Name of product	:	**Fire Alarm Control Panel**
Registered trade mark	:	- - -
Type	:	**EOLO**
Derived variants	:	- - -
Power supply, rated values	:	230V~, 50Hz, 690mA / class I.
Applicant	:	TELEDATA s.r.l.
Address	:	Via Giulietti 8, 20 132 Milano, Italy
Manufacturer	:	TELEDATA s.r.l. Via Giulietti 8, 20 132 Milano, Italy
Contract number	:	213/07
Regulations and standards	:	EN 54-2 :1997 +AC :1999 +A1:2006 *(STN EN 54-2+AC :2001 +A1:2007)* EN 54-4 :1997 +AC:1999 +A1:2002 +A2:2006 *(STN EN 54-4+AC :2001 +A1:2003 +A2:2007)*
Tested by	:	Ivan Kušnier, test technician
Approved by	:	Ján Heldák, Head of Testing laboratories
Date of specimen acceptance	:	January 03rd 2008
Date of end testing	:	February 29th 2008
Date of test report issue	:	March 03rd 2008

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Accredited Testing laboratories

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S. n.	Requirements of standard	Measured	Valuation
5	**General requirements**		
5.1	*Display of functional conditions*		P
5.1.1	The c.i.e. shall be capable of unambiguously indicating the following functional conditions, as described in clause 6 to 10:		P
	- quiescent condition;		P
	- fire alarm condition;	on display and LED	P
	- fault warning condition;	on display and LED	P
	- disablement condition;		P
	- test condition (if provided).		P
5.1.2	The c.i.e. shall be capable of being simultaneously in any combination of the following functional conditions:		P
	- fire alarm condition;		P
	- fault warning condition;		P
	- disablement condition;		P
	- test condition (if provided).		P
5.2	Display of indications		P
	All mandatory indications shall be clearly identifiable, except where otherwise specified in this European Standard.	on display and LED	P
5.3	Indications on alphanumeric displays		P
	Where an alphanumeric display is used to display indications relating to different functional conditions these may be displayed at the same time.		P
5.4	Indication of the supply of power		P
	A visible indication for the fire alarm condition may be the same as that for the fault warning condition.	green LED	P
5.5	Audible indications		P
	The audible indication for the fire alarm condition may be the same as that for the fault warning condition. If they are different, the fire alarm indication shall have priority.	same	P
5.6	Additional indications		P
	Where indications are used in addition to mandatory indications these shall not result in condition or confusion.		P
6	**The quiescent condition**		P
	Any kind of system information may be displayed during the quiescent condition. However, no indications shall be given which could be confused with indications used in the		P
	- fire alarm condition		P
	- fault warning condition		P
	- disabled condition		P
	- test condition		P

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7	**The fire alarm condition**		P
7.1	*Reception and processing of fire signals (see also annex C)*		P
7.1.1	The c.i.e. shall enter the fire alarm condition when signals are received which after any necessary processing are interpreted as a fire alarm.		P
7.1.2	The c.i.e. shall be capable of receiving, processing and indicating signals from one zone shall not falsify the processing storing and/or indication of signals from other zones.		P
7.1.3	Unless 7.12 applies, the time taken by scanning, interrogation, or other processing of signals from fire detectors, in addition to that required to take fire alarm decision, shall not delay the indication of the fire alarm condition, or of a new zone in alarm		P
7.1.4	The c.i.e. shall enter the fire alarm condition within 10s of the activation of any manual call point.		P
7.1.5	The mandatory indications and outputs shall not be falsified by multiple fire signals received from the same or different detection circuits, resulting from the simultaneous operation of two points and/or the operation of further points.		P
7.2	Indication of the fire alarm condition		P
	The fire alarm condition shall be indicated without prior manual intervention. The indication is established when all of the following are present:		P
	a) a visible indication, by means of a separate light emitting indicator (the General Fire Alarm Indicator);		P
	b) a visible indication, as specified in 7.3, of the zones in alarm, which may be omitted for c.i.e.s capable of receiving signals from only one zone;		N/A
	c) an audible indication, as specified in 7.4.		P
7.3	*Indication of the zones in alarm (see also annex D)*		
7.3.1	The zones in alarm shall be visibly indicated by means of a separate light emitting indicator for each zone and/or an alphanumeric display.	on alphanumeric display	P
7.3.2	If the zonal indications are on an alphanumeric display, which because of its limited capacity cannot simultaneously indicate all the zones in alarm, at least the following shall apply:		P
	a) the first zone in alarm shall be displayed in a field at the top of the display;		P
	b) the most recent zone in alarm shall be permanently displayed in another field;		P
	c) the total number of zones in alarm shall be displayed;		P
	d) zones in alarm, but not currently indicated shall be capable of being displayed at access level 1. A single manual action shall be required for the display of each additional zone in alarm. Either individual fields, or the whole alarm window, may be		P

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	temporality suppressed to permit the display of additional zones in alarm. However, the display shall meet the requirements of 7.3.2 a), 7.3.2 b) and 7.3.2 c) within 30s following the last interrogation.		
7.4	*Audible indication*		P
7.4.1	The audible indication shall be capable of being silenced by means of a separate manual control at access level 1 or 2.	at access level 1	P
7.4.2	The audible indication shall not be silenced automatically.		P
7.4.3	The audible indication shall re-sound for each new zone in alarm.		P
7.5	Other indications during the fire alarm condition		
7.5.1	If faults, disablements or tests are indicated by means of one or more light emitting indicators, and such indications are suppressed in the fire alarm condition, it shall be possible to reveal these by means of a manual operation at access level 1 or 2.		N/A
7.5.2	If the fire alarm indications are on an alphanumeric display, the following shall apply to the display of other information on the alphanumeric display:		P
	a) information not related to the fire alarm condition shall be suppressed, unless the display has more than one window, one of which is exclusively reserved for fire alarm indications;	one window	P
	b) suppressed indications of faults and disablements shall each by capable of being displayed, at any time, by manual operations at access level 1 or 2.		P
	c) either individual fields, or the whole fire alarm window, may be temporarily suppressed to permit the display of faults, disablements and tests.		P
7.6	*Reset from the fire alarm condition*		P
7.6.1	The c.i.e shall be capable of being reset from the fire alarm condition. This shall only be possible by means of a separate manual control, at access level 2. This control shall be used only for reset and may be the same as that used for reset from the fault warning condition.	at access level 2	P
7.6.2	Following a reset operation, the indication of the correct functional conditions, corresponding to any received signals, shall either remain, or be re-established within 20s.		P
7.7.	Output of the fire alarm condition		
7.7.1	At least one output which signals the fire alarm condition shall be provided, which may be an output as specified in 7.8, 7.9, or 7.10.	(SIR+/ SIR-) C TYPE - - output as 7.8, (USCM+/USMC-) E type – 7.9 or G type – 7.10	P
7.7.2	Unless 7.11 and/or 7.12 apply, the c.i.e shall activate all mandatory outputs within 3s of the indication of a fire alarm		P

