



IO-Link Interface Description

54D pneumatic -1/1 analogue

EN

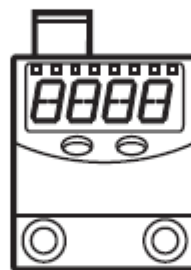
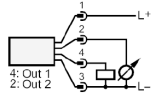



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1 Device variant

<p>54D pneumatic -1/1 analogue</p> <p>Electronic pressure sensor, -1.00...1.00 bar, G1/8 Innengewinde; M5 Innengewinde</p>		
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2 Communication

Vendor ID	0x03AE 942 d / Bytes 3d 174d
Device ID	0x0008000 32768 d / Bytes 128d 0d
Bit rate	COM2
Minimum cycle time	2,3 ms
SIO mode supported	Yes
Block parameterization	Yes
Data storage	Yes
Supported profiles	Smart Sensor Profil Device Identification Process Data Variable



NOTE:

If the Vendor ID and Device ID is referenced in your PLC system, then it is ensured that

- the connected Device type is correct
- the IO-Link datastorage is enabled
- your application is still able to work, even your Device has been exchanged with a successor model.



For process value update rate, as well as further information concerning sensor performance, see datasheet

3 Parameter overview

Parameter	Index	Subindex	Type	Factory setting
Device Access Locks	12		RecordT (16 Bit)	0
Vendor name	16		StringT (64 Byte)	IMI Norgren
Product Name	18		StringT (64 Byte)	54D pneumatic -1/1 analogue
Product Text	20		StringT (64 Byte)	pressure sensor
Serial Number	21		StringT (16 Byte)	
Hardware Version	22		StringT (64 Byte)	
Firmware Version	23		StringT (64 Byte)	
Application Specific Tag	24		StringT (16 Byte)	
Process data input	40		RecordT (16 Bit)	
SP-FH1	67		IntegerT (16 Bit)	-50
rP-FL1	68		IntegerT (16 Bit)	-54
cLor	73		UIntegerT (8 Bit)	0 (r-on / The colour of the display changes from g...
COF	74		IntegerT (16 Bit)	0
dAP	75		UIntegerT (8 Bit)	0 (6 ms)
diS	76		RecordT (16 Bit)	
dS1	77		UIntegerT (16 Bit)	0
dr1	78		UIntegerT (16 Bit)	0
LO	81		IntegerT (16 Bit)	
HI	82		IntegerT (16 Bit)	
OU1	83		UIntegerT (8 Bit)	3 (Hno / Hysteresis fct normally open)
Uni	85		UIntegerT (8 Bit)	0 (bar)
SySP	86		IntegerT (16 Bit)	0
Loc	93		UIntegerT (8 Bit)	1 (uLoc / unlocked)

4 System Commands



System Command information
 - Address: Index 2, Subindex 0
 - Datatype: UInteger (8 Bit)
 - AccessRight: Write Only

System Commands	Text	Description
1	Upload Start	Start block parameter upload
2	Upload End	End block parameter upload
3	Download Start	Start block parameter download
4	Download End	Stop block parameter download
5	Store	Finalize block parameterization and start Data Storage
6	Break	Cancel block parameterization
161	Reset [HI] and [LO] memory	
162	Reset [LO] memory	
163	Reset [HI] memory	
194	Teach COF	

5 Identification

Vendor name Factory setting	Index 16 IMI Norgren	Subindex 0	StringT (64 Byte)	ReadOnly
Product Name Factory setting	Index 18 54D pneumatic -1/1 analogue	Subindex 0	StringT (64 Byte)	ReadOnly
Product Text Factory setting	Index 20 pressure sensor	Subindex 0	StringT (64 Byte)	ReadOnly
Serial Number Factory setting	Index 21	Subindex 0	StringT (16 Byte)	ReadOnly
Hardware Version Factory setting	Index 22	Subindex 0	StringT (64 Byte)	ReadOnly
Firmware Version Factory setting	Index 23	Subindex 0	StringT (64 Byte)	ReadOnly
Application Specific Tag Factory setting	Index 24	Subindex 0	StringT (16 Byte)	ReadWrite

