RADIO REMOTE CONTROLS FOR
HYDRAULIC TRUCK CRANES

IMET
RADIO REMOTE CONTROL

RADIO REMOTE CONTROLS FOR HYDRAULIC TRUCK CRANES

Since 1988 we design and manufacture industrial safety radio remote controls for every kind of truck cranes equipped with an electro hydraulic or a manual distributor.
Solidity, ergonomics, safety and quality of the materials used, make of it a cutting edge product, of the innovative design.

IMET
RADIO REMOTE CONTROL

ADVANTAGES:

WORKING COMFORT AND COST REDUCTION

The operator, free from the bond of the cable or of the fixed station, can take place in the most safe and suitable position to control the machine and the load, without the aid of other operators.

SIZE AND WEIGHT

They are vey compact and thus, allow the operator to have a higher freedom of movement.

CERTIFIED SAFETY

The STOP circuit ensures the maximum level of safety in accordance with the European and international standards.

CALIBRATION VIA RADIOFREQUENCY

The "proportional outputs calibration mode" allows you to program and save each joystick and potentiometer response, while you are operating the machine, thus adapting the speed of all movements and reaching the best possible result. (PIN code required).

THE DSC FUNCTION

The DSC function performs instant corrections of the speed (low-speed mode), thus allowing the operator to better manage complex micro movements dictated by the characteristics of the loads that are present on the crane from time to time.

OPTICAL JOYSTICKS

Designed and manufactured by IMET; thanks to their wide inclination angle (+/- 40°), guarantee a precise handling, like no other, that will continue throughout the remote control's life.

LOGGING OF EVENTS

IMET Radio remote controls log every event causing a failure or an abnormal stop, as well as the number of hours done by the remote control.

ERGONOMIC WAIST BELT

The practical belt allows the operator to completely free his hands to better follow the operations of hooking/ unhooking the load of the crane.

THE DIAGNOSIS TOOL

It Interfaces the PC to the radio control, allowing to check all the operating parameters and to see the list of the most significant events that have taken place.

EXTREME ENVIRONMENTS

The boxes are designed and manufactured with materials highly resistant to impacts.
Operating temperatures from -25°C to +70°C.

AUTOMATIC FREQUENCY CHANGE

The radio remote control is autonomously able to position itself on the best radio transmission channel. Manual changes of channel change are no longer required.

M880
KRON

ROBUST AND INNOVATIVE

The new model from IMET, built to obtain **maximum performance** and **minimum overall dimensions,** it is designed for **4 and 5 function** truck cranes. Featuring a practical clip for quick attachment to the waist belt, **KRON** impresses with its easy handling and ease of use thanks to the design of its handle, which will render comfortable every work situation.
KRON is available in three versions:
Basic, Standard and Plus.

M880
ZEUS2

SOLID AND VERSATILE

A perfect mix of **reliability and versatility** reunited in a single control station; **ZEUS2** is the synthesis of the best **ergonomic and functional features.** The compact size of the panel, having rationalized space, make an easily customizable transmitter, according to the specific needs. Suitable for hydraulic cranes with **5 to 7 functions,** it is a masterpiece of technology that will transform you into a director of operations.
ZEUS2 is available in versions:
Standard and Plus.

M880
THOR2

STRONG AND COMPLETE

With up to **9 single-axis joysticks** on the main panel, comfortable width and **double battery** for non-stop working shifts, **THOR2** is aimed at hydraulic cranes **with 6 to 10 functions.** Numerous push-buttons, potentiometers, toggle or rotary switches find place on the **main panel,** making **THOR2** also suitable for any truck crane of the forestry or the recycling sectors, including large-size ones.
THOR2 is available in versions: **Standard and Plus.**

M880

RADIO REMOTE CONTROLS FOR 4-FUNCTION CRANES

IMET offers 7 different models for this type of hydraulic cranes.
KRON M4, with its reduced size and attractive design, is available in the versions Basic, Standard, Plus, which allow you to choose the model best suited to the characteristics of the crane.
ZEUS2 M4, versatile and ergonomic, is available in the versions Standard and Plus and can be issued with a serial cable for a possible use as wire control.
ZEUS2 B2, on the other hand, is preferred by the operators who like to use 2 double-axis joysticks, instead of the classical 4 single-axis ones.

