② E 小A SCS20 Smart Control Systems

Description

The SCS (Smart Control Systems) product group holds intelligent systems, power distribution and components with communication capabilities. These smart devices can flexibly be integrated into existing structures. The additional communication capabilities provide more flexibility and reliability.

The SCS20 is one of the smallest components of the SCS product group. This CAN mini control unit for universal use in a module enclosure can easily be included in existing systems via a customerspecific software.

The SCS20 offers six IO ports which can be used as inputs or outputs and two additional low-power outputs. There are two H-bridge outputs which can control motors with up to 10 A each. Alternatively, 4 separate loads can be operated with max. 10 A each.

A further interface is provided for the CAN communication. This interface uses the CAN 2.0B standard by default. CAN low speed or RS232 are optionally available.

This data sheet concentrates on the description of the hardware. Software and specification requirements are set up in direct co-operation with our customers. Alternatively, we will shortly be able to offer a programming option for these mini control units by an intuitive, graphical design environment.

Applications

The SCS20 is suitable for both DC 12 V and DC 24 V applications.

Scope of applications:

- Trucks
- Special vehicles
- Buses
- Construction machinery and emergency cars
- Agricultural vehicles and forestry equipment

Typical applications:

- Optional extension of an existing CAN system to ISO 11898, SAE J1939 is possible.
- Addition of sensor or other options which
- can be interrogated and/or controlled via the central control unit.
 Control of two motors with up to 10 A via two H-bridge outputs. Both motor bridges provide overload detection. Alternatively, 4 loads can be operated with max. 10 A each.
- Internal measurement of temperature and voltage. These bits of information can then be accounted for in the software.

Benefits

- Due to the customer-specific software, the SCS20 offers quick and reliable resolution of many problems that can occur during design, retrofit or adjustment of vehicles.
- Existing CAN systems can easily be enhanced by any type of sensors and equipment options that are interrogated or controlled via the centralised control unit.
- 12 interfaces and additional CAN communication make this control unit an ideal solution to allow a great number of vehicle options.



