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		INDICE DELLE REVISIONI				
Rev.	Par.	Descrizione della modifica	Data	R	V	Α
0.0	-	Prima stesura	18/07/2018	mb	fb	fb
1.0	-	Aggiornamenti per versione software 4.6	11/01/2022	mb	rt	rt

R = Redazione

V = Verifica

A = Approvazione

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1. Scope of the document

The purpose of the present specification is to define the basic instructions for TeMec PC-Interface use (in the following pages called *Interface*).

2. How to connect

2.1. Connection via AZ convert or via RS485/USB converter.

If you use AZ convert remember to install its drivers (ST.TEC.005-USB-UART-installation). Start the TeMec Interface and choose AZ3.



Push the Modbus button and then push the Connection button to automatically connect the Interface with the drive (it is not necessary to set COM or baudrate). Start and connect the interface to AZ3 drive only when the device is already switched on and connected to PC.



2.2. Connection via USB/CAN converter.

The converters supported by the interface are PEAK PCAN and IXXAT V2 compact (remember to install the converter drivers).

Start the TeMec Interface and choose AZ3.



Push the Modbus CANOpen button and then open the view *Connect/CAN Options*.



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In the following window select the converter (PEAK PCAN in this case), select the correct BAUD RATE (125 kbit/s by default) and then push CONNECT.

I			_		\times
REFRESH	AVAIL	ABLE CONNECTIONS			
CONNECT	PEAK	- PCAN_USBBUS1			~
AUTO-CONNECT	BAUD	RATE			
DISCONNECT	CAN_	BAUD_250K			~
CONNECTED CHANNEL		ENABLE			
		ON OFF			
🕑 LOG BUS	STATE:				
				CAN	
			C	ANOPEN	

Start and connect the interface to AZ3 drive only when the device is already switched on and connected to PC.

Go back to the main view and select the correct address with the window circled in red below (if the address is **1**, select **2** and then **1** again).



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3. TeMec PC-Interface

TeMec Interface starts with the following screen:



3.1. Main bar buttons

The following points describe the functions of the buttons.

- Save parameters button: save parameters on AZ3 drive memory;
- Load parameters button: load parameters in the Interface from a configuration file (.dat);
- Save parameters on file button: save Interface parameters on a configuration file (.dat);
- Update parameters button: update Interface parameters from AZ3 drive;
- Write parameters button: write all the parameters of Interface in AZ3 drive but does not save them;

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Virtual Oscilloscope button: open virtual oscilloscope;



• Error log: displays the last errors stored in the drive memory.



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4. Basic instructions

4.1. Make the motor run

NB! Before following the instructions below, check that the motor can run in a safe condition.

In the upper menu push view/Base and then push on DRIVE OPERATION in the menu that will appear on the left.

Snapshoot Connect Tools Advanced	Application View Customizations
SN: 0 1+ CODE: 7 FW: 1.15	CONNECTED READING Rx I TX IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
TAURUS DRIVE OPERATION DRIVE DATA Motor parameters Profile parameters Profile parameters	DRIVE OPERATION Image: ControlWord Image: Con
	[CM2] 3 [] Modes of operation [] min: -128.0 max: 127.0
Osciloscope Channels Error register BRAKE OPTIONS Brake setup Brake activation	[CM4] 0 [Vser/def] 0 [I Jser/def] 0 [I Jser/def] 0 [I Jser/def] [I Jser/def] [I Jser/def] [I Jser/def] 0 [I Jser/def]

After the connection of all the cables as showed in the document "How to connect", enable the power writing **15** in the Control word window and pressing enter. To give a set-point, write a value in rpm in target velocity and press enter and then the motor will start to run.

To stop the motor then write **0** as set-point in target velocity and press enter. Then to disable the power write **6** in the Control word window and press enter.

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4.2. Change acceleration and deceleration ramps

In the upper menu push view/Base and then push on DRIVE DATA/Profile parameters in the menu that will appear on the left.

