

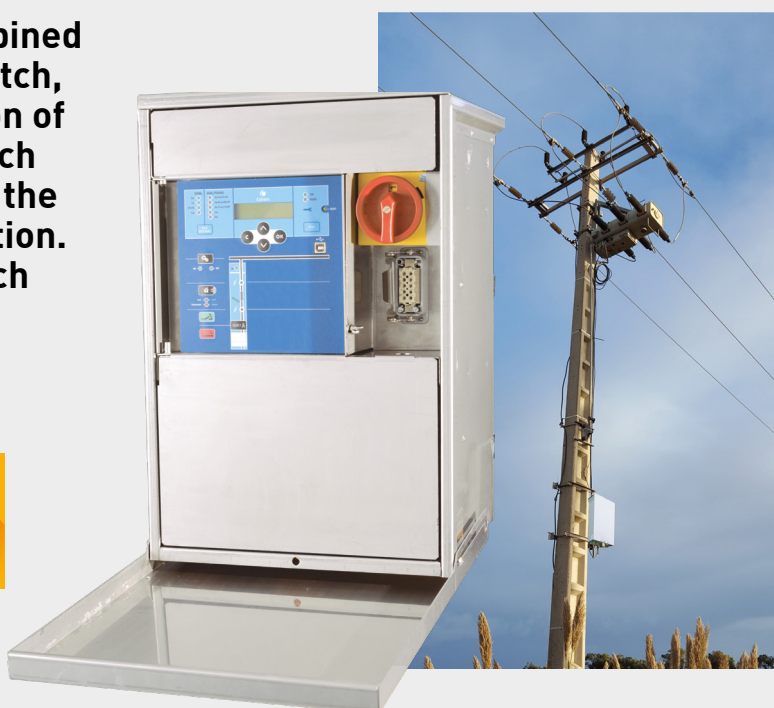
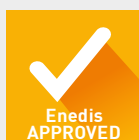


Overhead MV Network Management

ICONTROL-T - Remote network control

OVERHEAD LOAD BREAK SWITCH REMOTE CONTROL INTERFACE

The IControl-T, combined with an overhead switch, ensures disconnection of the MV network branch circuit, regardless of the neutral point connection. It is fitted to the switch mounting pole.



