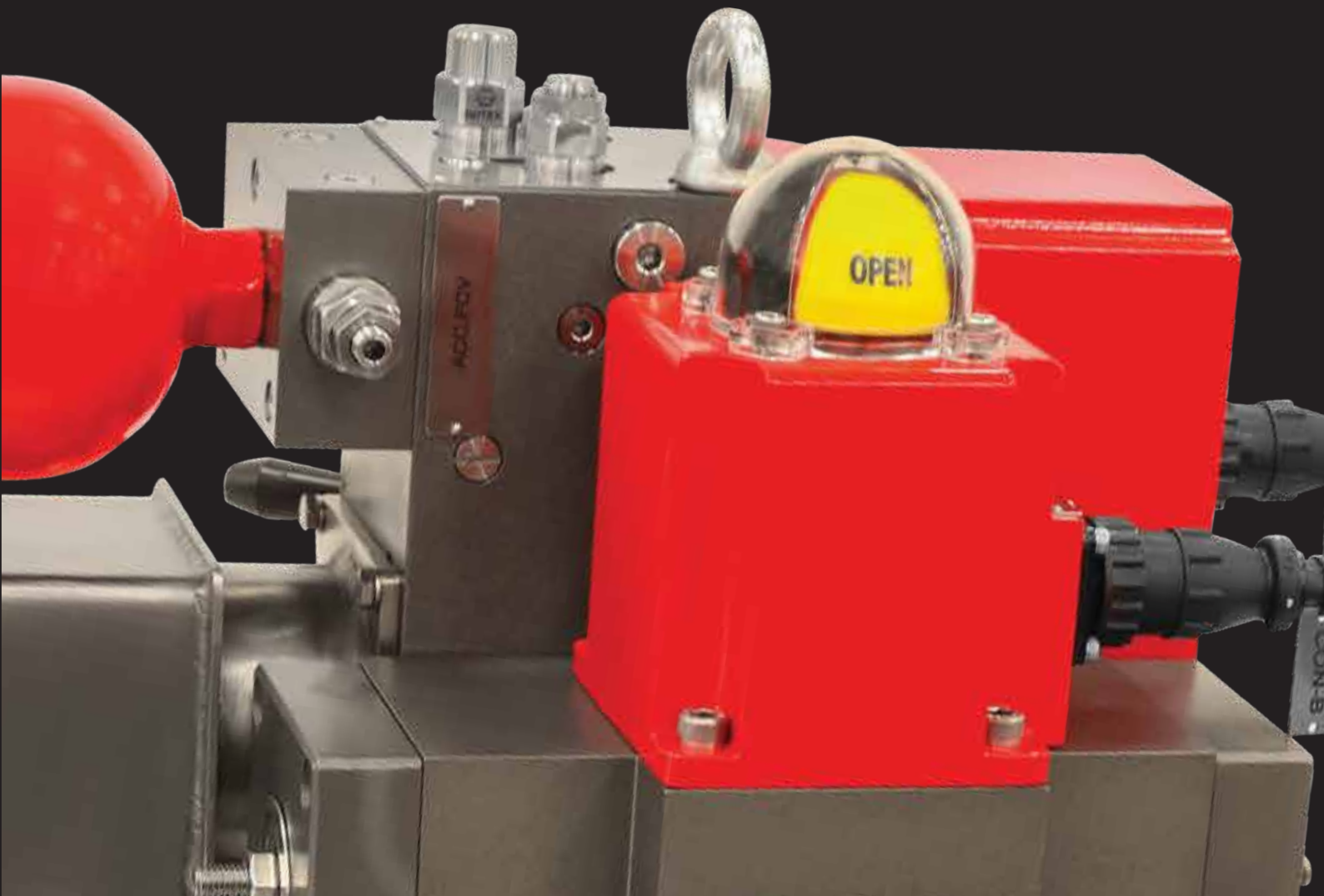


ROTEX EDR ACTUATOR

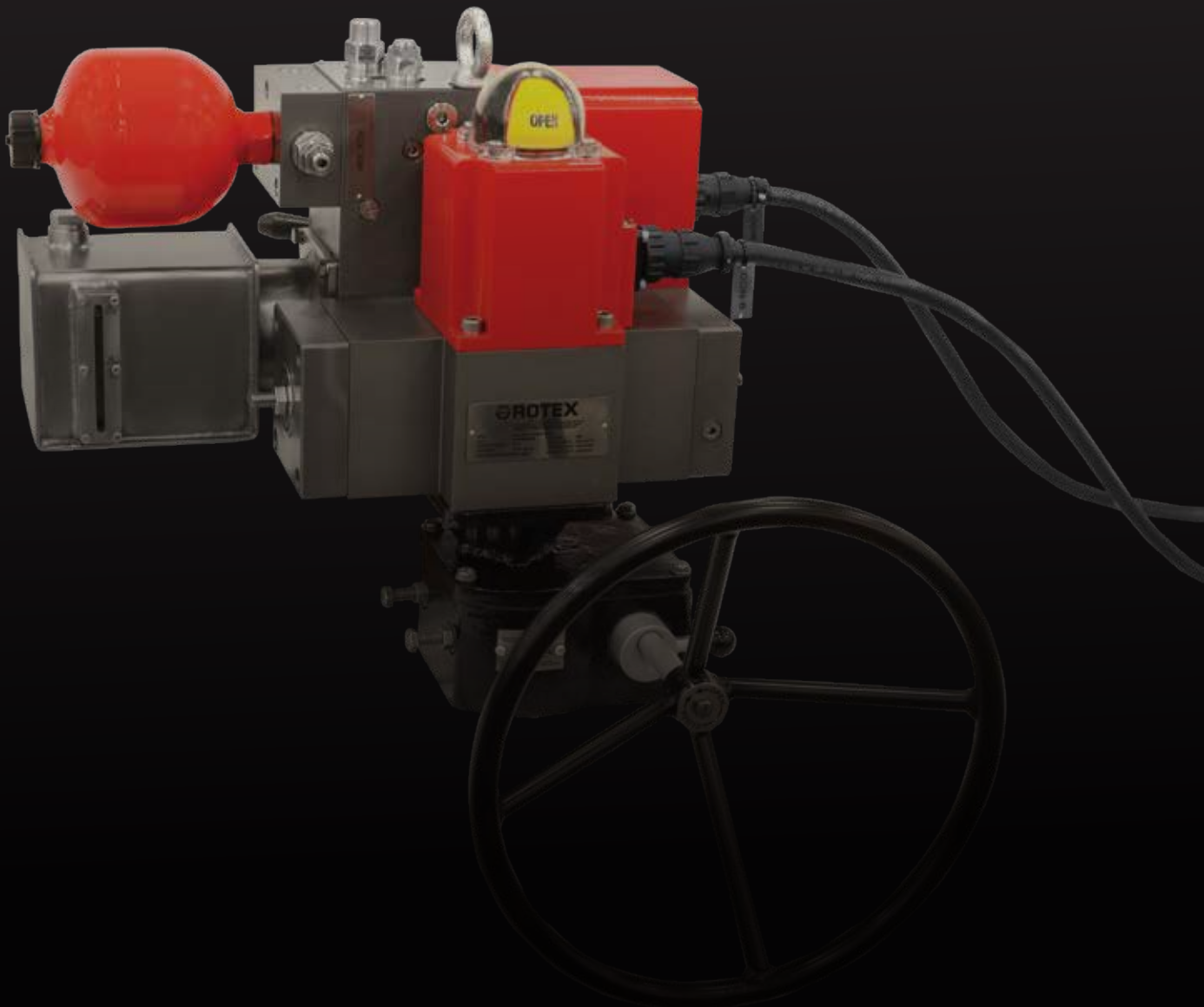
SELF CONTAINED ELECTRO HYDRAULIC ACTUATOR
WITH REMOTE HEAD.



