

# Singleturn absolute encoder

## ESS58-PN

- Industrial standard housing Ø58 mm
- **PROFINET IRT**
- 16 Bit singleturn
- Recessed hollow shaft
- Network loop through by means of integrated 2 port switch (IRT capable)
- IP address resettable
- No DIP switches for address setting
- Mechanical compatibility with all major encoders with fieldbus interface
- Status LEDs



### **Function**

In addition to the CANopen-, DeviceNet-, PROFIBUS- and AS-Interface encoders, we have broadened our product line of bus-capable absolute encoders with the ESS58 for Ethernet. Absolute rotary encoders deliver an absolute step value for each angle setting. This device has a maximum basic resolution of 65536 steps per

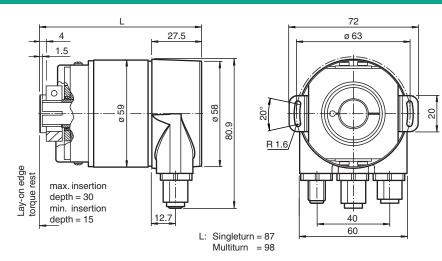
revolution (16 bits).

The Ethernet interface of this absolute encoder supports the Profinet protocol. The integrated webserver provides Java applets, which allow the whole parameterisation of the encoder via any web browser. In addition to various functions like resolution adjustment, e-mail-services, change of the IP address and many others, the following operation modes can be selected:

- Polled mode
- · Cyclic mode
- · Change of state mode

The absolute encoder is mounted directly onto the application shaft, without any coupling. Rotation of the absolute encoder is prevented by a torque rest.

### Dimensions



## **Technical Data**

#### **General specifications**

Device type

#### Detection type photoelectric sampling UL File Number product.

Singleturn absolute encoder E223176 "For use in NFPA 79 Applications only", if UL marking is marked on the

