



**Solutions for
Hydraulic and
Mobile Machinery**

DYNAMIC Series

 **autec**
safety remote control

DYNAMIC Series

Autec's Dynamic Series consists of joystick transmitting units and their receivers. The remote control units are suitable for continuous-current applications used in construction environments, logistics, transport, infrastructure maintenance and much more.

Strengths

- Performance of the STOP function PL e cat.4 / SIL 3 classified, according to EN ISO 13849-1 / EN IEC 62061
- Performance of protection against unintended movements from standstill (UMFS) PL d cat.3 / SIL 2 classified, in accordance with EN ISO 13849-1 / EN IEC 62061
- Two-way radio communication with dynamic and intelligent search for free channel on a wide band of frequencies
- Fieldbus and serial port interface to better control how data is displayed
- Programmable functions for a wide range of digital and analog applications
- Graphic display that allows visualization of data and machine status

Safety

The Dynamic Series has been designed and certified according to the most recent standards relating to Functional Safety, such as EN ISO 13849-1 and IEC 62061. The transmitting and receiving units communicate through a proprietary Autec code which is not reproducible. The STOP function and protection from unintended movements from standstill (UMFS) of several models are certified by TÜV SÜD. A certification issued by an independent, competent and recognized third party is a further guarantee of safety, quality and reliability of a product.



Joystick Transmitting Units

The proportional joystick remote controls of the Dynamic Series have been developed for typical hydraulic and mobile machine applications. They are available in four different models: FJS, FJL, FJR and FJM. They offer up to 12 analog commands and up to 64 digital commands with the option for data feedback, which allows visualization of the information coming from the machine on a graphic display or via LED panel.



FJS



FJR



FJL



FJM

Main Features

- STOP function complies with EN ISO 13849-1 / EN IEC 62061
- UMFS protection complies with EN ISO 13849-1 / EN IEC 62061
- Two-way radio communication with dynamic search of free frequency
- Fieldbus and serial interface (CAN / CANopen)
- Extractable external batteries in either NiMH or Li-Ion
- Extractable Key ID 0-1
- Typical Working Range 100 m
- Ergonomic and robust: protection degree IP 65
- Customizable command panel
- Up to 12 analog and 64 digital commands with data feedback
- FJS: 2 joysticks, up to 7 actuators plus START and STOP
- FJL: 4 or 6 analog levers and up to 6 actuators plus START and STOP
- FJR: Up to 6 joysticks and numerous actuators plus START and STOP
- FJM: Up to 8 joysticks and numerous actuators plus START and STOP

Accessories

- Shoulder strap FJS, FJL
- Waist belt for FJR, FJM

Options

- 1.54" graphic display (FJS and FJL)
- 2.7" LCD transfective display (FJR and FJM)
- 4.3" color display (FJR and FJM)
- Cable Control
- Zero G Sensor
- IR Sensor
- External buzzer
- Enable Switch
- 3-axis Joystick
- Potentiometer
- Rotative Switch
- Removable Key Switch
- Selector Lever
- "Pull-up" Selector Switch
- Side Button
- Marine Environment Protection

Receiving Units



CRS

Optimized for integration in a CAN/CANopen network. Maximum number of functions: 12 analog, 64 digital (available via CANopen interface). Cabling through 30-pin plug.



CRX

Optimized for integration in a CAN/CANopen network. Maximum number of functions: 12 analog, 64 digital (via CANopen interface) and 4 MOSFET digital outputs. Cabling with multi-pin plug, M12 connectors or cable gland. External antenna optional.



ARS

Analog outputs available for both voltage and current signals; possibility to communicate via CANopen interface. Maximum number of functions: 8 analog and 28 digital. Digital and serial inputs both available. Cabling through two 30-pin plugs.



ARX

Analog outputs available for both voltage and current signals. Maximum number of functions: 8 analog and 32 digital. Digital and analog inputs along with a CANopen output. Cabling via 32, 40 or 72-pin plug, connectors or multiple cable glands.





ARM

Possibility for additional relay cards or MOSFET, which allow for maximized functionality with up to 12 analog and 64 digital functions. Cabling with a 32, 40, 50 or 72-pin plug.



ADD

16 analog, integrated inputs (voltage or current). Optional relay cards or MOSFET allow maximized functionality with up to 12 analog and 64 digital functions. Well-suited for a Supervisor – Operator system. Cabling with a 32, 40, 50 or 72-pin plug.