TEMEC INTERFACE 4.6	
Snapshoot Connect Tools Advanced	Application View Customizations
SN: 0 1 + CODE: 7 FW: 1.15	
TAURUS ^	PROFILE PARAMS
ORIVE OPERATION ORIVE DATA Orive parameters Motor parameters Orive parameters O	[SF1] Max motor speed min: 0.0 max: 200000.0
Factors Factors Torque Factors Drive flags	[SF2] 1000 [PRF1] 1000 Profile acceleration [] Profile deceleration [User unit]
MONITOR	min: 0.0 max: 2000000.0 min: 0.0 max: 2000000.0
Oigital inputs Oscilloscope Channels Error register	[DD3] 0 [0-Canopen/modth SET POINT SELECTOR 0 [0-Canopen/modth 1-Analog in -2 Digital in] 5.0 [A]
BRAKE OPTIONS	min: 0.0 max: 10.0 min: -80.0 max: 80.0
Brake activation	
DIGITAL INPUTS	

To change the motor ramps write the desired acceleration ramp in the window profile acceleration in rpm/s and pushing enter then write the desired deceleration ramp in the window profile deceleration in rpm/s and pushing enter.

To save the ramps after changed push the Save parameters button.



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5. Virtual oscilloscope

Pushing the following button it is possible to open the virtual oscilloscope.



In order to start with acquisitions push the start button and set the four scales using the autoscale button or the windows circled below.



- Start/Pause button: Start the oscilloscope sampling;
- Autoscale button: Automatically adjust the scale;
- Channel flags: Enable and Disable the channel visibility on the scope;
- MAX CH and MIN CH: Manual adjustment of the scale;
- Time window: Change the time window displayable;

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In View/BASE \rightarrow MONITOR \rightarrow Oscilloscope channels, is possible to set which variable connect on the four oscilloscope channels. TEMEC INTERFACE 4.6

Snapshoot Connect Tools Advanced	Application View Customizations
SN: 0 1 → CODE: 7 FW: 1.15	CONNECTED READING Rx I TX I Image: Second s
TAURUS DRIVE OPERATION DRIVE DATA DRIVE DATA DRIVE DATA Drive parameters Factors Torque Factors Torque Factors Croque Factors Croque Factors RONITOR Cociloscope Channels Error register BRAKE OPTIONS BRAKE OPTIONS Brake setup Brak	OSCILLOSCOPE CHANNELS SELECTORS [CS1] Channel 1 VELOCITY (CS2) Channel 2 SPEED SET POINT [CS3] Channel 3 RMS CURRENT (CS4) Channel 4 SUPPLY VOLTAGE
DIGITAL INPUTS	

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6. Diagnostic log panel

Push the following button to open the diagnostic log windows.



Once opened the diagnostic log window push the load button to read all the errors saved in the memory of the drive.

Snapshoot Connect Tools Advanced	Application View Cus	tomizations			
SN: 0 1 ↔ CODE: 7 FW: 1.15		X O KEADING	IS CANOpen		
SETUP VIEW	DIAGNOSTIC LOG				
PID TEST BRAKE DEACTIVATION STATES BRAKE OPTIONS	LOAD N° STA 915 ENTRY ERROR: Halls	ARTS TIME D h: 0 m: 46 s: 57 ms: 798 sensor not present or malfunctioning	ONE		
PROFILE PARAMS	ERROR CODE	TIME	N START		
ORQUE PARAMS POSITION PARAMS	8257 8257	h 0 m 0 s 31 ms 914 cycle: 7 h 0 m 0 s 31 ms 913 cycle: 7	914 913	^	
ENABLE AND BRAKING	8258	h 1 m 0 s 51 ms 883 cycle: 5	883		
ELECTRIC BRAKE	8258	h 13 m 0 s 61 ms 882 cycle: 3	882		
• OUTPUT FEEDBACK	8262	h 13 m 0 s 61 ms 882 cycle: 6	882		
DIGITAL INPUTS SELECTORS	8259	h 0 m 0 s 13 ms 823 cycle: 9	823		
ENCODER FEEDBACK	16449 16449	h 0 m 0 s 18 ms 820 cycle: 1 h 21 m 0 s 43 ms 815 cycle: 0	820		
- MOTOR OPTIONS	8259	h 17 m 0 s 50 ms 815 cycle: 0	815		
TDI CW SELECTOR	8258	h 16 m 0 s 36 ms 815 cycle: 0 h 5 m 0 s 1 ms 815 cycle: 0	815		
BOOTLOADER CONFIG	8258	h 1 m 0 s 12 ms 811 cycle: 0	811		
PID TUNING	8258	h 0 m 0 s 27 ms 808 cycle: 0	808	~	
└── CANOPEN └─ ♦ Hearth Beat					

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7. Parameters location

The following table shows all the parameters reported in the AZ3 User Manual (ST.TEC.030 rev. 0.1) and their relative path in TeMec PC-Interface (rev. 6.4).