 **ROTEX**

Engineering For The Future

Continuing our tradition of constant innovation, Rotex EDR is a double-acting Modulating or On-Off actuator designed to solve problems across various industries.



Self contained Electro-Hydraulic actuator series EDR with remote electronic head with Mechanical Indicator and Glowdapt.

WHY ROTEX?



Does your actuator fail due to minor oil leakage or imperfect refills?

Rotex offers a proven solution with its oil tank where minor leaks or slight overfilling does not cause the actuator to malfunction.



Does your actuator fail to perform micro steps ?

Rotex's unique technology allows for increments in micro steps of 0.2%. This helps customers avoid overtravel by a few percent and return to the required position. The zero-leak proportional valve holds the position without consuming oil or power.



Does actuator electronics fail due to LIGHTNING ?

Rotex provides high level electronics with Lightning protection circuits to ensure long term and trouble-free operation.



Do you get enough information on display and through communication ?

Rotex features a large display with extensive data to facilitate necessary actions. The advanced diagnostics provide comprehensive health information about the valve and actuator, helping you analyze maintenance cycles, life expectancy, and failure reductions.



Do you have trouble viewing the valve's OPEN or CLOSE position at night ?

Rotex's Glowdapt technology solves this with bright, color-configurable LEDs. The 360-degree LED glow is visible from all directions, even from a distance. Blinking blue indicates a problem.

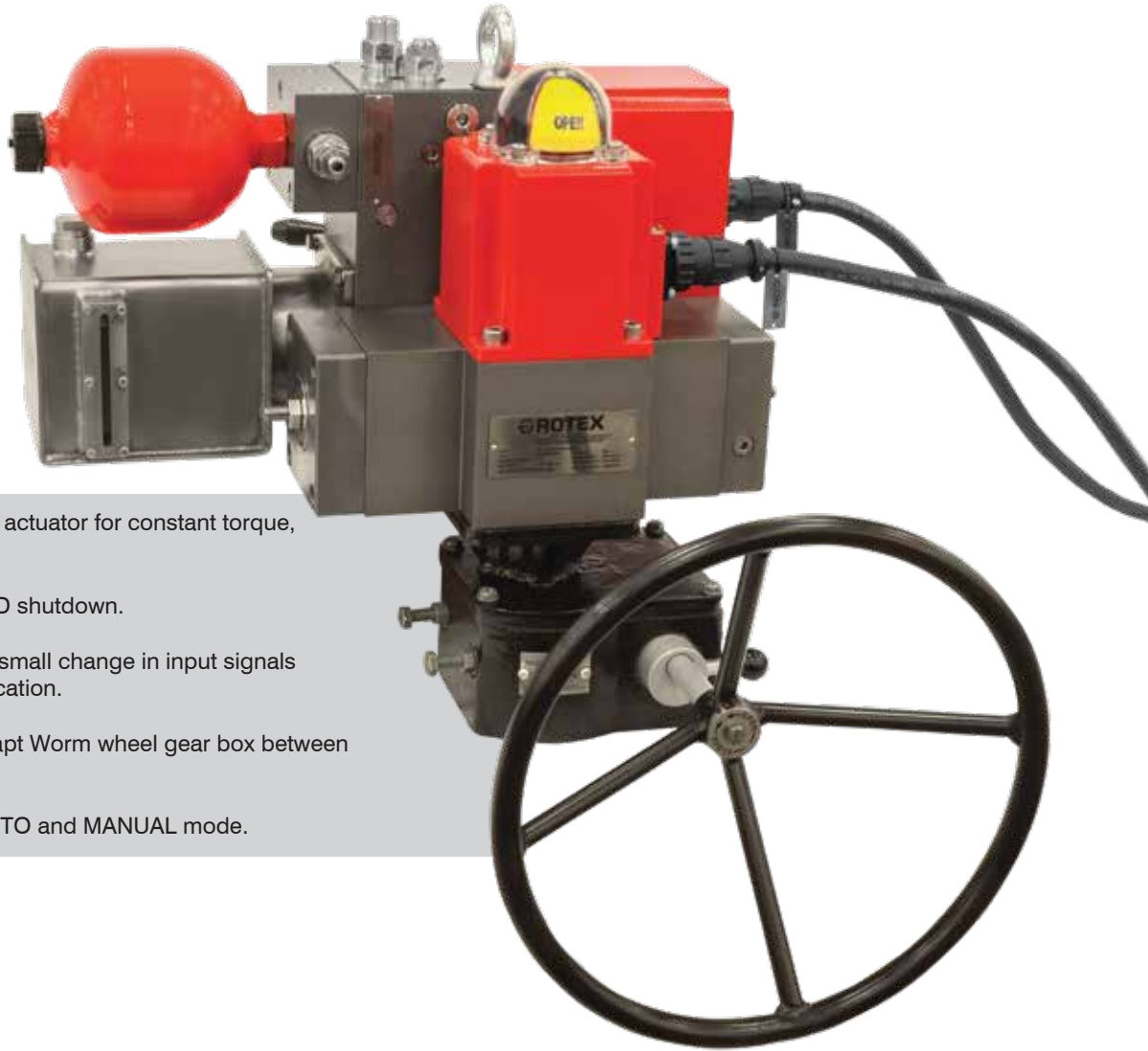
ROTEX EDR SOLVES ALL THE ABOVE ISSUES WITH MODERN TECHNOLOGY AND AN APPLICATION ORIENTED DESIGN, FOR APPLICATIONS REQUIRING DOUBLE ACTING MODULATING OR ON-OFF ACTUATORS.

