



## **CSP2** Register and Block Map Profibus-DP Protocol

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# 1 Functioning scope of the communication link

The *Profibus-DP* expands the functionality of the devices *CSP* (communication interface):

The option *Profibus-DP* is available in following devices:

- *CSP2-FxxxPVx*
- *CSP2-FxxxPFx*
- *CSP2-LxxxPVx*
- *CSP2-LxxxPFx*

This documentation is applicable as from the following software states:

*CSP2-Fx* Software version MAIN V02.09.00

*CSP2-Lx* Software version MAIN V02.09.00

## 1.1 Output data of the *CSP* Slave:

- Information on device version,
- Measured values,
- Switch positions,
- Device status,
- Time and date,
- Status of the digital device inputs,
- Protection status messages and
- Number of switching cycles.

## 1.2 Capabilities for control with the *Profibus DP* master

The *CSP* allows the *Profibus-DP Master* controlling of the following properties via the *input data* of the *CSP* Slave:

- Controlling of switch elements,
- Changing of parameter sets,
- Resetting and acknowledging of messages,
- Setting of date and time and
- Controlling of signal relays.

The *CSP* has an automatic Baud rate recognition function up to 12 MBit/s. The device address (Slave) is adjusted via a relevant menu (parameter/communication/Profibus DP) in the *CSPx*

## 1.3 Parameters for *Profibus-DP*

The parameters for the *Profibus DP* can be adjusted locally via the *CMP*

(Menu Data / Communication / Profibus – DP) or via the parameter setting and evaluation programme *System-Line-Soft*.

Parameter	Range	Description
P_DP_NR	0 – 126	Setting of slave address
t call	200ms to 10000 ms	after expiration of this time a communication cut is detected and the message „SLT-Comm. Active“ is re-set (warning)

## 2 Register and Block-Map CSPx-Fx and -Lx

The following Appendix lists the Registers and Block required for transmission (CSP-/ Automation system).

### 2.1 Block-Map

#### NOTE

The data format of the measuring values and of the statistical measuring values (Block 01h to 08h) is designed as REAL (floating point figure) in accordance with IEEE.

The Block Map of the CSPx is assigned the following values:

Block 01h		Measured values Currents					
	Measured value	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
DA	Current IL1	REAL	A		X	X	X
DB	Current IL2	REAL	A		X	X	X
DC	Current IL3	REAL	A		X	X	X
DD	Earth current Ie	REAL	A		X	X	X
DE	Load unbalance current I2	REAL	A		X	X	-
DF	Thermal capacity ( $\vartheta$ )	REAL	%		X	X	X

Block 02h		Measured values Voltage					
	Measured value	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
DA	Voltage L1N	REAL	V		X	X	X
DB	Voltage L2N	REAL	V		X	X	X
DC	Voltage L3N	REAL	V		X	X	X
DD	Voltage L12	REAL	V		X	X	X
DE	Voltage L23	REAL	V		X	X	X
DF	Voltage L31	REAL	V		X	X	X

Block 03h		Measured values Frequency, Capacity					
	Measured value	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
DA	Residual voltage	REAL	V		X	X	X
DB	Frequency	REAL	Hz		X	X	X
DC				not assigned			
DD	Active power	REAL	kW		X	X	-
DE	Reactive power	REAL	kVAr		X	X	-
DF	Power factor	REAL		(Cos $\varphi$ )	X	X	-

Block 04h		Measured values Energy					
	Measured value	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
DA	Pos. active energy	REAL	kWh		X	X	-
DB	Neg. active energy	REAL	kWh		X	X	-
DC	Pos. reactive energy	REAL	kVArh		X	X	-
DD	Neg. reactive energy	REAL	kVArh		X	X	-
DE				not assigned			
DF				not assigned			

Block 05h		Average values and maximum values Current					
	Measured value	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
DA	Current IL1 avg.	REAL	A		X	X	X
DB	Current IL2 avg.	REAL	A		X	X	X
DC	Current IL3 avg.	REAL	A		X	X	X
DD	Current IL1 max.	REAL	A		X	X	X
DE	Current IL2 max.	REAL	A		X	X	X
DF	Current IL3 max.	REAL	A		X	X	X

Block 06h		Average values Voltage					
	Measured value	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
DA	Voltage L1N avg.	REAL	V		X	X	X
DB	Voltage L2N avg.	REAL	V		X	X	X
DC	Voltage L3N avg.	REAL	V		X	X	X
DD	Voltage L12 avg.	REAL	V		X	X	X
DE	Voltage L23 avg.	REAL	V		X	X	X
DF	Voltage L31 avg.	REAL	V		X	X	X