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	condition.		
7.7.3	Unless 7.11 applies, the c.i.e. shall activate all mandatory outputs within 10s of the activation of any manual call point.		P
7.8	*Output to fire alarm devices (option with requirements –see also 8.2.5.a) and 9.4.2.a))*		P
	The c.i.e. may have provision for the automatic transmission of fire alarm signals to fire alarm devices (item C of figure 1 of EN 54-1).		P
7.9	*Control of fire alarm routing equipment (option with requirements)*		
7.9.1	*Output to fire alarm routing equipment (option with requirements – see also 8.2.5 b) and 9.4.2.b))*		
	The c.i.e. may have provision for the automatic transmission of fire alarm signals to fire alarm routing equipment. In this case the transmission of the signal shall be indicated by means of a separate light emitting indicator and/or an alphanumeric display. The indication shall remain until the fire alarm condition is reset.		P
7.9.2	If 7.9.1 applies, the c.i.e. may have an input which is capable of receiving signals from fire alarm routing equipment. In this case the reception of the signals shall be indicated by means of a separate light emitting indicator and/or an alphanumeric display. The light emitting indicator may replace the indicator of 7.9.1. The indication shall remain until the fire alarm condition is reset.		N/A
7.10	*Output to fire protection equipment (option with requirements)*		P
7.10.1	*Output type A (option with requirements – see also 8.2.4f) and 9.4.1.b))*		N/A
	The c.i.e. may have provision for the transmission of fire alarm signals to controls for automatic fire protection equipment.		N/A
7.10.2	*Output type B (option with requirements – see also 8.2.4f) and 9.4.1.b))*		N/A
	The c.i.e. may have provision for the transmission of fire alarm signals to controls for automatic fire protection equipment. In this case the transmission of the signal shall be indicated by means of a separate light emitting indicator and/or an alphanumeric display.		N/A
7.10.3	*Output type C (option with requirements – see also 8.2.4f) and 9.4.1.b))*		P
	The c.i.e. may have provision for the transmission of fire alarm signals to controls for automatic fire protection equipment. In this case the protection of a confirmatory signal from G shall be indicated by means of a separate light emitting indicator and/or an alphanumeric display.		P
7.10.4	*Fault monitoring of fire protection equipment (option with requirements – see also 8.2.4 f))*		P
	The c.i.e. may have provision to receive fault warning signals from controls for automatic fire protection equipment. These		P

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	faults shall be indicated by means of a separate light emitting indicator and/or an alphanumeric display. The indication shall be at least common to all items G, and shall not be suppressed during the fire alarm condition. The indicator may be the same as that of 8.2.4 f).		
7.11	*Delays to outputs (option with requirements; see also Annex E)*		N/A
7.11.1	The c.i.e. may have provision to delay the activation of outputs to fire alarm devices and/or to fire alarm routing equipment and or to controls for automatic fire protection equipment. In these cases at least the following shall apply.		N/A
	a) the operation of delays outputs to C and G shall be configurable at access level 3 to apply to		N/A
	- fire detectors, and/or;		N/A
	- manual call points, and/or;		N/A
	- individual zones;		N/A
	b) the operation of delays outputs to E shall be configurable at access level 3, to apply to		N/A
	- fire detectors, and/or;		N/A
	- individual zones;		N/A
	c) the delay times shall be configurable at access level 3, in increments not exceeding 1 min, up to a maximum of 10 min;		N/A
	d) it shall be possible to override the delays and immediately action delayed outputs by means of a manual operation at access level 1 and/or by means of a signal from a manual call point;		N/A
	e) the delay to one output signal shall not affect the activation of other outputs.		N/A
7.11.2	If 7.11.1 applies, the c.i.e. may have provision to switch on and switch off the delayed operation of outputs. In this case the following shall apply:		N/A
	a) it shall be possible to switch on and switch off delays, by means of a manual operation at access level 2,		N/A
	b) there may be provision to automatically switch on and/or switch off delays by means of a programmable timer, which shall be configurable at access level 3,		N/A
	c) the mode of operation when delays are switched on shall be visibly indicated by means of a separate light emitting indicator and/or an alphanumeric display. The indication shall not be suppressed during the fire alarm condition.		N/A
7.12	*Dependencies on more than one alarm signal (options with requirement)*		N/A
7.12.1	Type A dependency (option with requirement)		N/A
	Following the receipt of a first signal from a fire detector, the entry to the fire alarm condition may be inhibited until the recipient of a confirmation alarm signal from the same fire		N/A