SEE HOW

ACTUATOR

KEY FEATURES

- Unique Rack and Pinion actuator for constant torque, smooth operations.
- Possible high speed ESD shutdown.
- Accumulator to support small change in input signals during modulating application.
- Flexible system, can adapt Worm wheel gear box between the valve and actuator.
- Inbuilt hand valve for AUTO and MANUAL mode.

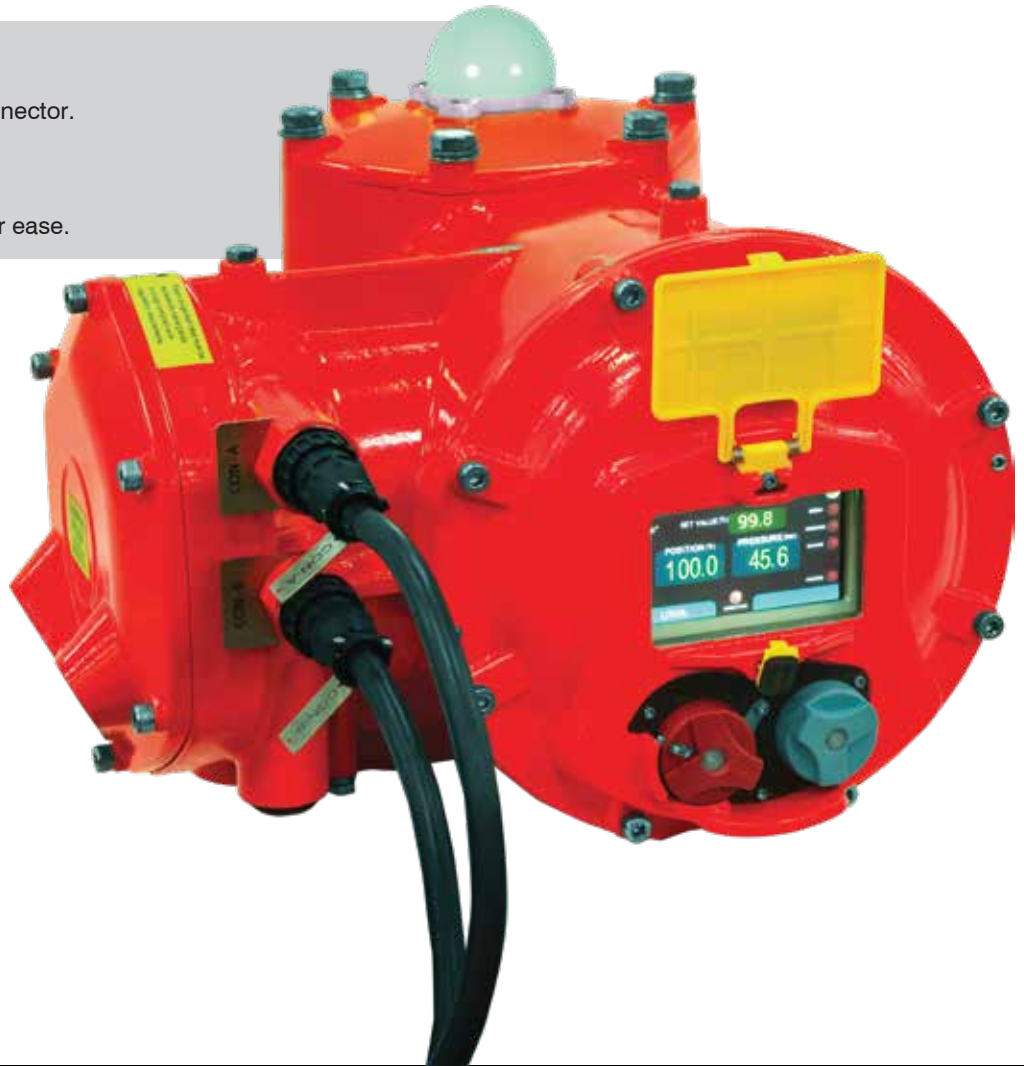


- Completely self-contained. Single hydraulic block, no tubing between various hydraulic blocks.
- Modular design, for Linear, Rotary, On-off or Modulating.
- Fail close, or open by using accumulator.
- ESD variants, Logical or hard wired.
- Full featured TFT for ease of Installation, commissioning and Operations.
- Rotary actuator torque up to 3000 Nm and Linear up to 30000 kN.
- Operating temperature, -50 °C to 70 °C

EDR REMOTE HEAD

KEY FEATURES

- Remote electronic head.
- Connected by quick multipin connector.
- Easy configurable switches.
- Large TFT, multicolour display for ease.



- High resolution, full features TFT Screen for Menu and Parameter setting.
- Water and dust tight, IP 68, (10 m, 96 hour).
- Weather proof enclosure.
- Extended Diagnosis for analysis available on network.
- Communication network
 - Modbus
 - Profibus
 - Foundation Fieldbus
 - HART

FEATURES



Accumulator

- Accumulator helps to support small changes in input signal without need to start the motor.
- Large accumulator can be provided to increase the operations in the manual cycle.
- Avoids surge in pressure due to sudden start of the motor.
- Compensates expansion or contraction of oil due to ambient temperature changes.

Hydraulic Oil Tank

- Stainless steel tank ensures low corrosion, high purity of oil.
- Improves the purity of oil, improves life and performance.
- Easy oil level indicator.
- Drain plug and refill port for ease of maintenance.



GRAPHICAL DISPLAY

- Large TFT easy to read display.
- Full Text messages, no Abbreviation.
- Intuitive navigation through well structured “Menu”.
- All settings, like, Calibration, Diagnosis, etc can be easily set.
- User friendly alarm displays.
- Password protected.



LOCAL CONTROL

- Lockable selector switches
- Offers flexibility and safety in operation.
- Easy selection for local, stop, and remote modes, open/close functions.



