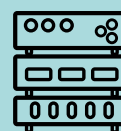




DIGICrown NETWORK SYSTEM

THE MOST FLEXIBLE DIGITAL NETWORK FOR GAUGING SOLUTIONS



Interface Boxes for Data Acquisition

DIGICrown™ is a digital network system for the acquisition of dimensional measurements using high precision sensors.

The modular system offers a high degree of standardization to the wide range of available interfaces for different input signals. This gives the product and end user an optimal ratio between performance and price.

Displacement Sensors



Product **features**

DIGICrown system is a network that you can build with many different types of modules.

In combination with DIGICrown2™, pencil probes with high linearity performance, measurement applications with characteristics requiring superior accuracy can be achieved.

Sensors are available in standard and “soft touch” versions with spring or pneumatic push actuation and with measurement ranges from 1 mm up to 20 mm.

The main features of this network are:

- **Automatic recognition** of any DIGICrown2 model sensor makes the installation process easier and avoids possible programming errors when a sensor is changed for a different type or replaced.
- **Mix of models.** Each sensor is equipped with identification data inside the connector, that the system recognizes, for a quick and easy connection to the relevant interface modules without any programming.
- **Modularity.** The same network includes different types of interface modules to integrate various types of sensors such as LVDT/HBT (DIGICrown BOX), incremental linear scales (DIGICrown EI), analog signals (DIGICrown AI) and manage inputs/outputs (DIGICrown I/O).
- **Flexibility.** The network can be deployed with the optimal logistics to satisfy the application requirements on benches or measuring machines. The cost of the application is always directly proportional to the number of measurement points used.

DIGICrown Network System is based on a RS485 communication bus, providing safe and effective serial protocol suitable for industrial environments.

DIGICrown Network System interfaces PC (32bit or 64bit) or PLC via RS232, USB or Ethernet.