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	detector, or from a fire detector in the same zone. In this case, the first alarm state need not be indicated, and the following shall apply:		
	a) the mode of operation shall be configurable at access level 3 for individual zones		N/A
	b) reception of a confirmation alarm signal shall not be inhibited for more than 60s following the receipt of the first alarm signal. The manufacturer may specify a time shorter than 60s. In this case, this specification shall be tested and verified		N/A
	c) the first alarm state shall be automatically cancelled within 30min. of the receipt of the first alarm signal		N/A
	d) information on the values of the configured delay times shall be accessible at access level 2 or 3.		N/A
7.12.2	Type B dependency (option with requirement)		N/A
	Following the receipt of a first alarm signal from a fire detector, the entry to the fire alarm condition may be inhibited until the receipt of a confirmation alarm signal from the same fire detector and/or from another fire detector, which may be in the same or a different zone. In this case the following shall apply:		N/A
	a) the mode of operation shall be configurable at access 3 for at least individual zones		N/A
	b) the first alarm state shall be indicated by means of:		N/A
	- an audible indication as in 12.10 which may be the same as that in the fire alarm condition or fault warning condition		N/A
	- a visible indication of the affected zone, which may be the same as that for indication of zone in alarm as in 7.3. The General Fire Alarm Indicator shall not be illuminated.		N/A
	c) it shall be possible to manually cancel the first alarm state at access level 2. This may be done with the same control as is used for reset from the fire alarm condition or fault warning condition		N/A
	d) the c.i.e. may have provision to automatically cancel the first alarm state after a time interval which shall not be less than 5 min.		N/A
	e) if the mode of operation is configured to accept a confirmation alarm signal from the same fire detector, this shall not be inhibited for more than 4 min following the receipt of the first alarm signal.		N/A
7.12.3	*Type C dependency (option with requirements)*		N/A
	Following the receipt of a fire alarm signal from a fire detector or a manual call point, the c.i.e. shall enter the fire alarm condition, but may have provision to inhibit the activation of		N/A

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	outputs until a second alarm signal is received from another fire detector or manual call point, which may be in the same or another zone. In this case it shall be possible to configure the mode of operation at access level 3 to apply individually to each of the following:		
	- output to fire alarm devices, as in 7.8,		N/A
	- output to fire alarm routing equipment, as in 7.9,		N/A
	- output to fire protection equipment, as in 7.10.		N/A
7.13	Alarm counter (option with requirements)		N/A
	The c.i.e. may have provision to record the number if instances that c.i.e. enters the fire alarm condition. In this case at least the following shall be apply:		N/A
	a) re-initialisation of the counter shall be possible at access level 4. In the event of the c.i.e. being deenergised the data shall be retained for at least 14 days.		N/A
	b) the information shall be available at access level 1 or 2,		N/A
	c) the counter shall be capable of recording at least 999 instances		N/A
8.	**Fault warning condition (see also annex F)**		
8.1	*Reception and processing of faults signals*		
8.1.1	The c.i.e. shall enter the fault warning condition when signals are received which, after any necessary processing, are interpreted as a fault.		P
8.1.2	The c.i.e. shall be capable of simultaneously recognizing all of the faults specified in 8.2 and (if provided) in 8.3, with the exception of a fault in a given zone or function may be prevented by one or more of the following:		P
	a) the presence of fire alarm signals from the same zone,		P
	b) the disablement of the corresponding zone or function,		P
	c) the testing of a corresponding zone or function.		P
	d) the activation of the output to a transmission path with is exclusively used to transmit signals to:		P
	- fire alarm devices or,		P
	- fire alarm routing equipment or,		P
	- controls for automatic fire protection equipment or,		P
	- fault warning routing equipment.		P
8.1.3	The c.i.e. shall enter the fault warning condition within 100s of the occurrence of the fault or the reception of a fault signal or within another time as specified in this Standard or in other parts of EN 54.		P
8.2	*Indication of faults*		
8.2.1	The presence of faults in specified in 8.2.4, 8.2.5, 8.2.6 and if provided, 8.3 shall be indicated without prior manual		P

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	intervention. The fault warning condition is established when the following are present:		
	a) a visible indication by means of a separate light emitting indicator;		P
	b) a visible indication for each recognised fault,		N/A
	c) an audible indication, as specified in 8.6.		P
8.2.2	If the indication of 8.2.1 b) is by means of separate light emitting indicators, these may be the same as those used to indicate disablement and/or testing of the corresponding zones or functions, provided that the fault indication is distinguishable from the disablement and test indications.		N/A
8.2.3	If the indication is on an alphanumeric display, which cannot simultaneously indicate all of the faults because of its limited capacity, at least the following shall apply:		P
	a) the presence of fault indications which have been suppressed shall be indicated;		P
	b) suppressed fault indications shall be capable of being displayed by means of a manual operation at access level 1 or 2 which interrogates only fault indications.		P
8.2.4	The following faults shall be indicated by means of separate light emitting indicators and/or an alphanumeric display. The indications may be suppressed during the fire alarm condition:		P
	a) an indication for each zone in which the transmission of signals from a point to the c.i.e. is affected by		P
	b) an indication at least common to any power supply fault resulting from		P
	c) an indication, at least common to any single earth fault which affects a mandatory function, and which is not otherwise indicated as a fault of a supervised function;		P
	d) an indication as a fault of the supervised function of the rupture of any fuse, or the operation of any protective device which is capable of affecting a mandatory function in the fire alarm condition;		N/A
	e) an indication of any short circuit or interruption, at least common to all transmission paths between parts of the c.i.e. contained in more than one mechanical cabinet, which is capable of affecting a mandatory function, and which is not otherwise indicated as a fault of a supervised function;		P
	f) an indication of any short circuit or interruption, at least common to all transmission paths, which affects the transmission of signals to or reception of signals from controls for automatic fire protection equipment		P
	g) an indication of any short circuit or interruption, at least common to all transmission paths, which affects the transmission		P