GLOWDAPT

- High Luminous LED dome can be observed from a distance.
- Entire dome lights up RED or GREEN, depending upon the position.
- Shatterproof white dome.
- Blinking Blue for alarms.
- All colours are programmable.



MECHANICAL INDICATOR

- Directly connected to output shaft.
- Allows visual indication in case of power failure.
- Yellow and Red indicator for easy visual understanding.



DOUBLE SEAL COMPARTMENT

- Two barriers fitted with O – rings ensures optimum protection against water ingress into the electronic compartment.
- This protection remains effective even if the cover has not been closed properly or if the cable glands have not been tightened.
- Protection is also ensured for the local control selectors thanks to internal reed switches which prevent moisture ingress.
- Designed as per EX e, IEC 60079 – 7.



BLUETOOTH FEATURE (OPTIONAL)



- BLE 5.0 Module 2.4 GHz.
- Android based app, can be installed on mobile.
- Password protected for operations and higher password protected for parameter settings.
- Address based technology to choose right actuator.
- Up to ----- meter.

DIAGNOSTICS

- Diagnostic available through Local Display, Bluetooth or Communication Network.
- Logical trend and histogram.
- Diagnostic with errors and recommendation.
- Alarm based on different threshold.
- On screen notification up to last 3 alarms or errors.
- Online monitoring.

DIAGNOSTICS CAN IDENTIFY THE FOLLOWING ISSUES -

Valve Faults

- Valve clogging.
- Valve seats or valve build-ups.
- Seat erosion.
- Increase in friction.
- Valve tightness.

Actuator Faults

- Friction
- Spring failure
- Leakage through bush, diaphragm, seals, covers, connections

Device Failure

- Electronics failure
- Pressure sensor failure
- Feedback sensor failure

External Faults

- Unexpected change in supply pressure, (sudden drop or increase)
- Change in rate of flow or change in ΔP across the valve

- Monitoring parameter can be configured with three different threshold levels.
- Each threshold level can be classified based on severity and generates a digital feedback signal, once triggered.
- Colour code represents nature of severity (can be communicated on HART to control system).
- This enables users to take necessary preventive action.



COMMUNICATION

The fieldbus, present on a large number of installations, is used more and more to communicate information and commands with multiple actuators and devices wired in series on a single pair of wires. Thus, number of information available from each actuator and can be multiplied while reducing the overall cost of wiring on the site.

ROTEX EDR can be connected to most of the standard fieldbus available on the market.



- Profibus DP
- Foundation Fieldbus
- Modbus RTU
- HART
- Other Fieldbus on demand

For More security, redundant fieldbus ensures continuous operation, even in case of a bus line disruption. Indeed, all elements of the bus line (bus controller, lines, actuators interfaces(=) are doubled.

OPEN VERSUS PROPRIETARY SYSTEMS:

Two physical concepts of fieldbus are available from various providers.

- The Proprietary so called system: This is a technology designed by a device manufacturer for his own needs. A proprietary system not only includes the actuators with the specific bus interface, but also the bus controller located at the line head-end. Only the products proposed by the bus controller manufacturer can be installed on the bus.
- Open systems: One using standard international fieldbuses so various manufacturers can supply compatible controllers and interfaces. This type of technology is proven, reliable and offers fast response time.

TORQUE (Nm)

ACTUATOR MODEL	START (Nm)	RUNNING (Nm)	END (Nm)
EDR50	101	101	101
EDR63	237	237	237
EDR80	452	452	452
EDR100	847	847	847
EDR125	1186	1186	1186
EDR150	1808	1808	1808
EDR165	2938	2938	2938

TECHNICAL DETAILS

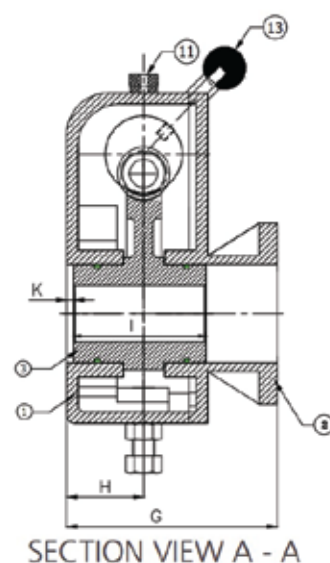
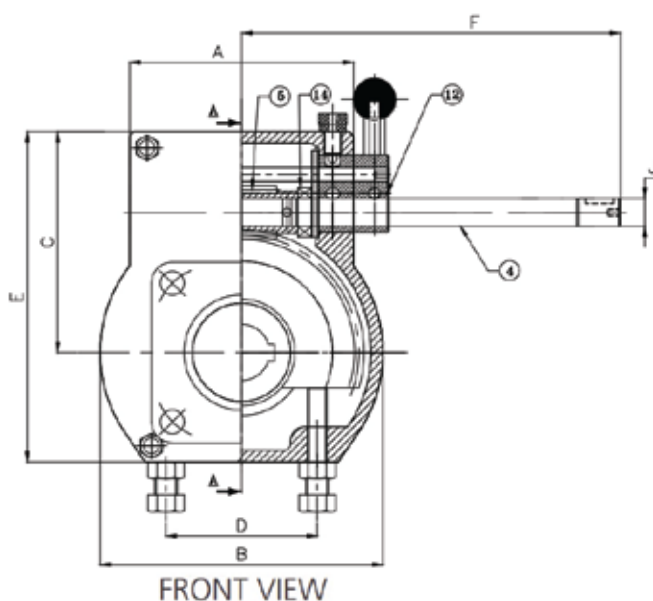
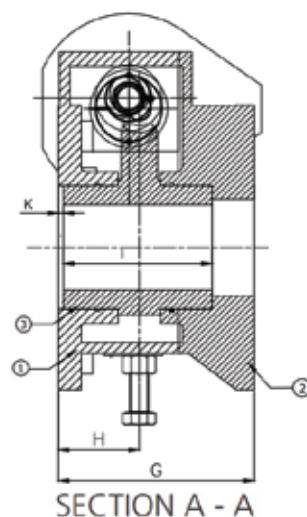
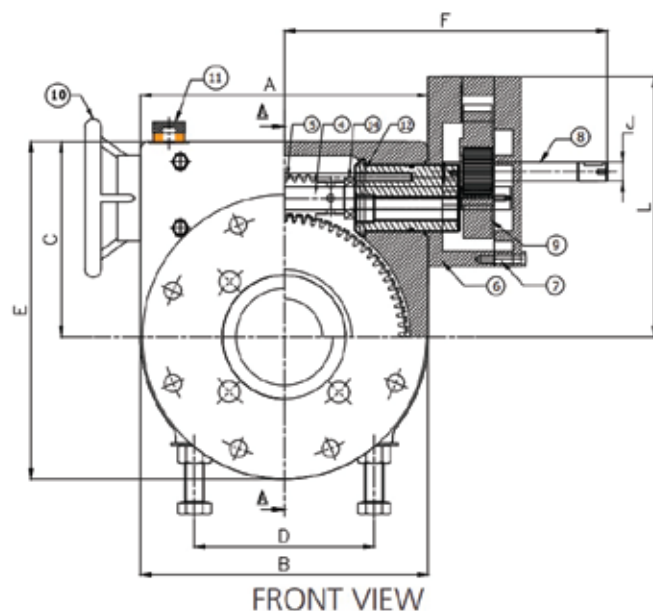
ACTUATOR MODEL	OPENING TIME (sec)#	CLOSING TIME (sec)#	POWER STROKE STEADY (W)	WEIGHT (Kg)
EDR50	<10	<10	45	27
EDR63	<16	<16	45	31
EDR80	<26	<26	45	36
EDR100	<42	<42	45	41
EDR125	<60	<60	200	51
EDR150	<100	<100	360	65
EDR165	<130	<130	550	87