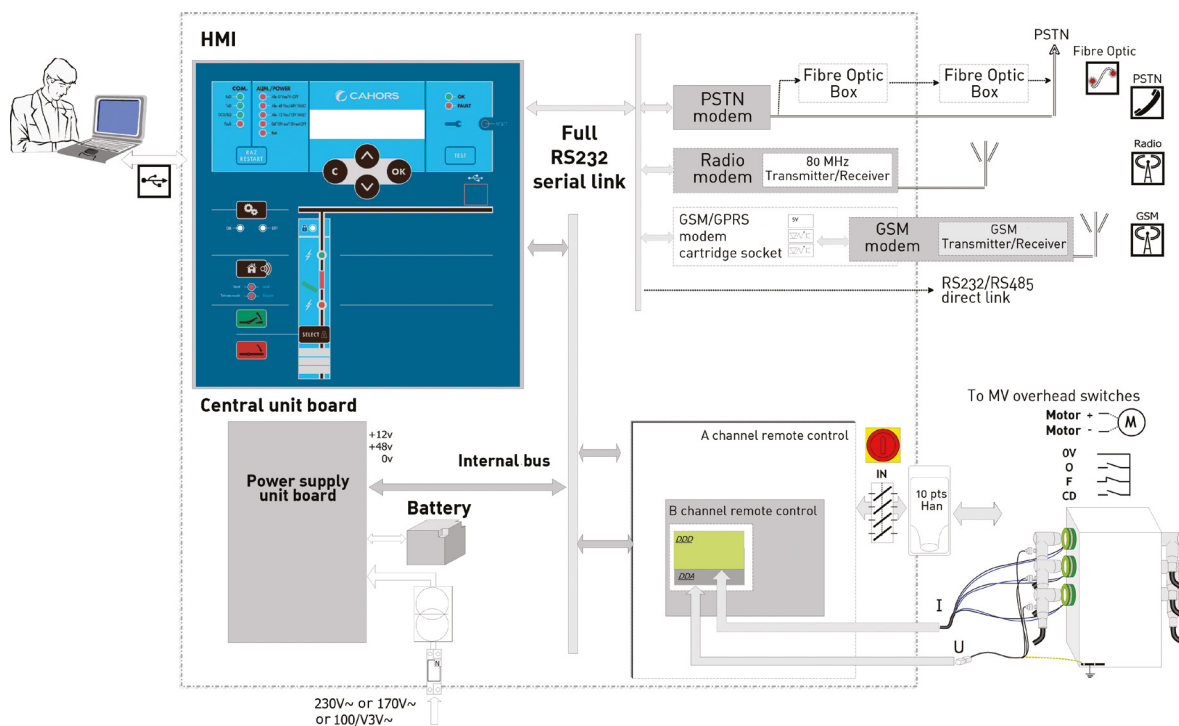
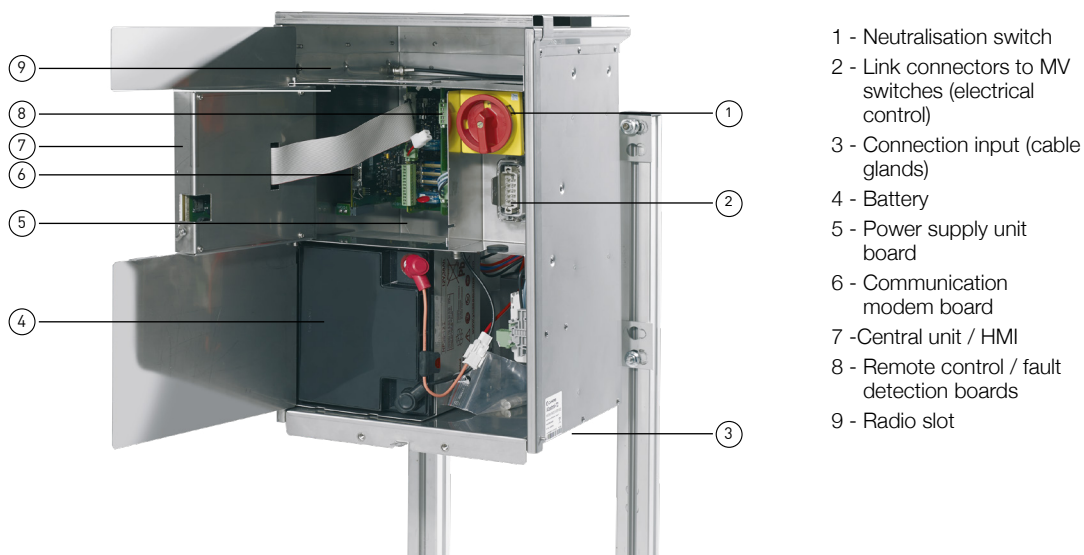
> COMPATIBILITY OF THE ICONTROL-T BOX WITH OVERHEAD SWITCHES

Supported switches	Supplied LV voltage	Actuator
		Remote control features
SF6 overhead line disconnect switch - Remoted controlled - Breaking capacity up to 630A - Rated Voltage up to 36 kV.	From 172 V to 230 V	Orders are carried out by DC motor supply - 12 or 48 V DC

> DESCRIPTION



This box is of modular construction to suit different requirements. It is composed of electronic subassemblies, each performing a particular function.





Operation

Electrical control

The box electrically controls the opening or closing of MV switches. This can be used to manage different types of independent electrical command :

These commands can be electrically and individually operated as required (Tumbler mechanism).

Orders are carried out by direct motor power supply (12 V or 48 V configurable on site).

Automated systems

- The alarm-equipped decentralised automated system is used to isolate a faulty section by commanding the switch to open. That command is carried out during the voltage dip in the supply substation isolating switch re-engagement cycle.