Technical data (25 °C) SCS20-300-100-000- 2x2 A

Operating voltage9 V 32 VPower consumption< 300 mAClosed current< 1 mAMass>90 gInputs/outputsInputs/outputsDescriptionopen collectorInput voltage rangeI/O or only inputFeaturesIO1 PIN4yes (70 mA)0 V 30 VI/Oanalog/digitalIO2 PIN1yes (70 mA)0 V 30 VI/Oanalog/digitalIO3 PIN15yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO4 PIN3yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO5 PIN6yes (70 mA)0 V 30 VI/Oanalog/digital/ transmitter TXIO6 PIN3yes (70 mA)0 V 30 VI/Oanalog/digital/ transmitter TXIO5 PIN6yes (70 mA)0 V 30 VI/Oanalog/digital/ transmitter TXIO6 PIN3yes (70 mA)0 V 30 VI/Oanalog/digital/ transmitter TXID7 PIN7no0 V 30 VinputIIB PIN10no0 V 30 VinputIMa PIN1110 A thebridge combined10 A individually to A individuallyinputispect-transmitter TXM22 PIN810 A thebridge combined10 A individually to A individuallyispect-transmitter TXM23 PIN29 V 32 VSeparate power supply for power and log: Thus a reference voltage can be tapped for exact analog voltage	Voltage ratings		12 V / 24 V			
Power consumption < 300 mA Closed currer < 1 mA	Operating voltage		9 V 32 V			
Closed current< 1 mAMass>90 gInputs/outputs/colspan="4">Inputs/outputs/colspan="4">Inputs/outputs/colspan="4">Inputs/colspan="4"IC1 PIN14Yes (70 mA)0 V 30 VI/OInput analog/cligital/ (ransmitter TX)IC2 PIN3yes (70 mA)0 V 30 VI/OInput analog/cligital/ (ransmitter TX)IC1 PIN17Input analog/cligital/ (70	Power consu	umption	< 300 mA			
Mass>90 gInputs/outputs/outputsDescriptionopen collectorInput voltage rangeI/O or only inputFeaturesIO1 PIN4yes (70 mA)0 V 30 VI/Oanalog/digitalIO2 PIN1yes (70 mA)0 V 30 VI/Oanalog/digitalIO3 PIN15yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO4 PIN13yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO4 PIN13yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO5 PIN6yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO5 PIN6yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO4 PIN13no0 V 30 VI/Oanalog/digital/ receiver RXIO4 PIN17no0 V 30 Vinputanalog/digital/ receiver RXID4 PIN17no0 V 30 Vinputanalog/digital/ receiver RXM1a PIN1110 A th-bridge combinedindividually individually individually individually individually individuallyinputteresterM2a PIN80 A th-bridge combined10 A individually individuallyinputteresterM2a PIN80 A th-bridge combined10 A individually individually individuallyinputteresterM2a PIN80 A th-bridge combined10 A individually individuallyinputterester	Closed curre	ent	< 1 mA			
Inputs/outputs/Descriptionopen collectorInput voltage rangeI/O or only inputFeaturesIO1 PIN4yes (70 mA)0 V 30 VI/Oanalog/digitalIO2 PIN1yes (70 mA)0 V 30 VI/Oanalog/digitalIO3 PIN15yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO4 PIN13yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO5 PIN6yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO5 PIN6yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO6 PIN3yes (70 mA)0 V 30 VI/Oanalog/digital/ transmitter TXIO6 PIN3yes (70 mA)0 V 30 VI/Oanalog/digital/ transmitter TXIO6 PIN3yes (70 mA)0 V 30 VI/Oanalog/digital/ transmitter TXID6 PIN3no0 V 30 VinputIIT PIN7no0 V 30 VinputIM1a PIN1110 A thebridge combined10 A individually 10 A individuallyinputIM2a PIN810 A thebridge combined10 A individuallyinputIM2b PIN1410 A thebridge combined10 A individuallyinputiM2a PIN89 V 32 V over and log: Thus a reference voltage can be tapped to react analogi30 PIN5PassSeparate power and log: Thus a reference voltage can	Mass		>90 g			
Descriptionopen collectorInput voltage rangeI/O or only inputFeaturesIO1 PIN4yes (70 mA)0 V 30 VI/Oanalog/digitalIO2 PIN1yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO3 PIN15yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO4 PIN13yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO5 PIN6yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO5 PIN6yes (70 mA)0 V 30 VI/Oanalog/digital/ reserver RXIO6 PIN3yes (70 mA)0 V 30 VI/Oanalog/digital/ reserver RXIO6 PIN3yes (70 mA)0 V 30 VI/Oanalog/digital/ reserver RXIO8 PIN3no0 V 30 VinputIB PIN10no0 V 30 VinputIM1a PIN1110 A H-bridge combined10 A individually 10 A individuallyinputIM2a PIN810 A H-bridge combined10 A individually 10 A individuallyinputIM2a PIN410 A H-bridge combined10 A individuallyinputinputM2a PIN49 V 32 V 9 V 32 VSeparate power supply for power and log: Thus a reference voltage can be tapped by reserver supply for youtage can be tapped by	Inputs/outp	uts				
IO1 PIN4 (70 mA)yes (70 mA)0 V 30 VI/Oanalog/digitalIO2 PIN1yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO3 PIN15yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO4 PIN13yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO5 PIN6yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO6 PIN3yes (70 mA)0 V 30 VI/Oanalog/digital/ transmitter TXIO6 PIN3yes (70 mA)0 V 30 VI/Oanalog/digital/ transmitter TXIO6 PIN3yes (70 mA)0 V 30 VI/Oanalog/digital/ transmitter TXIO6 PIN3yes (70 mA)0 V 30 Vinputanalog/digital/ transmitter TXIO8 PIN1no0 V 30 Vinputanalog/digital/ transmitter TXIN PIN10no0 V 30 Vinputanalog/digital/ transmitter TXM1a PIN11no0 V 30 VinputinputM1a PIN11N A H-bridge combinedindividually 10 A individually 10 A individually 10 A individuallyinputterm tot bridges can bused individually as high or i-bused switch.M2a PIN8N A H-bridge combined10 A individually 10 A individuallyset tot bused switch.inputM2a PIN4N A H-bridge combinedN A individually 10 A individuallyset tot bused switch.inputSo PIN2	Description	open collector	Input voltage range	I/O or only input	Features	