#Special Timing available on request

Notes

1. Nitrogen to be filled in the accumulator at the customer end. Refer HYDAC Bladder accumulator filling procedure and refer the EDR Nameplate for accumulator charge pressure.
2. Hydraulic oil to be filled in the oil tank at the customer end. Recommended hydraulic oil : MOBIL DTE 10 EXCEL 68 or any other equivalent. Refer IOM

MANUAL OVERRIDE GEARBOX - OPTIONAL



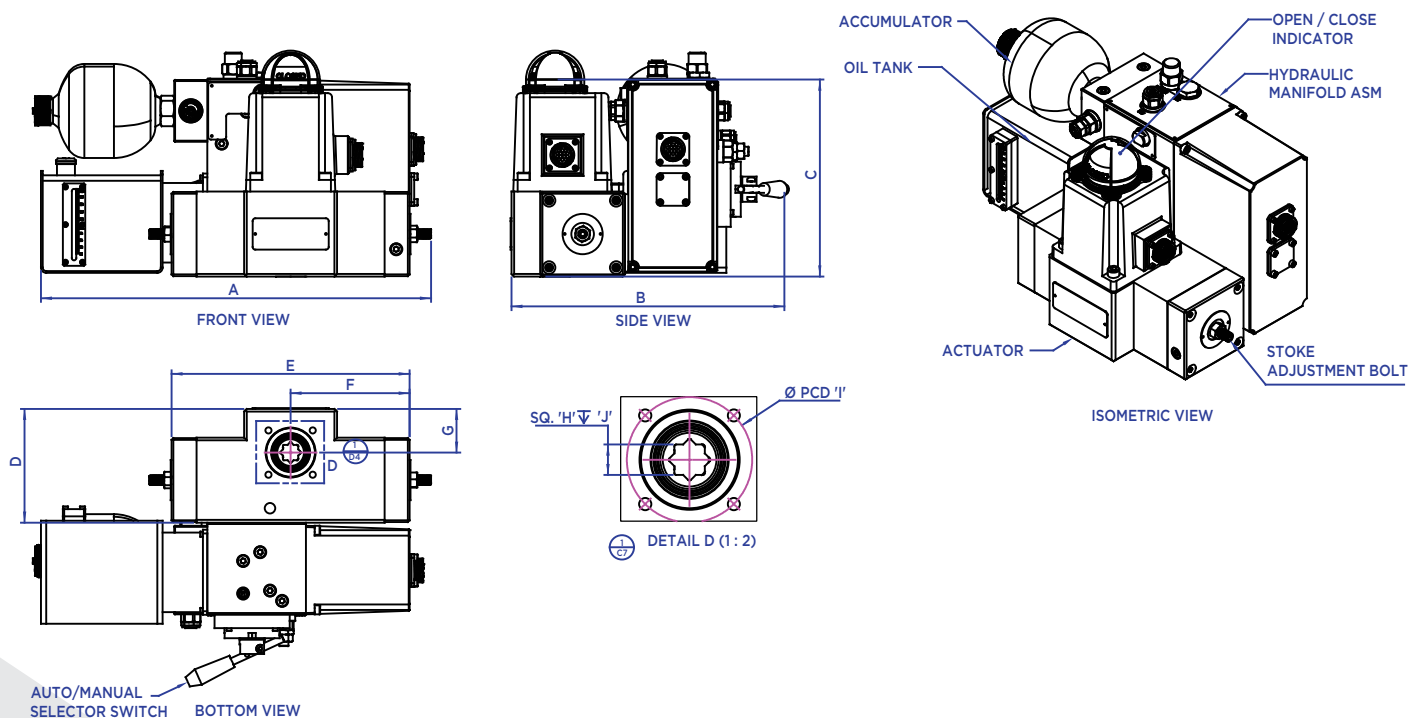
TECHNICAL SPECIFICATIONS AND ORDERING CODE

SR. NO.	MODEL*	OUTPUT TORQUE Nm	A	B	C	D	E	F	G	H	I	J	K
1	QTM-250	250	160	98	81	44	121	215	86	28.5	50	12	2
2	QTM-450	450	115	132	97.5	70	142.5	165	123	41	73	15	2
3	QTM-750	750	117	125	109	70	165	185.5	123	45	72.5	17	2
4	QTM-1000	1000	154	180	120.5	95	185.5	190	148.5	59	112.5	20	4
5	QTM-1500	1500	160	202	157.5	108	235.5	230	150.5	55	94.5	20	5
6	QTM-2500	2500	204	218	165	108	250	237	171	66	122	20	6

*Model number itself is the ordering code.

