         Power loss       Power loss         Power loss typ.       0.9 W         Address space per module       4 byte; + 1 byte for Ql information (32 bytes in the oversampling operating mode)         Hardware configuration       Yes         Automatic encoding       Yes         • Mechanical coding element       Yes         • Type of mechanical coding element       Yes         • Type of mechanical coding element       Type A         Analog outputs       2	CiR - Configuration in RUN	
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         Input current       Current consumption (rated value)         Current consumption, max.       90 mA; 2 channels current output 20 mA         Power loss       Power loss, typ.         Power loss, typ.       0.9 W         Address space per module       4 byte; + 1 byte for Ql information (32 bytes in the oversampling operating mode)         Hardware configuration       Yes         Automatic encoding       Yes         • Mechanical coding element       Yes         • Type of analog outputs       2	Reparameterization possible in RUN	Yes
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         Input current	Calibration possible in RUN	No
permissible range, lower limit (DC)       19.2 V         permissible range, upper limit (DC)       28.8 V         Reverse polarity protection       Yes         Input current       V         Current consumption (rated value)       45 mA; without load         Current consumption, max.       90 mA; 2 channels current output 20 mA         Power loss       Power loss         Power loss       0.9 W         Address space per module       4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)         Hardware configuration       Yes         Automatic encoding       Yes         • Mechanical coding element       Yes         • Type of mechanical coding element       Yes         • Type of mechanical coding element       Yes         • Type of analog outputs       2	Supply voltage	
permissible range, upper limit (DC)       28.8 V         Reverse polarity protection       Yes         Input current       Current consumption (rated value)       45 mA; without load         Current consumption, max.       90 mA; 2 channels current output 20 mA         Power loss       0.9 W         Address space per module       0.9 W         Address space per module, max.       4 byte; + 1 byte for Ql information (32 bytes in the oversampling operating mode)         Hardware configuration       Yes         Automatic encoding       Yes         • Mechanical coding element       Yes         • Type of mechanical coding element       Yes         • Type of mechanical coding element       Yes         • Number of analog outputs       2	Rated value (DC)	24 V
Reverse polarity protection       Yes         Input current       45 mA; without load         Current consumption (rated value)       45 mA; without load         Current consumption, max.       90 mA; 2 channels current output 20 mA         Power loss       90 mA; 2 channels current output 20 mA         Power loss, typ.       0.9 W         Address area       45 ddress space per module         • Address space per module, max.       4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)         Hardware configuration       4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)         Automatic encoding       Yes         • Mechanical coding element       Yes         • Type of mechanical coding element       Yes         • Type of mechanical coding element       Yes         • Type of analog outputs       2	permissible range, lower limit (DC)	19.2 V
Input current       45 mA; without load         Current consumption (rated value)       45 mA; without load         Current consumption, max.       90 mA; 2 channels current output 20 mA         Power loss       0.9 W         Address area       0.9 W         Address space per module       4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)         Hardware configuration       4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)         Automatic encoding       Yes         • Mechanical coding element       Yes         • Type of mechanical coding element       Type A         Analog outputs       2	permissible range, upper limit (DC)	28.8 V
Current consumption (rated value)       45 mA; without load         Current consumption, max.       90 mA; 2 channels current output 20 mA         Power loss       90 mA; 2 channels current output 20 mA         Power loss, typ.       0.9 W         Address area       Address space per module         • Address space per module, max.       4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)         Hardware configuration       Automatic encoding         • Mechanical coding element       Yes         • Type of mechanical coding element       Type A         Analog outputs       2	Reverse polarity protection	Yes
Current consumption, max.       90 mA; 2 channels current output 20 mA         Power loss       0.9 W         Address area       Address space per module         • Address space per module, max.       4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)         Hardware configuration       Automatic encoding         • Mechanical coding element       Yes         • Type of mechanical coding element       Type A         Analog outputs       2	Input current	
Power loss         Power loss, typ.         O.9 W         Address area         Address space per module         • Address space per module, max.         4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)         Hardware configuration         Automatic encoding         • Mechanical coding element         Yes         • Type of mechanical coding element         Type A         Analog outputs         Number of analog outputs	Current consumption (rated value)	45 mA; without load
