Leuze

IO-Link interface description

DRT25C

Dynamic reference diffuse sensor

The Sensor People

We reserve the right to make technical changes
EN • 2020-02-24 • 50144073

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1 IO-Link interface

Sensors in the DRT25C…/L… variant have a dual channel architecture. Available on pin 4 is the IO-Link interface in accordance with specification 1.1.2 (July 2013) with support of Smart Sensor Profile 1.0 (March 2017) with profile type SSP 2.4. You can easily, quickly and economically configure the devices via the IO-Link interface. Furthermore, the sensor transmits the process data via the IO-Link interface and makes diagnostic information available through it.

In parallel with the IO-Link communication, the sensor can output the continuous switching signal for object detection on pin 2 (SSC2 by default) by means of the dual channel architecture. The IO-Link communication does not interrupt this signal.

1.1 IO-Link identification

VendorID dec/hex	DeviceID dec/hex	Device
338/0x152	2140/0x00085C	DRT25C.3/L6
	2141/0x00085D	DRT25C.3/LW
	2142/0x00085E	DRT25C.3/LT

Please refer to the respective product data sheet for the identification data of other IO-Link devices.

1.2 IO-Link process data

Device input data (PDin)

Data bit	Assignment	Meaning
0	Deactivation	0: transmitter active 1: transmitter not active
1	Not assigned	Free
2	Not assigned	Free
3	Not assigned	Free
4	Not assigned	Free
5	Not assigned	Free
6	Not assigned	Free
7	Not assigned	Free

Device output data (PDout)

Data bit	Assignment	Meaning
0	Switching signal SSC1	0: not active 1: active
1	Not assigned	Free
2	Not assigned	Free
3	Sensor operation	Sensor operation off when detection is not possible (e.g if deactivated or during the teach event) 0: off 1: on
4	Signal	Signal strength as indicator for object detection 0: insufficient signal 1: sufficient signal
5	Warning	Warning output autoControl (object-clocked) 0: no warning 1: warning
6	Not assigned	Free
7	Not assigned	Free

1.3 Device-specific IODD

At **www.leuze.com** in the download area for IO-Link sensors you will find the IODD zip file with all data required for the installation.

On the IODDfinder platform (https://ioddfinder.io-link.com/#/), a central cross-manufacturer database, you can also find the description files (IODDs) of the IO-Link sensors.

1.4 IO-Link parameters documentation

The complete description of the IO-Link parameters can be found in the *.html files. Double-click on a language variant:

- German: *IODD*-de.html
- English: *IODD*-en.html

2 Functions configurable via IO-Link

PC configuration and visualization is performed comfortably with the USB-IO-Link Master SET US2-IL1.1 (part no. 50121098) and the *Sensor Studio* configuration software (in the download area of the sensor at **www.leuze.com**).

System commands

NOTICE

The system commands trigger an action in the device.

Parameter	Index	Sub-index	Data type, octets	Access	Value range	Default	Explanation
System command	2	0	UIntegerT, 1	WO	65, 128, 130		65: Execute SP teach 128: Reset device 130: Reset to factory settings

General configuration

Parameter	Index	Sub-index	Data type, octets	Access	Value range	Default	Explanation
Device Access Locks	12	0	UIntegerT, 2	RW	0, 8	0	0: teach button not locked 8: teach button locked
SSC1 Config - Logic	57	0	UIntegerT, 1	RW	0, 1	0	0: SSC1 not inverted 1: SSC1 inverted In the factory setting, output SSC1 is configured as light switching.
Teach Threshold Select	65	0	IntegerT, 1	RW	1 … 3	1	Selection option of switching thresholds: 1: Teach 1 Robust (high tolerance to soiling) 2: Teach 2 Standard (normal sensitivity) 3: Teach 3 Sensitive (high sensitivity)
Tracking Amplification Warning	100	0	UIntegerT, 2	RW	100 … 1 000	950	The warning output activates as soon as the total adjustment range is exceeded. To switch off this function, the value must be set to 1000. The standard setting is 950, which corresponds to 95% of the adjustment range. For a setting with higher sensitivity we recommend a value below 950.
Analysis Depth	190	0	IntegerT, 1	RW	1 … 100	6	1 … 100: Range of analysis depth Analysis depth: to suppress interference, changing of the switching output is delayed by this number of identical measurement results. The default setting in the factory settings refers to the specified response time in the device data sheet.

Parameter	Index	Sub-index	Data type, octets	Access	Value range	Default	Explanation
Tracking Enable	191	0	BooleanT, 1	RW	0, 1	1	0: tracking not active 1: tracking active *Tracking* function: The sensor measures the received signal level continuously. System contamination on the reference surface and/or sensor reduces the signal and can then be compensated automatically. The control rate depends on the number of gaps in the process. The tracking function increases the interval between cleaning sessions.
TimeModule Enable	192	0	BooleanT, 1	RW	0, 1	0	0: time module not active (off) 1: time module active (on) Time module: *On* (1) activates the internal time function.
TimeModule Function	193	0	UIntegerT, 1	RW	0 … 3	0	0: Switch-on delay 1: Switch-off delay 2: Pulse stretching 3: Pulse suppression Function selection of the switching delay: activation of a suitable switching delay is possible. It is not possible to combine switching delays.
TimeModule Time	194	0	UIntegerT, 2	RW	1 … 500 00	200	Definition of the time basis in 100 µs increments, configurable from 100 µs to 5000 ms
Object Count	195	0	UIntegerT, 4	RW	0 … 429 4967295	0	Object counter: The device has an internal, volatile object counter. This counts the switching events and can be freely read out, edited and reset. This function enables a simple validation of the process. As soon as the object counter has reached the maximum end value, the count process starts over again at 0.
Temperature	220	0	IntegerT, 2	RO			The device is equipped with an integrated temperature sensor for transmitting the internal temperature in 1/10 °Celsius.
Button function level 1	241	0	IntegerT, 1	RW	0 … 10	1	Assignment of teach level 1 (2 … 7 s) via the teach button: 0: no function 1: Teach 1 Robust 2: Teach 2 Standard 3: Teach 3 Sensitive 4: Teach 4 available 5: Teach 5 available 6: Teach 6 available 7: Teach 7 available 8: Teach 8 available 9: Teach 9 available 10: Teach 10 available

Parameter	Index	Sub-index	Data type, octets	Access	Value range	Default	Explanation
Button function level 2	242	0	IntegerT, 1	RW	0 … 10	2	Assignment of teach level 2 (7 … 12 s) via the teach button: Analog to parameter *Button function level 1*
Button function level 3	243	0	IntegerT, 1	RW	0 … 10	3	Assignment of teach level 3 (> 12 s) via the teach button: Analog to parameter *Button function level 1*
Pin 4 function	251	0	UIntegerT, 1	RW	0 … 2 7, 8	1	Assignment of pin 4: 0: no function 1: SSC1 2: SSC1 inverted 7: warning 8: warning inverted
Pin 2 function	252	0	UIntegerT, 1	RW	0 … 2 7, 8	2, 7	Assignment of pin 2: Analog to parameter *Pin 4 function* The default settings are device-dependent.