Block 07h		Maximum values Voltage					
	Measured value	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
DA	Voltage L1N max.	REAL	V		X	X	X
DB	Voltage L2N max.	REAL	V		X	X	X
DC	Voltage L3N max.	REAL	V		X	X	X
DD	Voltage L12 max.	REAL	V		X	X	X
DE	Voltage L23 max.	REAL	V		X	X	X
DF	Voltage L31 max.	REAL	V		X	X	X

Block 08h		Average and maximum values Frequency, Positive Active Power, Positive Reactive Power					
	Measured value	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
DA	Frequency f avg	REAL	Hz		X	X	X
DB	Frequency f max	REAL	Hz		X	X	X
DC	Active power P+ avg	REAL	kW		X	X	-
DD	Active power P+ max	REAL	kW		X	X	-
DE	Reactive power Q+ avg	REAL	kVAr		X	X	-
DF	Reactive power Q+ max	REAL	kVAr		X	X	-

Block 09h		Service data (1) Switching cycles Switching cycles are transmitted in 16-Bit values						
	Service data		Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
DA	Switching cycles by AR switching device		WORD		Number of switching cycles with the automatic reclose function (AR)			
	2 <sup>0</sup> to 2 <sup>15</sup>	No. of switching cycles by the AR switch device 1	WORD		Number of switching cycles switching device 1	X	X	X
	2 <sup>16</sup> to 2 <sup>31</sup>				not assigned			
DB					not assigned			
DC	Switching cycles switch.device 1+2				Number of switching cycles			
	2 <sup>0</sup> to 2 <sup>15</sup>	No. of switching cycles switching device 1	WORD		Number of switching cycles switching device 1	X	X	X
	2 <sup>16</sup> to 2 <sup>31</sup>	No. of switching cycles switching device 2	WORD		Number of switching cycles switching device 2	X	X	X
DD	Switching cycles switching device 3 and 4				Number of switching cycles			
	2 <sup>0</sup> to 2 <sup>15</sup>	No. of switching cycles switching device 3	WORD		Number of switching cycles switching device 3	X	X	X
	2 <sup>16</sup> to 2 <sup>31</sup>	No. of switching cycles switching device 4	WORD		Number of switching cycles switching device 4	X	X	X
DE	Switching cycles switching device 5				Number of switching cycles			
	2 <sup>0</sup> to 2 <sup>15</sup>	No. of switching cycles switching device 5	WORD		Number of switching cycles switching device 5	X	X	X
	2 <sup>16</sup> to 2 <sup>31</sup>				reserved			
DF					reserved			

Block 0Ah		Service data (2)					
	Service data	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
DA	Operating hours	DWORD	h		X	X	X
DB	Accumulaion of switched short-circuit currents switching device 1	REAL	kA		X	X	X
DC	Accumulation of switched short-circuit currents switching device 2	REAL	kA		-	X	-
DD				not assigned			
DE				not assigned			
DF				not assigned			

Block 0Bh		Switching device status. The status of each individual switch is transmitted in identical form as bit-coded WORD					
	Switching device status	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
DA	free (global info)	DWORD					
DB	Switching device 1 and 2	DWORD					
	Switching device 1:	bit-coded					
	2 <sup>0</sup> Pos. switching device 1			00b: Differential pos. 01b: Off 10b: On 11b: Disturbance pos.	X	X	X
	2 <sup>1</sup>						
	2 <sup>2</sup>			not assigned			
	2 <sup>3</sup> Switching device 1 removed			1: Switching device 1 removed	X	X	X
	2 <sup>4</sup> Disturbance switching device 1			1: Disturbance switching device 1	X	X	X
	2 <sup>5</sup> Control time switching device 1			1: Control time switching device 1 exceeded	X	X	X
	2 <sup>6</sup>			not assigned			
	2 <sup>7</sup>			not assigned			
	2 <sup>8</sup> to 2 <sup>15</sup>			not assigned			
	Switching device 2:	bit-coded					
	2 <sup>16</sup> Pos. switching device 2			00b: Differential pos. 01b: Off 10b: On 11b: Disturbance pos.	X	X	X
	2 <sup>17</sup>						
	2 <sup>18</sup>			not assigned			
	2 <sup>19</sup> Switching device 2 removed			1: Switching device 2 removed	X	X	X
	2 <sup>20</sup> Disturbance switching device 2			1: Disturbance switching device 2	X	X	X
	2 <sup>21</sup> Control time switching device 2			1: Control time switching device 2 exceeded	X	X	X
	2 <sup>22</sup>			not assigned			
	2 <sup>23</sup>			not assigned			
	2 <sup>24</sup> to 2 <sup>31</sup>			not assigned			
DC	Switching device 3 and 4	DWORD					
	2 <sup>0</sup> to 2 <sup>15</sup> Switching device 3:	bit-coded		see switching device 1	X	X	X
	2 <sup>16</sup> to 2 <sup>31</sup> Switching device 4:	bit-coded		see switching device 2	X	X	X