Communication

The box communicates with the network manager's monitoring system (SCADA) using :

- a communication medium: public switched telephone network (PSTN), radio network, GSM/GPRS or other network ;
- a communication protocol (IEC 60870, DNP3, HNZ or other).

> BENEFITS OF THE RANGE



Stand (shelf) integrated into box : to accommodate laptop PC.

Ergonomic fitting and installation : due to its small size, this box is easily fitted into small substations, mounted either horizontally or vertically.

USB link : box settings can be adjusted with no power source other than the PC. Configuration and setting via an onboard server.

Compatibility of IControl-T box with diferent overhead switches on the market



> ELECTRICAL CHARACTERISTICS

IControl-T

Capacity

Number of channels

1

Electrical independent control actuator

Type of control

Tumbler, M+/M- (direct motor control)

Control Voltage

M48 V actuator ranging from 43 V to 44.5 V, 15 A inrush current possible (50 ms) then 10 A during the operation.
12 V actuator ranging from 10.5 V to 14.5 V, 20 A inrush current possible (50 ms) then 6 A during the operation.

Duration of control

Configurable between 1 sec and 15 secs

IControl-T

Power supply unit

Supply voltage

- by auxiliary transformer 20 kV / 400 V
- by auxiliary transformer 20 kV / 100 V

230 V or 173 V (+/-15%), 50 Hz
57,7 V or 43 V (+/-15%), 50 Hz

Consumption

86 VA - batteries on charge
38 VA - charged batteries

Battery :

- Type
- Number
- Capacity
- Autonomy
- Monitoring

Sealed lead
1
12 V - 38 Ah
> 50 hours (or > to 150 O/F cycles)
Charge offset based on temperature and limited to 3.8 A
Deep cycle discharge monitoring
Periodic tests

Duration of charging

< 24 hours

Service life

> 5 years

Communication

Media :

- Public Switched telephone network (PSTN)
- Private Radio network
- GSM
- GPRS

V21/300, V22/1200, V22Bis/2400 and V32/9600 bauds
FSK V23/600 bauds and V23/1200 bauds ; FFSK/1200 and
FFSK/2400 bauds V32/9600 bauds
-

Protocols

MODBUS-RTU
CEI 870-5-101
CEI 870-5-104
DNP3
HNZ (Enedis specification)

Fault indication

Number of channels monitored

1

Sensitivity adjustment :

- Polyphase fault
- Dual single-phase fault
- Single-phase earth fault :
 - Amperemetric
 - Directional

Configurable from 200 to 1600 A
Configurable from 200 to 1600 A
Configurable from 5 to 240 A
Residual current transient > 30 A peak

Time adjustment :

- Fault duration
- Duration of delay for validation
- Permanent fault recognition time

Configurable from 0,02 to 1 sec
Configurable from 0.3 to 3 sec
Configurable : 1, 10, 40 or 70 sec