#### Functional safety related parameters



Interface type     Image: PROFINET IO       Resolution     up to 16 Bit       Overall resolution     up to 16 Bit       Physical     Ethernet       Transfer rate     100 MBit/s       Cycle time     ≤ 1 ms (IRT) ; ≤ 10 ms (RT)       Connector     Ethernet: 2 sockets M12 x 1, 4-pin, D-coded       Connector     Ethernet: 2 sockets M12 x 1, 4-pin, A-coded       Standard conformity     Ethernet: 2 sockets M12 x 1, 4-pin, A-coded       Degree of protection     DIN EN 60529, shaft side: IP64 (without shaft seal)/IP66 (with shaft seal)       Pogree of protection     DIN EN 60529, shaft side: IP64 (without shaft seal)/IP66 (with shaft seal)       Noise immunity     EN 61000-6-4:2007       Noise immunity     EN 61000-6-2:2005       Shock resistance     DIN EN 60068-2-37, no moisture condensation       Vibration resistance     DIN EN 60068-2-37, 100 g, 6 ms       Vibration resistance     DIN EN 60068-2-27, 100 g, 6 ms       Vibration resistance     DIN EN 60068-2-27, 100 g, 6 ms       Vibration resistance     DIN EN 60068-2-27, 100 g, 6 ms       Vibration resistance     DIN EN 60068-2-27, 100 g, 6 ms       Vibration resistance     DIN EN 60068-2-27, 100 g, 6 ms	Technical Data			
Mission Time (Tw)[0]20 aLin	MTTE.		130 a	
Lu     1.9 E-11 at 6000 rpm and 20140 N axiati/radial shalt load       Diagnotic Coverage (CC)     0 %       Electrical specifications     0       Operating voltage     Us     1030 V DC       Output code     binary code     Code course (counting direction)       Operating voltage     PROFINET IO     Code course descending (code/wise rotation, code course ascending)       Interface Ype     PROFINET IO     PROFINET IO       Resolution     up to 10 Bt     Up to 10 Bt       Orenating collabolities     grammable, course ascending)     Code course descending (code/wise rotation, code course ascending)       Operating resolution     up to 10 Bt     Up to 10 Bt     Profile       Orenating collabolities     Up to 10 Bt     Up to 10 Bt     Profile       Orenating collabolities     IP menté     Cometod     Ethernet     2 code       Connector     Ethernet     2 code     Statiation steaty/PEG (whith or shat seaty/PEG (whith or shat seaty/PEG (whith or shat seaty/PEG (whith or shat s	-			
Disgnostic Coverage (DC)I0 %Electrical specifications00Operating voltage00Power consumptionPower consumptionPower consumptionOutput codebinary codeCode course (counting direction)programmable, course relation, code course assenting)Interfaceprogrammable, course relation, code course assenting)Interfaceprogrammable, course relation, code course assenting)Interfaceprogrammable, course relation, code course assenting)Physical0PhysicalPower (DC) (DC) (DC) (DC) (DC) (DC) (DC) (DC)				
Electrical specifications     Un     1030 V DC       Operating voltage     Un     1030 V DC       Power consumption     Po     max.4 W       Linearity     = 6.5.138 (12 Bit),       Output code     binary code       Code course (counting direction)     in escanding (clockwise rotation, code course assending)       Interface     programmable       Interface type     extending (clockwise rotation, code course descending)       Interface type     extending (clockwise rotation, code course descending)       Single turn     up to 16 Bit       Overall resolution     up to 16 Bit       Orantil resolution     extended to mathematic       Transfer rate     100 MBit/s       Connector     file       Standard conformity     file thermet       Degree of protection     get bit NE N06329, shaft side: IP64 (withon bath seal)/P66 (with shaft seal)       Notasi interface     IDN EN N0632-3, no mosture condensation       Climatic testing     DIN EN N0632-3, no mosture condensation       Din En N0668-2-3, no mosture condensation     Ethermet       Standard conformity     Ethermet       Din En N0668-2-3, no mosture condens				
Operating voltageUa10 30 V DCPower consumptionPoe.0.5.18 (12 Bit),Output codebinary codeprogrammable, cover assending (clockwise rotation, code course ascending)) cover assending (clockwise rotation, code course ascending) cover assending (clockwise rotation, code course ascending)Interface Vup to 16 BitProvisolup to 16 BitOverall resolutionup to 16 BitPhysicalEthernetTransfer rate100 MBitsConnectorEthernetStandar CorformitEthernetBandar CorformitEthernetDegree of protectionDin N 60239, Stanlate scale version (NOX): completely IPE7Climatic testingDin N 60288-24, no moisture condensationNoise immunityEN 10100-42-2005Shock resistanceDin N 60288-24, no moisture condensationVibration resistanceDin N 60288-24, no moisture condensationNoise immunityEN 10100-42-2005Noise immunityEN 10100-42-2005Shock resistanceDin N 60268-24, 10, 1 2000 HzApperduztJune Rotace CondensationMaterialOutput: Listed, General Purpose, Class 2 Power Source , if UL marking is marked on housing is dower coated aluminum farge: attaining is astel <tr< td=""><td>• • • • •</td><td></td><td>0 /0</td></tr<>	• • • • •		0 /0	
Power consumption     Po     max. 4 W       Linearly     = 0.5.128 (12 Bit),       Output code     = binary code       Code course (counting direction)     is absending (clockwise rotation, code course ascending) ow ascending (clockwise rotation, code course ascending)       Interface     programmable, ow ascending (clockwise rotation, code course ascending)       Interface type     Imax. 4 W       Resolution     up to 16 Bit       Overall resolution     up to 16 Bit       Orderall resolution     Imax. 100 MBit's       Connector     Imax. 100 MBit's       Darge of protection     Imax. 100 MBit's	-		10 20 V DC	