DIMENSIONAL DETAILS

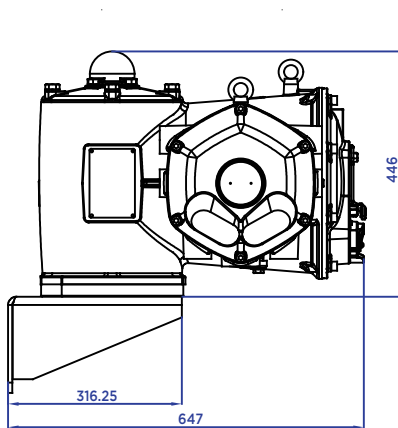
EDR ACTUATOR SERIES



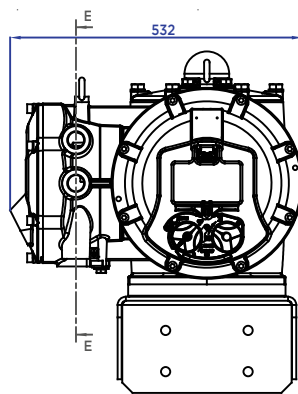
MODEL	A	B	C	D	E	F	G	H	I	J	K	F-size
EDR50	440	305	255	125	270	135	46.5	17	70	12	M8	F07
EDR63	450	315	265	135	285	142.5	51.5	17	70	12	M8	F07
EDR80	460	325	275	145	290	147.5	56.5	22	102	15	M10	F10
EDR100	475	335	285	165	305	152.5	61.5	27	125	18	M12	F12
EDR125	510	350	300	185	320	157.5	66.5	27	140	24	M16	F14
EDR150	525	365	310	200	335	162.5	71.5	36	140	24	M16	F14
EDR165	550	380	325	220	350	167.5	76.5	46	165	30	M20	F16

DIMENSIONAL DETAILS

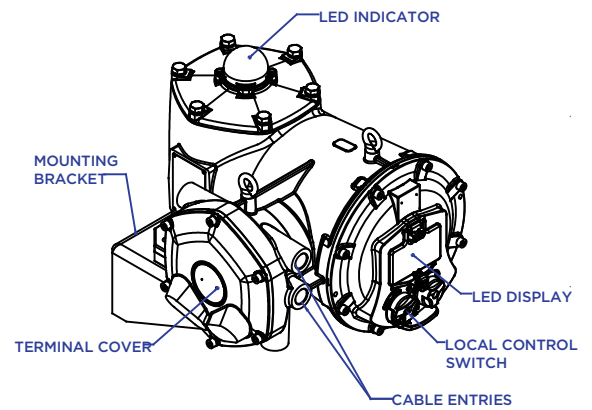
EDR REMOTE HEAD



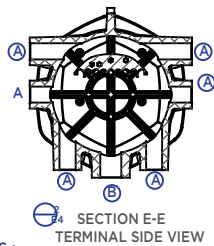
SIDE VIEW



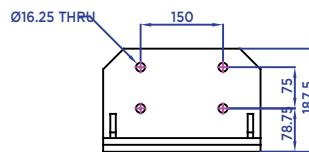
FRONT VIEW



ISOMETRIC VIEW



SECTION E-E
TERMINAL SIDE VIEW



BRACKET DETAILS

CABLE ENTRIES :

A : 3/4" NPT X 6 NOS, (4 NOS ARE USABLE FOR CUSTOMER)

B: 1 1/4" NPT X 1 NOS

NOTE 3/4" NPT X 2 NOS CABLE ENTRIES WILL BE USED FOR ACTUATOR TO EDR CONTROL HEAD.

BILL OF MATERIAL			
SR NO	DESCRIPTION	QTY	MAKE
1	ACTUATOR	1	ROTEX
2	TANK	1	ROTEX
3	OIL LEVEL INDICATOR	1	ROTEX
4	HYDRAULIC MANIFOLD	1	ROTEX
5	MOTOR	1	ROTEX
6	GEAR PUMP	1	ROTEX
7	PRESSURE RELIEF VALVE	3	ROTEX
8	FILTER	1	ROTEX
9	CHECK VALVE	1	ROTEX
10	EXTERNAL HAND PUMP CONNECTOR	1	ROTEX
11	PRESSURE TRANSMITTER	1	HONEYWELL
12	2/2 PROPOTIONAL SOLENOID VALVE	2	ROTEX
13	3/2 PROPOTIONAL SOLENOID VALVE	1	ROTEX
14	FLOW CONTROL VALVE	1	ROTEX
15	MANUAL OVER-RIDE	2	ROTEX
16	ACCUMULATOR BANK	1	HYDAC
17	LIMIT SWITCH	1	ROTEX

