Digital Valve Control (with DIN 157301-803 connection); Design A)
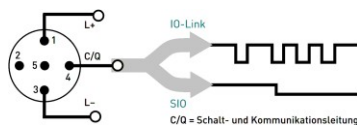
Technical data	
Rated voltage	24VDC (10 – 30 VDC)
Output current	Max. 500mA (dependent on master)
Self-consumption	< 10mA
Ambient temperature	-25°C – 80°C
Protection class	IP65, IP67

IO link	
Connection	M12 connector (3 pin)
IO link Revision	V 1.1
Data transfer rate	COM 2
Cycle time	12.8ms
Process data	4/4 byte
SIO mode	No

Pin Layout

Pin 1:   24 V
Pin 3:   0 V
Pin 4:   Switch and communication line (C/Q)
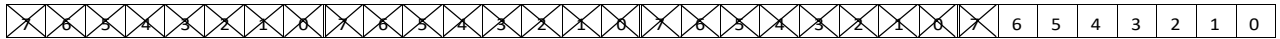(IEC 60974-5-2)

Functions

Identification
PWM control
Switch cycle
counter
Remote diagnosis
Temperature sensor
LED colour settings incl. FindMe

Warning functions

Overflow, counters 1 or 2
Temperature exceedance
Current monitor, short circuit and overcurrent detection
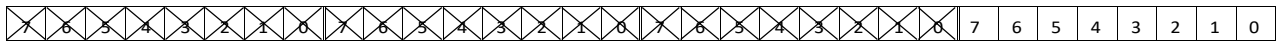Voltage monitoring

PDI – Process Data Input

Bit	Flag
6	Counter 2 overrun
5	Counter 1 overrun
4	Overcurrent alert
3	Overheat alert
2	Open-circuit detection
1	Short-circuit detection
0	Valve state

PDO – Process Data Output

Bit	Flag
1-7	PWM DC
0	Valve ON/OFF

ISDU parameters

Overview table

Index	Bit Length	Variable	Quantities Unit	Default Value	Read Write
80	32	Counter_1		0	R
81	32	Counter_1_Limit		0	RW
82	32	Counter_2		0	RW
83	32	Counter_2_Limit		0	RW
100	16	Supply_Voltage		0	R
101	16	Switch_ON_Resistance	Ω	0	R
102	8	PWM_DC	%	50	RW
103	16	PWM_Pull_Time	ms	150	RW
104	16	Output_Curent	mA	0	R
105	16	Max_Curent	mA	600	RW
106	16	Temp	°C	0	R
112	16	Max_Temp	°C	85	RW
113	16	Overheated		0	RW
114	3	LED_Switched_off		5	RW
115	3	LED_Switched_on		2	RW
116	3	LED_Alert		4	RW
117	1	LED_Alert_Blink		1	RW
118	1	LED_Findme		0	RW

ISDU parameters

Index 80

| Variable: | Switching cycle counter 1 | 0x50 | R |
| Quantity unit | - | | |

7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0

This counter counts each output switching on. This variable cannot be erased or adjusted.

Index 81

| Variable | Limit value of the switching cycle counter 1 | 0x51 | RW |
| Quantity unit | - | | |

7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0

A limit value can be determined for switching cycle counter 1. The aim of this parameter is to transmit a warning if this value is exceeded by switching cycle counter 1. See process parameter.

Index 82

| Variable: | Switching cycle counter 2 | 0x52 | RW |
| Quantity unit | - | | |

7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0

This counter counts each output switching on. This variable can be erased or adjusted. Variable can be reset to zero when replacing coil or valve.

Index 83

| Variable | Limit value of the switching cycle counter 2 | 0x53 | RW |
| Quantity unit | - | | |

7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0

A limit value can be determined for switching cycle counter 2. The aim of this parameter is to transmit a warning if this value is exceeded by switching cycle counter 2. See process parameter.

Index 100

| Variable | Supply voltage | 0x64 | R |
| Quantity unit | mV | | |

7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0

The supply voltage of the connector is displayed. Used for diagnostic purposes. Variable is read-only.