Block 0Bh		Switching device status. The status of each individual switch is transmitted in identical form as bit-coded WORD					
DD	Switching device 5	DWORD					
	2 <sup>0</sup> to 2 <sup>15</sup>	Switching device 5:	bit coded	see switching device 1	X	X	X
	2 <sup>16</sup> bis 2 <sup>31</sup>			not assigned			
DE				not assigned			
DF				not assigned			

Block 0Ch		Line differential protection Differential current Id, Stabilizing current Is					
	Measured value	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
DA	Id_L1	REAL	A		-	-	X
DB	Id_L2	REAL	A		-	-	X
DC	Id_L3	REAL	A		-	-	X
DD	Is_L1	REAL	A		-	-	X
DE	Is_L2	REAL	A		-	-	X
DF	Is_L3	REAL	A		-	-	X

Block 0Dh		Line differential protection grad stabilisation m					
	Measured value	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
DA	m_L1	REAL	1		-	-	X
DB	m_L2	REAL	1		-	-	X
DC	m_L3	REAL	1		-	-	X
DD	-	REAL	-	not assigned			
DE	-	REAL	-	not assigned			
DF	-	REAL	-	not assigned			

Block 0Eh		Mean and maximum value of frequency, neg. active power, neg. reactive power					
	Measured value	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
DA				not assigned			
DB				not assigned			
DC	neg. active power P-avg	REAL	kW		X	X	-
DD	neg. active power P-max	REAL	kW		X	X	-
DE	neg. reactive power Q-avg	REAL	kVAr		X	X	-
DF	neg. reactive power Q-max	REAL	kVAr		X	X	-

Block 0Fh		Reading time						
	Measured value	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L	
DA	Time	DWORD	ms	ms of the day from 0:00h	X	X	X	
DB	Date.							
	2 <sup>0</sup> to 2 <sup>15</sup>	Date	Word	days	days from 01.01.1990	X	X	X
	2 <sup>16</sup> to 2 <sup>31</sup>					X	X	X
DC				not assigned				
DD				not assigned				
DE				not assigned				
DF				not assigned				

Block 10h		Maximum values differential and stabilized current					
	Measured value	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
DA	Id_L1 max	REAL	A		-	-	X
DB	Id_L2 max	REAL	A		-	-	X
DC	Id_L3 max	REAL	A		-	-	X
DD	Is_L1 max	REAL	A		-	-	X
DE	Is_L2 max	REAL	A		-	-	X
DF	Is_L3 max	REAL	A		-	-	X

Block 11h		Maximum values stabilizing factors					
	Measured value	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
DA	m_L1 max	REAL	1		-	-	X
DB	m_L2 max	REAL	1		-	-	X
DC	m_L3 max	REAL	1		-	-	X
DD				not assigned			
DE				not assigned			
DF				not assigned			

## 2.2 Register-Map

The *CSP* provides the following register-based functionality:

Device Information							
Register	Meaning	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
0000h R	Geräte-Ausstattung	DWORD					
	2 <sup>0</sup> bis 2 <sup>7</sup>	Device type	Byte	0:- 1: reserved 2: <i>CSP2-F3</i> 3: <i>CSP2-F5</i> 4: <i>CSP2-L</i> 5: reserved	X	X	X
	2 <sup>8</sup> bis 2 <sup>15</sup>	Language	Byte	0:- 1: English 2: German 3: Spanish 4: Portuguese	X	X	X
	2 <sup>16</sup> bis 2 <sup>23</sup>		Byte	not assigned			
	2 <sup>24</sup> bis 2 <sup>31</sup>		Byte	not assigned			

Geräte-Information							
Register	Meaning	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
0001h R				reserved			

Device Information							
Register	Meaning	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
0002h R	Software-Version	DWORD					
	2 <sup>0</sup> bis 2 <sup>7</sup>	Main Major	Byte	Major version number	X	X	X
	2 <sup>8</sup> bis 2 <sup>15</sup>	Main Minor	Byte	Minor version number	X	X	X
	2 <sup>16</sup> bis 2 <sup>23</sup>	DSP Major	Byte	Major version number DSP Programm	X	X	X
	2 <sup>24</sup> bis 2 <sup>31</sup>	DSP Minor	Byte	Minor version number DSP Programm	X	X	X

Device Information								
Register	Meaning		Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
0003h R	Hardware version		DWORD		planned			
	2 <sup>0</sup> bis 2 <sup>7</sup>	Main Major	Byte		Major version number	-	-	-
	2 <sup>8</sup> bis 2 <sup>15</sup>	Main Minor	Byte		Minor version number	-	-	-
	2 <sup>16</sup> bis 2 <sup>23</sup>		Byte		not assigned			
	2 <sup>24</sup> bis 2 <sup>31</sup>		Byte		not assigned			

