



DIGI Crown NETWORK SYSTEM



*...the most flexible
digital network for
your gauging
solutions*

Digi Crown 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.

PRODUCT FEATURES

Digi Crown system is a network that you can build with Marposs interface modules with one or two sensor inputs.

In combination with Digi Crown 2, a line of 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 1mm up to 20mm.

The main features of this network are:

- **Automatic recognition** of any Digi Crown 2 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 within 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 interface modules to integrate various types of sensors such as LVDT, incremental linear scales, analog signals and manage INPUTS/OUTPUTS to PLCs.
- **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.

Digi Crown network system is based on a bus communication RS485, providing safe and effective serial protocol suitable for industrial environments.

Digi Crown network system can also be interfaced to Windows based PC (32bit or 64bit) or PLC via interfaces such as RS232, USB or Ethernet.

CAPACITY

Marposs Digi Crown network system is a network designed to comply with the market standards such as:

- EN61010 - 1 (Safety)
- EN61326 - 1 (EMC)

The network supports up to 744 sensors and can be interfaced with either a PC (commercial or industrial) or with a PLC.

This product is suitable for applications where 32bit or 64bit Windows operating systems are installed and employed.

Dedicated SW packages can solve measurement problems statically and dynamically using a mix of sensors types, while performing at acquisition speeds of 4000 samples/sec with a synchronized Digi Crown network system.

THE PRODUCT

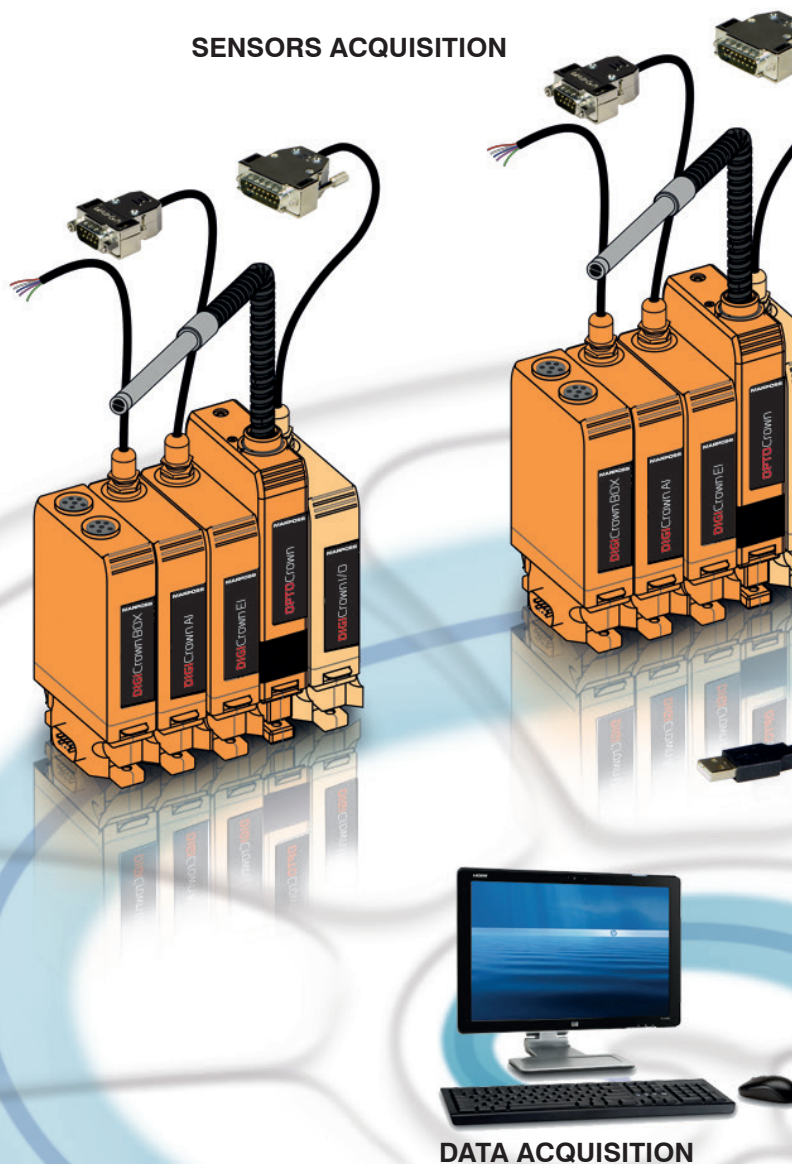
Digi Crown system is a flexible modular system that can be configured depending on the layout of the application. The network must always start with the power supply module in the first position (to supply all interfaces) and the communication interface (to the PC or PLC), in second place.