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	of signals to fault warning routing equipment.		
8.2.5	The following faults shall be indicated by means of separate light emitting indicators and/or an alphanumeric display. The indication shall be suppressed the fire alarm condition		P
8.2.6	The following faults shall be indicated at least by means of the General Fault Warning Indicator:		P
	a) any short circuit or interruption in a transmission path between parts of the c.i.e. contained in more than one mechanical cabinet, where the fault does not affect a mandatory function;		P
	b) any short circuit or interruption in a detection circuit, where the fault does not prevent the transmission of signals to the c.i.e.		P
8.3	*Fault signals from points (option with requirements)*		P
	The c.i.e. may have provision for the reception, processing and indication of fault signals from points. In this case faults shall be indicated at least as zone faults, as specified in 8.2.4a).		P
8.4	*Total loss of the power supply (option with requirements)*		P
	In the event of the loss of the main power source, the c.i.e. may have provision to recognize and indicate the failure of the standby power source to a point where it may no longer be possible to fulfil mandatory functions of this Standard. In this case at least an audible indication, as in 12.10shall be given for a period of at least one hour.		P
8.5	*System fault*		P
	A system fault is a fault as specified in 13.4 or 13.6 in the case of a software controlled c.i.e. A system fault may prevent requirements of this European Standard, other than those specif. in 8.5 and 13.7, from being fulfilled. In the event of a system fault at least the following shall apply:		P
	a) a system fault shall be visibly indicated by means of the General Fault Warning Indicator and a separate light emitting indicator. These indications shall not be suppressed by any other functional condition of the c.i.e. and shall remain until a manual reset and/or another manual operation at access level 2 or 3.		P
	b) a system fault shall be audibly indicated. This indication may be capable being silenced.		P
8.6	*Audible indication*		
8.6.1	The audible indication of faults under 8.2 and, if provided, 8.3, shall be capable of being silenced manually at access level 1 or 2. The same manual operation may be used as that for silencing the audible indication in the fire alarm condition.	at access level 1	P
8.6.2	The audible indication shall be silenced automatically reset from the fault warning condition.		P

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8.6.3	If previously silenced, the audible indication shall re-sound for each newly recognised fault.		P
8.7	*Reset of fault indications*		
8.7.1	Indications or faults as under 8.2 and, if provided, 8.3, shall be capable of being reset.		P
	- automatically when faults are no longer recognised, and/or;		P
	- by a manual operation at access level 2, which may be the same as that used for resetting from the fire alarm condition.		P
8.7.2	Following reset, the indication of the correct functional conditions, corresponding to any received signals, shall either remain or be re-established within 20s.		P
8.8	Fault output		
	The c.i.e. shall have an output which signals the fault warning condition. This may be the output specified in 8.9. The output signal shall be given if the c.i.e. is de-energised.		P
8.9	Output to fault warning routing equipment (option with requirements – see also 8.2.4.g) and 9.4.1.c))		N/A
	The c.i.e. may have provision for the transmission of fault signals to fault warning routing equipment. This output shall signal the fault warning condition. The output signal shall also be given if the c.i.e. is de-energised.		N/A
9	**Disabled condition**		
9.1	General requirements		P
9.1.1	Disablements as under 9.4 and 9.5 shall inhibit all corresponding mandatory indications and/or outputs, but shall not prevent other mandatory indications and/or outputs.		P
9.1.2	The c.i.e. shall have provision to independently disable and re-enable each of the functions specif. in 9.4, by means of manual operations at access level 2.		P
9.1.3	The c.i.e. shall be in the disabled condition while a disablement as under 9.4 and/or 9.5 exists.		P
9.1.4	Disablement and re-enablement shall not be affected by a reset from the fire alarm condition, or from the fault warning condition.		P
9.2	*Indication of the disabled condition*		
	The disabled condition shall be indicated visibly, by means of the following:		P
	a) a separate light emitting indicator (the General Disablement Indicator);		N/A
	b) an indication for each disablement, as specified in 9.3, 9.4 and 9.5.		P

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9.3	*Indication of specific disablements*		
9.3.1	Disablements shall either be indicated within 2s of the completion of the manual operation, or where a disablement cannot be completed within 2s, it shall be indicated within 2s that disabling process is running.		P
9.3.2	The same light emitting indicator may be used as that for the indication of the corresponding fault, although the indication shall be distinguishable. The same light emitting indicator and the same indication may be used to indicate a disabled zone and a zone under test.		P
9.3.3	If the indication is on an alphanumeric display, which cannot simultaneously indicate all of the disablements because of this limited capacity, at least the following shall by apply:		P
	a) the presence of disablement indications which have been suppressed shall be indicated:		P
	b) suppressed disablement indications shall be capable of being displayed by means of a manual operation at access level 1 or 2 which interrogates only disablement indications.		P
9.4	*Disablements and their indication*		
9.4.1	The following shall be capable of being independently disabled and re-enabled:		P
	a) each zone		P
	b) output signals and/or transmission paths to controls for automatic fire protection equipment.		P
	c) output signals and/or transmission paths to fault warning routing equipment.		P
	The disablements shall be indicated by means of separate light emitting indicators and/or an alphanumeric display. The indications may be suppressed during the fire alarm condition.	an alphanumeric display	P
9.4.2	The following shall be capable of being independently disabled and re-enabled:		P
	a) outputs signals and/or transmission paths to fire alarm devices (item C figure 1 on EN 54-1);		P
	b) outputs signals and/or transmission paths to fire alarm routing equipment (item E of figure 1 of EN 54-1)		P
	The disablements shall be indicated by means of separate light emitting indicators and/or an alphanumeric display. The indications shall not be suppressed during the fire alarm condition.	an alphanumeric display	P
	The disablement and re-enablement of output signals and/or transmission paths to C shall be by means of a common control and/or individual controls.		P
9.5	*Disablement of addressable points (option with requirements)*		

