

# HENGSTLER

## Absolute Shaft Encoders AC58 CC-Link (MCR -type) Installation instructions

### 1. Preface

These installation instructions are provided for the connection and starting procedure of your shaft encoder. You will get further information from the Acuro CC-Link datasheet, on request our Customer Service.  
e-mail: [csc@danaher.co.jp](mailto:csc@danaher.co.jp)

### 2. Safety

#### Authorised persons

The encoder should only be assembled and dismantled by a qualified electrician, as the unit contains sensitive electronic circuits.

#### Risk of injury due to rotating shafts

Hair and items of clothing may become caught up in rotating shafts.

➔ Prior to commencing all works, disconnect all power supplies and ensure that the working environment is Safe!

#### Risk of destruction due to static electricity

The CMOS modules contained in the encoder are very sensitive to high voltages such as can arise due to friction of the clothing.

➔ Do not touch plug contacts or electronic components!

#### Risk of destruction due to mechanical overload

Rigid mounting will give rise to constraining forces which will permanently overload the bearings.

➔ Never restrict the freedom of movement of the encoder! Use only the enclosed sheet steel springs or a suitable coupling to secure the unit!

#### Risk of destruction due to mechanical shock

Violent shocks, e.g. due to hammer blows, can lead to the destruction of the optical sensing system and the ball bearings.

➔ Never use force! Assembly is simple provided that correct procedure is followed.

#### Risk of destruction due to overloading

➔ The unit may only be operated within the limits specified in the technical data.

#### Fields of application: industrial processes and controls.

Power supply unit of class 2 is necessary as the device which supplies power source to this encoder.

The connecting cable is not for dragline mounting, only for fix mounting.

This encoder is a supply part destined for mounting to an appliance (motor, machine). It is not provided for customer sale.

Manufacturers integrating this encoder to their facilities are responsible as well for compliance with CE guidelines as for the CE mark.

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### 3. Assembly

**A** Synchro flange •

**B** Clamping flange •

**C** Square flange •

**D** Spring plate, hollow shaft •

4. Mechanical data		
d = 6 mm		
d = 10 mm		
	- short term	= 12,000 min <sup>-1</sup>
	- continuous duty	= 10,000 min <sup>-1</sup>
	-20 ... +85 °C	
- Vibration - Shock	100m/s <sup>2</sup> (10...500Hz) 1,000m/s <sup>2</sup> (6ms)	

5. Electrical data		
	Singleturn	Multiturn
U <sub>in</sub> =	10...30VDC	10...30VDC
I <sub>max</sub> (only Encoder)=	180mA	200mA
Interface	RS485	
Cable length	max. 100m (10Mbps) max. 1200m (156Kbps)	
ESD		

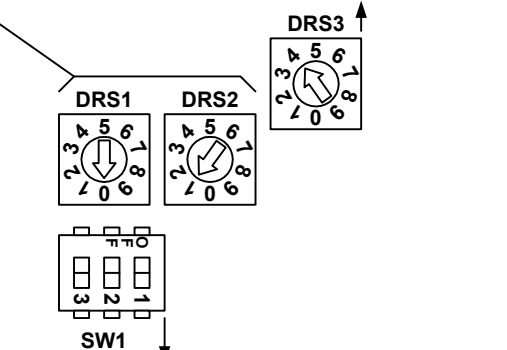
6. Connection diagrams	
6.1 Cable specification Ver.1.10	
Wave resistance	110 +/-15 ohm (1MHz) 110 +/-6 ohm (5MHz)
Operating capacity	< 60 nF /km (1kHz)
Loop resistance	37.8 ohm /km
Wire size	20 AWG
Cable sheath diameter	< 8.0mm
6.2 Communication speed	
bps	Segment length
10M	100m
5M	160m
2.5M	400m
625K	900m
156K	1200m

6.5 Station number (range : 1...64)	
Switch name	Function
DRS1	Setup of the grade of 10
DRS2	Setup of the grade of 1

\*Setup at the time of shipment  
:DRS1=0, DRS2=1, station No.=1  
note: Setting ranges are 1-64.  
Please do not set it as 0 or 65 or more numerical values.  
Please be sure to set up before use.