Device Status								
Register	Meaning		Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
0100 h R	Systemstatus		DWORD, bitcodiert					
	2 <sup>0</sup>	System OK			0: System faulty 1: System OK	X	X	X
	2 <sup>1</sup>	Self supervision OK			0: Fault detect by self-supervision 1: Self-supervision OK	X	X	X
	2 <sup>2</sup>	Key Switch Local/ Remote			0: Switching allowed locally only 1: Switching allowed only by way of SCADA system or digital inputs	X	X	X
	2 <sup>3</sup>	Operating mode			0: inactive 1: active	X	X	X
	2 <sup>4</sup>	Calibration mode			0: inactive 1: active	X	X	X
	2 <sup>5</sup>	Commissioning mode			0: inactive 1: active	X	X	X
	2 <sup>6</sup>	Parameter setting mode			0: inactive 1: active	X	X	X
	2 <sup>7</sup>	Information blocking			0: Information readable 1: Information not readable, blocked	X	X	X
	2 <sup>8</sup>	Protection ready			0: Protection not ready 1: Protection ready	X	X	X
	2 <sup>9</sup> - 2 <sup>12</sup>	Active protection parameter set			0000b = reserved, 0001b = Protection parameter set 1 active, 0010b = Protection parameter set 2 active, 0011b = Protection parameter set 3 active, 0100b = Protection parameter set 4 active, 0101b – 1111b = reserved	X	X	X
	2 <sup>13</sup>	Acknowledgement			0: Acknowledgement not necessary 1: Acknowledgement necessary (with trip for release of control system)	X	X	X
	2 <sup>14</sup>	Self-supervision current-measuring			(planned) 0: Current recording o.k. 1: Current recording defective	-	-	-
	2 <sup>15</sup>	Self-supervision voltage measuring			(planned) 0: Voltage recording o.k. 1: Voltage recording defective	-	-	-
	2 <sup>16</sup>	Self-supervision field of rotation			(planned) 0: r.h. field of rotation 1: l.h. field of rotation	-	-	-
	2 <sup>17</sup>	Device Start			0: Device not yet ready for operation 1: Device ready for operation	X	X	X
	2 <sup>18</sup>	LED Test			0: LED Test inactive 1: LED Test active	X	X	X

Device Status								
Register	Meaning		Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
	2 <sup>19</sup>	Signal relay test			0: Relay test inactive 1: Relay test active	X	X	X
	2 <sup>20</sup>	Overflow pos. active energy			1: Energy meter overflow	X	X	-
	2 <sup>21</sup>	Overflow neg. active energy			1: Energy meter overflow	X	X	-
	2 <sup>22</sup>	Overflow pos. reactive energy			1: Energy meter overflow	X	X	-
	2 <sup>23</sup>	Overflow neg. reactive energy			1: Energy meter overflow	X	X	-
	2 <sup>24 to 2<sup>31</sup></sup>				(not assigned)			

Register	Meaning	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
0101h R	Protection and control status	DWORD, bit-coded					
	2 <sup>0</sup> General protection alarm			0: no alarm 1: protection alarm	X	X	X
	2 <sup>1</sup> General protection trip			0: no trip 1: protection trip	X	X	X
	2 <sup>2</sup> Phase fault forward			0: no phase fault in forward direction 1: phase fault in forward direction	X	X	X
	2 <sup>3</sup> Phase fault backward			0: no phase fault in backward direction 1: phase fault in backward direction	X	X	X
	2 <sup>4</sup> Earth fault forward			0: no earth fault in forward direction 1: earth fault in forward direction	X	X	X
	2 <sup>5</sup> Earth fault backward			0: no earth fault in backward direction 1: earth fault in backward direction	X	X	X
	2 <sup>6</sup> SCI-FO Fault			0: No Fibre Optic fault 1: Fibre Optic fault	-	-	X
	2 <sup>7</sup> Protection signal transmission received			(planned) 0: no rear interlocking received 1: rear interlocking received	-	-	-
	2 <sup>8</sup> Alarm in L1			0: no protection alarm in phase L1 1: protection alarm by phase L1	X	X	X
	2 <sup>9</sup> Alarm in L2			0: no protection alarm in phase L2 1: protection alarm by phase L2	X	X	X
	2 <sup>10</sup> Alarm in L3			0: no protection alarm in phase L3 1: protection alarm by phase L3	X	X	X
	2 <sup>11</sup> Alarm in N			0: no protection alarm in phase neutral 1: alarm in phase neutral	X	X	X
	2 <sup>12</sup> Trip in L1			0: no protection trip in phase L1 1: protection trip in phase L1	X	X	X
	2 <sup>13</sup> Trip in L2			0: no protection trip in phase L2 1: protection trip in phase L2	X	X	X
	2 <sup>14</sup> Trip in L3			0: no protection trip in phase L3 1: protection trip in phase L3	X	X	X
	2 <sup>15</sup> Trip in N			0: no protection trip in phase neutral 1: protection trip in phase neutral	X	X	X
	2 <sup>16</sup> Local CBF			0: no local circuit breaker failure 1: local circuit breaker failure	X	X	X
	2 <sup>17</sup> Extern. CBF			0: no external circuit breaker failure 1: external circuit breaker failure	X	X	X