Infrared Sensor

Infrared (IR) is an option available for the Dynamic Series to delimit radiocontrol operation area when required under special working conditions. IR is composed of both an illuminator installed on the machine and a sensor installed on transmitting unit that receives infrared emission from the illuminator.

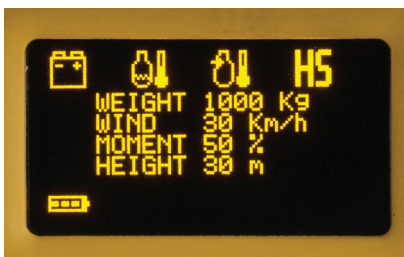
Features:

- **Infrared start-up:** Radiocontrol can only start within a bound area and prevents unintended start-up in unsafe areas.
- **Infrared range limiting:** Allows operator to work only when infrared units are aligned within the operation range.



Standard Displays

Thanks to bi-directional communication all the transmitting units of the Dynamic are able to show messages coming from the machine on a graphic display and/or high-efficiency LEDs. 1.54" displays are installed on the FJS and FJL models, while the FJR and FJM were designed for either a 4.3" or 2.7" display. The latter is available on the LCD transfective version, which is ideal for use in outdoor environments and allows visualization of machine parameters, data and icons of different shapes and sizes.



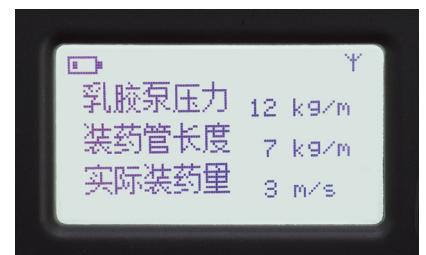
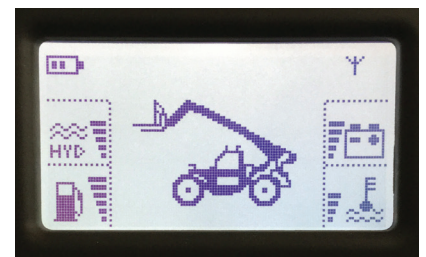
1.54" Display

- Available on the OLED monochrome version
- 128 x 64 pixel
- Available on the FJS and FJL of Autec's Dynamic Series
- Customizable icons and reporting



2.7" Display

- Available on the OLED version (for indoors) and the LCD transfective
- monochrome version (for outdoors)
- 128 x 64 pixel
- Available on the FJR and FJM of Autec's Dynamic Series
- Available on the Dynamic Series' WA and WC cable remote controls
- Customizable Layout



4.3" Color Display

For the FJR and FJM models of the Dynamic Series we have introduced a new 4.3" color display. The display is programmable with CODESYS V3.5 via Ethernet according to international standard IEC 61131-3. This development system is used to program the graphic interface, allowing a wide selection for data representation. With 256 colors and a 480x272-pixel resolution, this new display provides a great visualization of the machine's operating parameters, statuses or other warnings.



FJM



FJR

Main Features

- Sun-readable: great for bright environments
- Viewing angle of the display up to 130°
- Programmable with CODESYS V3.5 via Ethernet (IEC 61131-3)
- 6 soft-keys for display navigation and/or other functions
- IP 65 degree of protection
- Customizable screens

Mechanics

The display can be installed directly on top of the FJM and FJR transmitting units. The screen is encased in a plastic structure with a protection degree of IP 65. Above the screen are 6 soft-keys for display navigation and/or matching to specific functions.

Electronics

The internal electronics include data memory of 16MB. The programming software is CODESYS V 3.5.

Graphics

The new display, thanks to its high resolution (480 x 272 pixels, 16:9), can easily be read in very sunny environments. The display can show up to 256 colors. Proper functioning of the machine is highlighted by 16 LEDs, which can also indicate machine warnings.



Batteries and Chargers



MBM06MH Battery (for joystick transmitting units)

- NiMH
- 7.2 V
- 750 mAh
- 5.4 Wh
- IP65



LPM02 Battery (for joystick transmitting units)

- Li-Ion
- 7.4 V
- 1400 mAh,
- 10.36 Wh
- IP65



LPM04 Battery (4.3" display joystick transmitting units)

- Li-Ion
- 7.4 V
- 2800 mAh
- 20.72 Wh
- IP65

Portability



Shoulder Strap

For the FJS and FJL joystick transmitting units.