Bore Gauges



Forks and Ring Gauges



Bench Gauges



Application **examples**

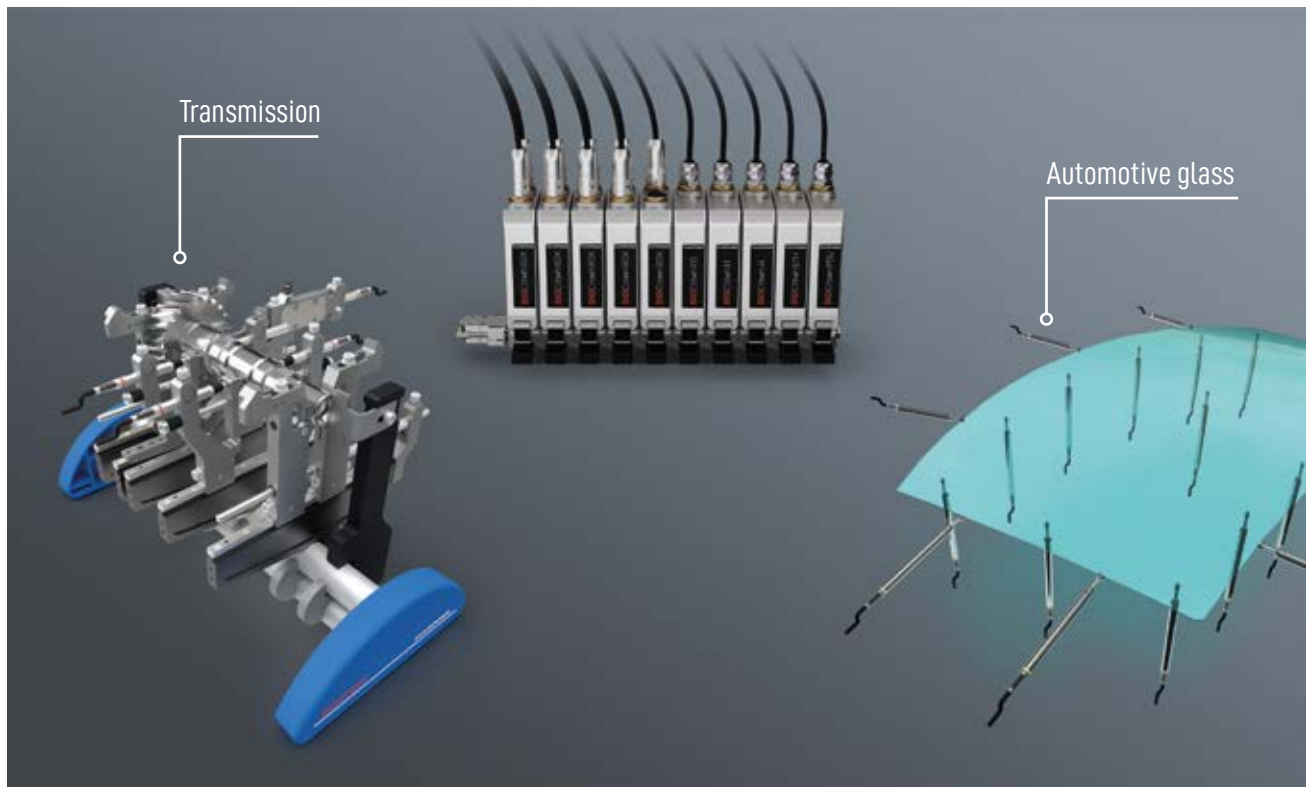
Indicators and Electronic Display Units



Interface Boxes for Data Acquisition



Software

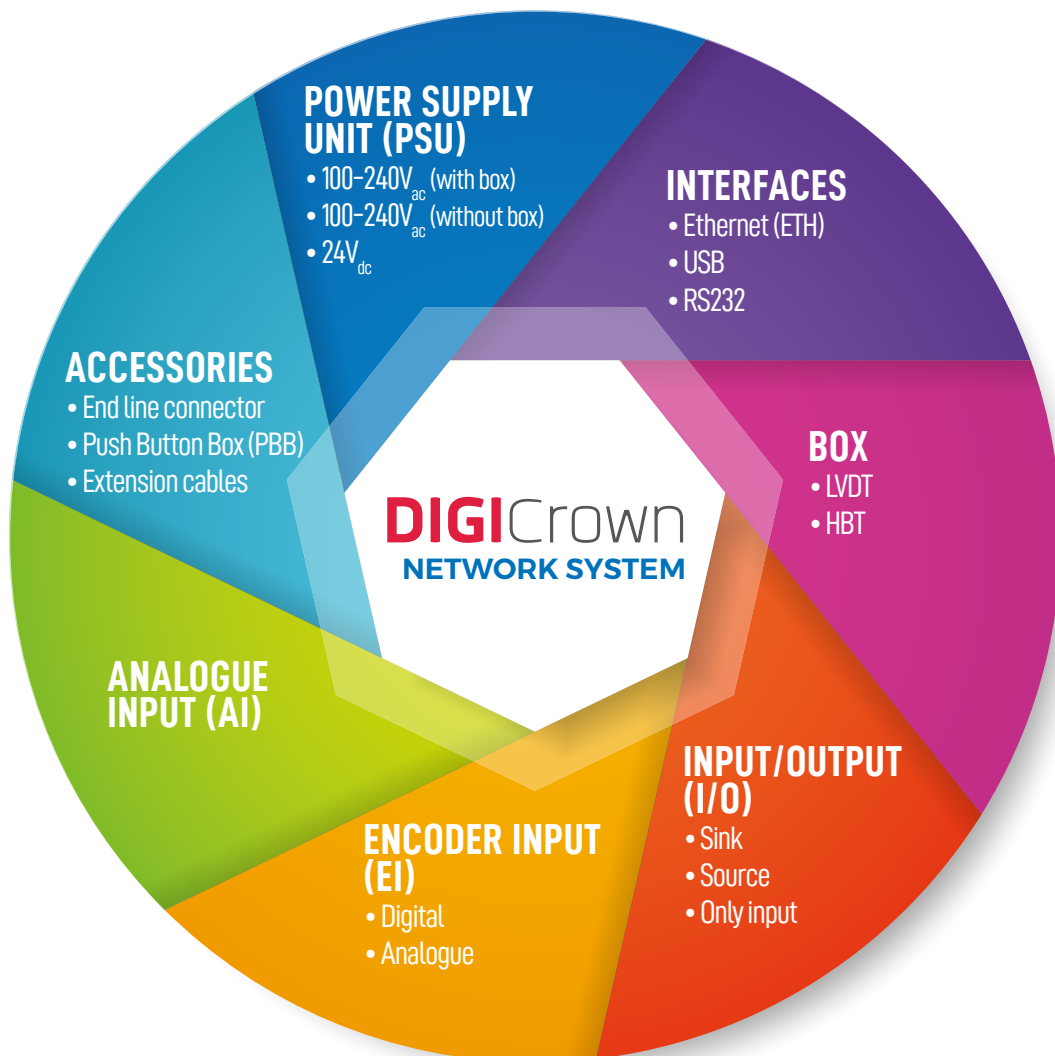


Performances

The system supports up to 744 sensors (62 sensors for 12 networks), all modules can be combined and mixed on the same network. This product is suitable for applications where 32bit or 64bit Windows operating systems are installed and employed. Dedicated software packages can solve measurement problems statically and dynamically using a mix of sensors types, while performing at acquisition speeds up to 4000 samples/s with a synchronized DIGICrown Network System.