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	The c.i.e. may have provision for disabling and enabling signals from addressable points by a manual operation at access level 2, either individually, or in groups which do not comprise a complete zone. In this case, at least the following shall apply:		P
	a) it shall be possible to disable each addressable point individually;		P
	b) it shall be possible to identify all the disablements by manual interrogation at access level 1 or 2;		P
	c) the disablement of addressable points shall not be indicated as zone disablements unless all the addressable points in the zones have been disabled.		P
	d) If all addressable points in a zone are disabled this shall be indicated as a zone disablement.		P
10	**Test condition (option with requirements)**		
10.1	General requirements		P
	The c.i.e. may have provision for testing the processing and indication of fire alarm signals from zones. This may inhibit the requirements during the fire alarm condition which correspond to that zone. In this case, at least the following shall by apply:		P
	a) the c.i.e. shall be in test condition while one or more zones are under test;		P
	b) a test state shall only be entered or cancelled by a manual operation, at access level 2 or 3;	at access level 2	P
	c) it shall be possible to test the operation of each zone individually;		P
	d) zones in the test state shall not prevent the mandatory indications and outputs from zones not in the test state;		P
	e) signals from a zone under test shall not to the operation of the outputs to		P
	- fire alarm devices, expert temporality in order to test their functioning in relation to the corresponding zone;		P
	- fire alarm routing equipment		P
	- controls for automatic fire protection equipment		P
	- fault warning routing equipment.		N/A
10.2	*Indication of the test condition*		
	The test condition shall be indicated visibly, by means of the following:		P
	a) a separate light emitting indicator	yellow LED	P
	b) an indication for each zone.		N/A
10.3	*Indication of zones in the test state*		
10.3.1	Entry to test states shall either be indicated within 2s of the completion of the manual operation, or where the entry cannot		P

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	be completed within 2s, it shall be indicated within 2s that the process is running.		
10.3.2	Zone in the test state shall be visibly indicated, by means of a separate light emitting indicator for each zone and/or an alphanumeric display.	LED	P
10.3.3	If the indication is on an alphanumeric display, which cannot simultaneously indicate all of the tests because of its limited, at least the following shall apply:		P
	a) the presence of test indications which have been suppressed shall be indicated,		P
	b) suppressed test indications shall be capable of being displayed, by means of a manual operation at access level 1 or 2 which interrogates only test indications.		P
11	**Standardized input/output interface (option with requirements – see also annex G)**		N/A
	The c.i.e. may have provision for a standardized input/output interface, suitable for the transmission and reception of signals to and from ancillary equipment. In this case at least the following shall apply:		N/A
	a) the interface shall be capable of transmitting at least the occurrence of the following:		N/A
	- the fire alarm condition;		N/A
	- each zone in alarm;		N/A
	- the transmission of outputs signals to fire alarm routing equipment;		N/A
	- the transmission of outputs signals to fire protection equipment		N/A
	- the fault warning condition;		N/A
	- each zone fault;		N/A
	- the disablement and re-enablement of each zone;		N/A
	- the disablement and re-enablement of the output to fire alarm devices;		N/A
	- the disablement and re-enablement of the output to fire alarm routing equipment		N/A
	- the disablement and re-enablement of output signals to fire protection equipment		N/A
	b) the interface shall be capable of receiving at least the following information and of activating the corresponding functions of the c.i.e.:		N/A
	- silencing of the audible indication;		N/A
	- the reset of the fire alarm condition;		N/A
	- silencing and re-sounding of the fire alarm devices;		N/A
	- the disablement and re-enablement of zones;		N/A

EN 54-2			
S. n.	Requirements of standard	Measured	Valuation
	- the disablement and re-enablement of output signals to fire alarm devices;		N/A
	- the disablement and re-enablement of output signals to fire alarm routing equipment.		N/A
	- the disablement and re-enablement of output signals to fire protection equipment.		N/A

12	**Design requirements**		
12.1	*General requirements and manufacturer's declarations*		
	The c.i.e. shall comply with the design requirements of clause 12, where relevant to the technology used.	The company works in compliance with the certified quality system UNI EN ISO 9001	P
12.2	*Documentation*		
12.2.1	The manufacture shall prepare installation and user documentation, ehich shall be submitted to the testing authority together with the c.i.e. This shall comprise at least the following:		P
	a) a general description of the equipment, including a list of the		P
	- optional functions with requirements of this European Standard;		P
	- functions relating to other parts of EN 54;		P
	- ancillary functions not required by this European Standard;		P
	b) technical specifications of the inputs and outputs of the c.i.e., sufficient to permit an assessment of the mechanical, electrical, and software compatibility with other components of the system, including where relevant		P
	- the power requirements for recommended operation;	27.5V DC / 2.5A	P
	- the maximum number of zones, points and/or addressable points per detection circuit;	32 programmable areas. 240 detectors for each line.	P
	- the maximum number of zones, points, addressable points and/or fire alarm devices per c.i.e. ;		-
	- the maximum and minimum electrical rating for each input and output;	"Alarm 1" : 1A/30V DC "Relays" : 1A/30V "Fault Relays": 1A/30V DC	P
	- information on the communication parameters employed on each transmission path;		P
	- recommended cable parameters for each transmission path;	shielded	P
	- fuse ratings;	F4A	P
	c) installation information, including		P

EN 54-2			
S. n.	Requirements of standard	Measured	Valuation
	- the fire suitability for use in various environments;	-20°C to 60°C	P
	- specified means to limit the consequences of faults (see 12.5.2),		-
	- if the c.i.e. is contained in more than one cabinet, how the requirements of 12.3.2 and 12.5.3 may be met;		N/A
	- mounting instructions;		P
	- instructions for connecting the inputs and outputs;		P
	d) configuring and commissioning instructions;		P
	e) operating instructions;		P
	f) maintenance information.		P
12.2.2	The manufacturer shall prepare design documentation, which shall be submitted to the testing authority together with the c.i.e. This documentation shall include drawings, parts lists, block diagrams, circuit diagrams and a functional description to such an extent that compliance with this European Standard may be checked and that a general assessment of the mechanical and electrical design is made possible.		N/A
12.3	*Mechanical design requirements*		P
12.3.1	The cabinet of the c.i.e. shall be robust construction, consistent with the method of installation recommended in the documentation. It shall meet at least classification IP30 of EN 60529 at access level 2.	IP 30, access level 2, metal cabinet	P
12.3.2	The c.i.e. may be housed in more than one cabinet. If the documentation shows that the cabinets may be installed in locations distributed within the protected premises, then all of the mandatory manual controls and indicators shall be on one cabinet, or on cabinets declared to be only suitable for mounting adjacent to each other.		N/A
12.3.3	All mandatory manual controls and light emitting indicators shall be clearly labelled to indicate their purpose. The information shall be legible at 0.8m distance in an ambient light intensity from 100lux to 500lux.		P
12.3.4	The information's for transmission paths and the shall be clearly labelled.		P
12.4	*Electrical and other design requirements*		
12.4.1	The c.i.e. shall have provision for grouping the signals from points to provide zonal indications.		P
12.4.2	The processing of signals shall give the highest priority to the indication of fire alarms.		P
12.4.3	Transitions between the main and the standby power sources shall not change any indications and/or the state of any outputs, except those relating to the power supplies.		P
12.4.4	If the c.i.e. has provision for disconnecting or adjusting the main or the standby power source, this shall only be possible at access level 3 or 4.		N/A

