

# Multiturn absolute encoder

## PSM58

- Industrial standard housing Ø58 mm
- PROFIBUS interface
- 30 Bit multiturn
- Speed transfer
- Extended scaling functions
- Programmable limit switches
- Commissioning mode
- Recessed hollow shaft



#### **Function**

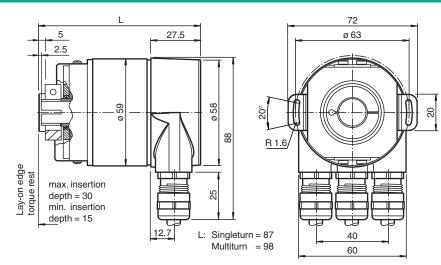
This series of PROFIBUS rotary encoders is based on the modern fast technology of singleturn sampling and the mechanical gear box of the multiturn unit. The absolute encoder corresponds to the PROFIBUS profile for encoders, order no. 3.062. Operation is supported based on Class 1 and Class 2.

For operation based on Class 1, position data and diagnostic data bytes 1 ... 16 are available. In addition, the direction of the code can be selected as either cw ascending (clockwise rotation, code course ascending) or cw descending (clockwise rotation, code course descending). If the rotary encoder is operated according to Class 2, additional functions to those from Class 1 are available. These include scaling of the resolution per revolution and the overall resolution, as well as the preset function. In addition, expanded diagnostic reporting is supported. Besides, the rotary encoder offers extended functionalities such as speed transfer, extended scaling functions, programmable limit switches and a commissioning mode.

The removable connecting hood contains a slide switch for setting the terminating resistor and the rotary switches for setting the address. Assign a fixed address and bus termination to the encoder with this switches.

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			
Detection type		photoelectric sampling	
Device type		Multiturn absolute encoder	
Electrical specifications			
Operating voltage	U <sub>B</sub>	10 30 V DC	
No-load supply current	I <sub>0</sub>	max. 230 mA at 10 V DC max. 100 mA at 24 V DC	