Product mix

Please refer to the below reported scheme in order to have the DIGICrown Network System product mix overview.



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Sensors



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DIGICrown PSU

Power Supply Unit (PSU) ①. It is always the first module and supplies supply voltage to the complete network. It is available in 3 models, 2 types for 100-240V_{ac} (with or without box) and 1 type for 24V_{dc}.

Bore Gauges



DIGICrown ETH/DIGICrown USB/DIGICrown 232

The system can be connected to PC or PLC with three different interfaces. All these modules allow static or dynamic measurements acquisitions with synchronisation, for performance details please refer to the technical specifications table.

ETHERNET Interface (ETH) ②. The bus network baud rate is 2083 Kbps. In case of configuration with more than one network, the synchronization signal can be also extended to other networks (external synchronisation).

USB High Speed Interface (USB) ②. The interface creates a virtual COM Port. The bus network baud rate is 2083 Kbps. In case of configuration with more than one network, the synchronization signal can be also extended to other networks through an additional cable (external synchronisation).

RS232 Interface (232) ②. The COM port baud rate is programmable up to 115.2 Kbps and the bus network baud rate is 625 Kbps.

Forks and Ring Gauges



Bench Gauges



DIGICrown BOX

Dual channel BOX ⑥. It allows the management of the entire Marposs DIGICrown probing line and all Marposs digitized sensors (A/E converter, D124, etc.). Please refer to REDCrown2 line catalogue. The DIGICrown BOX can acquire up to 4000 samples/s.

Indicators and Electronic Display Units



DIGICrown I/O

DIGICrown I/O interface ⑤. It is available in 3 versions with 8 Input/Output (sink or source) and only input (8 inputs). The inputs/outputs are opto-coupled, they can be singularly programmed as In or Out. With this module it is possible to manage: solenoid valves (through power relays), acquisition of input signals by local cycle start/stop push-button panels, or acquisition of limit switch signals.

Interface Boxes for Data Acquisition



DIGICrown EI

Encoder Input (EI) ④. It is available in 2 models for analogue or digital, linear or rotary type encoders; spatial and temporal synchronisation are managed.