6 Observation

6.1 Process Data Input

Process data input	Index 40	Subindex 0	RecordT (16 Bit)
Pressure			IntegerT (14 Bit)
Current pressure			
Value range [bar]	(-100 To 110) * 0.01		
	111	(OL)	
	-101	(UL)	
Switchstate [OUT2] not applicable			BooleanT
The corresponding [OUT2] bit is reserved, but not used			
Value range	false	(inactive)	
Switchstate [OUT1].			BooleanT
State depends on [OU1]			
Value range	false true	(inactive) (active)	



-Process data 2 bits right shifted gets the raw pressure data



Process data displayed according device sort order.
Please note: Siemens PLCs swap the high and low byte when using byte addressing.

7 Parameter

7.1 Output Configuration

OU1	Index 83	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Output configuration [OUT 1]				
Factory setting	3	(Hno / Hysteresis fct normally open)		
Value range	3	(Hno / Hysteresis fct normally open)		
	4	(Hnc / Hysteresis fct normally closed)		
	5	(Fno / Window fct normally open)		
	6	(Fnc / Window fct normally closed)		

7.2 Digital Output 1

SP-FH1	Index 67	Subindex 0	IntegerT (16 Bit)	ReadWrite
Switch point 1, [SP1] shall be greater than [rP1]. Please consider to the actual [rP1] value. If the [SP1] will be set below [rP1] it will be refused. [SP] = [FH] and [rP] = [FL] if [OU1] = Fno, Fnc.				
Factory setting	-50			
Value range [bar]	(-98 To 100) * 0.01			

rP-FL1	Index 68	Subindex 0	IntegerT (16 Bit)	ReadWrite
Reset point 1, [rP1] shall be smaller than [SP1]. Please consider to the actual [SP1] value. If the [rP1] will be set above [SP1] it will be refused. [rP] = [FL] and [SP] = [FH] if [OU1] = Fno, Fnc.				
Factory setting	-54			
Value range [bar]	(-99 To 99) * 0.01			

dS1	Index 77	Subindex 0	UIntegerT (16 Bit)	ReadWrite
Time delay for [SP1] / window. If the system pressure exceeds [SP1] or if the system pressure enters the acceptable range (window), the output changes the switching status when the time [dS1] has elapsed.				
Factory setting	0			
Value range [ms]	(0 To 5000) * 1			

dr1	Index 78	Subindex 0	UIntegerT (16 Bit)	ReadWrite
Time delay for [rP1] / window. If the system pressure falls below [rP1] or if the system pressure leaves the acceptable range (window), the output changes the switching status when the time [dr1] has elapsed.				
Factory setting	0			
Value range [ms]	(0 To 5000) * 1			

7.3 Memory

LO	Index 81	Subindex 0	IntegerT (16 Bit)	ReadOnly
Minimum memory value				
Value range [bar]	(-100 To 110) * 0.01			
	111	(OL)		
	-101	(UL)		

7 Parameter

HI	Index 82	Subindex 0	IntegerT (16 Bit)	ReadOnly
Maximum memory value				
Value range [bar]	(-100 To 110) * 0.01			
	111	(OL)		
	-101	(UL)		

7.4 Damping

dAP	Index 75	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Response time between process value change and change of the switching output				
Factory setting	0		(6 ms)	
Value range	0		(6 ms)	
	1		(10 ms)	
	2		(30 ms)	
	3		(60 ms)	
	4		(100 ms)	
	5		(250 ms)	
	6		(500 ms)	
	7		(1000 ms)	
	8		(2000 ms)	

7.5 Setting of the sensor display

Uni	Index 85	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Selection of unit on the sensor display				
Factory setting	0		(bar)	
Value range	0		(bar)	
	1		(kPa)	
	2		(psi)	
	3		(inHg)	

diS	Index 76	Subindex 0	RecordT (16 Bit)	ReadWrite
Display settings				
Display On / OFF				
		bitOffset 7	BooleanT	
Factory setting	false		(On)	
Value range	false		(On)	
	true		(OFF)	
Display orientation				
		bitOffset 6	BooleanT	
Factory setting	false		(Not rotated)	
Value range	false		(Not rotated)	
	true		(Rotated 180°)	
Update rate				
		bitOffset 0	UIntegerT (6 Bit)	
Factory setting	2		(d2 / medium)	
Value range	1		(d1 / fast)	
	2		(d2 / medium)	
	4		(d3 / slow)	
	32		(Ph / Peak hold)	