ZEUS2 B2 PLUS

ZEUS2 M4 PLUS

KRON M4 PLUS

DESCRIPTION OF VERSIONS BASIC, STANDARD AND PLUS

Basic: Rabbit/snail (only on KRON series)
Standard: DSC, IN-SLOW, rabbit/snail, RPM +/-, motor on/off
Plus: DSC, IN-SLOW, rabbit/snail, RPM +/-, motor on/off, lights on/off, load indication 90%/100% by means of Led

OPTIONS

Machine status report by means of Led and display (only on ZEUS2). Serial cable (only on ZEUS2).

M880

RADIO REMOTE CONTROLS FOR 5-FUNCTION CRANES

For the 5-function cranes, there are 3 different radio remote control models.
KRON M4 with auxiliary command for the selection of the 5th function;
ZEUS2 M5 with 5 single-axis joysticks, available in versions Standard or Plus.

KRON M4 PLUS

ZEUS2 M5 PLUS

ALSO AVAILABLE
WITH SERIAL CABLE

DESCRIPTION OF VERSIONS STANDARD AND PLUS

Standard: DSC, IN-SLOW, rabbit/snail, RPM +/-, motor on/off
Plus: DSC, IN-SLOW, rabbit/snail, RPM +/-, motor on/off, lights on/off, load indication 90%/100% by means of Led

OPTIONS

Machine status report by means of Led and display (only on ZEUS2). Serial cable (only on ZEUS2).

M880

RADIO REMOTE CONTROLS FOR 6-FUNCTION CRANES

IMET offers 6 different radio remote control models for this type of hydraulic cranes:
ZEUS2 M6 in versions Standard and Plus.
THOR2 M6, in versions Standard and Plus. It allows for higher sensibility and precision in the most delicate situations, through increased spacing between the joysticks. THOR2 B3, in versions Standard and Plus. It is equipped with 3 double-axis joysticks instead of 6 single-axis ones.

ZEUS2 M6 PLUS

ALSO AVAILABLE
WITH SERIAL CABLE

THOR2 M6 PLUS

ALSO AVAILABLE
WITH SERIAL CABLE

THOR2 B3 PLUS

ALSO AVAILABLE
WITH SERIAL CABLE

DESCRIPTION OF VERSIONS STANDARD AND PLUS

Standard: DSC, IN-SLOW, rabbit/snail, RPM +/-, motor on/off
Plus: DSC, IN-SLOW, rabbit/snail, RPM +/-, motor on/off, lights on/off, load indication 90%/100% by means of Led

OPTIONS

Machine status report by means of Led and display. Serial cable.

M880

RADIO REMOTE CONTROLS FOR 7/8-FUNCTION CRANES

For the 7/8-function cranes, there are 3 different radio remote control models.
ZEUS2 M6, in versions Standard and Plus, with a command to enable the 7th-8th function.
THOR 2 M8, in versions Standard and Plus, with 8 single-axis joystick in line.

ZEUS2 M6+2 PLUS

ALSO AVAILABLE
WITH SERIAL CABLE

THOR2 M8 PLUS

ALSO AVAILABLE
WITH SERIAL CABLE

DESCRIPTION OF VERSIONS STANDARD AND PLUS

Standard: DSC, IN-SLOW, rabbit/snail, RPM +/-, motor on/off
Plus: DSC, IN-SLOW, rabbit/snail, RPM +/-, motor on/off, lights on/off, load indication 90%/100% by means of Led

OPTIONS

Machine status report by means of Led and display. Serial cable.

M880

RADIO REMOTE CONTROLS FOR 9/10-FUNCTION CRANES

The model THOR2 M9 Plus is fit for cranes with 9 or 10 functions; it comes with a command to eventually enable the 10th function.

THOR2 M9 PLUS

ALSO AVAILABLE
WITH SERIAL CABLE

DESCRIPTION OF VERSION PLUS

Plus: DSC, IN-SLOW, rabbit/snail, RPM +/-, motor on/off, lights on/off, load indication 90%/100% by means of Led

OPTIONS

Machine status report by means of Led and display. Serial cable.