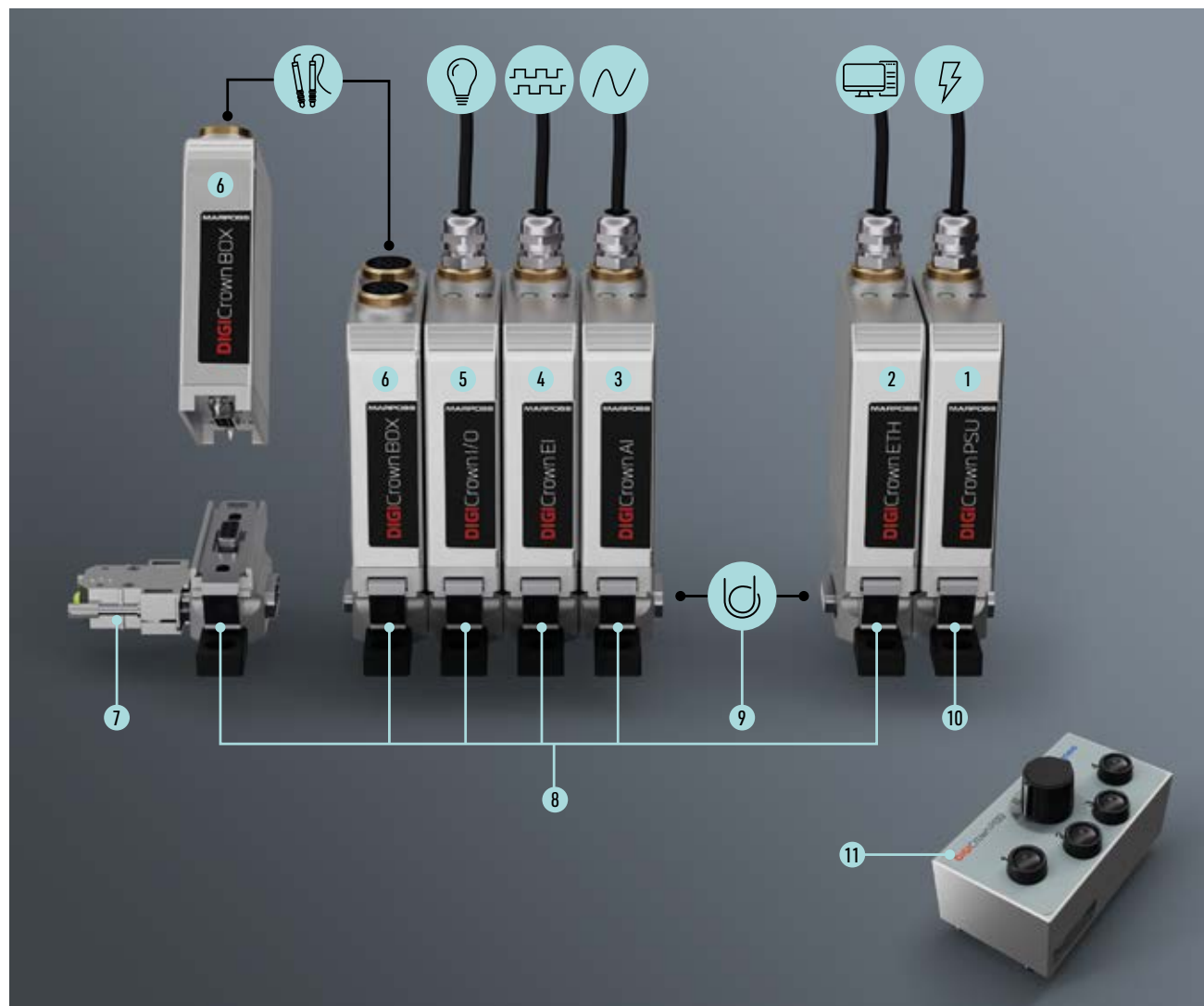
Software



DIGICrown AI

Analogue Input (AI) ③. It allows to interface any third party sensor with voltage or current analogue signal.

HOW TO ORDER



INTERFACES

Description	Order code
DIGICrown PSU 100-240 V _{ac} 7,5 V _{dc} 3A (with box)	B767W000001
1 DIGICrown PSU 100-240 V _{ac} 7,5 V _{dc} 3A (Dsub9 - without box)*	B767W000011
DIGICrown PSU (24 V _{dc} / 7,5 V _{dc})	B767W010000
DIGICrown ETH high speed sync	B767Y020500
DIGICrown ETH high speed with external synchronisation (**)	B767Y020505
2 DIGICrown USB high speed sync	B767Y010500
DIGICrown USB high speed with external synchronisation (**)	B767Y010505
DIGICrown 232	B767Y000100
3 DIGICrown AI	B767A000400
4 DIGICrown EI	B767E010500
DIGICrown EI analog HSS	B767E100500
DIGICrown I/O sink	B767I000500
5 DIGICrown I/O source	B767I010500
DIGICrown I/O only input	B767I020500
6 DIGICrown BOX	B767X200400

(*) NOTE: This version does not require the usage of the DIGICrown PSC 10.

(**) External synchronisation means between two different DIGICrown networks

ACCESSORIES

Description	Order code
7 End line connector	B6355200000
8 DIGICrown BUS	B6872030020
10 DIGICrown PSC (for DIGICrown PSU only)	B6872030021
11 DIGICrown PBB (Push Button Box)	B6139013200
EU cable	B4147000016
USA cable	B4147000017

EXTENSION CABLES

Description	Order code
Connection cable 2 m	B6738057027
Connection cable 3,5 m	B6738057029
9 Connection cable 6 m	B6738057031
Connection cable 10 m	B6738057033
Connection cable 15 m	B6738057035

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TECHNICAL SPECIFICATIONS

The product


DIGICrown is a flexible modular system that can be configured depending on the layout of the application. The network must always start with the power supply module in the first position (to supply all interfaces) and the communication interface (to the PC or PLC) in second place.