Code	Variable	Menu -> View	Path
AD1	Alimentation power	SETUP	ELECTRIC BRAKE
Al1	User range 1	BASE	INPUTS -> ANALOG INPUTS
AI10	Al Mult 2	BASE	INPUTS -> ANALOG INPUTS
Al11	Al filter time	BASE	INPUTS -> ANALOG INPUTS
AI2	Offset 1	BASE	INPUTS -> ANALOG INPUTS
AI3	Zero threshold 1	BASE	INPUTS -> ANALOG INPUTS
AI4	User range 2	BASE	INPUTS -> ANALOG INPUTS
AI5	Offset 2	BASE	INPUTS -> ANALOG INPUTS
AI6	Zero threshold 2	BASE	INPUTS -> ANALOG INPUTS
AI7	Selector 1	BASE	INPUTS -> ANALOG INPUTS
AI8	Selector 2	BASE	INPUTS -> ANALOG INPUTS
AI9	Al Mult 1	BASE	INPUTS -> ANALOG INPUTS
AXO1	AUX PWM OUT 1 SEL	SETUP	BRAKE OPTIONS
AXO2	AUX PWM OUT 2 SEL	SETUP	BRAKE OPTIONS
AXO3	BRAKE 1 MODE SEL	SETUP	BRAKE OPTIONS
AXO4	BRAKE 1 POW VALUE	SETUP	BRAKE OPTIONS
BKS1	START	SETUP	BRAKE DEACTIVATION STATES
BKS2	NOT READY TO SWITCH ON	SETUP	BRAKE DEACTIVATION STATES
BKS3	SWITCH ON DISABLED	SETUP	BRAKE DEACTIVATION STATES
BKS4	READY TO SWITCH ON	SETUP	BRAKE DEACTIVATION STATES
BKS5	SWITCHED ON	SETUP	BRAKE DEACTIVATION STATES
BKS6	OPERATION ENABLED	SETUP	BRAKE DEACTIVATION STATES
BKS7	QUICK STOP ACTIVE	SETUP	BRAKE DEACTIVATION STATES
BKS8	FAULT	SETUP	BRAKE DEACTIVATION STATES
BKS9	FAULT REACTION ACTIVE	SETUP	BRAKE DEACTIVATION STATES
BR1	Braking resistor value	SETUP	ELECTRIC BRAKE

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BR2	Braking resistor max power	SETUP	ELECTRIC BRAKE
CM1	Control word	BASE	DRIVE OPERATION
CM2	Modes of operation	BASE	DRIVE OPERATION
CM4	Target velocity	BASE	DRIVE OPERATION
DD1	V bus max	BASE	DRIVE DATA -> Drive parameters
DD2	ENCODER TYPE	BASE	DRIVE DATA -> Motor parameters
DD3	SET POINT SELECTOR	BASE	DRIVE DATA -> Profile parameters
DD5	MOTOR POLES PAIR	BASE	DRIVE DATA -> Motor parameters
DF1	Phasing in progress	BASE	DRIVE DATA -> Drive Flags
DF12	Reset Position	BASE	DRIVE DATA -> Drive Flags
DF2	Start phasing	BASE	DRIVE DATA -> Drive Flags
DF5	Invert Position feedback	DEFAULT	DRIVE DATA -> Drive Flags
DF6	auto-phased motor	DEFAULT	DRIVE DATA -> Drive Flags
DF7	Invert speed feedback	DEFAULT	DRIVE DATA -> Drive Flags
DI1	DI1 rise selector	SETUP	DIGITAL INPUTS SELECTORS
DI10	Speed value 2	SETUP	DIGITAL INPUTS SELECTORS
DI11	Position value 1	SETUP	DIGITAL INPUTS SELECTORS
DI12	Position value 2	SETUP	DIGITAL INPUTS SELECTORS
DI13	Torque value 1	SETUP	DIGITAL INPUTS SELECTORS
DI14	Torque value 2	SETUP	DIGITAL INPUTS SELECTORS
DI2	DI1 fall selector	SETUP	DIGITAL INPUTS SELECTORS
DI3	DI2 rise selector	SETUP	DIGITAL INPUTS SELECTORS
DI4	DI2 fall selector	SETUP	DIGITAL INPUTS SELECTORS
DI5	DI3 rise selector	SETUP	DIGITAL INPUTS SELECTORS
DI6	DI3 fall selector	SETUP	DIGITAL INPUTS SELECTORS
DI7	DI4 rise selector	SETUP	DIGITAL INPUTS SELECTORS
DI8	DI4 fall selector	SETUP	DIGITAL INPUTS SELECTORS
DI9	Speed value 1	SETUP	DIGITAL INPUTS SELECTORS
DRF1	TDI CW manage enable	ADVANCED	FLAGS
DRF2	Ready to switch on is reached at start up	ADVANCED	FLAGS