Waist Belt

For the FJR and FJM joystick transmitting units.

Technical Data

General	
Frequency Band	863-870 MHz (128 channels) – 915 MHz (260 channels) 447 MHz (32 channels) – 434 MHz (63 channels) – 429 MHz (40 channels)
Hamming Distance	≥15
Typical Working Range	100 m
Safety Performance of the STOP function	PL e, cat.4 / SIL 3 (EN ISO 13849-1 / EN IEC 62061)
Protection from Unintended Movements From Standstill (UMFS)	PL d, cat.3 / SIL 2 (EN ISO 13849-1 / EN IEC 62061)
Protection Degree	IP 65 (NEMA 4)

Transmitting Units

Joystick		
Autonomy with Full Battery (at 20°C) for FJS and FJL	without Display: 18.5h (LPM02 Battery), 11h (MBM06MH Battery) with 1.54" Display: 16h (LPM02 Battery), 9.5h (MBM06MH Battery)	
Autonomy with Full Battery (at 20°C) for FJR and FJM	without Display: 18.5h (LPM02 Battery), 11h (MBM06MH Battery) with 2.7" Display: 15h (LPM02 Battery), 9h (MBM06MH Battery) with 4.3" Display: 8h (LPM04 Battery)	
Operating Temperature	(-25 °C) ÷ (+55 °C)	(-13 °F) ÷ (+131 °F)
Storage Temperature	(-40 °C) ÷ (+85 °C)	(-40 °F) ÷ (+185 °F)
Dimensions	FJS: 258x170x126 mm FJL: 221x170x134 mm FJR: 260x200x190 mm FJM: 310x210x190 mm	10.20x7.00x5.00 in 8.70x6.70x5.30 in 10.20x7.90x7.50 in 12.20x8.30x7.50 in
Weight	FJS: 1.3 kg FJL: 1.4 kg FJR: 2 kg FJM: 2.5 kg	3 Lb 3 Lb 4.4 Lb 5.5 Lb

Receiving Units

CRS		
Power Supply	8-30 VDC	
Antenna	External; optional 1 or 5 meter extension cord	
Maximum Number of Outputs	12 analog, 64 digital (via CANopen interface)	
Rated Load of STOP / Safety Functions	STP_1 = 8A (30VDC), STP_2 = 8A (30VDC) SAF_1 = 8A (30VDC), SAF_2 = 3A (30VDC)	
Operating Temperature	(-25 °C) ÷ (+70 °C)	(-13 °F) ÷ (+158 °F)
Storage Temperature	(-40 °C) ÷ (+85 °C)	(-40 °F) ÷ (+185 °F)
Cabling	30-pin Connector	
Dimensions	153x148x55 mm	6.1x5.9x2.2 in
Weight	0.5 kg	1.1 Lb

CRX

Power Supply	8-30 VDC	
Antenna	Internal antenna; 1 or 5 meter extension cord. Optional.	
Maximum Number of Outputs	12 analog, 64 digital, 4 MOSFET digital	
Rated Load of STOP / Safety Functions	SO_1 = 2A (30VDC), SO_2 = 2A (30VDC)	
Rated Load of Command Functions	Digital Outputs: 2 A (30 VDC)	
Working Temperature	(-25 °C) ÷ (+70 °C)	(-13 °F) ÷ (+158 °F)
Storage Temperature	(-40 °C) ÷ (+85 °C)	(-40 °F) ÷ (+185 °F)
Cabling	Customizable - possible solutions include M12 circular connector, 10-pin reduced plug, M12 connector (8+5pin), cable gland	
Dimensions	128x143x63mm	5.04x5.63x2.48 in
Weight	0.65 kg	1.43 Lb

ARS

Power Supply	8-30 VDC	
Antenna	External; optional 1 or 5 meter extension cord	
Maximum Number of Outputs	8 analog (voltage), 12 analog PWM (6 bi-directional axes), 16 digital, also available via CANopen interface	
Rated Load of STOP / Safety Functions	STP_1 = 7.5 A (30 VDC), STP_2 = 7.5 A (30 VDC) SAF = 7.5A (30VDC)	
Rated Load of Command Functions	Analog Outputs: 2 A (30 VDC) – PWM ; 10 mA (28 VDC) – voltage; Digital Outputs: 2 A (30 VDC)	
Working Temperature	(-25 °C) ÷ (+70 °C)	(-13 °F) ÷ (+158 °F)
Storage Temperature	(-40 °C) ÷ (+85 °C)	(-40 °F) ÷ (+185 °F)
Cabling	Two 30-pin connectors	
Dimensions	194x210x61mm	7.71x8.3x2.4 in
Weight	0.85 kg	1.9 Lb