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

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Pewer consumptionPe n max. 2.5 WTime delay before availabilityt,<1000 msLinearity $\pm$ 2.158 at 16 Bit, $\pm$ 0.5 LS8 at 12 BitOutput codebinary codeCode course (counting direction)av escending (clockwise rotation, code course ascending) code scenaring (clockwise rotation, code course ascending) code course ascending)Interfaceprogrammable, cow ascending (clockwise rotation, code course ascending) code course descending (clockwise rotation, code course ascending) code course descending (clockwise rotation, code course ascending) code course descending (clockwise rotation, code course ascending)InterfaceImage: Clockwise rotation, code course ascending) code course descending (clockwise rotation, code course descending)InterfaceImage: Clockwise rotation, code course ascending)InterfaceImage: Clockwise rotation, code course descending)InterfaceImage: Clockwise rotation, code course ascending)Single turnImage: Clockwise rotation, code course ascending)Overall rotationImage: Clockwise rotation, code course descending (clockwise rotation, code course descending)Overall rotationImage: Clockwise rotation, code course descending (clockwise rotation, code course descending)Overall rotationImage: Clockwise rotation, code course descending (clockwise rotation, code course descending)Transfer rate0.000612 MBd/sStandar conformityImage: Clockwise rotation, code course descending (clockwise rotation, code course descending)ComectionImage: Clockwise rotationContatic testingImage: Clockwise rotation, code	Technical Data		
Linearity $\pm$ 2 LSB at 16 Bit, $\pm$ 1 LSB at 13 Bit, $\pm$ 0.5 LSB at 12 BitOutput codebinary codeOutput codebinary codeCode course (counting direction)binary codeinterfaceprogrammable, ov ascending (clockwise rotation, code course ascending)) cod descending (clockwise rotation, code course ascending) cod ascending (clockwise rotation, code course ascending) cod descending (clockwise rotation, code course ascending) cod ascending (clockwise rotation, code course ascending) code ascending (clockwise rotation, code course ascending) code ascending (clockwise rotation, code course ascending) cod ascending (clockwise rotation, code course ascending) cod ascending (clockwise rotation, code course ascending) cod ascending (clockwise rotation, code course ascending) code ascending (clockwise rotation, code ascending) code ascending (clockwise rotation, code ascending) code ascending (clockwise rotation, code ascending) <br< th=""><th>Power consumption</th><th>Po</th><th>max. 2.5 W</th></br<>	Power consumption	Po	max. 2.5 W
Output code         binary code           Code course (counting direction)         programmable, w descending (dockwise rotation, code course descending) w descending (lockwise rotation, code course descending)           Interface         programmable, w descending (lockwise rotation, code course descending)           Interface type         PROFIBUS           Resolution         up to 16 Bit           Multurn         14 Bit           Overall resolution         up to 30 Bit           Transfer rate         0.0096 12 MBit/s           Connection         Terminal compartment           Terminal compartment         [n in removable housing cover           Standard conformity         DN EN 60529, IP85           Pegree of protection         DIN EN 60529, IP85           Ireface testing         DIN EN 6068-2-30, no moisture condensation           Emitted interference         EN 61000-6-2:2005           Shock resistance         DIN EN 6068-2-27, 100 g, 6 ms           Vibrator resistance         DIN EN 6068-2-27, 100 g, 6 ms           Vibrator resistance         DIN EN 6068-2-27, 100 g, 6 ms           Operating temperature         40 85 °C (-40 185 °F)           Storage temperature         20 85 °C (-40 185 °F)           Storage temperature         -0 85 °C (-40 185 °F) <td< td=""><td>Time delay before availability</td><td></td><td>&lt; 1000 ms</td></td<>	Time delay before availability		< 1000 ms