Linearity 4.0.5 LSB (12 Bit),   Output code binary code   Code course (counting direction) programmable, cw asconding (clockwise rotation, code course ascending)   Interface byea PROFINET IO   Resolution up to 16 Bit   Overall resolution Ethernet   Tarasfer rata 100 MBr/sb   Connector Ethernet   Connector Ethernet   Connector Ethernet   Degree of protection Ethernet   Degree of protection DN EN 60528, ano moisture condensation   Emitted interference EN 1000-64-2007   Noise immunity EN 1000-64-2007   Operating temperature 40.	1 0 0	_		
Output code     binary code       Code course (counting direction)     programmable, course according) (code course according))       Interface     PROFINET IO       Interface type     PROFINET IO       Single turn     up to 16 Bit       Owned according (code course descending)     provide course descending)       Owned I resolution     up to 16 Bit       Connector     Ethernet 2 sockets M12 x 1, 4-pin, D-coded       Support 1 pug M12 x 1, 4-pin, A-coded     Support 1 pug M12 x 1, 4-pin, A-coded       Support 1 pug M12 x 1, 4-pin, A-coded     Support 1 pug M12 x 1, 4-pin, A-coded       Support 1 pug M12 x 1, 4-pin, A-coded     Support 1 pug M12 x 1, 4-pin, A-coded       Support 1 pug M12 x 1, 4-pin, A-coded     Support 1 pug M12 x 1, 4-pin, A-coded       Support 1 pug M12 x 1, 4-pin, A-coded     Support 1 pug M12 x 1, 4-pin, A-coded       Support 1 pug M12 x 1, 4-pin, A-coded     Support 1 pug M12 x 1, 4-pin, A-coded       Support 1 pug M12 x 1, 4-pin, A-coded     Support 1 pug M12 x 1, 4-pin, A-coded       Uta to sup a su	•	F0		
Code course (counting direction)     programmable, ow descending (clockwise rotation, code course descending)) is we descending (clockwise rotation, code course descending))       Interface type     PROFINET IO       Thestorie     PROFINET IO       Resolution     up to 16 Bit       Overall resolution     up to 16 Bit       Overall resolution     up to 16 Bit       Overall resolution     to 10 MBites       Contector     100 MBites       Contector     100 MBites       Contector     100 MBites       Contector     100 MBites       Connector     100 NBites       Standar Conformity     100 NBites       Degree of protection     Standar Conformity       Degree of protection     Ehernet: 2 sockets M12 x 1, 4-pin, A-coded       Standar Conformity     Ehernet: 2 sockets M12 x 1, 4-pin, A-coded       Standar Conformity     Ehernet: 2 sockets M12 x 1, 4-pin, A-coded       Standar Conformity     Ehernet: 2 sockets M12 x 1, 4-pin, A-coded       Standar Conformity     Ehernet: 2 sockets M12 x 1, 4-pin, A-coded       Standar Conformity     Ehernet: 2 sockets M12 x 1, 4-pin, A-coded       Standar Conformity     Ehernet: 2 sockets M12 x 1, 4-pin, A-co	•			
InterfaceInterface typePROFINET IOBesolutionSingle turnup to 16 BitOverall resolutionup to 16 BitOverall resolutionUp to 16 BitTransfer rate100 MBM/sCycle time1 so 16 NDT (St 10 ms (RT) so 10 ms (RT)Connector1 ms (RT) so 10 ms (RT) so 10 ms (RT)Connector1 ms (RT) so 10 ms (RT) so 10 ms (RT)Connector1 ms (RT) so 10 ms (RT) so 10 ms (RT)Connector1 ms (RT) so 10 ms (RT) so 10 ms (RT)Connector1 ms (RT) so 10 ms (RT) so 10 ms (RT)Connector1 ms (RT) so 10 ms (RT) so 10 ms (RT)Connector1 ms (RT) so 10 ms (RT) so 10 ms (RT)Connector1 ms (RT) so 10 ms (RT) so 10 ms (RT)Connector1 ms (RT) so 10 ms (RT) so 10 ms (RT)Connector1 ms (RT) so 10 ms (RT) so 10 ms (RT)Connector1 ms (RT) so 10 ms (RT) so 10 ms (RT)Connector1 ms (RT) so 10 ms (RT) so 10 ms (RT)Connector1 ms (RT) so 10 ms (RT) so 10 ms (RT)Connector1 ms (RT) so 10 ms (RT)Connector1 ms (RT) so 10 ms (RT)Connector1 ms (RT) so 10 ms (RT)Noise immunity1 ms (RT) so 10 ms (RT)Connector1 m			-	
Interface type     PROFINET IO       Resolution     up to 16 Bit       Overall resolution     up to 16 Bit       Connector     st ms (RT) : s 10 ms (RT)       Connector     Supply: 1 plug M12 x 1, 4-pin, A-coded       Standard conformity     Up to 8068-2-9, no moisture condensation       Degree of protection     DIN EN 8068-2-9, no moisture condensation       Stainless steel version (INOX): completely IP67     Stainless steel version (INOX): completely IP67       Climatic testing     DIN EN 80686-2-9, no moisture condensation       Emitted interference     DIN EN 80686-2-4, no g, 6 ms       Vibration resistance     DIN EN 80686-2-4, no g, 6 ms       Vibration resistance     DIN EN 80686-2-4, no g, 6 ms       Vibration resistance     DIN EN 80686-2-4, no g, 6 ms       Vibration resistance     DIN EN 80686-2-4, no g, 6 ms       Vibration resistance     DIN EN 80698-2-4, no g, 6 ms	Code course (counting direction)		cw ascending (clockwise rotation, code course ascending)	
Resolution Final Section   Single turn (ii) up to 16 Bit   Overall resolution up to 16 Bit   Physical Ethernet   Transfer rate 100 MBWs   Cycle time 2 st 1 ms (IRT); ± 10 ms (RT)   Connection Ethernet: 2 sockets M12 x 1, 4-pin, D-coded   Standard conformity DIN EN 60529,   Standard conformity DIN EN 60529,   Standard conformity DIN EN 60529,   Connection Stantasis steel version (INOX): completely IP67   Climatic testing DIN EN 6068-2-9, no moisture condensation   Emitted interferance EN 61000-6-2:2005   Shock resistance DIN EN 6068-2-9, 10 g, 10 2000 Hz   Approvals and certificates UL use 1/0064-2:2005   Vibration resistance DIN EN 60068-2-9, 10 g, 10 2000 Hz   Approvals and certificates UL use Listed, General Purpose, Class 2 Power Source, if UL marking is marked on the product.   Ambient conditions -40 85 °C (-40 185 °F)   Storage temperature -40 85 °C (-40 185 °F)   Storage temperature -40 85 °C (-40 185 °F)   Storage temperature -40 85 °C (-40 185 °F)   Combination 1 housing: powder coated aluminum frange: aluminum frange: aluminum shaft: stanless steel 1.4007 / ALSI 303 franges teel 1.4007 / ALSI 304 franges steel 1.4007 / ALSI 304 fr	Interface			