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 Digi Crown SW driver) it is possible to easily build the network and save the configuration file.

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

SENSORS ACQUISITION

SENSORS ACQUISITION



DISPLACEMENT SENSORS

BORE GAUGES LINE

FORKS AND RING GAUGES

BENCH GAUGES

INDICATORS AND ELECTRONIC

SOFTWARE







DIGI CROWN NETWORK

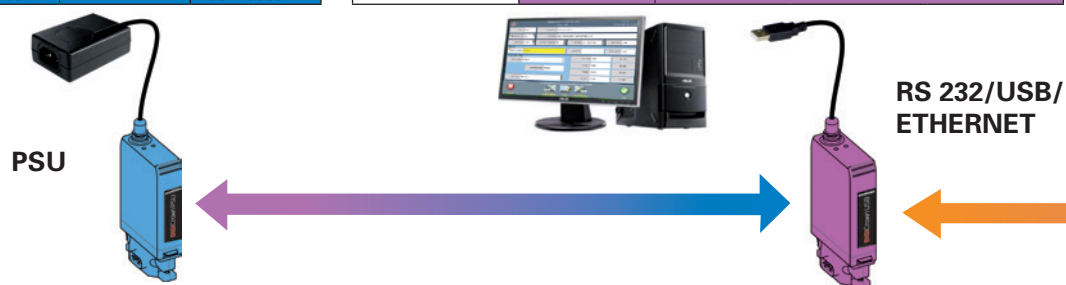
Digi Crown Network system can be represented by 3 main sections, as:

Net Power Supply. The Power Supply units are available in 3 models, two of them for Vac net (100-240 Vac) and one for 24 Vdc voltage (machine voltage)

	POWER SUPPLY UNITS		
	PSU (100-240 VAC)	PSU (100-240 VAC)	PSU (24 Vdc)
Ordering code	767W000001	767W000011	767W010000
			
Max number of interface x net	31		31
	-		-
Current consumption	-	-	0,8 A
Power supply	-	-	-
Power absorbtion	-	-	-
Input	100-240 Vac		24 Vdc
Output	7,5 Vdc / 3 A		7,5 Vdc / 1,7 A
Communication	-	-	-
Bus type	-	-	-
Baud rate (kbaud)	-	-	-
Operating temperature	0 ÷ +40 °C	0 ÷ +40 °C	0 ÷ +40 °C
Storage temperature	-20 ÷ +70 °C	-20 ÷ +70 °C	-20 ÷ +70 °C
Dimensions	please refer to page 8		
Grade of protection	IP41		IP41
Connection	plug or cable	plug or cable	wires
Connection to the digi crown net	by psc connector code 6872030021	direct to interface bus	by psc connector code 6872030021









PC / PLC interfaces. The Net interfacing towards PC / PLC can be done by dedicated board inserted into the PC bus (PCI or ISA, the latter on request) or by external device RS232, USB or Ethernet.