M880

ADD BOX DISPLAY

AVAILABLE ON MODELS ZEUS2 AND THOR2

ADVANTAGES OF USING THE ADD-BOX ON THE RADIO REMOTE CONTROL

The ADD BOX expands the number of commands present in the transmitting unit, allowing to insert additional push-buttons, potentiometers, switches, etc .., according to specific requests. It is also used as housing for a large display (also available with a 128x64 or TFT QVGA 3,5" graphic display) or by LEDs, to visualize data and/or alarms coming from the crane.

M880
OPTIONS

IMET
RADIO REMOTE CONTROL

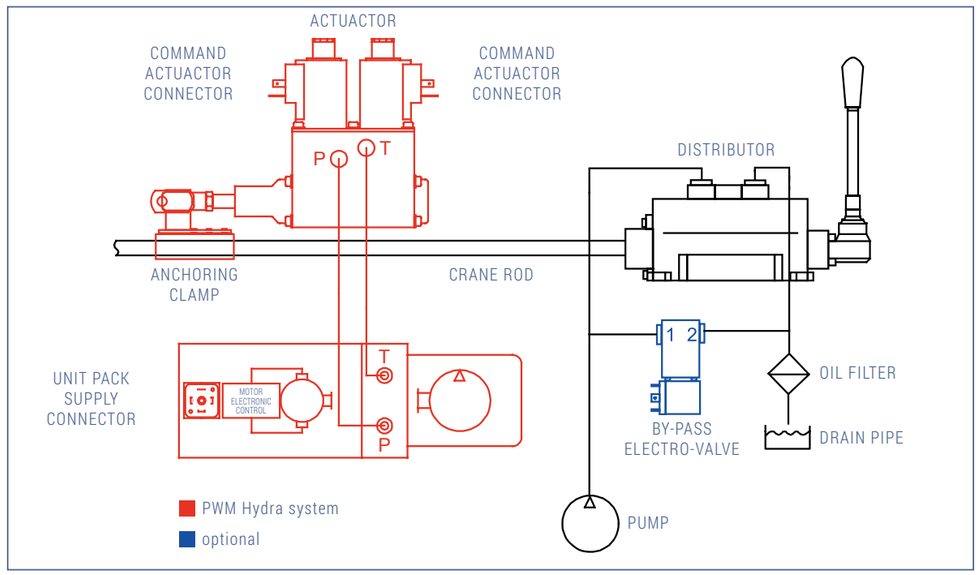
PWM ACTUATORS APT400

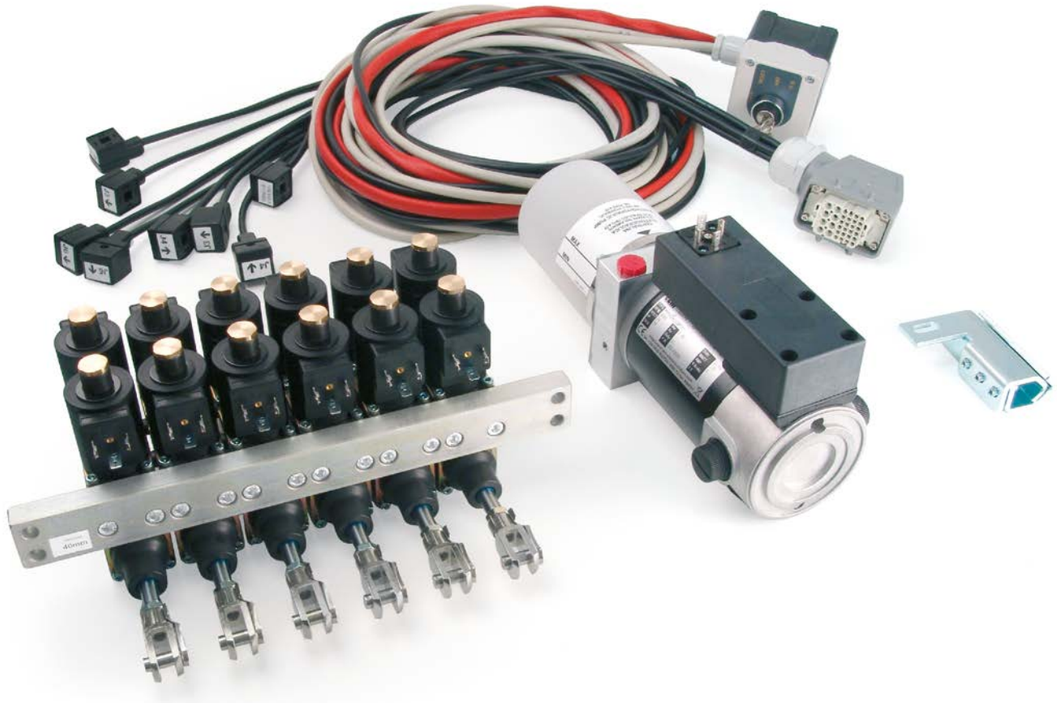
The electro hydraulic actuators **APT400** can work together with the **KRON, ZEUS and THOR** radio remote controls, allowing to operate most of the hydraulic cranes on the market that are equipped with only manual controls. The installation of this system requires no welding on the transmission rods and leaves intact the original system of the machine.