Power loss, typ.       0.9 W         Address area       Address space per module         • Address space per module, max.       4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)         Hardware configuration       Automatic encoding         • Mechanical coding element       Yes         • Type of mechanical coding element       Type A         Analog outputs       2	Current consumption, max.	90 mA; 2 channels current output 20 mA
Address area         Address space per module         • Address space per module, max.         4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)         Hardware configuration         Automatic encoding         • Mechanical coding element         • Type of mechanical coding element         • Type of mechanical coding element         • Type of analog outputs         2	Power loss	
Address area         Address space per module         • Address space per module, max.       4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)         Hardware configuration         Automatic encoding       •         • Mechanical coding element       Yes         • Type of mechanical coding element       Type A         Analog outputs       2	Power loss, typ.	0.9 W
Address space per module, max.     4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)  Hardware configuration  Automatic encoding  Mechanical coding element Yes Type of mechanical coding element Type A  Analog outputs  Number of analog outputs 2		
Address space per module, max.     4 byte; + 1 byte for QI information (32 bytes in the oversampling operating mode)  Hardware configuration  Automatic encoding  Mechanical coding element Yes Type of mechanical coding element Type A  Analog outputs  Number of analog outputs 2	Address space per module	
Automatic encoding     Yes       • Mechanical coding element     Yes       • Type of mechanical coding element     Type A       Analog outputs     2		
Mechanical coding element Yes     Type of mechanical coding element Type A      Analog outputs      Number of analog outputs 2	Hardware configuration	
Type of mechanical coding element     Type A     Analog outputs     Number of analog outputs     2	Automatic encoding	
Type of mechanical coding element     Type A Analog outputs Number of analog outputs 2	Mechanical coding element	Yes
Analog outputs Number of analog outputs 2		Туре А
Number of analog outputs     2		
		2

Voltage output, short-circuit current, max.	45 mA
Cycle time (all channels), min.	125 µs
Analog output with oversampling	Yes
<ul> <li>Values per cycle, max.</li> </ul>	16
Resolution, min.	45 μs; (2 channels), 35 μs (1 channel)
Output ranges, voltage	
• 0 to 10 V	Yes; 15 bit
• 1 V to 5 V	Yes; 13 bit
• -5 V to +5 V	Yes; 15 bit incl. sign
• -10 V to +10 V	Yes; 16 bit incl. sign
Output ranges, current	
• 0 to 20 mA	Yes; 15 bit
• -20 mA to +20 mA	Yes; 16 bit incl. sign
• 4 mA to 20 mA	Yes; 14 bit
Connection of actuators	
<ul> <li>for voltage output two-wire connection</li> </ul>	Yes
<ul> <li>for voltage output four-wire connection</li> </ul>	Yes
for current output two-wire connection	Yes
Load impedance (in rated range of output)	
with voltage outputs, min.	2 kΩ
with voltage outputs, capacitive load, max.	- ···· 1 μF
with current outputs, max.	500 Ω
with current outputs, inductive load, max.	1 mH
Destruction limits against externally applied voltages and currents	
Voltages at the outputs	30 V
Cable length	
shielded, max.	1 000 m; 200 m for voltage output
Analog value generation for the outputs	
Integration and conversion time/resolution per channel	
Resolution with overrange (bit including sign), max.	16 bit
Settling time	
	0.05 mg
<ul> <li>for resistive load</li> </ul>	0.05 ms
<ul><li>for resistive load</li><li>for capacitive load</li></ul>	0.05 ms; Max. 47 nF and 20 m cable length
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> </ul>	
for resistive load     for capacitive load     for inductive load     For inductive load Errors/accuracies	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms
for resistive load     for capacitive load     for inductive load     for inductive load  Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz),	0.05 ms; Max. 47 nF and 20 m cable length
for resistive load     for capacitive load     for inductive load     for inductive load     Errors/accuracies     Output ripple (relative to output range, bandwidth 0 to 50 kHz),     (+/-)	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 %
for resistive load     for capacitive load     for inductive load     for inductive load  Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz),     (+/-) Linearity error (relative to output range), (+/-)	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> <li>for inductive load</li> </ul> Errors/accuracies           Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-)	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.003 %/K
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> <li>for inductive load</li> </ul> Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-) Crosstalk between the outputs, max.	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.003 %/K -50 dB
for resistive load     for capacitive load     for inductive load     for inductive load     for inductive load  Errors/accuracies  Output ripple (relative to output range, bandwidth 0 to 50 kHz),     (+/-)  Linearity error (relative to output range), (+/-)  Temperature error (relative to output range), (+/-)	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.003 %/K
