

Universal Smart Drive

TYPE MR41E

Patented system



Applications

The MR41E electrical operating mechanism is robustly designed to operate disconnectors and switches, inside or outside use, for single pole or multiple pole control system.

A 3-digital display is embedded to offer a codification of information related to predictive maintenance (advanced operation status, minor and blocking occurrences...), in addition to local led information (operation time-out, overload, maintenance to be done, ...)

By integrated intelligent electronic devices (IED's), MR41E is a universal smart drive which allows additional plug and play solutions for flexible operation, control and monitoring to increase reliability and have cost-effective operation and maintenance.

Features

- Reliability
 - Stainless steel casing
 - Steel geared motor power module
 - Irreversible kinematics
 - Robust design to cope with adverse external conditions (humidity, heat, pollution etc.).
- Electronic technology
 - Can be adjusted for any motor-driven power supply voltage (factory setting)
 - Fewer electrical cables (reduction in installation costs)
 - Reduced maintenance costs by preventative maintenance "when necessary"
 - Speed varies over the travel of the disconnect switch to reduce mechanical loads
- Communication
 - Operating information communicated for increased availability
 - Expectation of the actual behaviour of the disconnect switches
 - Overall view of some operating parameters, locally or remotely, by putting into communication networks using various media (2 or 4 wire twisted pairs, optic fiber) or protocols (MODBUS, IEC61850, etc.)
- Modularity
 - Modifying the configuration to suit any type of installation: standardising the range
- Energy saving
 - Optimised anti-condensation resistance and temperature regulation: 50% reduction in electrical consumption compared with a traditional control unit.

Associated services

- Hotline available
 - By telephone: +33 (0)4 76 72 76 76
 - By e-mail: hotline@sdcem.com
- After sales service
 - Renovation, refurbishing equipment, repairs and maintenance etc.
 - Motorization of existing disconnectors and switches

List of specifications and options of the operating mechanism

		Base	Option	Choice (tick according to your need)	Specifications
Motorisation					
M1	Power supply voltage 48 to 220 VDC / 110 to 400 VAC		x		
M2	Operating time 10s		x		
M3	Other operating time			x	Please specify
M4	Mechanical endurance 2000 cycles		x		
M5	Mechanical endurance 10000 cycles			x	
M6	Variable speed at the start and end of movement		x		
M7	Monitoring and operating torque limit		x		
Remote and Control Unit					
C1	Power supply voltage 48 to 220 VDC / 110 to 230 VAC		x		
C2	Opening and closing control O/F simple polarity		x		
C3	Opening and closing control O/F double polarity			x	
C4	Other remote control drawing			x	Please specify
C5	Electrical interlocking of control orders		x		
C6	Mode selector : 4 positions		x		Local/In progress/Out of use/Manual
C7	Mode selector : 3 positions			x	In progress/Out of use/Manual
	Mode selector in position Out of Use :				
C8	On all the disconnector stroke		x		
C9	Only in opened position			x	
C10	Only in closed position			x	
C11	Only in opened or closed position			x	
C12	Dry contact indicator of mode selector positions			x	2 dry contacts per position
C13	Local remote by push button		x		
C14	No push button on local remote			x	
C15	Padlocking of mode selector in position Out of Use		x		
C16	Padlocking of mode selector in position In progress			x	
C17	Other position to padlock			x	Please specify
C18	Electrical interlocking by coil forbidding use of emergency crank-handle			x	
C19	Same power supply voltage of the coil as power supply voltage		x		
C20	Other coil power supply voltage			x	Please specify
C21	Remote status indicators by Leds		x		
C22	Casing heating by heating conductor		x		For minimum ambient temperature of -25°C
C23	Casing heating by thermostat resistance , low ambient temperature			x	For minimum ambient temperature of -35°C
C24	Standard SDCEM connection on spring casing terminals		x		
C25	Other type of connection			x	Please specify
C26	Labelling of terminals according to SDCEM standard		x		
C27	Labelling of terminals according to customer standard			x	Please specify
	Indicator contact of the disconnector positions :				
C28	8O and 8F*		x		
C29	from 7O and 7F and 1NO and 1NF, to 4O and 4F and 4NO and 4NF*			x	Please specify
C30	16O and 16F*			x	Please specify
C31	from 14O and 14F and 2 NO and 2 NF, to 8O and 8F and 8NO and 8NF*			x	Please specify
Communication *					
B4	Choice of 2 information on operation of the electrical drive (on 2 relays)		x		Please cf list of available information here after
B5	Additional information (up to 12 additional information)			x	Please cf list of available information here after
Casing					
A1	Casing protection IP56		x		
A2	Casing closed by padlocked latch		x		
A3	Casing closed by keylocked latch			x	
A4	Mechanical disconnector position indicator on output shaft			x	
A5	Mechanical disconnector position indicator inside the casing			x	
A6	Mechanical counter of number of operations			x	
A7	Casing lightning by bulb, during casing opening			x	
A8	Power supply of portable equipments, by socket 230 VAC and protection circuit breaker			x	
A9	Outdoor locking by contact keylock, of disconnector operating shaft			x	
A10	Position keylock (Ronis EL11AP), in position out of order			x	
A11	Copper earthing terminal and associated indoor commutator			x	
A12	Casing closed by 3 padlocks			x	