Register	Meaning	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
0101h R	Protection and control status	DWORD, bit-coded					
	2 <sup>18</sup> to 2 <sup>22</sup>			not assigned			
	2 <sup>23</sup>	Switching device fail		0: no defect on a switching device 1: malfunction in one of the switching elements	X	X	X
	2 <sup>24</sup>	Interlocking		0: switching command accepted 1: switching command could not be carried out, interlocking condition failed	X	X	X
	2 <sup>25</sup>	Emergency-OFF		0: no CB-Off by Emergency-Off 1: CB-Off by Emergency-Off	X	X	X
	2 <sup>26</sup> to 2 <sup>31</sup>			not assigned			



Register	Meaning	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
0102 h R	Status of digital inputs and output commands for signal relays	DWORD, bit-coded					
	2 <sup>0</sup>	Digital input 11		0: inactive 1: active	X	X	X
	2 <sup>1</sup>	Digital input 12		0: inactive 1: active	X	X	X
	2 <sup>2</sup>	Digital input 13		0: inactive 1: active	X	X	X
	2 <sup>3</sup>	Digital input 14		0: inactive 1: active	X	X	X
	2 <sup>4</sup>	Digital input 15		0: inactive 1: active	X	X	X
	2 <sup>5</sup>	Digital input 16		0: inactive 1: active	X	X	X
	2 <sup>6</sup>	Digital input 17		0: inactive 1: active	X	X	X
	2 <sup>7</sup>	Digital input 18		0: inactive 1: active	X	X	X
	2 <sup>8</sup>	Digital input 19		0: inactive 1: active	X	X	X
	2 <sup>9</sup>	Digital input 20		0: inactive 1: active	X	X	X
	2 <sup>10</sup>	Digital input 21		0: inactive 1: active	X	X	X
	2 <sup>11</sup>	Digital input 22		0: inactive 1: active	X	X	X
	2 <sup>12</sup>	Digital input 23		0: inactive 1: active	-	X	-
	2 <sup>13</sup>	Digital input 24		0: inactive 1: active	-	X	-
	2 <sup>14</sup>	Digital input 25		0: inactive 1: active	-	X	-
	2 <sup>15</sup>	Digital input 26		0: inactive 1: active	-	X	-
	2 <sup>16 to 2<sup>23</sup></sup>			not assigned			
	2 <sup>24</sup>	Status command output 1		0: not set 1: set	X	X	X
	2 <sup>25</sup>	Status command output 2		0: not set 1: set	X	X	X
	2 <sup>26</sup>	Status command output 3		0: not set 1: set	X	X	X
	2 <sup>27</sup>	Status command output 4		0: not set 1: set	X	X	X

Register	Meaning	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
0102h R	Status of digital inputs and output commands for signal relays	DWORD, bit-coded					
	2 <sup>28</sup> Status command output 5			0: not set 1: set	X	X	X
	2 <sup>29</sup> Status command output 6			0: not set 1: set	X	X	X
	2 <sup>30</sup> Status command output 7			0: not set 1: set	X	X	X
	2 <sup>31</sup>			not assigned			

Register	Meaning	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
0103 h R	Read status bits for release of switching devices	DWORD, bit-coded					
	2 <sup>0</sup> Ext CB 1 OFF			0: 1: CB 1 was switched off via digital input	X	X	X
	2 <sup>1</sup> - 2 <sup>15</sup>			not assigned			
	2 <sup>16</sup> Release marker Ext CB 1 on			0: CB 1 not released 1: CB1 can be switched on via digital input.	X	X	X
	2 <sup>17</sup> - 2 <sup>31</sup>			not assigned			