EN 54-2			
S. n.	Requirements of standard	Measured	Valuation
12.5	*Integrity of transmission path (see also annex H)*		
12.5.1	A fault in any transmission path between the c.i.e. and other components of the fire detection system shall not affect the correct functioning of the c.i.e. or of any other transmission path.		P
12.5.2	Means, specified and provided, to limit the consequences of faults (short circuit ort interruption) on a transmission path shall ensure that the function of remaining operational devices is re-established within 300s following the occurrence of the fault.		-
12.5.3	If the manufacturers documentation shows that a c.i.e. contained in more than one cabinet may be installed in locations distributed within ensure that a short circuit or an		N/A
12.5.4	If the c.i.e. is designed to be used with a power supply contained in a separate cabinet, then an interface shall be provided for at least two transmission paths to the power supply, such that a short circuit or an interruption in one transmission path does not prevent the supply of power to the c.i.e.		N/A
12.6	*Accessibility of indications and controls (see also annex A)*		
12.6.1	Four access levels shall be provided on the c.i.e., from access level 1 (most accessible) to access level 4 (least accessible). Controls at a given access level shall not be accessible at a lower access level.	4 levels	P
12.6.2	All mandatory indications shall be visible at access level 1 without prior manual intervention.		P
12.6.3	Manual controls at access level 1 shall be accessible without special procedures.		P
12.6.4	Indications and manual controls which are mandatory at access level 1 shall also be accessible at access level 2.		P
12.6.5	The entry to access level 2 shall be restricted by a special procedure.		P
12.6.6	The entry to access level 3 shall be restricted by a special procedure, differing from that for access level 2.		P
12.6.7	The entry to access level 4 shall be restricted by special means which are not part of the c.i.e.		P
12.7	*Indications by means of light emitting indicators*		
12.7.1	Mandatory indications from emitting indicators shall be visible in an ambient light intensity up to 500 lux, at any angle up to 22.5 degrees from a line trough the indicator perpendicular to its mounting surface		P
	- at 3m distance for the general indications of functional condition		P
	- at 3m distance for the indication of the supply of power		P

EN 54-2			
S. n.	Requirements of standard	Measured	Valuation
	- at 0.8m distance for other indications.		P
12.7.2	If flashing indications are used, both the on period and the off period shall be greater than or equal to 0.25s, and the frequencies of flash shall not be less than:		P
	- 1Hz for fire alarm indications		-
	- 0.2Hz for fault indications.		-
12.7.3	If the same light emitting indications are used for the indication of specific faults and disablements, fault indications shall be flashing and disablement indications shall be steady.		P
12.8	*Indications on alphanumeric displays*		
12.8.1	If an alphanumeric display consists of elements or segments, the failure of one of these shall not affect the interpretation of the displayed information.		P
12.8.2	Alphanumeric displays used for mandatory indications shall have at least one clearly distinguishable window, consisting of at least two clearly identifiable fields.		P
12.8.3	If not included in the displayed information, the purpose of each field shall be clearly labelled.		P
12.8.4	A field shall be capable of containing either:		P
	a) at least 16 characters where the display of a fire alarm uses a cross-reference to other information to identify the location or;		N/A
	b) at least 40 characters, where the display is intended to include the complete information on the location of a fire alarm.	Back-light display of 2 rows with 40 characters each	P
12.8.5	Mandatory indications on an alphanumeric display shall be legible for at least one hour following the display of a new indication of fire or fault, at 0.8m distance, in ambient light intensities from 5 lux to 500 lux, at any angle from the normal to the plane of the display up to		P
	- 22.5 degrees when viewed from each side;		P
	- 15 degrees when viewed from above and below.		P
12.9	*Colours of indications*		
12.9.1	The colours of the general and specific indications from light emitting indicators shall be as follows:		P
	a) red for indications of		P
	- fire alarms;		P
	- the transmission of fire alarm signals to or reception of alarm confirmation signals from fire alarm routing equipment,		P
	- the transmission of fire alarm signals to or reception of controls for automatic fire protection equipment		P
	b) yellow for indications of		P
	- fault warnings;		P
	- disablements;		P
	- zones in the test state;		P

EN 54-2			
S. n.	Requirements of standard	Measured	Valuation
	- the transmission of fault warning signals to fault warning routing equipment		P
	- delays to outputs as under 7.11.2,		N/A
	c) green for the indication that the c.i.e. is supplied with power.		P
12.9.2	The use of different colours is not necessary for indications on alphanumeric displays. However, if different colours are used for different indications, the colours used shall be as specif. in 12.9.1.		P
12.10	*Audible indications*		P
12.10.1	Audible indicators shall be part of the c.i.e. The same device may be used for fire alarm and fault warning indications.		P
12.10.2	The minimum sound level, measured under anechoic conditions at a distance of 1m, with any access door on the c.i.e. closed, shall be		P
	- 60dB(A) for fire alarm indications;		P
	- 50dB(A) for fault warning indicators.		P
12.11	Testing of indicators		P
	All mandatory visible and audible indicators shall be testable by a manual operation at access level 1 or 2.	at access level 1	P