WIRING DIAGRAM

NOTE:-1

110 - 240 VAC 50/60 Hz 1 Phase	PHASE U	TERMINAL - 1
	NEUTRAL	TERMINAL - 2

NOTE:-3

LIMIT SWITCH FEEDBACK FOR OPEN AND CLODE POSITION

NOTE:-4

4 CONFIGURABLE RELAYS CAN BE CONFIGURED FOR ANY ONE OF THE TABLE (AS PER NOTE :2)

NOTE:-5

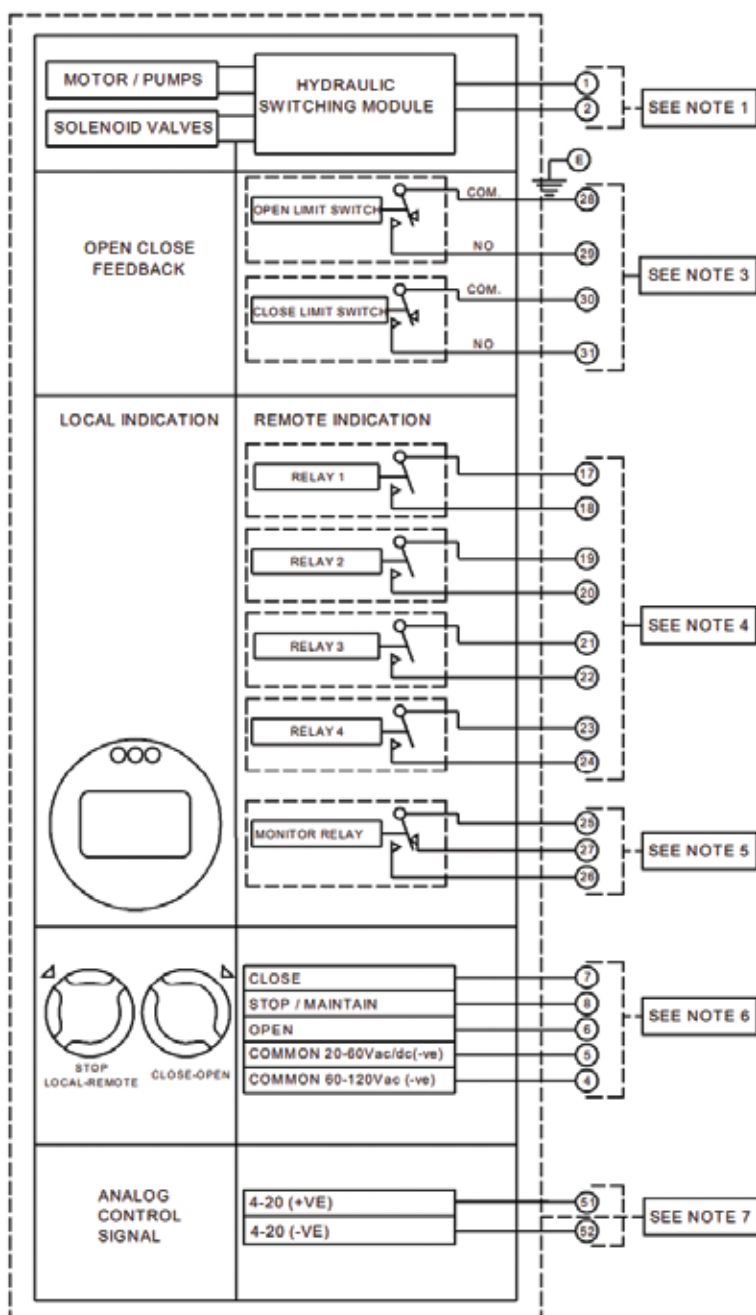
MONITORS ACTUATOR AVAILABILITY

NOTE:-6

DIGITAL CONTROL SINGALS
20-60 Vac/dc OR 60-120Vac

NOTE:-7

INPUT 4-20 mA FROM DCS



CONFIGURABLE ALARMS / SIGNALS	
SR NO	DESCRIPTION
1	CLOSE LIMIT
2	OPEN LIMIT
3	FAULT / ALARM
4	ESD INACTIVE
5	THERMOSTAT TRIP
6	MAINS / PHASE FAIL
7	OVERPRESSURE LIMIT
8	STALL
9	STALL MID
10	STALL LIMIT
11	MOTOT RUNNING
12	STOP
13	MANUAL MODE
14	LOCAL MODE
15	REMOTE MODE
16	POSITION OVER RANGE
17	POSITION UNDER TANGE
18	AMBIENT TEMPERATURE LIMIT
19	PRESSURE SENSOR ERROR
20	CLOSING
21	OPENING
22	MOVING
23	EEPROM ERROR
24	OIL TEMPERATURE LIMIT
25	OIL LEVEL LOW
26	LOW PRESSURE
27	HYDRAULIC FAILURE
28	PRESSURE STATUS
29	ACCUMULATOR NOT CHARGING
30	PST POSITION
31	PST PASS
32	PST FAIL
33	PST ACTIVE
34	SOLENOID FAILURE
35	SIGNAL LOSS

NOTE:-
ALL CONFIGURABLE RELAYS RATED AT 5A - 120 VAC / 30 VDC

THIS IS A MULTI-FUNCTIONAL WIRING DIAGRAM, YOUR FINAL PRODUCT MAY NOT HAVE ALL THE OPTIONS DEMONSTRATED. RELAYS ARE SYSTEM AND COMPONENT DEPENDENT, BASED ON CLIENT SPECIFICATION.

TECHNICAL SPECIFICATIONS

TORQUE RANGE	Torque (Nm)	101 to 2938 Nm
ENCLOSURE PROTECTION	Construction	Aluminium, Stainless Steel 316 or optional, WCB/SGI or SS 316.
	Ingress Protection	IP67 or IP 68 on request
	Controls Location	Controller head unit will be mounted separately
	Protection	Weatherproof
	Ambient Temperature Operating Range	• -20°C TO 70°C • -40°C TO 70°C • -60°C TO 70°C • -20°C TO 85°C
	External Corrosion Protection	Standard paint system: Polyurethane pain RAL3020 complying with ISO 12944 (C5) Optional special anti-corrosion protection for marine, aggressive or abrasive atmospheres. All cover fasteners captive and stainless.
MOTOR	Motor Duty Rating	S1

TECHNICAL SPECIFICATIONS

MECHANICAL SPECIFICATIONS	Manual override	Hydraulic Handpump (optional)
	Vibration Resistance	1g (9.8 m/s ²) at 10-500 Hz (Contact our marketing dept. for higher vibration levels)
	Lubrication	Actuators are lubricated for product lifetime and do not require any specific periodic maintenance.

ELECTRICAL SPECIFICATIONS	Power Supply	The actuators can operate on a wide variety of power supplies: • Single-phase: 110, 120 & 230 V - 50/60 Hz • Three-phase: 380, 400, 415, 440, 480, 575, 690 V - 50/60 Hz • Voltage tolerance: $\pm 10\%$ • Frequency tolerance: $\pm 5\%$
	Cable Entries	Available in Metric or Imperial.

POSITION AND PRESSURE SENSORS	Position	Potentiometer, Limit Switch
	Pressure	Pressure measured by pressure transducer

	Display	TFT display
	On-off remote Control (Hardwired Control)	Command by • Voltage: 10 to 250 V DC/AC (current: 10 mA at 18V) • Dry contact (use Controller auxiliary 24 VDC supply) Isolated by opto-couplers Minimum pulse duration: 100ms
	Signaling relays	4 relays: each information can be freely selected • Contact configuration: normally open or normally closed
	Monitor Relays	• Normally closed & energized SPDT contact • Maximum current 5A at 250V AC or 5A at 30V DC (resistive load)
	Analogue Control	Input (setpoint) and output (feedback) signals are fully isolated from each other Signal configurations (selectable): • Input signal: 4-20 mA / 0-20mA
	Transmitter (optional)	Proportional position (4-20 mA)
	Limit Switches	• 2 Mechanical Limit Switch (SPDT): 120/230 VAC or 30 VDC • Proximity Limit Switch NO/NC (Optional): 5-60 VDC

TECHNICAL SPECIFICATIONS

SETTINGS	Settings	Non-Intrusive. All actuator settings and parameters are stored in a non-volatile EEPROM memory. Protection by password. Can be done by local command, optional bluetooth link.
	Local selectors	The Controller can be fully set via its local display and selectors Does not require any specific setting tool