Output code         binary code           Code course (counting direction)         programmable, cw descending (dockwise rotation, code course descending)) cw descending (lockwise rotation, code course descending))           Interface         ProcFIBUS           Resolution         up to 16 Bit           Multurn         14 Bit           Overall resolution         up to 16 Bit           Multurn         14 Bit           Overall resolution         up to 30 Bit           Transfer rate         0.0096 12 MBi/s           Connection         Terminal compartment           Terminal compartment         [in removable housing cover           Standard conformity         DIN EN 60529. JP85           Pegree of protaction         DIN EN 60529. JP85           Irefact testing         DIN EN 6063230. no moisture condensation           Climatic testing         DIN EN 6063230. no moisture condensation           Climatic testing         DIN EN 6068220. 10. g. 10	Linearity		± 2 LSB at 16 Bit, ± 1 LSB at 13 Bit, ± 0,5 LSB at 12 Bit
Code course (counting direction)         programmable. cv descending (clockwise rotation, code course descending)           Interface         PROFIBUS           Resolution         u to 16 Bit           Resolution         14 Bit           Overall resolution         up to 30 Bit           Transfer rate         0.0096 12 MB/s/s           Standard conformity         PNO profile 3.062, RS-485           Connection         Immovable housing cover           Tarnafie rate         0.0096 12 MB/s           Standard conformity         DIN EN 60529, IP65           Degree of protection         DIN EN 60529, IP65           Climatic testing         DIN EN 60529, IP65           Degree of protection         DIN EN 60529, IP65           Climatic testing         DIN EN 6058-2-9, ID 0, no moisture condensation           Emitted interference         EN 61000-6-4:2007           Noise immunity         EN 61000-6-2:2005           Stock resistance         DIN EN 60688-2-6, ID 0, ID 2000 Hz           Approvals and certifications         DIN EN 60688-2-6, ID 0, ID 2000 Hz           Ut approval         cUtus Listed, General Purpose, Class 2 Power Source           Material         Storde resolution and and and and and and and and and an	•		binary code
Interface type     PROFIBUS       Resolution     up to 16 Bit       Multitum     14 Bit       Overall resolution     up to 30 Bit       Transfer rate     0.0096 12 MB/r/s       Standard conformity     PNO profile 3.082, RS-485       Connection       Terminal compartment       In Fernial compartment       DIN EN 60529, IP65 IP66 (with shaft seal)       Olimatic testing     DIN EN 6068-230, on moisture condensation       Perfee of protection     EN 61000-64:2007       Noise immunity     EN 61000-64:2005       Shock resistance     DIN EN 60682-26, 10 g, 10 2000 Hz       Approval     DIN EN 60682-27, 100 g, 6 ms       Vibration resistance     DIN EN 60682-27, 100 g, 6 ms       Vibration resistance     DIN EN 60682-27, 100 g, 6 ms       Vibration resistance     DIN EN 60682-26, 10 g, 10 2000 Hz       Approval     Acting S*C (-40 185 *F)       Storage temperature     -40 85 *C (-40 185 *F)       Storage temperature     -40 85 *C (-40 185 *F)       Material     Multistic statiless steel       Combination 1     housing: storage steel       Combination 2 (linox)     In susing: storage steel       Material     Gourbination 1)       Storage temperature     4085 *C (-40 185 *F)	Code course (counting direction)		cw ascending (clockwise rotation, code course ascending)
Resolution     up to 16 Bit       Single turn     up to 30 Bit       Multiturn     14 Bit       Overall resolution     up to 30 Bit       Transfer rate     0.0086 12 MBit/s       Standard conformity     PNO profile 3.062, RS-485       Connection     In removable housing cover       Terminal compartment     in removable housing cover       Standard conformity     UN EN 60529, IP65       Pegree of protection     IDN EN 60529, IP65       Irentide interforence     EN 61000-64:200, no moisture condensation       Climatic testing     DIN EN 60582-20, on moisture condensation       Standard conformity     EN 61000-64:2005       Standard conformity     EN 61000-64:2005       Stork resistance     DIN EN 60688-2:27, 100 g, 6 ms       Vibration resistance     DIN EN 60068-2:0, 10 g, 10 2000 Hz       Approval     cULus Listed, General Purpose, Class 2 Power Source       Anbito confitions     -40 85 °C (-40 185 °F)       Storage temperature     -40 85 °C (-40 185 °F)       Storage temperature     -40 85 °C (-40 185 °F)       Material     -       Combination 1     housing: staniless steel       Material     -       Combination 2 (Inox)     housing: staniless steel       Mass     agorn <sup>2</sup> Starting torque	Interface		