Single turnup to 16 BitOverall resolutionup to 16 BitPhysicalEthernetTransfer rate100 MBV/sCycle timeis 1 ms (IRT) ; ≤ 10 ms (RT)ConnectionEthernet: 2 sockets M12 x 1, 4-pin, D-coded Supply: 1 pug M12 x 1, 4-pin, D-coded Supply: 1 pug M12 x 1, 4-pin, A-codedStandard conformityEthernet: 2 sockets M12 x 1, 4-pin, D-coded Supply: 1 pug M12 x 1, 4-pin, A-codedDegree of protectionDIN EN 60589, shaft sice iP64 (with a shaft seal) Phosing sice: IP65 Stainless steel version (INOX): completely IP67Climatic testingDIN EN 60068-2-3, no moisture condensationEmitted interferenceEN 61000-64: 2007Noise immunityEN 61000-64: 2007Noise immunityEN 61000-64: 2007Vibration resistanceDIN EN 60068-2-27, 100 g, 6 msVibration resistanceDIN EN 60068-2-27, 100 g, 6 msVibration resistanceOIN EN 60068-2-27, 100 g, 6 msMaterialculture siste in the product:MaterialAdo 85 °C (-40 185 °F)Storage temperature-40 85 °C (-40 185 °F)Storage temperature-40 85 °C (-40 185 °F)Storage temperature-40 85 °C (-40 185 °F)Combination 1Ingoe: aluminum frage: aluminum shaft: stainless steelMaterialCombination 2 (Inox)Shaft isola alaminess steelMassap	Interface type		PROFINET IO	
Overall resolutionup to 16 BitPhysicalEthernetTransfer rate100 MBit/sOycle time≤ 1 ms (HT) : ≤ 10 ms (KT)ConnectorEthernet: 2 sockats M12 x 1, 4-pin, D-coded Supply: 1 plug M12 x 1, 4-pin, A-codedStander conformityDIN EN 60529, shaft side: [P64 (without shaft seal)/P66 (with shaft seal) housing side: [P65Climatic testingDIN EN 606529, shaft side: [P64 (without shaft seal)/P66 (with shaft seal) housing side: [P65Climatic testingDIN EN 60662-23, no moisture condensationEmitted interferenceEN 6100-64-2007Noise immunityEN 6100-64-2005Shock resistanceDIN EN 6068-2-27, 100 g, 6 msVibration resistanceCluus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.Ambient conditionsCluus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.Ambient conditions-40 85 °C (-40 185 °F)Combination 1-40 85 °C (-40 185 °F)MaterialSource coated aluminum trange: aluminum shaft: stainless steel 1.430	Resolution			
Physical     Ethemet       Transfer rate     100 MBi/s       Cycle time     3 1 ms (IRT); ≤ 10 ms (RT)       Connector     Ethemet. 2 sockets M12 x 1, 4-pin, D-coded       Connector     Ethemet. 2 sockets M12 x 1, 4-pin, D-coded       Standard conformity     Ethemet. 2 sockets M12 x 1, 4-pin, D-coded       Degree of protection     Shaft side: IPSP (without shaft seal)/IP66 (with shaft seal)       Climatic testing     DIN EN 80682-3, no moisture condensation       Climatic testing     EN 61000-64:2007       Noise immunity     EN 61000-64:2005       Shock resistance     DIN EN 80682-27, 100 g, 6 ms       Vibration resistance     DIN EN 80682-27, 100 g, 6 ms       Vibration resistance     Out Stocke-24, 00 g, 10 2000 Hz       Approval     Cillus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on store of the conditions       Storage temperature     40 85 °C (40 185 °F)       Meterial     finage: guinnium shaft: stainless steel       Storage temperature     -40 85 °C (40 185 °F)       Combination 1     fousing: powder coated aluminum fiange: aluminum shaft: stainless steel       Storage temperature     -40 85 °C (40 185 °F)       Combinatio	Single turn		up to 16 Bit	
Transfer rate100 MBit/sCycle time< 1 ms (IRT) ; < 10 ms (RT)	Overall resolution		up to 16 Bit	
Cycle time   ≤ 1 ms (IRT) : ≤ 10 ms (RT)     Connector   Ethernet: 2 sockets M12 x 1, 4-pin, D-coded     Standard conformity   Ethernet: 2 sockets M12 x 1, 4-pin, A-coded     Standard conformity   DiN EN 80529, haft cids: IP64, (without shaft seal)/IP66 (with shaft seal)     Degree of protection   DIN EN 80529, bistanless steal version (INOX): completely IP67     Climatic testing   EN 61000-64-2007     Noise immunity   EN 61000-64-2007     Noise immunity   EN 61000-64-22005     Shock resistance   DIN EN 80682-27, 10 g, 6 ms     Approvals and certificates   DIN EN 80682-27, 10 g, 10 2000 Hz     Approvals and certificates   EN 61000-64-2007     Vibration resistance   DIN EN 80682-27, 10 g, 6 ms     Approvals and certificates   EN 61006-8-2007     Vibration resistance   UL approval     Operating temperature   eULsu Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.     Approvals and certifications   e40 85 °C (-40 185 °F)     Storage temperature   -40 85 °C (-40 185 °F)     Storage temperature   e40 85 °C (-40 185 °F)     Combination 1   housing: powder coated aluminum flange: aluminum shaft: stainless steel 1.4305 / AISI 303 flange: aluminum shaft	Physical		Ethernet	