The electro hydraulic circuit of the **APT400** system was made **independent** from that of the crane, thanks to a dedicated electro hydraulic control unit. This is to prevent potential failures caused by sharing the oil of the crane's hydraulic circuit, usually already worn-out by demanding working conditions.

The activation of the control unit takes place only with maneuvers carried-out by the remote control; thus allowing for **low operating temperatures, avoidance of waste of energy and by wear of time.**

The **calibration** of the actuators **APT400** is done once the installation has been completed, **by means of the radio remote control transmitting unit.**





MODULAR ACTUATOR BLOCK AND THE 4-FUNCTION MONOBLOCK

Driving signal	PWM at 80Hz
Coil resistance at 20°C (68°F)	5,5 Ohm
Absorption at 27 Vdc	170 ÷ 620 mA
Absorption at 13,5 Vdc	300 ÷ 1250 mA
Operating temperature	-20°C ÷ +70°C (-4°F ÷ 158°F)
Max stroke	26mm (±13mm from center)
Max stroke (optional)	40mm (±20mm from center)
Thrust force and traction at 12 bar	600N
Optimal operating pressure	15 ÷ 20 bar
Max operating pressure	30 bar
Hydraulic circuit connection	1/4" Gas
Dimensions (L.W.H.)	210 x 38 x 138 mm
Weight (single mode)	1500 g
Standard distance between centers	38, 42, 44, 46, 48, 50 mm *
Number of standard functions	4 ÷ 8 *

* in case of monoblock: 4F and 40 mm distance between centers.

ELECTRO HYDRAULIC CENTRAL UNIT

Supply voltage	12 o 24 Vdc +20% -10%
Operating pressure	18 bar 27 Vdc - 16 bar 13,5 Vdc
Dimensions (L.W.H.)	330 x 130 x 160 mm
Weight (dry)	5200 g

COUNTER PRESSURE VALVE WITH FILTER

Operating temperature	-20°C ÷ +70°C (-4°F ÷ 158°F)
Flow rate	70l/min
Dimensions (L.W.H.)	84 x 50 x 132 mm
Weight (dry)	110 g

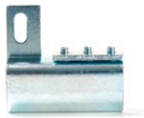
The kit, besides the actuators APT400 and the electro hydraulic control unit, includes:

THE COMPLETE ELECTRICAL WIRING

The electrical wiring of the receiver/actuator/control unit system

THE CLAMPS FOR THE TRANSMISSION RODS

The clamps to be fixed to the transmission rods of the crane avoid welding whatsoever and render the system independent



FITTINGS AND HYDRAULIC PIPING

Fittings and connecting pipes to the control unit

OTHER ACCESSORIES FOR THE ACTUATORS APT400 (OPTIONAL):

STROKE EXTENSION KIT

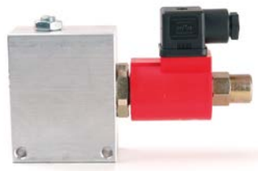
The standard actuator stroke is +/- 13 mm from the center and fits most part of the hydraulic distributors present in the market. A kit that can extend the piston's stroke up to +/- 20mm is available for special needs.

ADAPTER KIT

It is possible to connect the actuators APT 400 directly to the proportional manual distributors Walvoil SD6-SD8, Galtech and Parker, thanks to the dedicated flanging kit. This configuration involves the removal of the transmission bars.

THE BY-PASS VALVE

This valve is required to make the crane comply with CE regulations. In case you are lacking it, it is available in our product catalog.