IO2 PIN1 (70 mA)yes (70 mA)0 V 30 VI/Oanalog/digital receiver RXIO3 PIN15yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO4 PIN13yes (70 mA)0 V 30 VI/Oanalog/digitalIO5 PIN6yes (70 mA)0 V 30 VI/Oanalog/digitalIO6 PIN3yes (70 mA)0 V 30 VI/Oanalog/digital receiver RXIO6 PIN3yes (70 mA)0 V 30 VI/Oanalog/digital/ transmitter TXIO6 PIN3yes (70 mA)0 V 30 VI/Oanalog/digital/ transmitter TXIO7 PIN7no0 V 30 VinputII8 PIN10no0 V 30 VinputIM1a PIN1110 A H-bridge combined10 A 	IO1 PIN4	yes (70 mA)	0 V 30 V	I/O	analog/digital	
IO3 PIN15yes (70 mA)0 V 30 VI/Oanalog/digital/ receiver RXIO4 PIN13yes (70 mA)0 V 30 VI/Oanalog/digitalIO5 PIN6yes 	IO2 PIN1	yes (70 mA)	0 V 30 V	I/O	analog/digital	
IO4 PIN13yes (70 mA)0 V 30 VI/Oanalog/digitalIO5 PIN6yes (70 mA)0 V 30 VI/Oanalog/digitalIO6 PIN3yes (70 mA)0 V 30 VI/Oanalog/digital/ 	IO3 PIN15	yes (70 mA)	0 V 30 V	I/O	analog/digital/ receiver RX	
IO5 PIN6 (70 mA)yes (70 mA)0 V 30 VI/Oanalog/digital/ transmitter TXIO6 PIN3 (70 mA)yes (70 mA)0 V 30 VI/Oanalog/digital/ transmitter TXOutputs </td <td>IO4 PIN13</td> <td>yes (70 mA)</br></td> <td>0 V 30 V</td> <td>I/O</td> <td>analog/digital</td>	IO4 PIN13	yes 	0 V 30 V	I/O	analog/digital	
IO6 PIN3yes (70 mA)0 V 30 VI/Oanalog/digital/ transmitter TXOutputsI7 PIN7no0 V 30 VinputII8 PIN10no0 V 30 VinputIB PIN10no0 V 30 VinputIM1a PIN1110 A H-bridge 	IO5 PIN6	yes (70 mA)	0 V 30 V	I/O	analog/digital	
OutputsI7 PIN7no0 V 30 VinputI8 PIN10no0 V 30 VinputB PIN10no0 V 30 VinputOutputs - H-bridge0 V 30 VinputM1a PIN1110 A H-bridge combined10 A individually 	IO6 PIN3	yes (70 mA)	0 V 30 V	I/O	analog/digital/ transmitter TX	
I7 PIN7no0 V 30 VinputI8 PIN10no0 V 30 VinputI8 PIN10no0 V 30 VinputOutputs	Outputs					
18 PIN10no0 V 30 VinputOutputs - H-bridge10 A individually 10 A individually 10 A individually 10 A 	I7 PIN7	no	0 V 30 V	input		
Outputs – H-bridgeM1a PIN1110 A H-bridge combined10 A individually 	18 PIN10	no	0 V 30 V	input		
M1a PIN11 M1b PIN1710 A individually 10 A individually 10 A individually10 A individually 10 A individuallyThe motor bridges can be used individually a big or low side switch.M2b PIN1410 A H-bridge combined10 A individually 10 A individuallyThe motor bridges can be used individually a big or low side switch.M2b PIN1410 A H-bridge combinedSeparate power supply for power and logic Thus a reference voltage can be tapped for exact analog measurement.30 PIN2MassSeparate power supply for power and logic Thus a reference woltage can be tapped for exact analog measurement.	Outputs – H	-bridge		1	,	
M1b PIN17H-bridge combinedindividually 10 A individuallyThe motor bridges can be used individually as high or low side switch.M2a PIN810 A H-bridge combined10 A individually 10 A individuallyThe motor bridges can be used individually as high or low side switch.M2b PIN1410 A H-bridge combined10 A individually10 A individuallyPower supply10 A individuallySeparate power supply for power and logic Thus a reference voltage can be tapped for exact analog measurement.30 PIN2massMass	M1a PIN11	10.4	10 A	The motor bridges can be used individually as		
M2a PIN8 M2b PIN1410 A H-bridge combined10 A individually 10 A individually 10 A individuallyhigh or low side switch.Power supplyPower supplyPower supply30 PIN2 30' PIN59 V 32 V Power and log: Thus a reference voltage can be tapped for exact analog measurement.Separate power supply for power and log: Thus a reference tapped for exact analog measurement.	M1b PIN17	H-bridge combined	individually 10 A individually			
M2b PIN14Hordge combinedindividually 10 A individuallyPower supply30 PIN29 V 32 VSeparate power supply for power and logic Thus a reference voltage can be tapped for exact analog measurement.31 PIN9mass	M2a PIN8	10 A	10 A	high or low side switch.		
Power supply 30 PIN2 9 V 32 V Separate power supply for power and logic Thus a reference voltage can be tapped for exact analog measurement. 31 PIN9 mass measurement.	M2b PIN14	H-bridge combined	individually 10 A individually			
30 PIN29 V 32 VSeparate power supply for power and logic Thus a reference30' PIN59 V 32 VSeparate power supply for power and logic Thus a reference31 PIN9massvoltage can be tapped for exact analog measurement.	Power supp	ly				
30' PIN5 9 v 32 v Separate power supply for power and logic Thus a reference voltage can be tapped for exact analog measurement. 31'PIN12 mass work and logic Thus a reference voltage can be tapped for exact analog measurement.	30 PIN2		Separate power supply for power and logic Thus a reference voltage can be tapped for exact analog measurement.			
31 PIN9 mass voltage can be tapped for exact analog measurement.	30' PIN5	9 V 32 V				
31'PIN12 mass measurement.	31 PIN9	maaa				
	31'PIN12	mass				