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> <li>for inductive load</li> </ul> Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-) Crosstalk between the outputs, max. Repeat accuracy in steady state at 25 °C (relative to output	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.003 %/K -50 dB
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> <li>for inductive load</li> </ul> Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-) Crosstalk between the outputs, max. Repeat accuracy in steady state at 25 °C (relative to output range), (+/-)	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.003 %/K -50 dB
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> <li>for inductive load</li> </ul> Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-) Crosstalk between the outputs, max. Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) Operational error limit in overall temperature range	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.003 %/K -50 dB 0.03 %
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> <li>for inductive load</li> </ul> Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-) Crosstalk between the outputs, max. Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) Operational error limit in overall temperature range <ul> <li>Voltage, relative to output range, (+/-)</li> </ul>	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.003 %/K -50 dB 0.03 %
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> <li>for inductive load</li> </ul> Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-) Crosstalk between the outputs, max. Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) Operational error limit in overall temperature range <ul> <li>Voltage, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> </ul>	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.003 %/K -50 dB 0.03 %
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> <li>for inductive load</li> </ul> Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-) Crosstalk between the outputs, max. Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) Operational error limit in overall temperature range <ul> <li>Voltage, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> </ul> Basic error limit (operational limit at 25 °C)	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.003 %/K -50 dB 0.03 % 0.2 % 0.2 %
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> <li>for inductive load</li> </ul> Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-) Crosstalk between the outputs, max. Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) Operational error limit in overall temperature range <ul> <li>Voltage, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Basic error limit (operational limit at 25 °C)</li> <li>Voltage, relative to output range, (+/-)</li> </ul>	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.003 %/K -50 dB 0.03 % 0.03 %
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> <li>for inductive load</li> </ul> Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-) Crosstalk between the outputs, max. Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) Operational error limit in overall temperature range <ul> <li>Voltage, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Voltage, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> </ul>	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.003 %/K -50 dB 0.03 % 0.03 %
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> <li>for inductive load</li> </ul> Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-) Crosstalk between the outputs, max. Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) Operational error limit in overall temperature range <ul> <li>Voltage, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Voltage, relative to output range, (+/-)</li> <li>Eurrent, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Schronous mode</li> </ul>	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.003 %/K -50 dB 0.03 % 0.2 % 0.2 % 0.1 % 0.1 %
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> <li>for inductive load</li> </ul> Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-) Crosstalk between the outputs, max. Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) Operational error limit in overall temperature range <ul> <li>Voltage, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Voltage, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Execution and activation time (TCO), min.</li> </ul>	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.003 %/K -50 dB 0.03 % 0.2 % 0.2 % 0.2 % 0.1 % 0.1 %
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> <li>for inductive load</li> </ul> Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-) Crosstalk between the outputs, max. Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) Operational error limit in overall temperature range <ul> <li>Voltage, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Basic error limit (operational limit at 25 °C)</li> <li>Voltage, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Execution and activation time (TCO), min.</li> </ul>	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.003 %/K -50 dB 0.03 % 0.2 % 0.2 % 0.2 % 0.1 % 0.1 %
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> <li>for inductive load</li> </ul> Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-) Crosstalk between the outputs, max. Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) Operational error limit in overall temperature range <ul> <li>Voltage, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Sochronous mode</li> </ul> Execution and activation time (TCO), min. Bus cycle time (TDP), min.	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.03 %/K -50 dB 0.03 % 0.2 % 0.2 % 0.1 % 0.1 % 70 μs 125 μs