FURTHER M880 OPTIONS

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RADIO REMOTE CONTROL

TILT SENSOR

TILT SENSOR

This device is able to recognize emergency situations caused by:

- Fall and tip over of the radio remote control
- Loss of balance by the operator

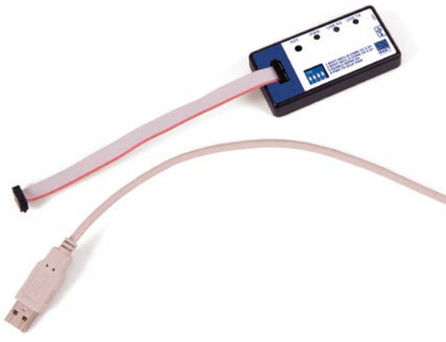
The functioning of the TILT SENSOR can be customized according to customer requirements and to the level of safety required: you can set the simple activation of predefined functions (eg. buzzer), up to the suspension of all functions of the radio control.

SERIAL CABLE

The transmitting units of models ZEUS and THOR can be equipped with a socket for the serial connection to the receiver.
The direct cable connection excludes the radio transmission, thus overcoming any issues related to signal noise or use of the product in areas where the radiofrequency is not permitted, or due to the exhaustion of the battery.

PITOOL

Produced by IMET, it allows to connect the transmitter or the receiver to be diagnosed to a PC. The data can be viewed through an easy and intuitive graphic interface and then saved directly on the PC in editable format.



M880
TECHNICAL DATA

TRANSMITTING UNITS

		KRON	ZEUS2	THOR2
Dimensions (L.W.H.)		180x107x160 mm	205x150x150 mm	295x180x160 mm
Dimensions with display (L.W.H.)		/	205x205x150 mm	295x250x165 mm
Weight (battery included)		≃ 880 g max	≃ 1450 g max	≃ 2300 g max
Range			100 m	
Max number of ON/OFF commands			56 Max	
Max number of analog commands (optional)			16 (19) Max	
Joystick commands UMFS [a] = Unintended Movement From Standstill (ISO 13849-1:2006 6.2.6 architecture)			Up to 16	
Number of service and safety commands			3 (Start, Clacson, Stop)	
Casing material			Charged Nylon UL94 HB	
Supply voltage			3,6 Vdc	
Absorption			95 mA	
Max supply power			0,35 W	
Battery			NiMh 3,6V-2,2A/h accumulator	
Autonomy at 20°C with charged battery in continuous service			≃ 22 hours	
Notice time of low battery			≃ 15 min	
Character visualization speed on the display			100 char/s	
Command	STOP		PL e Cat.4 (ISO 13849-1:2006 6.2.7 architecture)	
	JOYSTICK		PL e Cat.3 (ISO 13849-1:2006 6.2.6 architecture)	
	LEVER - BUTTON		PL e Cat.2 (ISO 13849-1:2006 6.2.5 architecture)	
Operating frequency 1			I.S.M. Band 433.050-434.790 MHz Number of programmable channels: 69, AFA mode (Adaptive Frequency Agility) or on fixed channel. Max power: 1 mW e.r.p	
Operating frequency 2			I.S.M. 434.040-434.790 MHz Number of programmable channels: 30, AFA mode (Adaptive Frequency Agility) or on fixed channel. Max power: 10 mW e.r.p	
Operating frequency 3			2,4 GHz, 16 ch	
Alphanumeric LCD display (optional)			2 rows 16 char. / 4 rows 20 char.	
Graphic display (optional)			128x64 pixel monochromatic / TFT QVGA 3.5" [b]	
Buzzer			Avaiable	
Operating temperature			-25°C - +55°C	
Storage temperature			-40°C - +85°C	
Power supply			Battery single su ARES2, KRON, ZEUS2 (Double battery optional on model THOR2) [b]	
Radio transmission			Double (Single MTRS)	
Output calibration			Via calibrating procedure of proportionals	
LEDs			Link TX, Link RX, Error code	
Degree of protection			IP 65	