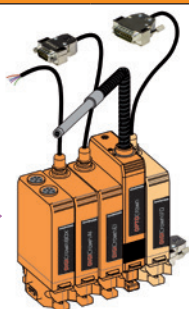
	NET INTERFACE			
	PCI CARD	RS 232	USB HIGH SPEED	ETHERNET
Ordering code	6355321100	767Y000100	767Y010500	767Y020500
				
Max. number of interface	6	12	12	12
Number of net x interface	2	1	1	1
PC operative system	WINDOWS 2000, NT, XP	WINDOWS XP / VISTA / WINDOWS7 / WINDOWS8		
Power supply	from standard pci bus 5v	+7,5 Vdc (-10 / +30%) external by Digi Crown PSU		
Current consumption	-	40 mA	90 mA	90 mA
Power required	25W (*)	-	-	-
	-	-	-	-
Communication (toward pc)	internal com	1 RS232 channel, full duplex hardware handshake (RTS/CTS)	1 virtual com with usb interface (USB 1.1 / 2.0 compatible)	ETH (10/100)
Bus type	serial RS485 interface half duplex (see Digi Crown protocol&communication)			
Baud rate (Kbaud)	625	625	2.083	2.083
Operating temperature	0 ÷ 50°C	0 ÷ +60 °C	0 ÷ +60 °C	0 ÷ +60 °C
Storage temperature	0 ÷ 50°C	-20 ÷ +70 °C	-20 ÷ +70 °C	-20 ÷ +70 °C
Dimensions	standard short pci slot	please refer to page 8		
Grade of protection	depend on PC	IP43		
Connection	to pc bus	9 pin D-Sub female connector	type "A" USB connector	RJ45
Connection to the Digi Crown net	cable	by bus connector code 6872030020		



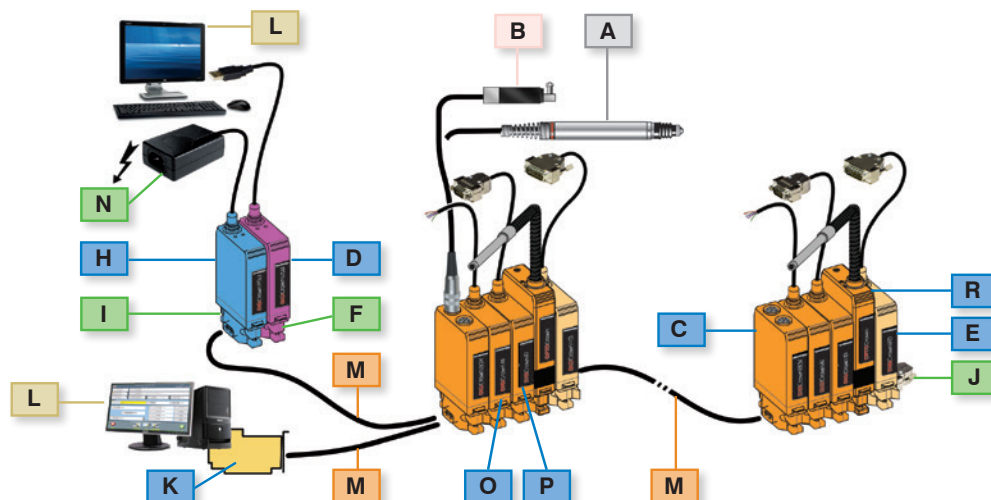
Sensors Interface The management of the acquisition sensors and I/O signals can be done by dedicated interface boxes, as:

-LVDT 2CH box - Encoder Input box - Analogue Input box - I/O interface box - Contactless box

	SENSOR INTERFACE							INPUT OUTPUT INTERFACE			
	BOX 2 CH LVDT	OPTO CROWN	ANALOGUE INPUT				ENCODER INPUT		INPUT / OUTPUT		
							DIGITAL	ANALOGUE	SINK TYPE	SOURCE TYPE	ONLY INPUT
Ordering code	767X200400	3PF0110000	767A000400				767E010500	767E100500	767I000500	767I010500	767I020500
											