13	**Additional design requirements for software controlled control and indicating equipments**		P
	The c.i.e. may contain elements which are controlled by software in order to fulfil requirements of this European Standard. In this case, the c.i.e. shall comply with the requirements of clause 13, as well as those of clause 12, where relevant to the technology used.		P

14	**Marking**		
	The c.i.e. shall be marked with the following information, which shall be legible at access level 1:		P
	a) the number of this European Standard EN 54-2	EN 54-2	P
	b) the name or trademark of the manufacturer or supplier;	TELEDATA	P
	c) the type number or other designation of the c.i.e.;	EOLO	P
	It shall be possible to identify a code or number which identifies the production period of the c.i.e. at access level 1 or 2 or 3.		-

EN 54-2			
S. n.	Requirements of standard	Measured	Valuation

15	**Tests**		
15.1	General		P
15.2	Functional test		P
15.3	Environmental tests		P
15.4	Cold (operational)	-5°C, 16hours	P
15.5	Damp heat, steady state (operational)	40°C, 93%, 4days	P
15.6	Impact (operational)	0.5J 3impacts	P
15.7	Vibration, sinusoidal (operational)	10Hz ÷150Hz, 0.1g, 3axes 1cycles	P
15.8	*Electromagnetic Compatibility (EMC), Immunity tests (operational)*		P*)
15.8.1	The following EMC immunity tests shall be carried out, as described in EN 50130-4.		P*)
	a) mains supply voltage variations		P*)
	b) mains supply voltage dips and interruptions		P*)
	c) electrostatic discharge		P*)
	d) radiated electromagnetic fields		P*)
	e) conducted disturbances induced by electromagnetic fields		P*)
	f) fast transient burst		P*)
	g) slow high energy voltage surges.		P*)
15.8.2	For the tests of 15.8.1, the criteria for compliance specified in EN 50130-4 and the following shall apply:		P*)
	a) the functional test, called for in the initial and final measurements, shall be the functional test described in 15.2,		P
	b) the required operating condition shall be as described in 15.1.4 and the equipment shall be tested in the quiescent condition,		P
	c) the connections to the various inputs and outputs shall be made with unscreened cables, unless the manufacturers installation data specifies that only screened cables shall be used.		P
	d) in the electrostatic discharge test, the discharges shall be applied to parts of the equipment accessible at access level 2,		P
	e) in the fast transient burst test, the transients shall be applied to the a.c. mains lines by the direct injection method and to the other inputs, signal, data and control lines by the capacitive clamp method,		P
	f) if the equipment has a number of identical types of inputs or outputs, then the tests of 15.8.1 e), f), and g), and if applicable a) and b), shall be applied to one of each type.		P
15.9			-
15.10			-
15.11			-
15.12			-

EN 54-2			
S. n.	Requirements of standard	Measured	Valuation
15.13	Supply voltage variation (operational)		P*)
15.14	Damp heat, steady state (endurance)		P
15.15	Vibration, sinusoidal (endurance)	10Hz ÷150Hz, 0.5g, 3axes 20cycles	P

*) Results of the EMC tests are in EMC Test Report No.: 0136E/2008.

EN 54-4			
S. n.	Requirements of standard	Measured	Valuation
5	**Functions**		
5.1	*Power supply from the main power supply*		
	When operated from the main power source, the p.s.e.		P
	a) shall be capable of operating in accordance with its specification given in the manufacturers data irrespective of the standby power source. This includes any charge condition of the battery, or open circuit or short circuit of the connection to the battery.		P
	b) to must be able perpetually supply maximal current and together charge battery, that is of discharge on value definite voltage.		P
	c) can he enable, so as to have been the charging of the battery limited or aborted, if p.s.e. deliver higher current as maximal current *a*.		P
5.2	*Power supply from the standby power source (battery)*		
5.2.1	When operated from the standby power source the p.s.e. shall be capable of operating in accordance with the specification given in the manufacturer's data, irrespective of the condition of the main power source.		P
5.2.2	The battery shall		P
	a) be rechargeable		P
	b) be suitable to be maintained in a fully charged state		P
	c) be constructed for stationary use		P
	d) be marked with type designation and date of manufacture.		-
	If the battery is mounted in a cabinet which houses other fire detection and fire alarm equipment, then it shall be of the sealed type and shall be mounted in accordance with the manufacturer's data.		P
5.2.3	If p.s.e. to supply from stand-by power source, has to have equipment on disconnection output (outputs) p.s.e. if output voltage (voltages) or battery voltage fall under value specified manufacturer p.s.e.		P
5.3	*Charger*		P
5.3.1	The charger shall be designed and rated so that		P
	a) the battery can be charged automatically;		P
	b) a battery discharged to its final voltage can be recharged to at least 80% of its rated capacity within 24 hours and to its rated capacity within another 48hours;		P
	c) so as were performance chart charging for measure temperatures battery reached ambient temperature (i. e. out of cover standby source) from -5°C in +40°C in frames specification manufacturer battery.	working temperature: -20 to +60°C – c.i.e.	P