Measurement sensor inputs

Current sensors

- Input dynamic
- Types of sensor supported

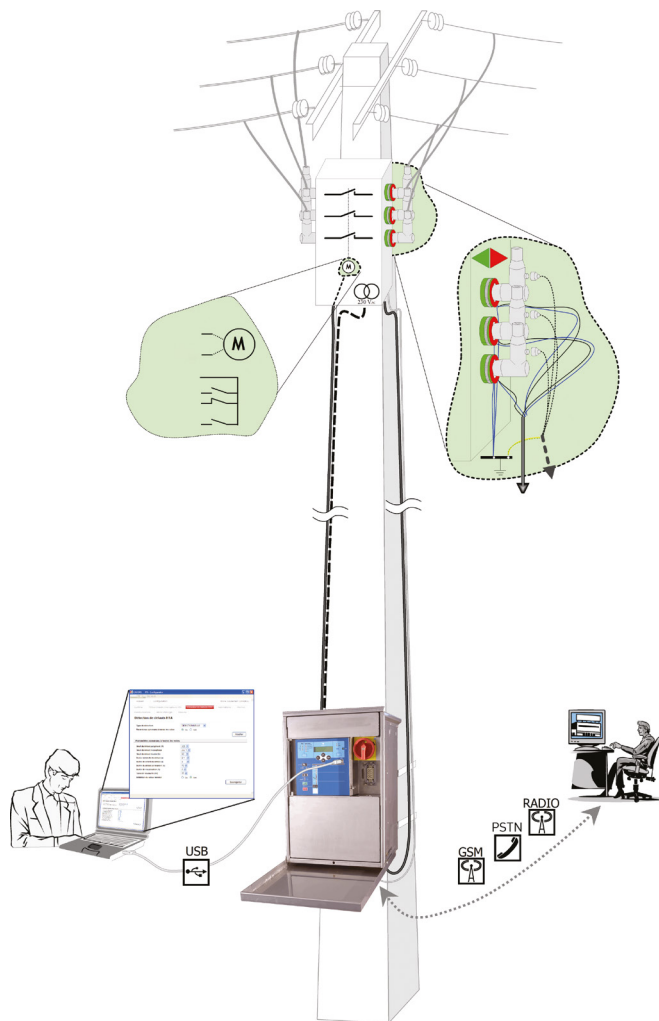
Nominal : 1 A rms
Max : 3 A rms
Current transformer (500/1 A)

Voltage sensors

- Input dynamic
- Type of sensor supported

Between 1,9 V and 60 V rms
Capacitive divider (between 20pF and 32pF)
Voltage transformer
PPACS (between 0.6pF and 9pF)

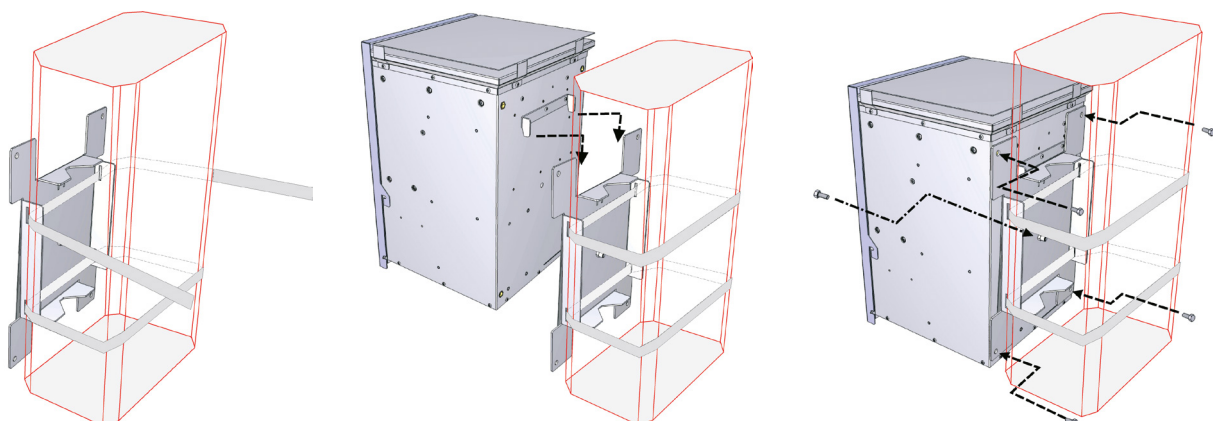
Type connection to overhead switch in SF6