ARX

Power Supply	8-30 VDC	
Antenna	External; optional 1 or 5 meter extension cord	
Maximum Number of Outputs	8 analog (voltage), 16 analog PWM (8 bi-directional axes), 16 digital, also available via CANopen interface	
Rated Load of STOP / Safety Functions	SO_1 = 2A (30VDC) SO_2 = 2A (30VDC)	
Rated Load of Command Functions	Analog Outputs: 2 A (30 VDC) – PWM ; 10 mA (28 VDC) – voltage; Digital Outputs: 2 A (30 VDC)	
Working Temperature	(-25 °C) ÷ (+70 °C)	(-13 °F) ÷ (+158 °F)
Storage Temperature	(-40 °C) ÷ (+85 °C)	(-40 °F) ÷ (+185 °F)
Cabling	Customizable – direct wiring on the solenoid valves; 32, 40 or 70-pin plug	
Dimensions	202x123x83mm	7.95 x 4.84 x 3.23 in
Weight	1.2 kg	2.7 Lb

ARM

Power Supply	8-30 VDC	
Antenna	External; optional 1 or 5 meter extension cord	
Maximum Number of Outputs	12 analog (voltage), 24 analog PWM (12 bi-directional axes), 40 digital, also available via CANopen interface	
Rated Load of STOP / Safety Functions	STP_1 = 7.5 A (30 VDC), STP_2 = 7.5 A (30 VDC) SAF_1 = 7.5A (30VDC), SAF_2 = 3A (30VDC)	
Rated Load of Command Functions	Analog Outputs: 2 A (30 VDC) - PWM; 10 mA (28 VDC) – voltage Digital Outputs: 4 A (30 VDC) - PWM	
Working Temperature	(-25 °C) ÷ (+70 °C)	(-13 °F) ÷ (+158 °F)
Storage Temperature	(-40 °C) ÷ (+85 °C)	(-40 °F) ÷ (+185 °F)
Cabling	32, 50 or 72-pin plug	
Dimensions	200x230x95mm	7.9x9.1x3.8 in
Weight	3 kg	6.6 Lb

ADD

Power Supply	8-30 VDC	
Antenna	External; optional 1 or 5 meter extension cord	
Maximum Number of Outputs	12 analog (voltage), 24 analog PWM (12 bi-directional axes), 40 digital, also available via CANopen interface	
Rated Load of STOP / Safety Functions	STP_1 = 7.5 A (30 VDC), STP_2 = 7.5 A (30 VDC) SAF_1 = 7.5A (30VDC), SAF_2 = 3A (30VDC)	
Rated Load of Command Functions	Analog Outputs: 2 A (30 VDC) - PWM; 10 mA (28 VDC) – voltage Digital Outputs: 4 A (30 VDC) - PWM	
Working Temperature	(-25 °C) ÷ (+70 °C)	(-13 °F) ÷ (+158 °F)
Storage Temperature	(-40 °C) ÷ (+85 °C)	(-40 °F) ÷ (+185 °F)
Cabling	32, 50 or 72-pin plug	
Dimensions	250x290x110mm	7.9x9.1x3.8 in
Weight	3.8 kg	8.4 Lb

Optional boards

FSAAVO10A	Board with 10 analog outputs (voltage) for ARM and ADD
FSAAPO06A	Board with 12 analog outputs PWM (6 bi-directional axes) for ARM and ADD
FSADSO16A	MOSFET board with 16 digital outputs for ARM and ADD
FSADRO08A/B	Relay board with 8 digital outputs for ARM and ADD
FSAAMI01A	Board with 8 analog inputs (current or voltage) and 8 digital inputs; RS 232/485 serial port interface. ARM Receiver only. ADD option for 16 analog inputs without serial port.
FSAAPO04A	Board with 4 analog outputs PWM (2 bi-directional axes) and 4 MOSFET digital outputs for ARX
FSAAMI06A	Board with 6 analog inputs in current or voltage and with CAN output for ARX
FSADIA16A	Board with 16 diodes for ARX