6.6 Transmission rate	
DRS3 No.	Transmission rate
0	156Kbps
1	625Kbps
2	2.5Mbps
3	5Mbps
4	10Mbps (Setup at the time of shipment.)
5 ... 9	Prohibition of a setup

6.3 Pinout (2x M12 4pol. male type)		
Pin.	Signal	(CC-Link signal)
1	SLD	Shield
2	DB	CC-Link , Data B
3	DG	CC-Link , Signal GND
4	DA	CC-Link , Data A



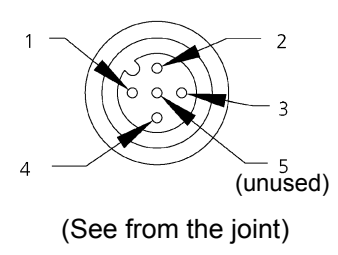
6.4 Pinout (1x M12 4pol. female type)		
Pin.	Signal	(Power supply)
1	+	DC10...30V
2	+	DC10...30V
3	-	GND (0V)
4	-	GND (0V)

6.7 Mode, terminus resistance			
SW1	Contents	OFF	ON
1	Remote net mode setup	Remote net Ver 1.10	Remote net Ver 2.00
2	Increase of cyclic transmission	x1 set	x2 set
3	Terminus resistance setup	None	Yes

\*It is OFF at all the times of shipment.  
note: Please be sure to set up before use.  
Please do not change to the following setting.  
SW1-1:OFF, SW1-2:ON  
(It becomes a system test mode, and can not operate.)

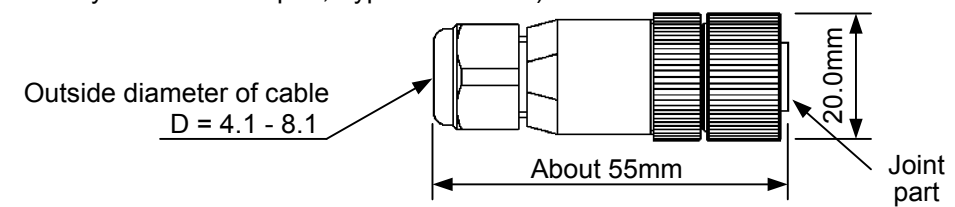
### 7. Cable connection

7.1 Cable connection (2x M12 4pol. female type)			
Pin.	Wiring color	Signal	(CC-Link signal)
1	Black	SLD	Shield
2	White	DB	CC-Link , Data B
3	Yellow	DG	CC-Link , Signal GND
4	Blue	DA	CC-Link , Data A

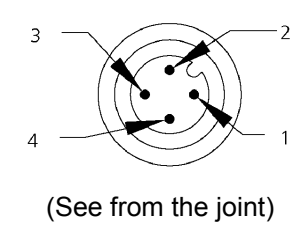


It dismantling after removing the screw of the connector, and it connects it with the CC-Link cable as shown in the above figure.

- Attachable type connector (2 pcs) for CC-Link connection : Recommended item (Attachable connector for CC-Link, female type, made by Woodhead Japan, Type:8A4000-32)



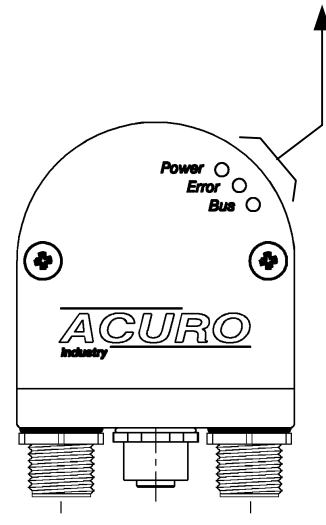
7.2 Cable connection (1x M12 4pol. male type)			
Pin.	Wiring color	Signal	(Power supply)
1	Brown	+	DC10...30V
2	White	+	DC10...30V
3	Blue	-	GND (0V)
4	Black	-	GND (0V)



- M12 type connector with cable (1 pc) for power supply : Recommended item (M12 plug connector with free conductor end, 4-pos. Phoneix Contact K.K., Type:SAC-4P-M12MS/5,0-PUR)

### 8. LED qarrangement figure

Power	CC-Link	Light at the nomal operation time. (green)
Error	CC-Link	Light at transmission error, station No. setting error, etc. (red)
Bus	CC-Link	Light at the data tranceiver time. Tx(green) , Rx(orange) (At the time of high-speed communication, it is visible to yellow.)



### 9. Ordering data

AC58 / 1212 E K.72 MC R 2 - *					
Resolution	Power supply	Frang type	Protection	Shaft diameter	Software version
0012 12bit ST	E=10...30V	K.42 Clamping	IP64	10mm	2 =Ver.2
0013 13bit ST		K.72 Clamping	IP67	10mm	no =Ver.1
0014 14bit ST		S.41 Synchro	IP64	6mm	
0017 17bit ST		S.71 Synchro	IP67	6mm	
1212 12bit MT + 12bit ST		F.42 Spring plate	IP64	10mmHub shaft	
1213 12bit MT + 13bit ST		F.47 Spring plate	IP64	12mmHub shaft	
1214 12bit MT + 14bit ST					