7 Parameter

cLor	Index 73	Subindex 0	UIntegerT (8 Bit)	ReadWrite
Colour of the digital display (permanent or alternating with switching status [OUT1]).				
Factory setting	0	(r-on / The colour of the display changes from green to red if [OUT1] is switched)		
Value range	0	(r-on / The colour of the display changes from green to red if [OUT1] is switched)		
	1	(G-on / The colour of the display changes from red to green if [OUT1] is switched)		
	2	(rEd / The colour of the display is red, does not change)		
	3	(GrEn / The colour of the display is green, does not change)		

Loc	Index 93	Subindex 0	UIntegerT (8 Bit)	ReadWrite
[Loc] locks the local user interface to prevent unintentional changes, [Loc] is resettable at the device				
Factory setting	1	(uLoc / unlocked)		
Value range	0	(Loc / locked)		
	1	(uLoc / unlocked)		

7.6 Calibration

COF	Index 74	Subindex 0	IntegerT (16 Bit)	ReadWrite
Zero-point calibration (Calibration offset)				
Factory setting	0			
Value range [%]	(-20 To 20) * 0.1			

7.7 Setup

Device Access Locks	Index 12	Subindex 0	RecordT (16 Bit)	ReadWrite
Data Storage Lock		bitOffset 1	BooleanT	
Local User Interface Lock		bitOffset 3	BooleanT	
Factory setting	0			

SySP	Index 86	Subindex 0	IntegerT (16 Bit)	ReadWrite
System pressure				
Factory setting	0			
Value range [bar]	(0 To 100) * 0.1			

8 Events

Code	Device status	PQ*	Class	Name	Description
0x5000 20480d	4 (Failure)	invalid	Error	Device hardware fault	Device Exchange
0x8C10 35856d	2 (Out of specification)	valid	Warning	Process variable range over-run	Process data uncertain
0x8C30 35888d	2 (Out of specification)	valid	Warning	Process variable range under-run	Process data uncertain
0x8DFE 36350d	1 (Maintenance required)	valid	Warning	Test Event 1	Event appears by setting index 2 to value 240, Event disappears by setting index 2 to value 241
0x8DFF 36351d	1 (Maintenance required)	valid	Warning	Test Event 2	Event appears by setting index 2 to value 242, Event disappears by setting index 2 to value 243



Events are raised by the device itself to notify irregular device states
 PQ* = Process data quality

9 Error types

Code	Name	Description
0x8000 32768d	Device application error - no details	Service has been refused by the device application and no detailed information of the incident is available
0x8011 32785d	Index not available	Access occurs to a not existing index
0x8012 32786d	Subindex not available	Access occurs to a not existing subindex
0x8020 32800d	Service temporarily not available	Parameter is not accessible due to the current state of the device application
0x8023 32803d	Access denied	Write access on a read-only parameter
0x8030 32816d	Parameter value out of range	Written parameter value is outside its permitted value range
0x8033 32819d	Parameter length overrun	Written parameter length is above its predefined length
0x8034 32820d	Parameter length underrun	Written parameter length is below its predefined length
0x8035 32821d	Function not available	Written command is not supported by the device application
0x8036 32822d	Function temporarily unavailable	Written command is not available due to the current state of the device application
0x8040 32832d	Invalid parameter set	Written single parameter collides with other actual parameter settings
0x8041 32833d	Inconsistent parameter set	Parameter inconsistencies were found at the end of block parameter transfer, device plausibility check failed
0x8082 32898d	Application not ready	Read or write service is refused due to a temporarily unavailable application



Error types are used for the ISDU response. Values unequal '0' indicate the cause of a failed ISDU read or write service.

10 Unit conversion



This list provides conversion formulas to convert the transmitted IO-Link raw data into physical units.

Value in [bar]	= Transmitted value	* 0.01
Value in [kPa]	= Transmitted value	* 1
Value in [psi]	= Transmitted value	* 0.1450377
Value in [inHg]	= Transmitted value	* 0.2952998016