Register	Meaning	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
0104 h R	Over-, short-circuit current steps	DWORD, bit-coded					
	2 <sup>0</sup> Function l>			0: not activated 1: ready	X	X	X
	2 <sup>1</sup> Function l>>			0: not activated 1: ready	X	X	X
	2 <sup>2</sup> Function l>>>			0: not activated 1: ready	X	X	-
	2 <sup>3</sup> Alarm l>			1: Alarm l> - step	X	X	X
	2 <sup>4</sup> Alarm l>>			1: Alarm l>> - step	X	X	X
	2 <sup>5</sup> Alarm l>>>			1: Alarm l>>> - step	X	X	-
	2 <sup>6</sup> Trip l>			1: Trip l> - step	X	X	X
	2 <sup>7</sup> Trip l>>			1: Trip l>> - step	X	X	X
	2 <sup>8</sup> Trip l>>>			1: Trip l>>> - step	X	X	-
	Earth current steps	bit-coded					
	2 <sup>9</sup> Function le>			0: not activated 1: ready	X	X	X
	2 <sup>10</sup> Function le>>			0: not activated 1: ready	X	X	X
	2 <sup>11</sup> Alarm le>			1: Earth current Alarm le> - step	X	X	X
	2 <sup>12</sup> Alarm le>>			1: Earth current Alarm le>> - step	X	X	X
	2 <sup>13</sup> Trip le>			1: Earth current Trip le> - step	X	X	X
	2 <sup>14</sup> Trip le>>			1: Earth current Trip le>> - step	X	X	X
	Negative phase sequence (I 2) step	bit-coded		(not <i>CSP2-L</i> )			
	2 <sup>15</sup> Function I2>			0: not activated 1: ready	X	X	-
	2 <sup>16</sup> Function I2>>			0: not activated 1: ready	X	X	-
	2 <sup>17</sup> Alarm I2>			1: Alarm NPS I2> - step	X	X	-
	2 <sup>18</sup> Alarm I2>>			1: Alarm NPS I2>> - step	X	X	-
	2 <sup>19</sup> Trip I2>			1: Trip NPS I2> - step	X	X	-
	2 <sup>20</sup> Trip I2>>			1: Trip NPS I2>> - step	X	X	-

Register	Meaning	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
	Thermal replica	bit-coded					
	2 <sup>21</sup> Function theta> (ϑ)			0: not activated 1: ready	X	X	X
	2 <sup>22</sup> Alarm theta>			1: Alarm thermal replica	X	X	X
	2 <sup>23</sup> Trip theta>			1: Trip thermal replica	X	X	X
	Control circuit supervision	bit-coded					
	2 <sup>24</sup> Function CCS			0: not activated 1: ready	X	X	X
	2 <sup>25</sup> Alarm CCS			1: Control circuit supervision, defect in one of the selected control circuits	X	X	X
	Fuse Failure (VT) supervision	bit-coded					
	2 <sup>26</sup> Function fuse failure			0: not activated 1: ready	X	X	X
	2 <sup>27</sup> Alarm fuse failure			1: Voltage transformer supervision, voltage transformer defective	X	X	X
	Line differential protection						
	2 <sup>28</sup> Function Idiff>			0: not activated 1: ready	-	-	X
	2 <sup>29</sup> Trip Idiff>			1: Trip Idiff>.-.step	-	-	X
	2 <sup>30</sup> Function Idiff>>			0: not activated 1: ready	-	-	X
	2 <sup>31</sup> Trip Idiff>>>			Trip Idiff>>>.-.step	-	-	X

Register	Meaning	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
0105 h R	Under- and over-voltage steps						
	2 <sup>0</sup> Function U<			0: not activated 1: ready	X	X	X
	2 <sup>1</sup> Function U<<			0: not activated 1: ready	X	X	X
	2 <sup>2</sup> Function U>			0: not activated 1: ready	X	X	X
	2 <sup>3</sup> Function U>>			0: not activated 1: ready	X	X	X
	2 <sup>4</sup> Alarm U<			1: Alarm undervoltage U<	X	X	X
	2 <sup>5</sup> Alarm U<<			1: Alarm undervoltage U<<	X	X	X
	2 <sup>6</sup> Alarm U>			1: Alarm overvoltage U>	X	X	X
	2 <sup>7</sup> Alarm U>>			1: Alarm overvoltage U>>	X	X	X
	2 <sup>8</sup> Trip U<			1: Trip undervoltage U<	X	X	X
	2 <sup>9</sup> Trip U<<			1: Trip undervoltage U<<	X	X	X
	2 <sup>10</sup> Trip U>			1: Trip overvoltage U>	X	X	X
	2 <sup>11</sup> Trip U>>			1: Trip overvoltage U>>	X	X	X
	Residual voltage steps	bit-coded					
	2 <sup>12</sup> Function Ue>			0: not activated 1: ready	X	X	X
	2 <sup>13</sup> Function Ue>>			0: not activated 1: ready	X	X	X
	2 <sup>14</sup> Alarm Ue>			1: Alarm residual voltage Ue>	X	X	X
	2 <sup>15</sup> Alarm Ue>>			1: Alarm residual voltage Ue>>	X	X	X
	2 <sup>16</sup> Trip Ue>			1: Trip residual voltage Ue>	X	X	X
	2 <sup>17</sup> Trip Ue>>			1: Trip residual voltage Ue>>	X	X	X
	Frequency steps						
	2 <sup>18</sup> Function f1			0: not activated 1: ready	X	X	-
	2 <sup>19</sup> Function f2			0: not activated 1: ready	X	X	-
	2 <sup>20</sup> Function f3			0: not activated 1: ready	X	X	-
	2 <sup>21</sup> Function f4			0: not activated 1: ready	X	X	-
	2 <sup>22</sup> U< Freq. Block			1: Frequency blocked by sep. undervoltage recording	X	X	-
	2 <sup>23</sup> Alarm f1			1: Alarm frequency step 1	X	X	-
	2 <sup>24</sup> Alarm f2			1: Alarm frequency step 2	X	X	-
	2 <sup>25</sup> Alarm f3			1: Alarm frequency step 3	X	X	-
	2 <sup>26</sup> Alarm f4			1: Alarm frequency step 4	X	X	-
	2 <sup>27</sup> Trip f1			1: Trip frequency step 1	X	X	-
	2 <sup>28</sup> Trip f2			1: Trip frequency step2	X	X	-
	2 <sup>29</sup> Trip f3			1: Trip frequency step 3	X	X	-
	2 <sup>30</sup> Trip f4			1: Trip frequency step 4	X	X	-
	2 <sup>31</sup>			not assigned			