a = depends on the command configuration / *b* = to be implemented

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RECEIVING UNITS

	H AC / H DC	L AC / L DC	S AC / S DC	M AC
Supply voltage	H-AC: 45-240 Vac (50-60 Hz); H-DC: 11÷30 Vdc and 24 Vac (50-60 Hz)	L-AC: 24-240 Vac (50-60 Hz); L-DC: 11÷30 Vdc	S-AC: 24 Vac (50-60 Hz) / 12÷30 Vdc (Optional 24-440 VAC [50-60 Hz]) S-DC: 12÷30 Vdc	12÷30 Vdc / 24 Vac (50-60 Hz)
Safety commands	STOP, Safety-Enable (up to 8)	STOP, Safety-Enable	STOP, Safety-Enable	STOP, Safety-Enable
Commands	73 [a] relays or MOS, 32 [a] Analog (PWM, current, voltage)	16 relays or 20 MOS, 8 Analog (PWM, current, voltage)	S-AC: 14 relays (N.O.); S-DC: Max 14 MOSFET (N.O), Max 4 Proportional, 2 Digital IN	24 relays (20 N.O. and 4 N.C./N.O.) (Current, voltage)
Service commands	Start, Horn, Timed-Relay	Start, Horn, Timed-Relay [b]	Start, Horn, (configurable)	Start, Blinker (Among the 24 relays)
Input port	CAN, Serial RS232/RS485	CAN, Serial RS232/RS485	S-DC: CAN, Serial RS232 RS485	CAN, Serial RS232/RS485
STOP relay category [a]	PLe Cat 4, ISO 13849-1: 2006 6.2.7 architecture	PLe Cat 4, ISO 13849-1: 2006 6.2.7 architecture	PLe Cat 4, ISO 13849-1: 2006 6.2.7 architecture. PLc Cat 1, ISO 13849-1: 2006 6.2.3 architecture, (With ARES2 C and WAVE2 C)	PLe Cat 4, ISO 13849-1: 2006 6.2.7 architecture
Field BUS	CAN (ID 11-29 bit) CANOpen (ID 11-29 bit) RS232 / RS485	CAN (ID 11-29 bit) CANOpen (ID 11-29 bit) RS232 / RS485	S-DC: RS232 / RS485 (115200 Baud max) CAN_Bus (ID 11-29 bit) (1Mbit/s max) CANOpen (ID 11-29 bit) (1Mbit/s max)	CAN (ID 11-29 bit) CANOpen (ID 11-29 bit) RS232 / RS485
Integrated flashing light	/	/	Only AC version	/
Operating temperature	-25°C - +70°C	-25°C - +70°C	-25°C - +60°C	-25°C - +70°C
Degree of protection	IP 66	IP 66	IP 66	IP20
Dimensions	205 x 130 x 280 mm	140 x 65 x 230 mm	127 x 147 x 70 mm	180 x 120 x 73 mm
Weight	3500 g	1700 g	630 g	910 g

a : depends on the configuration
b : only L DC

BATTERY CHARGER

	CB36NIMH	CB37LION
Supply voltage	11÷30 Vdc	11÷30 Vdc
Absorption	400 mA max	300 mA max
Batteries type	3,6V NiMH	3,7V LiPo
Charging current	900 mA	540 mA
Max charging time	about 2 hours and 20 minutes	about 2 hours and 30 minutes
Recommended operating temperature with battery in charge	0°C to +35°C (+32°F to +95 °F)	0°C to +45°C (+32°F to +113 °F)
Storage temperature when off and without battery	-40°C - +85°C (-40°F - +185 °F)	-40°C - +85°C (-40°F - +185 °F)
Dimensions (L.W.H.)	80 x 30 x 120 mm	70 x 25 x 130 mm
Weight	250 g	110 g
Degree of protection	IP 20	IP 20

COMPLIANCE TO THE REGULATIONS

- IEC/EN 60950-1
- EN 50371
- EN 60204-32
- EN 60529:1991+A1
- ISO 13849-1
- EN 13557/A2
- EN 61000-6-2
- EN 301 489-1
- EN 301 489-3
- EN 300 220-1
- EN 300 220-2
- 1999/5/CE (Directive R&TTE)
- 2006/42/CE (Directive Machines)
- RED Directive (2014/53/EU)