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DRF3	Operation enabled is reached at start up	ADVANCED	FLAGS
DRF7	Thermistor check activation	ADVANCED	FLAGS
DRF7	Torque limit on	ADVANCED	FLAGS
DRF8	Brake activation	ADVANCED	FLAGS
DRF9	Brake value	ADVANCED	FLAGS
DRS3	brake disengage time	SETUP	ENABLE AND BRAKING
DRS4	brake engage time	SETUP	ENABLE AND BRAKING
DRS6	Shutdown option code	SETUP	ENABLE AND BRAKING
DRS7	Disable operation option code	SETUP	ENABLE AND BRAKING
EFM1	Encoder feedback mode	SETUP	ENCODER FEEDBACK
FS1	Gear ratio motor revolution	BASE	DRIVE DATA -> Factors
FS10	Position encoder resolutions encoder increments	BASE	DRIVE DATA -> Factors
FS11	Velocity factor numerator	BASE	DRIVE DATA -> Factors
FS12	Velocity factor denominator	BASE	DRIVE DATA -> Factors
FS13	Polarity	BASE	DRIVE DATA -> Factors
FS2	Gear ratio shaft revolutions	BASE	DRIVE DATA -> Factors
FS3	Velocity encoder resolution motor revolutions	BASE	DRIVE DATA -> Factors
FS4	Velocity encoder resolution increments per second	BASE	DRIVE DATA -> Factors
FS5	Feed constant feed	BASE	DRIVE DATA -> Factors
FS6	Feed constant shaft revolutions	BASE	DRIVE DATA -> Factors
FS9	Position encoder resolution motor revolutions	BASE	DRIVE DATA -> Factors
IC1	Nominal current rms	BASE	DRIVE DATA -> Motor parameters
IDP1	ID KP	SETUP	PID TUNING
IDP2	ID KI	SETUP	PID TUNING
IDP3	ID KD	SETUP	PID TUNING
IQP1	IQ KP	SETUP	PID TUNING
IQP2	IQ KI	SETUP	PID TUNING
IQP3	IQ KD	SETUP	PID TUNING
MTY1	Motor type*	SETUP	MOTOR OPTIONS
MV1	Torque actual value	SETUP	TORQUE PARAMS

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MV5	Position actual value	SETUP	POSITION PARAMS
MV7	Velocity actual value	SETUP	POSITION PARAMS
OF1	Output 1 selector	SETUP	OUTPUT FEEDBACK
OF2	Output 2 selector	SETUP	OUTPUT FEEDBACK
PC1	Target position	SETUP	POSITION PARAMS
PC10	POSITION KD	SETUP	PID TUNING
PC2	Min position range limit	SETUP	POSITION PARAMS
PC3	Max position range limit	SETUP	POSITION PARAMS
PC4	Soft min position limit	SETUP	POSITION PARAMS
PC5	Soft max position limit	SETUP	POSITION PARAMS
PC6	Max profile velocity	SETUP	POSITION PARAMS
PC7	Max profile velocity	SETUP	POSITION PARAMS
PC7	Profile velocity	SETUP	POSITION PARAMS
PC8	POSITION KP	SETUP	PID TUNING
PC9	POSITION KI	SETUP	PID TUNING
PRF1	Profile deceleration	BASE	DRIVE DATA -> Profile parameters
SCM1	TDI CW mode	SETUP	TDI CW SELECTOR
SF1	Max motor speed	BASE	DRIVE DATA -> Profile parameters
SF2	Profile acceleration	BASE	DRIVE DATA -> Profile parameters
SP1	SPEED KP	SETUP	PID TUNING
SP2	SPEED KI	SETUP	PID TUNING
SP3	SPEED KD	SETUP	PID TUNING
TC1	Target torque	SETUP	TORQUE PARAMS
TC2	Max torque	SETUP	TORQUE PARAMS
тсз	Max current	SETUP	TORQUE PARAMS
TC4	Motor rated torque	SETUP	TORQUE PARAMS
TC5	Motor rated current	SETUP	TORQUE PARAMS
TC6	Torque slope	SETUP	TORQUE PARAMS
TF1	Torque limit	SETUP	TORQUE PARAMS