*O=Opened ; F=Closed ; NO=Normally opened ; NF = Normally closed

* List of available communication and remote information, supported by relays

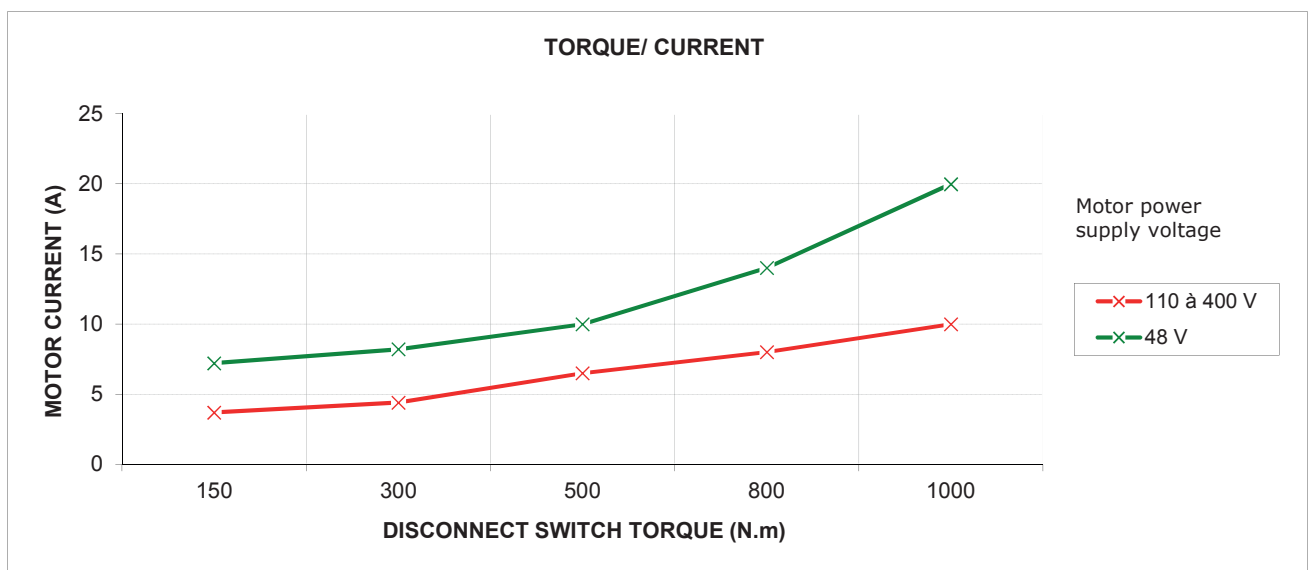
Among the information provided in the list below, please indicate which ones are of your interest.
You can choose up to 12 additional information, depending on selected options of the operating drive.