Max number of interface per net	15	31	31				31	31	31	31	31
Power supply	+7,5Vdc (-10/+30%) - from bus								-	-	-
Current consumption	90 mA	190 mA	100 ÷ 150 ma depending on input type				115 mA (without encoder connected)	115 mA (without encoder connected)	+7,5Vdc (-10/+30%) - from bus (***)		+7,5Vdc (-10/+30%) - from bus
Input	digi crown probes (**)	Contactless sensor probe	voltage / current input				single ended (A,B,Z, ER) or differential (A+,A-,B+,B-,Z+,Z-,ER+, ER-)	phases A, B, M and error	70 mA	70 mA	80 mA
Output	serial communication toward bus, by Digi Crown protocol								8 in/out optoisolated Voff (min)= (Vio-5V) Von (max)= (Vio-15V)	8 in/out optoisolated Voff (max)= (5V) Von (min)= (15V)	8 IN for switch box Off: Rswitch > 500 kohm On: Rswitch < 3300 ohm
Input type	1 / 2 / 5 / 10 / 20 mm	integrated sensor 10mm range	voltage (±10V / ±5V / 0-10V)	current (±20mA / 4..20 mA)	resistance	TTL, HTL, RS422 push pull or open-collector	1Vpp or 11µApp	serial communication toward bus, by Digi Crown protocol			
Resolution	0,05µm (1-2mm) / 0,2µm (4-10mm) / 0,5µm (20mm)	1µm	0,02mV (±5V range) or 0,05mV(±10V)	0,0001 mA	0,1 Ω (range 50÷3.000 VV) 0,01 Ω (range 50÷500 Ω)	depend on device connected	depend on device connected	200mA for out (700mA max total)	200mA for out (700mA max total)	-	
Bus type	serial RS485 interface half duplex (see Digi Crown protocol & communication)								serial RS485 interface half duplex (see Digi Crown protocol & communication)		
Net sampling rate	4000 read/sec.	4000 read/sec.	4000 read/sec.				4000 read/sec.		4000 read/sec.	4000 read/sec.	4000 read/sec.
Operating temperature	0 ÷ +60 °C	PROBE 0°÷100° BOX 0°÷50°C	0 ÷ +60 °C				0 ÷ +60 °C	0 ÷ +60 °C	0 ÷ +60 °C	0 ÷ +60 °C	0 ÷ +60 °C
Storage temperature	-20 ÷ +70 °C	-20 ÷ +70 °C	-20 ÷ +70 °C				-20 ÷ +70 °C	-20 ÷ +70 °C	-20 ÷ +70 °C	-20 ÷ +70 °C	-20 ÷ +70 °C
Dimensions	please refer to page 8								please refer to page 8		
Grade of protection	IP43	IP43	IP43	IP43	IP43	IP43	IP43	IP43	IP43	IP43	IP43
Connection	lumberg female connector	-	wires				9 pin D-sub male connector		15 pin D-SUB male connector		
Connection to the digi crown net	by bus connector code 6872030020								by bus connector code 6872030020		



SENSORS and INPUT/OUTPUT Interfaces



INTERFACES

DESCRIPTION		ORDER CODE
C	DIGI CROWN BOX TWO TRANSDUCERS HIGH SPEED	767X200400
D	DIGI CROWN 232	767Y000100
D	DIGI CROWN USB HIGH SPEED SYNC INT	767Y010500
D	DIGI CROWN USB HIGH SPEED SYNC INT + EXT	767Y010505
D	DIGI CROWN ETH HIGH SPEED SYNC INT	767Y020500
D	DIGI CROWN ETH HIGH SPEED SYNC INT + EXT	767Y020505
R	OPTOCROWN CONTACTLESS BOX	3PF0110000
H	DIGI CROWN DNG BOX ALIM. 100-240 Vac 7,5 Vdc 3A	767W000001
H	DIGI CROWN DNG BOX ALIM. 100-240 Vac 7,5 Vdc 3A DSUB9	767W000011
H	DIGI CROWN PSU (24 Vdc / 7,5 Vdc)	767W010000
E	DIGI CROWN I/O SINK HIGH SPEED SYNC	767I000500
E	DIGI CROWN I/O SOURCE HIGH SPEED SYNC	767I010500
E	DIGI CROWN ONLY INPUT HIGH SPEED SYNC	767I020500
K	DIGI CROWN PCI	6355321100
O	DIGI CROWN AI HIGH SPEED	767A000400
P	DIGI CROWN EI HIGH SPEED	767E010500
P	DIGI CROWN ANAL OG ENCODER HSS	767F100500