Connection     Ethernet: 2 sockets M12 x 1, 4-pin, D-coded       Standard conformity     Supply: 1 plug M12 x 1, 4-pin, A-coded       Degree of protection     shaft side: IP64 (without shaft seal)/IP66 (with shaft seal)/IP67       Climatic testing     DIN EN 80058-2-3, no moisture condensation       Emitted interference     EN 61000-6-2:2005       Shock resistance     DIN EN 80068-2-2, 10 g, 6 ms       Vibration resistance     DIN EN 60068-2-2, 10 g, 10 2000 Hz       Approval     cULus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.       Approval     cULus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.       Approval     cULus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.       Ambient conditions     -40 85 °C (-40 185 °F)       Meterial     Housing: powder coated aluminum flange: aluminum shaft: stainless steel       Material     housing: powder coated aluminum flange: aluminum shaft: stainless steel 1.4305 / AISI 303 flange: aluminum shaft: stainless steel 1.4305 / AISI 303       Mass     approx.800 g (combination 1)       flange: stainless steel 1.4305 / AISI 303       Mase     approx.800 g (combination 2)       Folational speed     max. 12000 min <sup>-1</sup>	Transfer rate		100 MBit/s	
Connector   Ethernet: 2 sockets M12 x 1, 4-pin, A-coded     Supply: 1 plug M12 x 1, 4-pin, A-coded     Supply: 1 plug M12 x 1, 4-pin, A-coded     Supply: 1 plug M12 x 1, 4-pin, A-coded     Standard conformity     Degree of protection   DIN EN 606329, stant side: IPS3 Statutess steel Version (INOX): completely IP67     Climatic testing   DIN EN 60063-2-3, no moisture condensation     Emitted interference   EN 61000-6-2:2005     Shock resistance   DIN EN 60068-2-27, 100 g, 6 ms     Vibration resistance   DIN EN 60068-2-27, 100 g, 6 ms     Vibration resistance   DIN EN 60068-2-27, 100 g, 6 ms     Vibration resistance   DIN EN 60068-2-27, 100 g, 6 ms     Vibration resistance   OtLus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.     Approval   otLus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.     Material   otLus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.     Material   nousing: powder coated aluminum staft: stainess steel     Material   housing: powder coated aluminum staft: stainess steel     Material   housing: powder coated aluminum staft: stainess steel     Material   housing: powder coated aluminum staft: stainless steel	Cycle time		≤ 1 ms (IRT) ; ≤ 10 ms (RT)	
Supply: 1 plug M12 x 1, 4-pin, Å-coded     Standard conformity     Degree of protection   DIN EN 60529, shaft side: IP64 (without shaft seal)/IP66 (with shaft seal)     Standers Stanless steel version (INOX): completely IP67   DIN EN 60068-2:3, no moisture condensation     Climatic testing   DIN EN 60068-2:3, no moisture condensation     Emitted interference   EN 61000-6-2:2005     Noise immunity   EN 61006-6-2:27, 100 g, 6 ms     Vibration resistance   DIN EN 60068-2:6, 10 g, 10 2000 Hz     Approvals and certificates   UL approval     UL approval   cULus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.     Ambient conditions   -40 45 °C (-40 185 °F)     Storage temperature   -40 45 °C (-40 185 °F)     Storage temperature   -40 45 °C (-40 185 °F)     Storage temperature   -40 45 °C (-40 185 °F)     Material   housing: powder coated aluminum shaft: stainless steel     Ifange: aluminum shaft: stainless steel   Nousing: powder coated aluminum shaft: stainless steel     Material   housing: stainless steel 1.4305 / AISI 303     fiange: aluminum shaft: stainless steel 1.4305 / AISI 303   fiange: stainless steel 1.4305 / AISI 303     fiange: stainless steel 1.4305 / AISI 303	Connection			
Degree of protection DIN EN 60529, shaft side: IP64 (without shaft seal)/IP66 (with shaft seal)   Stainless steel version (INOX): completely IP67   Climatic testing DIN EN 60088-2-3, no moisture condensation   Emitted interference EN 61000-6-4:2007   Noise immunity EN 61000-6-2:2005   Schork resistance DIN EN 60088-2-27, 100 g, 6 ms   Vibration resistance DIN EN 60088-2-27, 100 g, 6 ms   Vibration resistance DIN EN 60088-2-27, 100 g, 6 ms   Vibration resistance DIN EN 60088-2-27, 100 g, 6 ms   Vibration resistance DIN EN 60088-2-27, 100 g, 6 ms   Vibration resistance Culsus Listed, General Purpose, Class 2 Power Source, if UL marking is marked on total. 85 °C (-40 185 °F)   Approval -40 85 °C (-40 185 °F)   Storage temperature -40 85 °C (-40 185 °F)   Vibration 1 housing: size aluminum shaft: stainless steel   Material Nousing: size aluminum shaft: stainless steel   Combination 1 housing: size aluminum shaft: stainless steel   Nase approx.360 g (combination 1) shaft: stainless steel 1.4305 / AISI 303 shaft: stainless steel 1.4305 / AISI 303 shaft: stainless steel 1.4305 / AISI 303   Mase approx.360 g (combination 2) shaft: stainless steel 1.4305 / AISI 303 shaft: stainless steel 1.4305 / AISI 303   Moment of inertia 30 gcm <sup>2</sup> S 3 Mcm (version with	Connector			
shaft side: IP64 (without shaft seal)/IP66 (with shaft seal) housing side: IP65 Stainless steel version (INOX): completely IP67Climatic testingDIN EN 60068-2-3, no moisture condensationEmitted interferenceEN 61000-6-2:2005Shock resistanceDIN EN 60068-2-27, 100 g, 6 msVibration resistanceDIN EN 60068-2-6, 10 g, 10 2000 HzApprovals and certificatesCULus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.Approvals and certificatesCULus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.Ambient conditionsCULus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.Material-40 85 °C (-40 185 °F)Storage temperature-40 85 °C (-40 185 °F)Materialhousing: powder coated aluminum flange: aluminum shaft: stainless steelMaterialhousing: powder coated aluminum flange: aluminum shaft: stainless steelMaterialhousing: stainless steel 1.4305 / AISI 303 flange: stainless steel 1.4305 / AISI 303 shaft: stainless steel 1.4305 / AISI 303 	Standard conformity			