Register	Meaning	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
0106 h R	Power and reverse power steps						
	2 <sup>0</sup> Function Pr>			0: not activated 1: ready	X	X	-
	2 <sup>1</sup> Function Pr>>			0: not activated 1: ready	X	X	-
	2 <sup>2</sup> Function P>			0: not activated 1: ready	X	X	-
	2 <sup>3</sup> Function P>>			0: not activated 1: ready	X	X	-
	2 <sup>4</sup> Alarm Pr>			1: Alarm reverse power protection Pr>	X	X	-
	2 <sup>5</sup> Alarm Pr>>			1: Alarm reverse power protection Pr>>	X	X	-
	2 <sup>6</sup> Alarm P>			1: Alarm power protection P>	X	X	-
	2 <sup>7</sup> Alarm P>>			1: Alarm power protection P>>	X	X	-
	2 <sup>8</sup> Trip Pr>			1: Trip reverse power protection Pr>	X	X	-
	2 <sup>9</sup> Trip Pr>>			1: Trip reverse power protection Pr>>	X	X	-
	2 <sup>10</sup> Trip P>			1: Trip power protection P>	X	X	-
	2 <sup>11</sup> Trip P>>			1: Trip power protection P>>	X	X	-
	Automatic reclos- ing	bit-coded					
	2 <sup>12</sup> Function AR			0: not activated 1: ready	X	X	X
	2 <sup>13</sup> Short term AR CB ON execute			1: CB-ON execute by short term AR	X	X	X
	2 <sup>14</sup> Long-term AR CB ON execute			1: CB ON execute by long-term AR	X	X	X
	2 <sup>15</sup> AR block- ing			1: AR is blocked	X	X	X
	2 <sup>16</sup> AR suc- cessful			1: AR was successful	X	X	X
	2 <sup>17</sup> AR not successful			1: AR was not successful	X	X	X
	2 <sup>18</sup> AR is run- ning			1: AR is running	X	X	X
	2 <sup>19</sup> to 2 <sup>31</sup>			not assigned			

### Command output for switching device

When this Register is read, 0 is always returned.

Register	Meaning	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
0200 h W	Switching device control	DWORD, bit-coded					
	2 <sup>0</sup> -2 <sup>1</sup> Control switchgear 1			00b: no action 01b: Switching command switchgear 1 off- 10b: Switching command switchgear 1 on - 11b: reserved	X	X	X
	2 <sup>2</sup> -2 <sup>3</sup> Control switchgear 2			00b: no action 01b: Switching command switchgear 2 off- 10b: Switching command switchgear 2 on - 11b: reserved	X	X	X
	2 <sup>4</sup> -2 <sup>5</sup> Control switchgear 3			00b: no action 01b: Switching command switchgear 3 off- 10b: Switching command switchgear 3 on - 11b: reserved	X	X	X
	2 <sup>6</sup> -2 <sup>7</sup> Control switchgear 4			00b: no action 01b: Switching command switchgear 4 off- 10b: Switching command switchgear 4 on - 11b: reserved	X	X	X
	2 <sup>8</sup> -2 <sup>9</sup> Control switchgear 5			00b: no action 01b: Switching command switchgear 5 off- 10b: Switching command switchgear 5 on - 11b: reserved	X	X	X
	2 <sup>10</sup> to 2 <sup>15</sup>			not assigned			
	2 <sup>16</sup> to 2 <sup>31</sup>			not assigned			



### Release of switching devices (only with configured switching commands on digital inputs)

When this Register is read, 0 is always returned.