Resolution     up to 16 Bit       Single turn     up to 30 Bit       Multiturn     14 Bit       Overall resolution     up to 30 Bit       Transfer rate     0.0086 12 MBit/s       Standard conformity     PNO profile 3.062, RS-485       Connection     In removable housing cover       Terminal compartment     in removable housing cover       Standard conformity     UN EN 60529, IP65       Pegree of protection     IDN EN 60529, IP65       Irentide interforence     EN 61000-64:200, no moisture condensation       Climatic testing     DIN EN 60582-20, on moisture condensation       Standard conformity     EN 61000-64:2005       Standard conformity     EN 61000-64:2005       Stork resistance     DIN EN 60688-2:27, 100 g, 6 ms       Vibration resistance     DIN EN 60068-2:0, 10 g, 10 2000 Hz       Approval     cULus Listed, General Purpose, Class 2 Power Source       Anbito confitions     -40 85 °C (-40 185 °F)       Storage temperature     -40 85 °C (-40 185 °F)       Storage temperature     -40 85 °C (-40 185 °F)       Material     -       Combination 1     housing: staniless steel       Material     -       Combination 2 (Inox)     housing: staniless steel       Mass     agorn <sup>2</sup> Starting torque	Interface type		PROFIBUS
Multitum         14 Bit           Overall resolution         up to 30 Bit           Transfer rate         0.0096 12 MBit/s           Standard conformity         PNO profile 3.062, RS-485           Connection         Framinal compartment           Terminal compartment         in removable housing cover           Standard conformity         DIN EN 60529, IP65 IP66 (with shaft seal)           Climatic testing         DIN EN 60068-2:30, no moisture condensation           Emitted interference         EN 61000-64-2:2005           Nokse immunity         EN 61000-64-2:2005           Shock resistance         DIN EN 60068-2:3, 10 g, 6 ms           Vibration resistance         DIN EN 60068-2:4, 10 g, 7 G ms           Vibration resistance         DIN EN 60068-2:4, 10 g, 7 G ms           Vibration resistance         DIN EN 60068-2:4, 10 g, 7 G ms           Vibration resistance         UL usproval           Approval         cULus Listed, General Purpose, Class 2 Power Source           Approval         -40 85 °C (-40 185 °F)           Storage temperature         -40 85 °C (-40 185 °F)           Storage temperature         -40 85 °C (-40 185 °F)           Material         filange: atuminum shaft: stainless steel filange: atuminum shaft: stainless steel filange: atuminum shaft: stainless steel filange: atuminum shaft	Resolution		
Overall resolutionup to 30 BitTransfer rate0.0096 12 MBit/sStandard conformity0.0096 12 MBit/sStandard conformityNO profile 3.062, RS-485Connectionin removable housing coverTerminal compartmentin removable housing coverStandard conformityDIN EN 60529, IP65 IP66 (with shaft seal)Opere of protectionDIN EN 60068-2-30, no moisture condensationEmitted interferenceEN 61000-64-2007Noise immunityEN 61000-64-2205Shock resistanceDIN EN 60068-2-27, 100 g, 6 msVibration resistanceULs Listed, General Purpose, Class 2 Power SourceApprovalcULus Listed, General Purpose, Class 2 Power SourceMaterial-40 85 °C (-40 185 °F)Storage temperature-40 85 °C (-40 185 °F)MetrialImage: stanless steelMaterialImage: stanless steelMaterial-40 85 °C (-40 185 °F)Combination 1mange: stanless steelMaterialImage: stanless steelMaterial-40 85 °C (-40 185 °F)Material-40 85 °C (-40 185 °F)Matherial-40 85 °C (-40 185 °F)Material-40 85 °C (-40 185 °F)Mather	Single turn		up to 16 Bit
Transfer rate       0.0096 12 MBit/s         Standar conformity       PNO profile 3.062, RS-485         Connection       in removable housing cover         Standar conformity       In removable housing cover         Degree of protection       DIN EN 60068-2-30, no moisture condensation         Emitted interference       EN 61000-6-2:2005         Shock resistance       DIN EN 60068-2-30, 10 g. 6 ms         Vibration resistance       DIN EN 60068-2-30, 10 g. 6 ms         Vibration resistance       DIN EN 60068-2-6, 10 g, 10 2000 Hz         Approvals and certificates       CULus Listed, General Purpose, Class 2 Power Source         Approval       cULus Listed, General Purpose, Class 2 Power Source         Anterial       -40 85 °C (-40 185 °F)         Storage temperature       -40 85 °C (-40 185 °F)         Material       -40 85 °C (-40 185 °F)	Multiturn		14 Bit