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> <li>for inductive load</li> </ul> Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-) Crosstalk between the outputs, max. Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) Operational error limit in overall temperature range <ul> <li>Voltage, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Sochronous mode</li> </ul> Execution and activation time (TCO), min. Bus cycle time (TDP), min. Interrupts/diagnostics/status information	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.003 %/K -50 dB 0.03 % 0.2 % 0.2 % 0.2 % 0.1 % 0.1 % 125 μs
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> </ul> Errors/accuracies   Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-) Crosstalk between the outputs, max. Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) Operational error limit in overall temperature range <ul> <li>Voltage, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Substitute values to output range, (+/-)</li> </ul> Interrupts/diagnostics/status information Diagnostics function Substitute values connectable Alarms	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.003 %/K -50 dB 0.03 % 0.2 % 0.2 % 0.1 % 0.1 % 70 μs 125 μs Yes Yes
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> <li>for inductive load</li> </ul> Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-) Crosstalk between the outputs, max. Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) Operational error limit in overall temperature range <ul> <li>Voltage, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Execution and activation time (TCO), min.</li> <li>Bus cycle time (TDP), min.</li> </ul> Interrupts/diagnostics/status information Diagnostics function Substitute values connectable Alarms <ul> <li>Diagnostic alarm</li> </ul>	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.003 %/K -50 dB 0.03 % 0.2 % 0.2 % 0.2 % 0.1 % 0.1 % 125 μs
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> <li>for inductive load</li> </ul> Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-) Crosstalk between the outputs, max. Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) Operational error limit in overall temperature range <ul> <li>Voltage, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Diagnostics function</li> <li>Substitute values connectable</li> <li>Alarms</li> <li>Diagnostic alarm</li> <li>Diagnoses</li> </ul>	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.03 %/K -50 dB 0.03 % 0.2 % 0.2 % 0.2 % 0.1 % 125 μs Yes Yes Yes
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> </ul> Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-) Crosstalk between the outputs, max. Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) Operational error limit in overall temperature range <ul> <li>Voltage, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Current relative to output range, (+/-)</li> <li>Current relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Current relative to output range, (+/-)</li> </ul>	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.03 % -50 dB 0.03 % 0.1 % 0.2 % 0.1 % 0.1 % 125 μs Yes Yes Yes
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> </ul> Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-) Crosstalk between the outputs, max. Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) Operational error limit in overall temperature range <ul> <li>Voltage, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Diagnostics function</li> <li>Substitute values connectable</li> <li>Alarms</li> <li>Diagnoses</li> <li>Monitoring the supply voltage</li> <li>Wire-break</li> </ul>	0.05 ms; Max. 47 nF and 20 m cable length 0.02 % 0.03 % 0.03 % 0.03 %/K -50 dB 0.03 % 0.1 % 0.2 % 0.1 % 0.1 % 125 μs 70 μs 125 μs Yes Yes Yes Yes Yes Yes
<ul> <li>for resistive load</li> <li>for capacitive load</li> <li>for inductive load</li> </ul> Errors/accuracies Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-) Linearity error (relative to output range), (+/-) Temperature error (relative to output range), (+/-) Crosstalk between the outputs, max. Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) Operational error limit in overall temperature range <ul> <li>Voltage, relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Current relative to output range, (+/-)</li> <li>Current relative to output range, (+/-)</li> <li>Current, relative to output range, (+/-)</li> <li>Current relative to output range, (+/-)</li> </ul>	0.05 ms; Max. 47 nF and 20 m cable length 0.05 ms 0.02 % 0.03 % 0.03 % -50 dB 0.03 % 0.1 % 0.2 % 0.1 % 0.1 % 125 μs 

Overflow/underflow	Yes
Diagnostics indication LED	
<ul> <li>Monitoring of the supply voltage (PWR-LED)</li> </ul>	Yes; green PWR LED
<ul> <li>Channel status display</li> </ul>	Yes; green LED
<ul> <li>for channel diagnostics</li> </ul>	Yes; red LED
<ul> <li>for module diagnostics</li> </ul>	Yes; green/red DIAG LED
Potential separation	
Potential separation channels	
<ul> <li>between the channels</li> </ul>	No
<ul> <li>between the channels and backplane bus</li> </ul>	Yes
<ul> <li>between the channels and the power supply of the electronics</li> </ul>	Yes
Isolation	
Isolation tested with	707 V DC (type test)
Ambient conditions	
Ambient temperature during operation	
<ul> <li>horizontal installation, min.</li> </ul>	-30 °C; < 0 °C as of FS06
<ul> <li>horizontal installation, max.</li> </ul>	60 °C
<ul> <li>vertical installation, min.</li> </ul>	-30 °C; < 0 °C as of FS06
<ul> <li>vertical installation, max.</li> </ul>	50 °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	15 mm
Height	73 mm
Depth	58 mm
Weights	
NA/ 1 1/	
Weight, approx.	31 g