Register	Meaning	Data format	Unit	Remark	CSP2-F3	CSP2-F5	CSP2-L
0201 h W	Release of switching devices	DWORD, bit-coded					
	$2^0$ Release marker Ext CB 1 on			0: not released 1: Release for the digital input with the function "Ext CB 1 on"	X	X	X
	$2^1$ - $2^{15}$			not assigned			
	$2^{16}$ - $2^{31}$			not assigned			

### Unsafe commands to set signal outputs

When this Register is read, 0 is always returned.

Register	Meaning	Data format	Unit		CSP2-F3	CSP2-F5	CSP2-L
0300 h W	Unsafe command output for signal relays	DWORD, bit-coded					
	2 <sup>0</sup> -2 <sup>1</sup> SCADA: Cmd out 1			00b : No reaction 01b : Setting the command output 1 10b : Resetting the command output 1 11b : reserved	X	X	X
	2 <sup>2</sup> -2 <sup>3</sup> SCADA: Cmd out 2			00b : No reaction 01b : Setting the command output 2 10b : Resetting the command output 2 11b : reserved	X	X	X
	2 <sup>4</sup> -2 <sup>5</sup> SCADA: Cmd out 3			00b : No reaction 01b : Setting the command output 3 10b : Resetting the command output 3 11b : reserved	X	X	X
	2 <sup>6</sup> -2 <sup>7</sup> SCADA: Cmd out 4			00b : No reaction 01b : Setting the command output 4 10b : Resetting the command output 4 11b : reserved	X	X	X
	2 <sup>8</sup> -2 <sup>9</sup> SCADA: Cmd out 5			00b : No reaction 01b : Setting the command output 5 10b : Resetting the command output 5 11b : reserved	X	X	X
	2 <sup>10</sup> - 2 <sup>11</sup> SCADA: Cmd out 6			00b : No reaction 01b : Setting the command output 6 10b : Resetting the command output 6 11b : reserved	X	X	X
	2 <sup>12</sup> - 2 <sup>13</sup> SCADA: Cmd out 7			00b : No reaction 01b : Setting the command output 7 10b : Resetting the command output 7 11b : reserved	X	X	X
	2 <sup>14</sup> to 2 <sup>15</sup>			not assigned			
	2 <sup>16</sup> to 2 <sup>31</sup>			not assigned			

## Resetting and acknowledgement commands, parameter set switch-over

When this Register is read, 0 is always returned.

Register	Meaning	Data format	Unit	Register	CSP2-F3	CSP2-F5	CSP2-L
0301 h W	Resetting and acknowledgement commands, parameter set switch-over	DWORD, bit-coded					
	$2^0$	Acknowledgement		0: No reaction 1: Resetting the display/signal relays	X	X	X
	$2^1$			not assigned			
	$2^2$ to $2^5$	command to activate protection sets		Date to activate one of the protection sets: 0001b = Protection parameter set 1 active, 0010b = Protection parameter set 2 active, 0011b = Protection parameter set 3 active, 0100b = Protection parameter set 4 active,	X	X	X
	$2^6$			not assigned			
	$2^7$			not assigned			
	$2^8$	Resetting the total of the short-circuit currents		0: No reaction 1: Resetting	X	X	X
	$2^9$	Resetting the AR switching cycles		0: No reaction 1: Resetting	X	X	X
	$2^{10}$	Resetting the switching cycles		0: No reaction 1: Resetting	X	X	X
	$2^{11}$	Resetting the energy meter		0: No reaction 1: Resetting	X	X	-
	$2^{12}$	Resetting the thermal replica		0: No reaction 1: Resetting	X	X	X
	$2^{13}$	Resetting the operating hours		0: No reaction 1: Resetting	X	X	X
	$2^{14}$			not assigned			
	$2^{15}$			not assigned			
	$2^{16}$ to $2^{31}$			not assigned			

Transfer new time setting								
Register	Meaning		Data format	Unit	Remarks	CSP2-F3	CSP2-F5	CSP2-L
0302h W	New time		DWORD	ms	ms of the day from 0.00 (midnight).	X	X	X

Transfer new date setting								
Register	New Date		Date Format	Unit	Remarks	CSP2-F3	CSP2-F5	CSP2-L
	2 <sup>1</sup> - 2 <sup>15</sup>	Date	Word	DAY	Days from 01.01.1990	X	X	X
	2 <sup>16</sup> - 2 <sup>31</sup>				not assigned			

Set clock								
For setting the clock it is necessary to first write the date and time in the Registers 0302h and 0303h. After that this time becomes active in the device by writing the »Set clock« command.								
Register	Set clock		bit-coded			CSP2-F3	CSP2-F5	CSP2-L
	2 <sup>0</sup>				0: no function 1: set clock	X	X	X
	2 <sup>31</sup>				not assigned			



**This description is temporary. It is subject to continuous further processing (without prior notice). In case of questions please contact:**



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