ACCESSORIES

DESCRIPTION		ORDER CODE
G	DIGI CROWN PBB	6139013200
J	END LINE CONNECTOR	6355200000
F	DIGI CROWN BUS (FOR DIGI CROWN BOX, 232, I/O)	6872030020
I	DIGI CROWN PSC (FOR DIGI CROWN PSU)	6872030021
N	EU CABLE	4147000016
N	USA CABLE	4147000017

SW PACKAGES

DESCRIPTION	ORDER CODE
L CORREDO EASY ACQUISITION SPC V.3.3 VAR1	CM6303MA01
L DIGI CROWN PROBING LINE DRIVER V3.6	CM2E36MA12
L CORR. QUICK PCW 3.6 VAR1 + G. CAPABIL.	CM2Z36MA01
L DIGI CROWN SDK (SOFTWARE DEVELOPMENT KIT)	D8680003M6

CONNECTION CABLE

DESCRIPTION		ORDER CODE
M	CONNECTION CABLE 2 mt.	6738057027
M	CONNECTION CABLE 3,5 mt.	6738057029
M	CONNECTION CABLE 6 mt.	6738057031
M	CONNECTION CABLE 10 mt.	6738057033
M	CONNECTION CABLE 15 mt.	6738057035

DIGI CROWN PENCIL PROBE HEADS - STANDARD

DESCRIPTION		RANGE (mm)	TRADE NAME	ORDER CODE
A	AXIAL - SPRING	1	D01	3PD01L0000
A	AXIAL - SPRING	2	D02	3PD02L0000
A	AXIAL - SPRING	5	D05	3PD05L0000
A	AXIAL - SPRING	10	D10	3PD10L0000
A	AXIAL - SPRING	20	D20	3PD20L0000
A	RADIAL - SPRING	1	RD01	3PD01L1200

Description		Range (mm)	Trade Name	Order Code
A	RADIAL - SPRING	2	RD02	3PD02L1200
A	RADIAL - SPRING	5	RD05	3PD05L1200
A	RADIAL - SPRING	10	RD10	3PD10L1200
A	RADIAL - SPRING	20	RD20	3PD20L1200
A	AXIAL PNEUM.	2	PAD02	3PD02L0400
A	AXIAL PNEUM.	5	PAD05	3PD05L0400
A	AXIAL PNEUM.	10	PAD10	3PD10L0400
A	AXIAL PNEUM	20	PAD20	3PD20L0400
A	RADIAL PNEUM.	2	PD02	3PD02L1600
A	RADIAL PNEUM.	5	PD05	3PD05L1600
A	RADIAL PNEUM.	10	PD10	3PD10L1600
A	RADIAL PNEUM.	20	PD20	3PD20L1600
A	AXIAL PUSH/VACUUM	2	VAD02	3PD02L0560
A	AXIAL PUSH/VACUUM	5	VAD05L	3PD05L0560
A	AXIAL PUSH/VACUUM	10	VAD10	3PD10L0560
A	AXIAL PUSH/VACUUM	20	VAD20	3PD20L0560
A	RADIAL PUSH/VACUUM	2	VD02	3PD02L1760
A	RADIAL PUSH/VACUUM	5	VD05	3PD05L1760
A	RADIAL PUSH/VACUUM	10	VD10	3PD10L1760
A	RADIAL PUSH/VACUUM	20	VD20	3PD20L1760