Emitted interferenceEN 61000-6-4:2007Noise immunityEN 61000-6-2:2005Shock resistanceDIN EN 60068-2-27, 100 g, 6 msVibration resistanceDIN EN 60068-2-27, 100 g, 6 msApprovals and certificatesUL approvalUL approvalcUL us Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.Ambient conditions-40 85 °C (-40 185 °F)Storage temperature-40 85 °C (-40 185 °F)Material-40 85 °C (-40 185 °F)Materialhousing: powder coated aluminum shaft: stainless steelMaterialhousing: powder coated aluminum shaft: stainless steelCombination 1housing: stainless steel 1.4301 / AISI 303 flange: stainless do g (combination 1) approx. 910 g (combination 2)Rotational speedmax. 12000 min <sup>-1</sup> Moteriof inertia30 gcm <sup>2</sup> Starting torque≤ 3 Ncm (version without shaft seal) max. 1.8 NmShaft loadimage: stainless steelShaft offet± 0.9 °	Degree of protection		shaft side: IP64 (without shaft seal)/IP66 (with shaft seal) housing side: IP65	
Noise immunityEN 61000-6-2:2005Shock resistanceDIN EN 60068-2:27, 100 g, 6 msVibration resistanceDIN EN 60068-2:6, 10 g, 10 2000 HzApprovals and certificatesUL approvalcULus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.Ambient conditions-40 85 °C (-40 185 °F)Storage temperature-40 85 °C (-40 185 °F)Materialhousing: powder coated aluminum flange: aluminum shaft: stainless steelCombination 1housing: powder coated aluminum shaft: stainless steelCombination 2 (Inox)housing: stainless steel 1.4305 / AISI 303 flange: stainless steel 1.4301 / AISI 304 shaft: stainless steel 1.4305 / AISI 303 flange: stainless steel 1.4305 / AISI 303 flange: stainless steel 1.4305 / AISI 304 shaft: stainless steel 1.4305 / AISI 303 flange: stainless steel 1.4305 / AISI 304 shaft: stainless steel 1.4305 / AISI 304 shaft: stainless steel 1.4305 / AISI 303 flange: stainless steel 1.4305 / AISI 304 shaft: stainless steel 1.4305 / AISI 303 flange: stainless steel 1.4305 / AISI 304 shaft: stainless steel 1.4305 / AISI 303 flange: stainless steel 1.4305 / AISI 304 shaft: stainless steel 1.4305 / AISI 304 shaft: stainless steel 1.4305 / AISI 303 flange: stainless steel 1.4305 / AISI 304 shaft: stainless steel 1.4305 / AISI 303 flange: stainless steel 1.4305 / AISI 304 shaft: stainless steel 1.4305 / AISI 303 flange: stainless steel 1.4305 / AISI 303 flange: stain	Climatic testing		DIN EN 60068-2-3, no moisture condensation	
Shock resistanceDIN EN 60068-2-27, 100 g, 6 msVibration resistanceDIN EN 60068-2-6, 10 g, 10 2000 HzApprovals and certificatescULus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.Ambient conditionscULus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.Operating temperature-40 85 °C (-40 185 °F)Storage temperature-40 85 °C (-40 185 °F)Materialhousing: powder coated aluminum tharge: aluminum shaft: stainless steelMaterialhousing: powder coated aluminum tharge: aluminum shaft: stainless steelCombination 1housing: powder coated aluminum shaft: stainless steelCombination 2 (Inox)housing: stainless steel 1.4305 / AISI 303 tharge: stainless steel 1.4305 / AISI 303 shaft: stainless steel 1.4305 / AISI 303 shaft: stainless steel 1.4305 / AISI 303 tharge: stainless steel 1.4305 / AISI 303 shaft: stainless steel 1.4305 / AISI 303 tharge: stainle	Emitted interference			
Andersonance     DIN EN 60068-2-6, 10 g, 10 2000 Hz       Approvals and certificates     CULus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.       Ambient conditions     -40 85 °C (-40 185 °F)       Operating temperature     -40 85 °C (-40 185 °F)       Mechanical specifications     -40 85 °C (-40 185 °F)       Material     housing: powder coated aluminum flange: aluminum shaft: stainless steel     -400 / ASS / AISI 303       Combination 1     housing: powder coated aluminum shaft: stainless steel     1.4301 / AISI 303       Mass     approx. 360 g (combination 1 housing: stainless steel     1.4301 / AISI 303       Mass     approx. 360 g (combination 2) shaft: stainless steel     1.4301 / AISI 304 shaft: stainless steel     1.4305 / AISI 303       Mass     approx. 360 g (combination 2) shaft: stainless steel     1.4305 / AISI 303     AISI 304 shaft: stainless steel     AISI 304 shaft: stainless steel     Auger Aluminum shaft: st	Noise immunity		EN 61000-6-2:2005	
Approvals and certificates   CULus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.     Ambient conditions	Shock resistance		DIN EN 60068-2-27, 100 g, 6 ms	
UL approval   cULus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.     Ambient conditions   -40 85 °C (-40 185 °F)     Storage temperature   -40 85 °C (-40 185 °F)     Mechanical specifications   -40 85 °C (-40 185 °F)     Material   housing: powder coated aluminum flange: aluminum shaft: stainless steel     Combination 1   housing: powder coated aluminum shaft: stainless steel     Combination 2 (Inox)   housing: stainless steel 1.4305 / AISI 303 flange: stainless steel 1.4305 / AISI 304 shaft: stainless steel 1.4305 / AISI 304 shaft stainless steel 1.4305 / AISI 30	Vibration resistance		DIN EN 60068-2-6, 10 g, 10 2000 Hz	
Ambient conditions   -40 85 °C (-40 185 °F)     Operating temperature   -40 85 °C (-40 185 °F)     Storage temperature   -40 85 °C (-40 185 °F)     Meterial   housing: powder coated aluminum flange: aluminum shaft: stainless steel     Combination 1   housing: powder coated aluminum flange: aluminum shaft: stainless steel     Combination 2 (Inox)   housing: stainless steel 1.4305 / AISI 303 flange: stainless steel 1.4301 / AISI 304 shaft: stainless steel 1.4305 / AISI 303     Mass   approx. 360 g (combination 1) approx. 910 g (combination 2)     Rotational speed   max. 12000 min -1     Moment of inertia   30 gcm <sup>2</sup> Starting torque   ≤ 3 Ncm (version without shaft seal)     Tightening torque, fastening screws   max. 1.8 Nm     Shaft Ioad   e) 9 °	Approvals and certificates			