Transfer rate         0.0096 12 MBit/s           Standard conformity         PNO profile 3.062, RS-485           Connection         in removable housing cover           Standard conformity         in removable housing cover           Standard conformity         DIN EN 60529, IP65           Degree of protection         DIN EN 60529, IP65           Climatic testing         DIN EN 60068-2-30, no moisture condensation           Emitted interference         EN 61000-6-4:2007           Moise immunity         EN 61000-6-2:2005           Shock 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 60068-2-6, 10 g. 10 2000 Hz           Approvals         Cultus Listed, General Purpose, Class 2 Power Source           Amberiad temperature         40 85 °C (-40 185 °F)           Storage temperature         40 85 °C (-40 185 °F)           Material         equation site stanless steel           Material         fiange: stanless steel           Material         fiange: stanless steel           Material         max. 12000 rim <sup>-1</sup> Mass         approx. 1200 g (combination 1) approx. 1200 g (combinati	Overall resolution		up to 30 Bit
Connection       in removable housing cover         Standar conformity       In removable housing cover         Degree of protection       ID NEN 60529, IP65 IP66 (with shaft seal)         Climatic testing       DIN EN 60068-2-30, no moisture condensation         Emitted interference       EN 61000-64-22007         Noise immunity       EN 61000-64-22005         Shock resistance       DIN EN 60068-2-27, 100 g, 6 ms         Vibration resistance       DIN EN 60068-2-6, 10 g, 10 2000 Hz         Approvals and certificates       UL approval         Vibration resistance       DIN EN 60068-2-6, 10 g, 10 2000 Hz         Approvals and certificates       UL us bisted, General Purpose, Class 2 Power Source         Ambient conditions       -40 85 °C (-40 185 °F)         Operating temperature       -40 85 °C (-40 185 °F)         Storage temperature       -40 85 °C (-40 185 °F)         Material       -         Combination 1       housing: powder coated aluminum flange: aluminum flange: aluminum staft: stainless steel         Mass       approx. 1200 (g combination 1) approx. 1000 (g combination 2)         Rotational speed       max. 12000 min -1         Moment of inertia       30 g cm <sup>2</sup> Starting torque, fastening screws       max. 1.8 Vm         Starding torque, fasteni	Transfer rate		•
Connection       in removable housing cover         Standar conformity       In removable housing cover         Degree of protection       ID NEN 60529, IP65 IP66 (with shaft seal)         Climatic testing       DIN EN 60068-2-30, no moisture condensation         Emitted interference       EN 61000-64-22007         Noise immunity       EN 61000-64-22005         Shock resistance       DIN EN 60068-2-27, 100 g, 6 ms         Vibration resistance       DIN EN 60068-2-6, 10 g, 10 2000 Hz         Approvals and certificates       UL approval         Vibration resistance       DIN EN 60068-2-6, 10 g, 10 2000 Hz         Approvals and certificates       UL us bisted, General Purpose, Class 2 Power Source         Ambient conditions       -40 85 °C (-40 185 °F)         Operating temperature       -40 85 °C (-40 185 °F)         Storage temperature       -40 85 °C (-40 185 °F)         Material       -         Combination 1       housing: powder coated aluminum flange: aluminum flange: aluminum staft: stainless steel         Mass       approx. 1200 (g combination 1) approx. 1000 (g combination 2)         Rotational speed       max. 12000 min -1         Moment of inertia       30 g cm <sup>2</sup> Starting torque, fastening screws       max. 1.8 Vm         Starding torque, fasteni	Standard conformity		PNO profile 3.062, RS-485
Terminal compartment       in removable housing cover         Standard conformity       DiN EN 60529, IP65         Degree of protection       DiN EN 60529, IP65         Diffee (with shaft seal)       Din EN 60068-2-30, no moisture condensation         Climatic testing       DIN EN 60068-2-30, no moisture condensation         Emitted interference       EN 61000-6-4:2007         Noise immunity       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       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         Vibration resistance       DIN EN 60068-2-27, 100 g, 6 ms         Material       Cultus Listed, General Purpose, Class 2 Power Source         Material       Combination 1         Material       General Purpose, Class 2 Power Source         Mas       Source coated aluminum shaft: stainless	•		