DIGI CROWN PENCIL PROBE HEADS - SOFT TOUCH

DESCRIPTION	RANGE (mm)	TRADE NAME	ORDER CODE
A AXIAL - SPRING	1	D01L	3PD01L5000
A AXIAL - SPRING	2	D02L	3PD02L5000
A AXIAL - SPRING	5	D05L	3PD05L5000
A AXIAL - SPRING	10	D10L	3PD10L5000
A AXIAL - SPRING	20	D20L	3PD20L5000
A RADIAL - SPRING	2	RD02L	3PD02L6200
A RADIAL - SPRING	5	RD05L	3PD05L6200
A RADIAL - SPRING	10	RD10L	3PD10L6200
A RADIAL - SPRING	20	RD20L	3PD20L6200
A AXIAL PNEUM.	2	PAD02L	3PD02L5400
A AXIAL PNEUM.	5	PAD05L	3PD05L5400
A AXIAL PNEUM.	10	PAD10L	3PD10L5400
A AXIAL PNEUM.	20	PAD20L	3PD02L5400
A RADIAL PNEUM.	2	PD02L	3PD02L6600
A RADIAL PNEUM.	5	PD05L	3PD05L6600
A RADIAL PNEUM.	10	PD10L	3PD10L6600
A RADIAL PNEUM.	20	PD20L	3PD20L6600
A AXIAL PUSH/VACUUM	2	PVAD02L	3PD02L5800
A AXIAL PUSH/VACUUM	5	PVAD05L	3PD05L5800
A AXIAL PUSH/VACUUM	10	PVAD10L	3PD10L5800
A AXIAL PUSH/VACUUM	20	PVAD20L	3PD20L5800
A RADIAL PUSH/VACUUM	2	PVD02L	3PD02L7000
A RADIAL PUSH/VACUUM	5	PVD05L	3PD05L7000
A RADIAL PUSH/VACUUM	10	PVD10L	3PD10L7000
A RADIAL PUSH/VACUUM	20	PVD20L	3PD20L7000

MINI CELL - D124

DESCRIPTION	RANGE (mm)	TRADE NAME	ORDER CODE
B CONTACT UP	0.4	D124	3419886400

DESCRIPTION

Digi Crown system is built around interfaces and acquisition boxes to allow the most suitable configuration for any measuring solution.



Power Supply Unit. It is always in 1st position to supply voltage to the complete Net, from PC/PLC interface, up to all acquisition boxes. A second power supply unit is recommended to be inserted (mid position) in to a full net (62 inputs-Dual Channel Box) to ensure ample power is available in the system at all times.

It is available in 3 models, 2 types for 100-240Vac and 1 type for 24Vdc.



RS232 Interface. It is always in 2nd position, after power supply unit. It allows to interface Digi Crown network System towards PC and PLC. The COM port baud rate is programmable up to 115.2 Kbps and the BUS network baud rate is 625 Kbps.

This allows for Static or Buffered dynamic measurements.



ETHERNET Interface. It is always in 2nd position, after power supply unit. It allows to interface Digi Crown network System towards PC or PLC. The BUS network baud rate is 2083 Kbps. This allows for Static or Dynamic measurement acquisitions with synchronization, with the maximum performance of 4000 samples/s. In case of configuration with more than one Network, the synchronization signal can be extended to other Networks.



USB High Speed Interface. In the NET it is always in 2nd position. It allows to interface DigiCrown network System towards PC and PLC. The interface creates a virtual COM Port. The BUS network baud rate is 2083 Kbps. This allows for Static or Dynamic measurement acquisitions with synchronization, with the maximum performance of 4000 samples/s. In case of configuration with more than one Network, the synchronization signal can be extended to other Networks through an additional cable.



Dual Channel Box. It allows the management of the entire Marpos Digi Crown probing line and all Marpos digitized sensors (A/E converter, D124, etc.). The box can sample up to 4000 samples/s.

It can be assembled in any position, from the 3rd to 33rd.



Encoder Input Box. It is available in 2 models for analogue or digital, linear or rotary type encoders. The box can sample up to 4.000 samples/s. It can be used in combination with all others acquisition boxes.

It can be assembled in any position, from the 3rd to the 33rd.

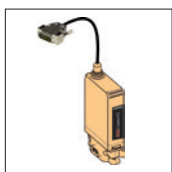


Analogue Input Box. It allows to interface any third party sensor with analogue input in voltage or in current. The box can sample up to 4000 samples/s. It can be used in combination with all other acquisition boxes.