Operating temperature   -40 85 °C (-40 185 °F)     Storage temperature   -40 85 °C (-40 185 °F)     Mechanical specifications   -40 85 °C (-40 185 °F)     Material   housing: powder coated aluminum flange: aluminum shaft: stainless steel     Combination 1   housing: powder coated aluminum flange: aluminum shaft: stainless steel     Combination 2 (Inox)   housing: stainless steel 1.4305 / AISI 303 flange: stainless steel 1.4305 / AISI 304 shaft: stainless steel 1.4305 / AISI 304     Mass   approx. 360 g (combination 1) approx. 910 g (combination 2)     Rotational speed   max. 12000 min <sup>-1</sup> Moment of inertia   30 gcm <sup>2</sup> Starting torque   ≤ 3 Ncm (version without shaft seal)     Tightening torque, fastening screws   max. 1.8 Nm     Angle offset   ± 0.9 °	UL approval		cULus Listed, General Purpose, Class 2 Power Source , if UL marking is marked on the product.	
Storage temperature-40 85 °C (-40 185 °F)Mechanical specificationshousing: powder coated aluminum flange: aluminum shaft: stainless steelMaterialhousing: powder coated aluminum flange: aluminum shaft: stainless steelCombination 1housing: powder coated aluminum flange: aluminum shaft: stainless steelCombination 2 (Inox)housing: stainless steel 1.4305 / AISI 303 flange: stainless steel 1.4305 / AISI 303Massapprox. 360 g (combination 1) approx. 360 g (combination 2)Rotational speedmax. 12000 min <sup>-1</sup> Moment of inertia30 gcm²Starting torque≤ 3 Ncm (version without shaft seal)Tightening torque, fastening screwsmax. 1.8 NmShaft load± 0.9 °	Ambient conditions			
Mechanical specifications       Material     housing: powder coated aluminum flange: aluminum shaft: stainless steel       Combination 1     housing: powder coated aluminum flange: aluminum shaft: stainless steel       Combination 2 (Inox)     housing: powder coated aluminum flange: aluminum shaft: stainless steel       Combination 2 (Inox)     housing: stainless steel       Mass     approx. 360 g (combination 1) approx. 360 g (combination 2)       Rotational speed     max. 12000 min <sup>-1</sup> Moment of inertia     30 gcm <sup>2</sup> Starting torque     < 3 Ncm (version without shaft seal)	Operating temperature		-40 85 °C (-40 185 °F)	
Materialhousing: powder coated aluminum flange: aluminum shaft: stainless steelCombination 1housing: powder coated aluminum flange: aluminum shaft: stainless steelCombination 2 (Inox)housing: stainless steel 1.4305 / AISI 303 flange: stainless steel 1.4305 / AISI 304 shaft: stainless steel 1.4305 / AISI 303Massapprox. 360 g (combination 2) grox. 360 g (combination 2)Rotational speedmax. 12000 min <sup>-1</sup> Moment of inertia30 gcm²Starting torque≤ 3 Ncm (version without shaft seal)Tightening torque, fastening screwsmax. 1.8 NmShaft load± 0.9 °	Storage temperature		-40 85 °C (-40 185 °F)	
flange: aluminum shaft: stainless steelCombination 1housing: powder coated aluminum flange: aluminum shaft: stainless steel 1.4305 / AISI 303Masshousing: stainless steel 1.4305 / AISI 303Massapprox. 360 g (combination 1) approx. 910 g (combination 2)Rotational speedmax. 12000 min -1Moment of inertia30 gcm²Starting torque≤ 3 Ncm (version without shaft seal)Tightening torque, fastening screwsmax. 1.8 NmShaft load= 0.9 °	Mechanical specifications			
flange: aluminum shaft: stainless steel     Combination 2 (Inox)   housing: stainless steel 1.4305 / AISI 303 flange: stainless steel 1.4301 / AISI 304 shaft: stainless steel 1.4305 / AISI 303     Mass   approx. 360 g (combination 1) approx. 910 g (combination 2)     Rotational speed   max. 12000 min <sup>-1</sup> Moment of inertia   30 gcm²     Starting torque   ≤ 3 Ncm (version without shaft seal)     Tightening torque, fastening screws   max. 1.8 Nm     Angle offset   ± 0.9 °	Material		flange: aluminum	
flange: stainless steel 1.4301 / AISI 304 shaft: stainless steel 1.4305 / AISI 303Massapprox. 360 g (combination 1) approx. 910 g (combination 2)Rotational speedmax. 12000 min <sup>-1</sup> Moment of inertia30 gcm²Starting torque≤ 3 Ncm (version without shaft seal)Tightening torque, fastening screwsmax. 1.8 NmShaft load± 0.9 °	Combination 1		flange: aluminum	
Rotational speed   max. 12000 min <sup>-1</sup> Moment of inertia   30 gcm <sup>2</sup> Starting torque   ≤ 3 Ncm (version without shaft seal)     Tightening torque, fastening screws   max. 1.8 Nm     Shaft load   ± 0.9 °	Combination 2 (Inox)		flange: stainless steel 1.4301 / AISI 304	
Moment of inertia 30 gcm²   Starting torque ≤ 3 Ncm (version without shaft seal)   Tightening torque, fastening screws max. 1.8 Nm   Shaft load ± 0.9 °	Mass		approx. 360 g (combination 1) approx. 910 g (combination 2)	
Starting torque ≤ 3 Ncm (version without shaft seal)   Tightening torque, fastening screws max. 1.8 Nm   Shaft load ± 0.9 °	Rotational speed		max. 12000 min <sup>-1</sup>	
Tightening torque, fastening screws max. 1.8 Nm   Shaft load + 0.9 °	Moment of inertia			
Shaft load ± 0.9 °	Starting torque		$\leq$ 3 Ncm (version without shaft seal)	
Angle offset ± 0.9 °	Tightening torque, fastening screws		max. 1.8 Nm	
5	Shaft load			
Axial offset static: ± 0.3 mm, dynamic: ± 0.1 mm	Angle offset		± 0.9 °	
	Axial offset		static: ± 0.3 mm, dynamic: ± 0.1 mm	