Index 101

Variable	Switch-on resistance	0x65	R
Quantity unit	Ohm		

7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0

Variable indicates the resistance of the load at the output. The value is updated at each switch-on. The value is calculated from the current supply voltage and the attraction current (in accordance with the pull-in transient). Value is used for diagnostic purposes. Variable is read-only.

Index 102

Variable	Pulse ratio	0x66	RW
Quantity unit	%		

7	6	5	4	3	2	1	0

This variable determines the On/Off ratio of the PWM signal. This variable is determined automatically by the process data. See process data (PDO)

Index 103

Variable	Attraction duration	0x67	RW
Quantity unit	msec		

7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0

This variable determines the attraction time in PWM mode.

Index 104

Variable	Output current	0x68	R
Quantity unit	mA		

The output current of the connector is shown. Used for diagnostic purposes. Variable is read-only.

Index 105

Variable	Maximum output current (limit)	0x69	R
Quantity unit	mA		

7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0

A limit value can be determined for the current. The aim of this parameter is to transmit a warning when this value is exceeded by the actual current. See process parameter.

Index 106

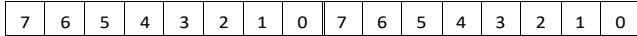| Variable	Temperature	0x6A	R
Quantity unit	°C		

7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0

The connector is fitted with a temperature sensor. This variable indicates the temperature of the connector. Variable is read-only. Only approximate value.

Variable	Temperature limit	0x70	RW
Quantity unit	°C		

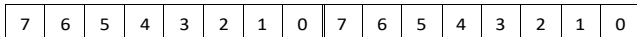| 7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0

A temperature limit value can be defined. The aim of this parameter is to transmit a warning when this value is exceeded by the actual temperature. See process parameter.

Index 113

Variable	Overheating	0x71	R
Quantity unit	-		

7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0

This variable returns the overheating incidence quantity. How many times the connector has exceeded the preset temperature.

Index 114

Variable	LED colour in Off status	0x72	RW
Quantity unit	-		

X	X	X	X	X	2	1	0

A different LED colour can be set for the Off status. For setting, see LED colours.

Index 115

Variable	LED colour in On status	0x73	RW
Quantity unit	-		

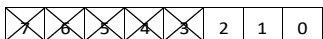| X	X	X	X	X	2	1	0

A different LED colour can be set for the On status. For setting, see LED colours.

Index 116

Variable	LED colour in case of a warning	0x74	RW
Quantity unit	-		

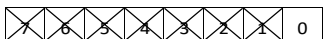| X	X	X	X	X	2	1	0

A different LED colour can be set for the case of a warning. For setting, see LED colours.

Index 117

Variable	LED flashing in case of a warning	0x75	RW
Quantity unit	-		

X	X	X	X	X	X	X	0

LED colour can be set to flash for the case of a warning. 0x00 for not flashing, 0x01 for flashing.

Variable	LED colour for FindMe	0x76
Quantity unit	-	

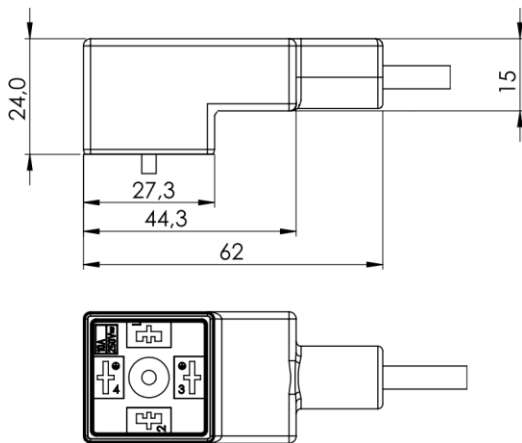| 7	6	5	4	3	2	1	0
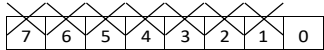
To find and identify the connector in the system, this variable can be set to 1 (0x01). In this case, the LEDs flash through all colours in turn.

LED colours

0	LED switched off
1	Blue
2	Green
3	Cyan
4	Red
5	Magenta
6	Yellow
7	White

Dimensions

Cable length: n.a.