Standard conformity       Din En 60529, IP65         Degree of protection       Din En 60058-2-30, no moisture condensation         Climatic testing       Din En 60068-2-30, no moisture condensation         Emitted interference       EN 61000-6-4:2007         Noise immunity       EN 61000-6-2:2005         Shock resistance       DIN EN 60068-2-37, 100 g, 6 ms         Vibration resistance       DIN EN 60068-2-6, 10 g, 10 2000 Hz         Approvals and certificates       CULus Listed, General Purpose, Class 2 Power Source         JL approval       cULus Listed, General Purpose, Class 2 Power Source         Ambient conditions       -40 85 °C (-40 185 °F)         Storage temperature       -40 85 °C (-40 185 °F)         Storage temperature       -40 85 °C (-40 185 °F)         Material       Image: aluminum shaft: stainless steel         Material       Image: aluminum shaft: stainless steel         Material       Image: aluminum shaft: stainless steel         Mass       approx. 600 g (combination 1) approx. 1200 g (combination 2)         Rotational speed       max. 12000 min ·1         Moment of inertia       30 gcm <sup>2</sup> Starting torque, fastening screws       max. 1.8 Nm         Shaft load       General Purpose (Version without shaft seal)         Mapprox. 1200 g (orb	Terminal compartment		in removable housing cover
Degree of protectionDIN EN 80529, IP65 IP66 (with shaft seal)Climatic testingDIN EN 80529, IP65 IP66 (with shaft seal)Climatic testingDIN EN 80068-2-30, no moisture condensationEmitted interferenceEN 61000-6-4:2007Noise 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 SourceAmbient conditions-40 85 °C (-40 185 °F)Storage temperature-40 85 °C (-40 185 °F)Storage temperature-40 85 °C (-40 185 °F)Material-Combination 1Ifange: aluminum shaft: stainless steel frage: stainless steel shaft: stainless st			
Emitted interferenceEN 61000-6-4:2007Noise 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 certificatesULus Listed, General Purpose, Class 2 Power SourceUL approvalcULus Listed, General Purpose, Class 2 Power SourceAmbient conditions-40 85 °C (-40 185 °F)Storage temperature-40 85 °C (-40 185 °F)Material-40 90 (combination 1)approx. 1200 g (combination 1)approx. 1200 g (combination 2)Rotational speed-40 90 (combination 2)Moment of i	•		
Noise immunity         EN 61000-6-2:2005           Shock resistance         DIN EN 60068-2-27, 100 g, 6 ms           Vibration resistance         DIN EN 60068-2-6, 10 g, 10 2000 Hz           Approvals and certificates         UL us Listed, General Purpose, Class 2 Power Source           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         Moising: powder coated aluminum shaft: stainless steel           Combination 1         housing: powder coated aluminum shaft: stainless steel           Mass         approx. 600 g (combination 1) approx. 600 g (combination 2)           Rotational speed         30 gcm <sup>2</sup> Starting torque         ≤ 3 Ncm (version without shaft seal)           Tightening torque, fastening screws         max. 1.8 Nm	Climatic testing		DIN EN 60068-2-30, no moisture condensation
Shock resistance       DIN EN 60068-2-27, 100 g, 6 ms         Vibration resistance       DIN EN 60068-2-6, 10 g, 10 2000 Hz         Approvals and certificates       cULus Listed, General Purpose, Class 2 Power Source         Ambient conditions       -40 85 °C (-40 185 °F)         Operating temperature       -40 85 °C (-40 185 °F)         Storage temperature       -40 85 °C (-40 185 °F)         Material       -40 85 °C (-40 185 °F)         Combination 1       housing: powder coated aluminum fiange: aluminum shaft: stainless steel         Shaft: stainless steel       steel         Mass       approx. 600 g (combination 1) approx. 1200 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)	Emitted interference		EN 61000-6-4:2007
Vibration resistance       DIN EN 60068-2-6, 10 g, 10 2000 Hz         Approvals and certificates       cULus Listed, General Purpose, Class 2 Power Source         Ambient conditions       -40 85 °C (-40 185 °F)         Storage temperature       -40 85 °C (-40 185 °F)         Storage temperature       -40 85 °C (-40 185 °F)         Material       -40 85 °C (-40 185 °F)         Combination 1       flange: atuminum shaft: stainless steel         Material       -40 85 °C (-40 185 °F)         Combination 1       housing: powder coated aluminum shaft: stainless steel         Material       -40 85 °C (-40 185 °F)         Combination 1       housing: powder coated aluminum shaft: stainless steel         Mass       approx. 600 g (combination 1) approx. 1200 g (combination 2) approx. 1200 g (c	Noise immunity		EN 61000-6-2:2005