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Release date: 2022-12-12 Date of issue: 2022-12-12 Filename: t37195\_eng.pdf

## **Technical Data**

static: ± 0.5 mm, dynamic: ± 0.2 mm

## Type Code

Structure of the type	code	
E S S	5 8 (1) - (2) (2) P N R 0 B N - 0 0 (3) (3)	
E	Data format	
E	Ethernet	
S	Shaft version	
S	Recessed hollow shaft	
S	Function principle	
S	Singleturn	
58	Housing diameter	
58	58 mm	
1	Housing material	
Ν	Aluminum, powder coated	
W	Aluminum, powder coated with shaft seal	
l	Stainless steel	
(2) (2) (2)	Shaft dimensions	
F1A	Recessed hollow shaft Ø10 mm x 30 mm	
F2A	Recessed hollow shaft Ø12 mm x 30 mm	
F3A	Recessed hollow shaft Ø15 mm x 30 mm	
PN	Connection type / protocol	
PN	Profinet protocol, 1 female connector/1 male connector, M12 x 1	
R	Exit position	
R	Radial	
0	Option	
0	None	
В	Output code	
В	Binary	
Ν	Temperature	
Ν	Normal	
(3) (3)	Number of bits singleturn	
13	13 Bits : 8192 pulses (standard)	
16	16 Bits : 65536 pulses	

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Acces	sorios	
ALLES	501165	
<b>Q</b>	ACC-PACK-ABSS_58 ø15	Accessories set for Ø58 absolut rotary encoder with recessed hollow shaft 15 mm
Q	ACC-PACK-ABSS_58 ø14	Accessories set for Ø58 absolut rotary encoder with recessed hollow shaft 14 mm
Q	ACC-PACK-ABSS_58 ø12	Accessories set for Ø58 absolut rotary encoder with recessed hollow shaft 12 mm
°d	ACC-PACK-ABSS_58 ø10	Accessories set for Ø58 absolut rotary encoder with recessed hollow shaft 10 mm

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

## Connection

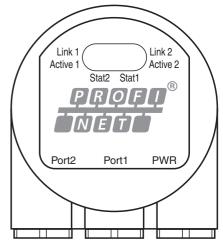
Pin	Voltage supply Male connector M12 x 1, 4-pin, A-coded	Ethernet Female connector M12 x 1, 4-pin, D-coded
1	+VS (15 30 VDC)	Tx +
2	n. c.	Rx +
3	GND (0 V)	Tx -
4	n. c.	Rx -

## Indication

#### Diagnostic LEDs

LĔD	Color	Description for LED = ON	
Active1	Yellow	Incoming and outgoing data traffic for port 1	
Link1*	Green	Connection to other Ethernet devices on port 1	
Active2	Yellow	Incoming and outgoing data traffic for port 2	
Link2*	Green	Connection to other Ethernet devices on port 2	
Stat1	Green	Status 1, details see table below	
Stat2	Red	Status 2, details see table below	
* fleebee with O I I if an air a gring identification call is get wated and link			

\* flashes with 2 Hz if engineering identification call is activated and link connection is available



Stat1 (green)	Stat2 (red) bus failure	Meaning	Cause
off	off	No power	
on	on	No connection to another device	bus disconnected
		Criteria: no data exchange	Master not available / switched off
on	flashes 1)	Parameterization fault, no data	Slave not configured yet or wrong configuration
		exchange	• Wrong station address assigned (but not outside the permitted range)
		Criteria: data exchange correct.	
			• Actual configuration of the slave differs from the
		However, the slave did not switch to the data exchange mode.	nominal configuration
on	off	Data exchange.	
		Slave and operation ok.	

1) flashing frequency 0.5 Hz for at least 3 seconds