Communication of information during operation		
<i>If the condition occurs, the relay is activated.</i>		
Item	Type of information	Operational details
F0	Never ordered	No information on the relays
F1	Failure I motor current (overload)	The motor current has a atteint sa limite maximale
F2	Failure operating time too long	The operating time is abnormally long, programmable from 6 to 20 seconds
F3	Number of maintenance cycles has been reached	Programmable between 10 to 20 000 cycles
F4	Operation in process	An operation is in process
F5	Presence of auxiliary supply	The auxiliary supply is present
F6	Failure with security key	The security key is not functional
F7	Presence of heating current	The heating resistor is operating normally
F8	Failure on interlock during an operation	The interlock has been lost during an operation
F9	Failure motor current drift	The motor current has reached 80% of its maximum limit
F10	Failure of heating resistor	The heating resistor no longer works
F11	Selector switch on Out of Use	Indication on the position of the selector switch
F12	Waiting for reset	After an Overload has occurred, a reset is required
F13	Copy of the status of the interlock	The status of the Interlock is active
F14	Extended function	Several failures or status can be added on the same relay : failure 1 OR status 1 OR failure 3, etc..., please refer to the list here after
F15	Order of additional heating resistor	An additional heating resistor can be can be commissioned, in extreme cases of low temperature, and controlles by a relay
Communication on information during detection of failures		
<i>If one of the conditions occurs, the relay is activated</i>		
D1	Selector switch in Out of Use position	See "Operational details" on items F1 to F13 here above
D2	Selector switch on Local position	
D3	Selector switch on Remote position	
D4	Selector switch on Manuel position	
D5	Operation in process	
D6	Presence of auxiliary supply	
D7	Presence of heating current	
D8	Waiting for reset	
D9	Copy of the status of the interlock	
D10	Failure of the motor current	
D11	Failure on interlock during an operation	
D12	Failure motor current drift	
D13	Failure of heating resistor	
D14	Number of maintenance cycles has been reached	
D15	Failure of the course of Watch-dog program	The program has not processed normally
D16	Failure of selector switch	The selector switch indicates ' abnormal ' position for example 2 positions at the same time
D17	Failure of local switch	The local switch indicates 2 positions at the same time
D18	Failure of opening remote	The remote receives orders continuously
D19	Failure of closing remote	The remote receives orders continuously
D20	Failure of common relay	The supply of relays has been lost
D21	Failure of regulator 12V	The regulator 12 V no longer works
D22	Failure of travel limit switch sensor	The travel limit switches are activated at the same time
D23	Failure of temperature sensor	The temperature sensor indicates abnormal values
D24	Failure of motor current sensor	The motor current sensor indicates abnormal values
D25	Failure of heating current	The heating current decreases or increases abnormally
D26	Failure of settings in flash memory	The settings of flash memory are corrupt