Approvals and certificates       cULus Listed, General Purpose, Class 2 Power Source         UL approval       cULus Listed, General Purpose, Class 2 Power Source         Ambient conditions       -40 85 °C (-40 185 °F)         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       image: aluminum flange: aluminum flange flange: aluminum flange: aluminum flange flan	Shock resistance		DIN EN 60068-2-27, 100 g, 6 ms
UL approval       cULus Listed, General Purpose, Class 2 Power Source         Ambient conditions         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       Image: aluminum flange: aluminum shaft: stainless steel         Combination 1       housing: powder coated aluminum flange: stainless steel         Combination 2 (Inox)       housing: stainless steel shaft: stainless steel         Mass       approx. 600 g (combination 1) approx. 1200 g (combination 2)         Rotational speed       max. 12000 min -1         Moment of inertia       30 gcm <sup>2</sup> Starting torque, fastening screws       max. 1.8 Nm         Shaft load       imax. 1.8 Nm	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)         Mechanical specifications	Approvals and certificates		
Ambient conditions       -40 85 °C (-40 185 °F)         Operating temperature       -40 85 °C (-40 185 °F)         Storage temperature       -40 85 °C (-40 185 °F)         Mechanical specifications	UL approval		cULus Listed, General Purpose, Class 2 Power Source
Storage temperature       -40 85 °C (-40 185 °F)         Mechanical specifications	Ambient conditions		
Storage temperature       -40 85 °C (-40 185 °F)         Mechanical specifications       Material         Material       Image: aluminum shaft: stainless steel         Combination 1       housing: powder coated aluminum flange: aluminum shaft: stainless steel         Combination 2 (Inox)       housing: stainless steel         Mass       approx. 600 g (combination 1) approx. 1200 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)	Operating temperature		-40 85 °C (-40 185 °F)
Mechanical specifications         Material       Image: Stainless steel         Combination 1       housing: powder coated aluminum flange: aluminum shaft: stainless steel         Combination 2 (Inox)       housing: stainless steel flange: stainless steel shaft: stainless stee	Storage temperature		-40 85 °C (-40 185 °F)
MaterialImage: Aluminum flange: aluminum shaft: stainless steelCombination 2 (Inox)housing: stainless steel flange: stainless steel shaft: stainless steel shaft: stainless steelMassapprox. 600 g (combination 1) approx. 1200 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 °	÷ .		
Image: aluminum shaft: stainless steel         Combination 2 (Inox)       housing: stainless steel flange: stainless steel flange: stainless steel shaft: stainless steel shaft: stainless steel         Mass       approx. 600 g (combination 1) approx. 1200 g (combination 2)         Rotational speed       max. 12000 min ·1         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 °	-		
flange: stainless steel shaft: stainless steelMassapprox. 600 g (combination 1) approx. 1200 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 °	Combination 1		flange: aluminum
Rotational speed       max. 1200 g (combination 2)         Moment of inertia       max. 12000 min <sup>-1</sup> Starting torque       30 gcm <sup>2</sup> Starting torque, fastening screws       sa Ncm (version without shaft seal)         Tightening torque, fastening screws       max. 1.8 Nm         Shaft load       ± 0.9 °	Combination 2 (Inox)		flange: stainless steel
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. 600 g (combination 1) approx. 1200 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		30 gcm <sup>2</sup>
Shaft load       Angle offset       ± 0.9 °	Starting torque		≤ 3 Ncm (version without shaft seal)
Angle offset ± 0.9 °	Tightening torque, fastening screws		max. 1.8 Nm
	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
Radial offset static: ± 0.5 mm, dynamic: ± 0.2 mm	Radial offset		static: ± 0.5 mm, dynamic: ± 0.2 mm