M880
CHARACTERISTICS

Included = ●
Not Included = ○

	Version	Variant	Receiver	N° joystick	N° functions	Serial cable	DSC Function	IN-SLOW Function	Rabbit/Snail	RPM +/-	Motor on/off	Light on/off	Led 90/100%
Kron M4 - 10010	Basic	00	L	4 single-axis	4	○	○	○	●	○	○	○	○
Kron M4 - 10011	Standard	00	L	4 single-axis	4	○	●	●	●	●	●	○	○
Kron M4(+1) - 10012	Plus	00	L	4 single-axis	4 + 1	○	●	●	●	●	●	●	●
Zeus2 M4 - 10013	Standard	00	L	4 single-axis	4	○	●	●	●	●	●	○	○
	Standard + Serial cable	01	L	4 single-axis	4	●	●	●	●	●	●	○	○
Zeus2 M4 - 10014	Plus	00	L	4 single-axis	4	○	●	●	●	●	●	●	●
	Plus + Serial cable	01	L	4 single-axis	4	●	●	●	●	●	●	●	●
Zeus2 B2 - 10015	Standard	00	L	2 double-axis	4	○	●	●	●	●	●	○	○
	Standard + Serial cable	01	L	2 double-axis	4	●	●	●	●	●	●	○	○
Zeus2 B2 - 10016	Plus	00	L	2 double-axis	4	○	●	●	●	●	●	●	●
	Plus + Serial cable	01	L	2 double-axis	4	●	●	●	●	●	●	●	●
Zeus2 M5 - 10017	Standard	00	L	5 single-axis	5	○	●	●	●	●	●	○	○
	Standard + Serial cable	01	L	5 single-axis	5	●	●	●	●	●	●	○	○
Zeus2 M5 - 10018	Plus	00	L	5 single-axis	5	○	●	●	●	●	●	●	●
	Plus + Serial cable	01	L	5 single-axis	5	●	●	●	●	●	●	●	●
Zeus2 M6 - 10019	Standard	00	L	6 single-axis	6	○	●	●	●	●	●	○	○
	Standard + Serial cable	01	L	6 single-axis	6	●	●	●	●	●	●	○	○
Zeus2 M6 - 10020	Plus	00	L	6 single-axis	6	○	●	●	●	●	●	●	●
	Plus + Serial cable	01	L	6 single-axis	6	●	●	●	●	●	●	●	●
Zeus2 M6(+2) - 10021	Standard	00	L	6 single-axis	6 + 2	○	●	●	●	●	●	○	○
	Standard + Serial cable	01	L	6 single-axis	6 + 2	●	●	●	●	●	●	○	○
Zeus2 M6(+2) - 10022	Plus	00	L	6 single-axis	6 + 2	○	●	●	●	●	●	●	●
	Plus + Serial cable	01	L	6 single-axis	6 + 2	●	●	●	●	●	●	●	●
Thor2 M6 - 10023	Standard	00	L	6 single-axis	6	○	●	●	●	●	●	○	○
	Standard + Serial cable	01	L	4 single-axis	6	●	●	●	●	●	●	○	○
Thor2 M6 - 10024	Plus	00	L	6 single-axis	6	○	●	●	●	●	●	●	●
	Plus + Serial cable	01	L	6 single-axis	6	●	●	●	●	●	●	●	●
Thor2 B3 - 10025	Standard	00	L	3 double-axis	6	○	●	●	●	●	●	○	○
	Standard + Serial cable	01	L	3 double-axis	6	●	●	●	●	●	●	○	○
Thor2 B3 - 10026	Plus	00	L	3 double-axis	6	○	●	●	●	●	●	●	●
	Plus + Serial cable	01	L	3 double-axis	6	●	●	●	●	●	●	●	●
Thor2 M8 - 10027	Standard	00	L	8 single-axis	8	○	●	●	●	●	●	○	○
	Standard + Serial cable	01	L	8 single-axis	8	●	●	●	●	●	●	○	○
Thor2 M8 - 10028	Plus	00	L	8 single-axis	8	○	●	●	●	●	●	●	●
	Plus + Serial cable	01	L	8 single-axis	8	●	●	●	●	●	●	●	●
Thor2 M9 - 10029	Plus	00	H	9 single-axis	9 + 1	○	●	●	●	●	●	●	●
	Plus + Serial cable	01	H	9 single-axis	9 + 1	●	●	●	●	●	●	●	●

NOTE

NOTE

REG. N. 457-A
UNI EN ISO 9001:2015

IMET s.r.l.

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