It can be assembled in any position, from the 3rd to the 33rd.



OptoCrown box. It is an interface with integrated contactless sensors (infrared light). It allows to make static measures with a measuring range of 10mm with target positioned from 1 to 11mm. It can be used in combination with all other acquisition boxes. It can be assembled in any position, from the 3rd to the 33rd.



Digi Crown I/O interface 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 selectable as IN or OUT. With this box 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.

Quick SPC



Quick SPC for Windows is a suite of software products designed to comply with any requirement ranging from simple measurement acquisition to complex gauging applications. Framed in a simple, wizard driven, common user interface it is possible to complement the base product by means of software Add-ons purposely conceived for specialized industry fields.

Marposs DLL



Marposs Driver Library is a COM object SW that allow to easily build the configuration by the use of the Marposs Digi Crown driver and, in addition with a COM object component, it is possible to solve the application measure requirements.

Easy Acquisition



Easy Acquisition™ software package runs on an Excel platform and allows the use of a typical Excel worksheet to perform the following functions:

- Acquisition of the value of the sensors
- Creation and display of measurements with tolerance values and status
- Calibration
- Data collection
- Statistical Analysis (SPC)
- Print-out of the data collection and SPC values (reporting)

SDK



SDK is a COM object software tool that allows OEMs to integrate Digi Net in third party application sw. The users is completely free to build his dedicated SW interface managing configurations and application too.

Protocol Command

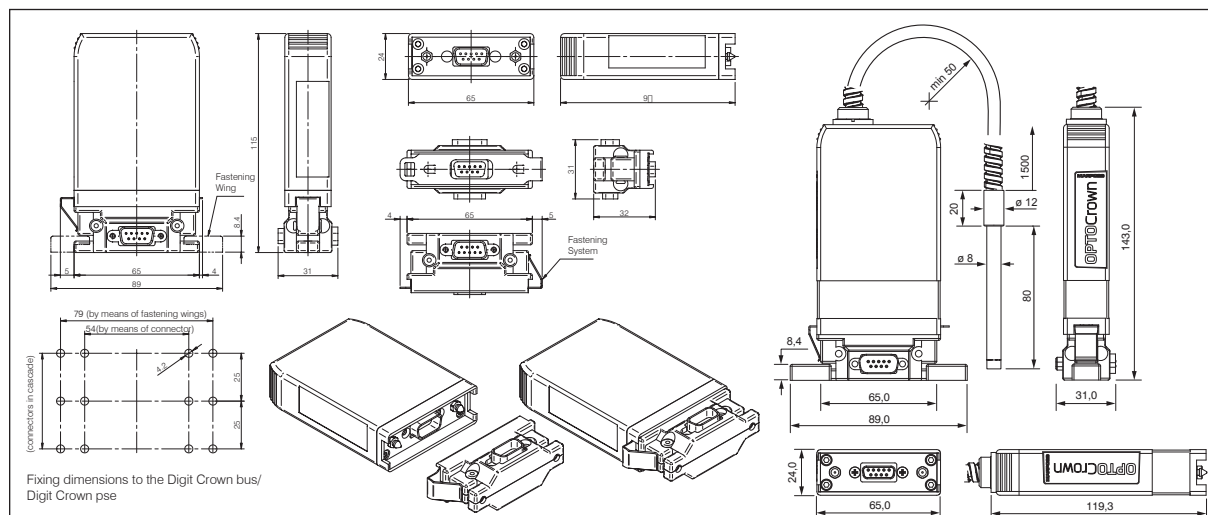


Digi Net can be managed directly by ASCII protocol command trough RS232 COM port. This means that Digi Net is suitable not only for PC but also for PLC connection. The documentation supplied includes:

- manuals
- tools to practice the protocol command
- examples

INTERFACES OVERALL DIMENSIONS

Overall dimensions in mm of Digi Crown box, Digi Crown 232, Digi Crown psu, Digi Crown i/o, Digi Crown bus, Digi Crown psc interfaces and OptoCrown.



For a full list of address locations, please consult the Marposs official website

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