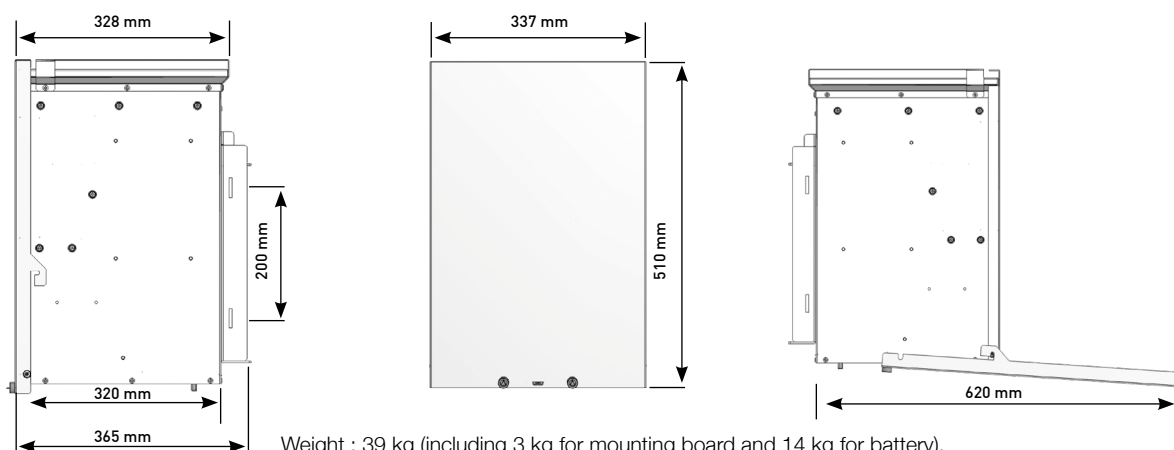
IControl-T boxes are suitable for all mounting types : wooden, concrete or metal poles.

The interface is attached to the overhead switch support post using a removable board secured to the support using a metallic mount (maximum width 25 mm).

The board can be attached flat against or at an angle to a rectangular pole and can also be mounted onto a round pole.



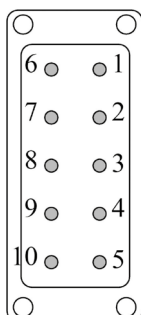
> SIZES CHARACTERISTICS



Weight : 39 kg (including 3 kg for mounting board and 14 kg for battery).

> CONNECTOR

2 different pin configurations depending on switch type



Pin no	Configuration 1		Configuration 2	
	Function	Abbreviations	Function	Abbreviations
1	Motor -	M-	Motor +	M+
2	Motor -	M-	0V Motor	M-
3	MV switch open	O	Commun (0V)	0V
4	Common(0V)	0V	MV switched Closed	F
5	MV switched Closed	F	MV switch open	O
6	Motor +	M+	Control position disengaged	CD
7	Motor +	M+	Phase current A	IphA
8	Control position disengaged	CD	Phase current B	IphB
9	Not used (set to 0 V)		Phase current C	IphC
10	Not used (set to 0 V)		Current common	Icom

> ENVIRONMENTAL USE CONDITIONS

IControl-T	
Protection rating	
IP	IP 35
IK	IK 10
Climatic conditions	
- Operating temperature	- 25°C to + 55°C
- Storage temperature	- 25°C to + 70°C
- Average relative humidity over 24 hrs	< 95%
Dielectric strength	
- Main supply inputs	Isolation 50 Hz / 1 mn : 10 kV / Shock wave 1,2 / 50 µs : 20 kV
- PSTN	Isolation 50 Hz / 1 mn : 10 kV / Shock wave 1,2 / 50 µs : 20 kV
- Other inputs (Current cores, PPACS, ...)	Isolation 50 Hz / 1 mn : 2 kV / Shock wave 1,2 / 50 µs : 5 kV

> STANDARDS/ SPECIFICATIONS

- **HN 64-S-44** : Interfacing unit for the remote control of 400A switches (ITI / PASA).
- **HN 64-S-46** : Remote controlled type 3 overhead switches.
- **HN 45-S-53** : Remote Controlled Substations with non permanent link.
- **HN 64-S-43** : Electrical independent-operating mechanism for 24 Kv - 400 A switch.
- **HNZ 66-S-11** : Procedure for the transmission of industrial data.
- **HNZ 66-S-13** : Procedure for the transmission of industrial data. Specifications for exchange PLC in simplified master-master mode.
- **CEI 60870-5** : Remote control systems and equipment.
 - Part 5 : Transmission protocol.
 - Part 5-101 : Transmission protocol. Standard to accompany basic remote control tasks.
 - Part 5-104 : Transmission protocol. Access to networks using transport profiles standardised for IEC 60870-5-101.