@ E T A SCS20 Smart Control Systems

Technical data (25 °C) SCS20-300-100-000-4x10 A

High speed CAN interface (low speed or RS232 optional)

CH PIN17	CAN high
CL PIN18	CAN low
Internal functions	 internal temperature measurement internal potentiometer(optional) internal voltage measurement overload detection bridge 1 & 2
Max. output current at 12 V	2 x 20 A
Max. output power	2 x 480 W
Operating temperature	-40° C +85° C
Materials	
Blade terminals	DIN 46244 – A6.3 x 0.8 DIN 46244 – A2.8x0.8 CuZn 37 F37
Housing material	PA6GF

Qualifications

Degree of protection	IP52	
Noise immunity	95/54 EG & DIN 40839	
E1 number	upon request	

Dimensions





Ordering information

Type no.								
SCS20	Sma	ırt C	ontro	l Sys	stems			
	Operating voltage							
	3 12 V / 24 V							
	Low Power I/Os							
		0	6 I/Os	S				
			HSD	outp	outs			
			02	x H-	bridges 10 A or 4 x 10 A HSD			
			S	tand	ard			
			10	00-00	00 CAN 2.0 B			
			С	usto	m designed versions			
			04	49	project index number according to region (inter-			
				national area code), e.g.				
				Germany +49 = 049				
				France +33 = 033				
				Portugal +351 = <mark>351</mark>				
				USA +1 = 001				
				Project number part 2				
					001 serial number			
					Main outputs - current rating			
					4 x 10 A			
Ordering	g exa	mpl	es					
<u> SCS20 -</u>	3	0	0-10	0 -	000 - 4 x 10 A only hardware			
SCS20 -	3	0	0-04	9 -	001 - 4 x 10 A for customised software			

Schematic diagram / pin assignment



All information and data given on our products are accurate and reliable to the best of our knowledge, but E-T-A does not accept any responsibility for the use in applications which are not in accordance with the present specification. E-T-A reserves the right to change specifications at any time in the interest of improved design, performance and cost effectiveness, Dimensions are subject to change without notice. Please enquire for the latest dimensional drawing with tolerances if required. All dimensions, data, pictures and descriptions are for information only and are not binding. Amendments, errors and omissions excepted. Ordering codes of the products may differ from their marking.