FIELDBUS CONTROLS	Profibus DPV1 (option)	• PROFIBUS-DPV1 - RS 485 • Baud rate: 9.6 kbit/s up to 1.5 Mbit/s (autodetection) • Communication protocol: PROFIBUS DPV1 slave-cyclic & acyclic • Type of connection: single line (standard) or redundant line (option) • Cable specification: Profibus certified cable only • Line connection without repeater - Actuators per line: 31 max. - Line length: 1.2 km max. (0.75 mi) • Line connection with repeaters - Number of repeaters per line: 9 max - 30 actuators and 1 Km max. per segment. - Number of actuators per line with repeater: 124 maximum - Line length with 9 repeaters: 10.2 km max. (6.2 mi) • Scan speed (30 units & 1.2 km): 0.1s (at a baud rate of 93.75 Kbit/s)

FIELDBUS CONTROLS	Modbus (option)	• MODBUS RTU - RS 485 • Transmission medium: 1 shielded pair cable • Functions: Half Duplex, asynchronous mode, multidrop • Baud rate: 11.2k to 115 Kbit/s • Format: 8 data bits, 1 stop bit, no parity • Communication protocol: Modbus (slave) • Modbus address: configurable by the actuator menu
	Foundation Fieldbus (option)	• H1 speed = 31.25kBit/s • Fully compliant with fieldbus standard IEC 61158 • Physical layer: IEC 61152-2, 2 wires communication • Current consumption: 20mA • Operating voltage: 9 to 332 VDC • Cable specification: Type A (for example: 3076F Belden) • Line connection - Actuators per line without repeater: 31 max. - Line length without repeater: 1.9 km max. (1.2 mi) - Number of repeaters per line: 4 max. - Maximum number of actuators and line length depends on consumption available • Technical approval: Foundation tested. Several DCS manufacturer operability checked.
	HART (option)	Interface: HART, 4-20mA current, FSK modulation Transfer speed: 1.2 kbit/s Protocol: HART 7.4 Impedance: 250 Ohms Actuator configuration: Available through EDD file / DTM

EDR ACTUATOR

1	2	3	4
PRODUCT SERIES	EDR COMPONENT	ACTUATOR SIZE	OPERATION
CodeDescription	CodeDescription	CodeDescription	CodeDescription
EDR-IINTELLIGENT	A ACTUATOR	50 63 80 100 125 150 165 Size	OO On-Off MO Modulating
5	6	7	
ACTION	MOUNTING POSITION	TEMPERATURE	
CodeDescription	CodeDescription	CodeDescription	
D Double Acting	S Horizontal V Vertical*	NB -20°C to +70°C LN -40°C to +70°C FS -40°C to +70°C AV -20°C to +85°C	
	* -- REFER IOM FOR PREDEFINED ORIENTATIONS		
8	9	10	
BODY / COVER MATERIAL	HAND PUMP	LIMIT SWITCH	
CodeDescription	CodeDescription	CodeDescription	
AL ALUMINIUM ENCLOSURE 8M STAINLESS STEEL SS316/CF8M WC SGI/WCB ENCLOSURE	HV None HE External Hand Pump	1A## HONEYWELL SWITCHES 3A## P&F NJ2V3N 13A## P&F NBB3V3Z4 6A## NON CONTACT TYPE, COBRA SWITCH	
		NOTE: '##' DENOTES THE NUMBER OF SWITCHES FROM 2-3 NOS.	
11			
SPECIAL VERSION			
CodeDescription			
* NONE			
SUXXX SPECIAL CUSTOMIZATION			

EDR CONTROL HEAD

1		2		3		4	
PRODUCT SERIES		EDR COMPONENT		OPERATION		BODY / COVER MATERIAL	
Code	Description	Code	Description	Code	Description	Code	Description
EDR-I	INTELLIGENT	B	ELECTRICAL HEAD	OO	On-Off	AL	ALUMINIUM ENCLOSURE
				MO	Modulating	8M	STAINLESS STEEL SS316/CF8M
						WC	SGI/WCB ENCLOSURE

5		6		7	
POWER SUPPLY		TRANSMITTER		CABLE ENTRIES	
Code	Description	Code	Description	Code	Description
A	24V DC	NT	NONE	TR0	1.1/4"NPT(F) X 1 NOS, 3/4"NPT(F) X 4NOS NOS
B	1PH 110-240V 50/60Hz	PT	POSITION (4-20mA)	TR2	1,1/4"NPT(F) X NOS, 1"NPT ADAPTED TO 1/2"NPT(F) X 4NOS NOS
F	3PH 220-240V 50/60Hz	RT	PRESSURE (4-20mA)	TR5	1,1/4"NPT(F) ADAPTED TO 3/4"NPT(F) X 1 NOS, 3/4"NPT ADAPTED TO 1/2"NPT(F) X 4NOS NOS
Q	3PH 220-240V 50/60Hz	BT	POSITION + PRESSURE (4-20mA)	TR6	1,1/4"NPT(F) ADAPTED TO 1/2"NPT(F) X 1 NOS, 3/4"NPT ADAPTED TO 1/2"NPT(F) X 4NOS NOS
				4M0	M25(F) X 2 NOS, M20(F) X 2 NOS
				4M1	M25(F) X 3 NOS, M20(F) X 2 NOS

8		9		10		11	
COMMUNICATIONS		ADDITIONAL COMMUNICATION		CERTIFICATIONS		SPECIAL VERSION	
Code	Description	Code	Description	Code	Description	Code	Description
NC	NONE	NN	None	C0	WEATHER PROOF	*	NONE
FF	FOUNDATION FIELDBUS	BX	Bluetooth			SUXXX	SPECIAL CUSTOMIZATION
HA	HART						
MB	MODBUS						
PB	PROFIBUS						

ORDERING CODE

1		2	
PRODUCT SERIES		EDR COMPONENT	
Code	Description	Code	Description
EDR-I	INTELLIGENT	C	CABLES

3		4	
CABLE SET 1		CABLE SET 2	
2M	M1	2M	M1
5M	M2	5M	M2
XM	MX	XM	MX

NOTE ### = 'X' DENOTES LENGTH IN METRES, FOR EXAMPLE IF 10 METRES IN NEEDED, THE CORRESPONDING CODE FOR ORDERING IT WOULD BE 10M



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Email: sales.rabale@rotexautomation.com

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