## Accessories

0 111 AH 58-B1CA-2BW

Connection cover

ACC-PACK-ABS-\_S\_58 ø15 Accessories set for  $\varnothing$ 58 absolut rotary encoder with recessed hollow shaft 15 mm

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

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Acces	Accessories				
° 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			
°, C	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"

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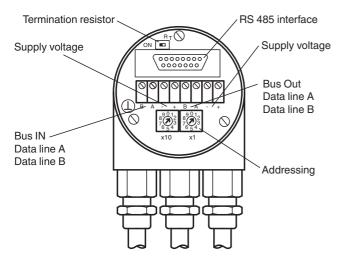
3

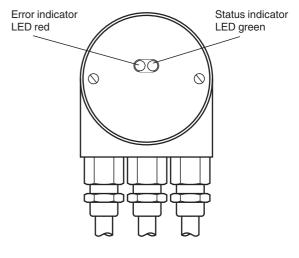
## Connection

Terminal	Explanation
$\perp$	Ground connection for power supply
B (left)	Data line B (pair 1), Bus In
A (left)	Data line A (pair 1), Bus In
(-)	0 V
(+)	10 V 30 V
B (right)	Data line B (pair 2), Bus Out
A (right)	Data line A (pair 2), Bus Out
(-)	0 V
(+)	10 V 30 V
	The supply lines only have to be connected once (regardless to which terminal). The outgoing bus is being uncoupled while the terminal resistor is on.

The arrangement of the terminals is shown in the section commissioning.

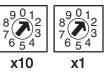
## Configuration





#### Adjusting the participant address

The participant address can be adjusted with the rotary switches. The address can be defined between 1 and 99, and may only be assigned once.



#### Adjusting the termination resistor

The terminating resistor  $R_T$  (220  $\Omega) can be connected to the circuit by means of the switch:$ 



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

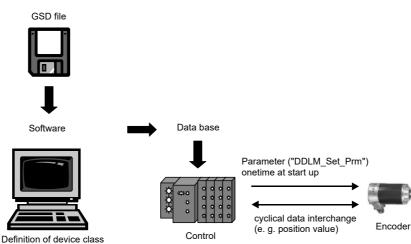
4

#### **ALED-indicators**

LED red	LED green	Meaning	
off	off	No voltage supply	
on	on	Encoder ready, no configuration data received.	
		possible reasons:	
		- wrong address adjusted	
		- wrong bus wiring	
on	flashing	Parameterising or configuration error. Encoder receives data of incorrect length or inconsistant data.	
		possible reason:	
		- adjusted encoder resolution exceeds	
flashing	on	Encoder ready, no communication with master (i.e. wrong address setting)	
on	off	Data timeout (> 40 s). (i.e. data lines interrupted)	
off	on	Normal operation, Data Exchange Mode	
off	flashing	Installation Mode in Data Exchange Mode.	

## **Function Principle**

Principle of data transmission



#### **Parameterization**

#### Parameter table encoder classes P+F 2.1 and P+F 2.2

enter parameter

Octet number (Byte)	Parameter	Bit number
18	PROFIBUS standard parameters	
9	Direction of rotation	0
	Class 2 functionality	1
	Commissioning Diagnostics	2
	Scaling function	3
	Reserved	4
	Reserved	5
	Activate manufacturer specific parameters (Octet 26)	6
	Reserved	7
10 13	Desired measuring steps (reference: Octet 26, Bit 0 and 1)	
14 17	Overall resolution	
18 25	Reserved	
26	Reference for desired measuring steps	0
		1
	Activate commissioning mode	2
	Reduced diagnosis	3
	Reserved	4
	Activate lower software limit switch	5
	Activate upper software limit switch	6

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#### Multiturn absolute encoder

	Activation of the parameters from Octet 27	7
27 30	Lower limit switch	
31 34	Upper limit switch	
35 38	Physical measuring steps	
39	Reserved	0
	Rotary encoder type (singleturn or multiturn)	1
	Reserved	2
	Reserved	3
	Selection of the unit for speed transfer	4
		5
	Reserved	6
	Reserved	7

## **Type Code**