Starting from the third position up to the last (33rd), every interface can be used in the preferred order. Through the automatic configuration (feature available in the DIGICrown driver) it is possible to easily build the network and save the configuration file.

The network is now ready to be controlled from the Marpos acquisition software or to be integrated into third-party systems via dedicated software (Driver Library or SDK) or ASCII serial protocol commands.

	POWER SUPPLY UNITS		
	PSU (100-240 V _{ac}) with box	PSU (100-240 V _{ac}) without box	PSU (24 V _{dc})
Scheme reference	1		
Order code	B767W000001	B767W000011	B767W010000
Max number of modules x net	up to 31 DIGICrown BOX (*) 8		up to 18 DIGICrown BOX (*) 8
Current consumption	-		0,8 A
Input	100-240 V _{ac}		24 V _{dc}
Output	7,5 V _{dc} / 3 A		7,5 V _{dc} / 1,7 A
Operating temperature [°C]	0 to +40		
Storage temperature [°C]	-20 to +70		
Protection degree	IP41		
Connection	cable	cable	jack
Network position	1 st		
Connection to the DIGICrown net	DIGICrown PSC, 10	direct to DIGICrown BUS 8 of the selected interface 2. DIGICrown PSC not needed.	DIGICrown PSC, 10

(*) NOTE: please refer to the current consumption value in the next table to evaluate how many modules of different types can be managed.

	INTERFACES		
	RS 232	USB HIGH SPEED	ETHERNET
	2		
Order code	B767Y000100	B767Y010500	B767Y020500
Max. number of networks	12		
Number of interface x network	1		
PC operative system	WINDOWS 7® / WINDOWS 8® / WINDOWS 10®		
Power supply	+7,5 V _{dc} (-10 / +30%) external by DIGICrown PSU		
Current consumption	40 mA	90 mA	
Communication [toward pc]	1 RS232 channel, full duplex hardware handshake (RTS/CTS)	1 virtual COM with USB interface (USB 1.1 / 2.0 compatible)	ETH (10/100)
Internal network baud rate [Kbaud]	625	2083	2083
Max managed sampling rate [samples/s]	-	up to 4000	
Operating temperature [°C]	0 to +60		
Storage temperature [°C]	-20 to +70		
Protection degree	IP43		
Connection	9 pin D-Sub female connector	type "A" USB connector	RJ45
Network position	2 nd		
Connection to the DIGICrown net	DIGICrown BUS, 8		

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Software



The application

The DIGICrown BOX allows the system to manage contact sensors (LVDT or HBT). All Marposs sensors are provided individually calibrated and linearized to ensure high measure accuracy. For third-party sensors, interfacing can be provided by a DIGICrown AI module (Voltage or Current).

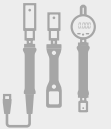
To integrate the network in automatic measurement applications, input/output modules in either source or sink format are available. The maximum number of interfaces that can be configured for the network is 31 (62 sensors). Up to 12 DIGICrown network systems can be managed in the same application.

	 ANALOGUE INPUT			 ENCODER INPUT		 INPUT / OUTPUT			 BOX
	DIGITAL			ANALOGUE		SINK	SOURCE	ONLY INPUT	
Scheme reference	3			4		5			6
Order code	B767A000400			B767E010500		B767I000500	B767I010500	B767I020500	B767X200400
Max number of modules per net	31			31		31			31
Power supply	+7,5V _{dc} (-10/+30%) - from bus			+7,5V _{dc} (-10/+30%) - from bus		+7,5V _{dc} (-10/+30%) - from bus			+7,5V _{dc} (-10/+30%) - from bus
Current consumption	100 to 150 mA depending on input type			115 mA (without encoder connected)		70 mA		80 mA	90 mA
Input (sensor)	voltage / current input			single ended (A,B,Z,ER) or differential (A+,A-,B+,B-,Z+,Z-,ER)	phases A, B, M and error	8 in/out opto-insulated Voff (min)= (Vio-5V) Von (max)= (Vio-15V) Every bit can be programmed as IN or OUT		8 IN for switch box Off: Rswitch > 500 kohm Ω On: Rswitch < 3300 ohm Ω	Two DIGICrown2 probes
Output (BUS)	serial communication toward bus, by DIGICrown protocol			serial communication toward bus, by DIGICrown protocol		serial communication toward bus, by DIGICrown protocol			serial communication toward bus, by DIGICrown protocol
Input type	voltage (±10V / ±5V / 0-10V)	current (±20mA / 4-20 mA)	resistance	TTL, HTL, RS422 push pull or open-collector	1Vpp or 11µApp	200mA for out (700mA max total)		-	1 / 2 / 5 / 10 / 20 mm
Resolution	0,02mV (±5V range) or 0,05mV (±10V)	0,0001mA	0,1 Ω (range 50÷3.000 Ω) 0,01 Ω (range 50÷500 Ω)	depending on the device connected		-			0,05µm (1-2mm) / 0,2µm (4-10mm) / 0,5µm (20mm)
Sampling rate [Samples/s]	up to 4000			up to 4000		up to 4000			up to 4000
Operating temperature [°C]	0 to +60			0 to +60		0 to +60			0 to +60
Storage temperature [°C]	-20 to +70			-20 to +70		-20 to +70			-20 to +70
Protection degree	IP43			IP43		IP43			IP43
Connection	wires			9 pin D-SUB male connector		15 pin D-SUB male connector			Lumberg female connector
Network position	from the 3 rd to the 33 th			from the 3 rd to the 33 th		from the 3 rd to the 33 th			from the 3 rd to the 33 th
Connection to the DIGICrown net	DIGICrown BUS, 8			DIGICrown BUS, 8		DIGICrown BUS, 8			DIGICrown BUS, 8