Electrical and mechanical features

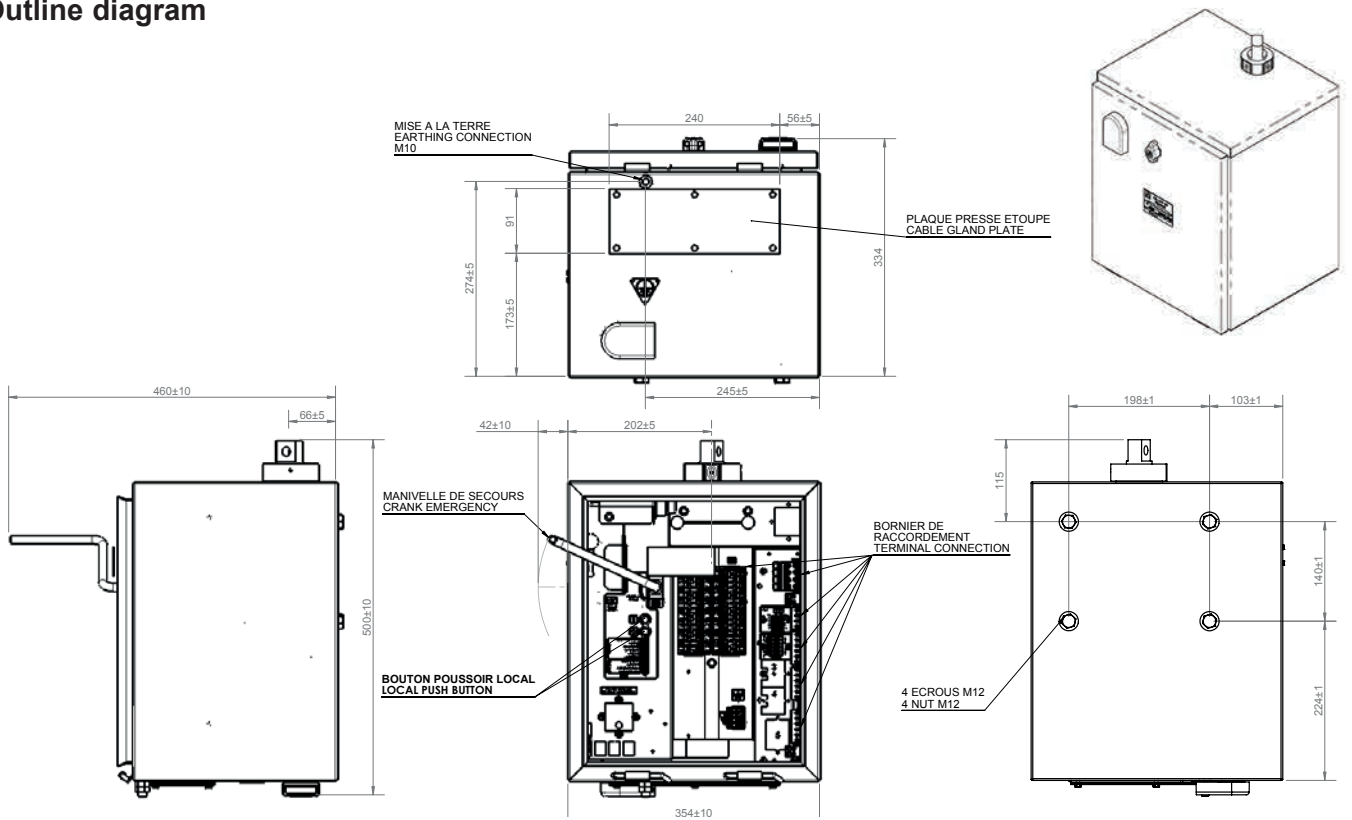
	Description	Values	Standards in force
MECHANICS	Dimensions HxLxD	485 x 355 x 325 mm	
	Weight	26 kg	
	Protection degree	IP56	IEC 60529
CLIMATE	Operating temperature	-25°C / + 50°C	
	Storage temperature	-25°C / + 60°C	
	Humidity	95% HR / +50°C	
	High temperature reliability test	1500 hours at +85°C	
	High temperature under humidity reliability test	1000 hours at 85°C/85%HR	EN 60068-2-2
	Thermal cycle reliability test	500 cycles an hour -20°C/+80°C	
CEM	Electrostatic discharges	6 kV at contact / 8 kV in the air	EN 61000-4-2
	Electromagnetic field	80MHz-1GHz - 10V/m	EN 61000-4-3
	Electromagnetic field at digital telephone radio frequencies	900 MHz pulsed 200 Hz	ENV 50204
	Rapid transients in bursts	4 kV on power supply 2 kV on remote control	EN 61000-4-4
	Shock waves	4 kV in common mode 2 kV in differential mode	EN 61000-4-5
	Conducted RFs	150 kHz-80 MHz - 10 V rms	EN 61000-4-6
	Magnetic field 50 Hz	100 A/m	EN 61000-4-8
	Radiated emission	3 and 10 m - 30 MHz at 1 GHz	EN 55011 Class A
	Dielectric	1.2/50 µs : 5 kV	IEC 60255-5
		2 kV for 1 mn	IEC 61180-1
	Damped oscillating wave	100 kHz/1 MHz : 2.5 kV in common mode, 1 kV in differential mode	IEC 61000-4-12
	GENERAL	Design, manufacture and tests	

All these values have been confirmed by tests in an independent laboratory. (test reports on request)



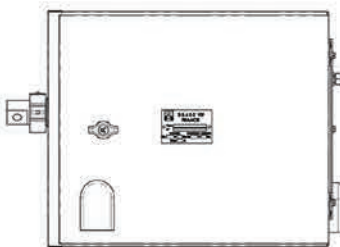
MR41E OPERATING DRIVE

Outline diagram

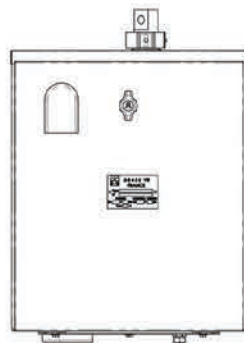


Possible installation configurations

AXE SORTIE A GAUCHE
OUTPUT SHAFT LEFT



AXE VERTICAL
VERTICAL SHAFT



AXE DE SORTIE A DROITE
OUTPUT SHAFT RIGHT