Displacement Sensors



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Forks and Ring Gauges



Bench Gauges



Indicators and Electronic Display Units



Interface Boxes for Data Acquisition



Software



CONNECTIVITIES

E9066E with QUICKSPC
and Glass AddOn

E9066T with QUICKSPC

MERLIN Plus

NEMO

MERLIN

The DIGICrown Network System can be connected to all Marposs display units and software or integrated with third party software using the following options:

Marposs Driver Library is a COM object software that allow to easily build the configuration by the use of the Marposs DIGICrown.

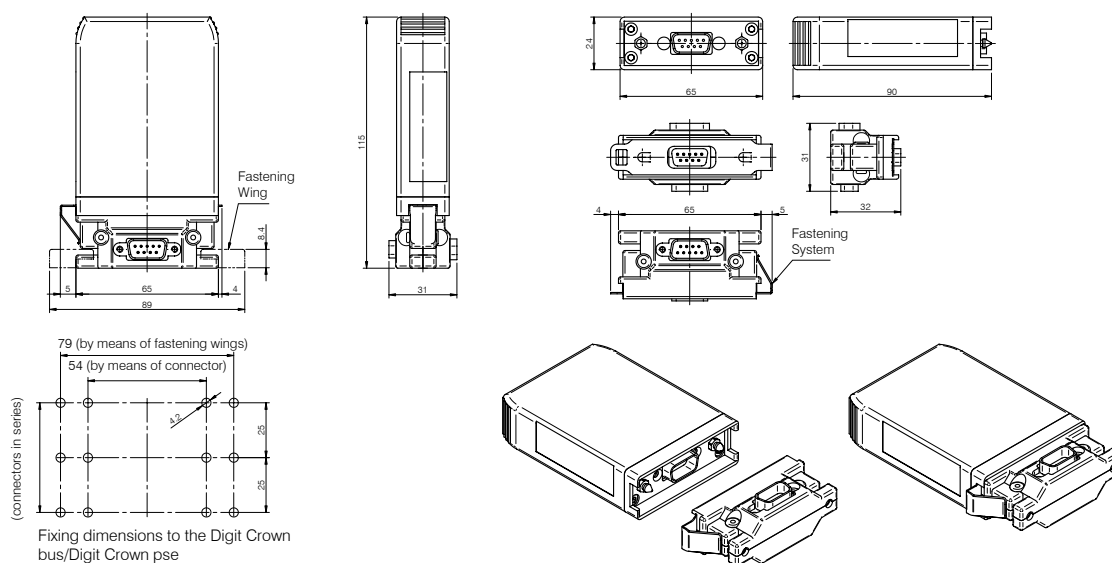
SDK is a COM object software tool that allows OEMs to integrate DIGICrown network in third party application software. The user is completely free to build his dedicated software interface managing configurations and application too.

ASCII protocol commands

DIGICrown network is suitable also for PLC connection. Manuals, tools to practice the protocol commands and examples are available on request.

DIMENSIONS

Overall dimensions in mm of DIGICrown BOX, DIGICrown 232, DIGICrown PSU, DIGICrown I/O, DIGICrown BUS, DIGICrown PSC interfaces.



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