EN 54-4			
S. n.	Requirements of standard	Measured	Valuation
5.3.2	Except for currents associated with battery monitoring, the battery shall not discharge through the charger when the charging voltage is below the battery voltage.		P
5.4	*Faults*		
	The p.s.e. shall be capable of recognising and signalising the following faults:		P
	a) loss of the main power supply source, within 30 minutes of the occurrence;		P
	b) loss of the standby power source, within 15 minutes of the occurrence;		P
	c) big internal resistance batteries and hers circuits, e.g . connecting, fuses into the 4h from his formation;		P
	d) loss of the battery charger, within 30 minutes of the occurrence.		P
	If the p.s.e. is separately housed from the c.i.e. then at least a fault output common to the abovementioned faults shall be provided.		P
	If the p.s.e. is housed within the cabinet of the c.i.e., then the above-mentioned faults shall be indicated in a accordance with clause 8 of EN 54-2 either on the c.i.e. or on the p.s.e. itself.	on c.i.e.	N/A
6	**Materials, design and manufacture**		
6.1	*Manufacturers declaration*		P
	In order to assist the process of design inspection, the manufacturer shall declare the following in writing:		P
	a) that the design has been carried out in accordance with a quality management system which incorporates a set of rules for the design of all elements of the p.s.e.;		P
	b) that the components of the p.s.e. have been selected for the intended purpose and are expected to operate within their specification when the environmental conditions outside the cabinet of the p.s.e. comply with class 3K5 of EN 60721-3-3.		P
6.2	*Mechanical design*		
6.2.1	The cabinet of the p.s.e. shall be of robust construction, consistent with the method of installation recommended in the documentation. It shall at least classification IP 30 or EN 60529.	IP 30	P
6.2.2	The p.s.e. may be housed either in a separate cabinet or in cabinets associated with other fire detection and fire alarm system equipment.		P
6.2.3	If the p.s.e. is housed in the c.i.e. then manual controls, fuses, calibration elements etc. for disconnection and adjustment of the power sources shall be accessible only at access level 3 or EN 54-2.		P

EN 54-4			
S. n.	Requirements of standard	Measured	Valuation
6.2.4	If the p.s.e. is not housed in the c.i.e then manual controls, fuses, calibration elements etc. for disconnection and adjustment of the power sources shall be accessible only by the use of a tool or key.		N/A
6.2.5	All manual controls, fuses, calibration elements and cable terminals shall be clearly labelled.		P
6.2.6	If mandatory indicators required by EN 54-2 are repeated on a housed p.s.e. the indicators shall meet the requirements of EN 54-2.		N/A
6.3	*Electrical design*		P
	All outputs shall have appropriate power limitations in order to enclosure that in case of external short circuits no danger exists because of heat production.		P
	The p.s.e. shall have safety characteristics in accordance with IEC 950 for protection against direct and indirect contact, for the separation of the extra low voltage d.c. circuits from the low voltage a.c. circuits and for earthing of metal parts.		P
6.4	*Power supply voltage*		N/A
	If the p.s.e. is designed to be used with a c.i.e. contained in a separate cabinet, the an interface shall be provided for at least two transmission paths to the c.i.e., such that a short circuit or interruption in one path does not stop delivery power supply.		N/A
7	**Documentation**		
7.1	*Users documentation*		
	The manufacturer shall prepare installation and user documentation, which shall be submitted to the testing authority together with the p.s.e. This shall comprise at least the following:		P
	a) a general description of the equipment;		P
	b) technical specifications of the inputs and outputs of the p.s.e., sufficient to permit an assessment of the mechanical and electrical compatibility with other components of the system.		P
	1) power requirements for recommended operation;		P
	2) the maximum and minimum electrical ratings for each input and output;		-
	3) information on the communication parameters employed by the transmission paths;		-
	4) fuse ratings;	F 4A	P
	5) the types and the maximum and minimum capacities of the batteries suitable for use with the p.s.e.;	12V, 17Ah	P
	6) the maximum current drawn from the battery by the p.s.e. when the main power source is disconnected;		P
	7) maximal source resistance batteries and its circuits;		N/A

EN 54-4			
S. n.	Requirements of standard	Measured	Valuation
	8) the minimal current, maximal current *a*, and maximal current *b*;	$I_{min.}$= 320mA, Imax. a= 500mA, Imax. b= 500mA	P
	9) reference parameters the cable for each line route.	shielded	P
	c) installation information, including		P
	1) the suitability for use in various environments;		P
	2) mounting instructions;		P
	3) instructions for connecting inputs and outputs;		P
	d) commissioning instructions;	for c.i.e.	P
	e) operating instructions;	for c.i.e.	P
	f) maintenance information.		N/A
7.2	Design documentation		P
	The manufacturer shall prepare design documentation, which shall be submitted to the testing authority together with the p.s.e. This documentation shall include drawings, parts lists, circuit diagrams, block diagrams and functional description to such an extent that the compliance with the requirements of this European Standard can be checked and that a general assessment of the mechanical and electrical design is possible.		P
8	**Marking**		
	The ps.e. shall be clearly marked with the following information:		P
	a) the number of this European Standard (EN 54-4) ;	EN 54-4	P
	b) the name or trademark of the manufacturer or supplier;		P
	c) the type number or other designation of the p.s.e.;		P
	d) the code or number identifying the production period of the ps.e.		N/A
	If the p.s.e. is housed in its own cabinet, then at least a), b) and c) shall be marked on the outside of this cabinet.		N/A
	If the p.s.e. is integrated with other fire detection and fire alarm equipment in a common cabinet, then at least a) and b) shall be marked on the outside of the common cabinet.		P
9	**Tests**		P
9.1	*General*		P
9.2	Functional tests		P
9.3	Test of the charger and the standby power source	T_1= 33.5h, T_2= 30h	P
9.4	Environmental tests		P
9.5	Cold (operational)	-5°C, 16hours	P
9.6	Damp heat, steady state (operational)	40°C, 93%, 4days	P
9.7	Impact (operational)	0.5J, 3points	P
9.8	Vibration, sinusoidal (operational)	10÷150Hz, 0.1g, 3 axis	P

EN 54-4			
S. n.	Requirements of standard	Measured	Valuation
9.9	*Electromagnetic Compatibility (EMC), Immunity tests (operational)*		P*)
	a) mains supply voltage variations		P*)
	b) mains supply voltage dips and interruptions		P*)
	c) electrostatic discharge		P*)
	d) radiated electromagnetic fields		P*)
	e) conducted disturbances induced by electromagnetic fields		P*)
	f) fast transient burst		P*)
	g) slow high energy voltage surges.		P*)
9.14	Damp heat, steady state (endurance)	40°C, 93%, 21days	P
9.15	Vibration, sinusoidal (endurance)	10÷150Hz, 0.5g	P

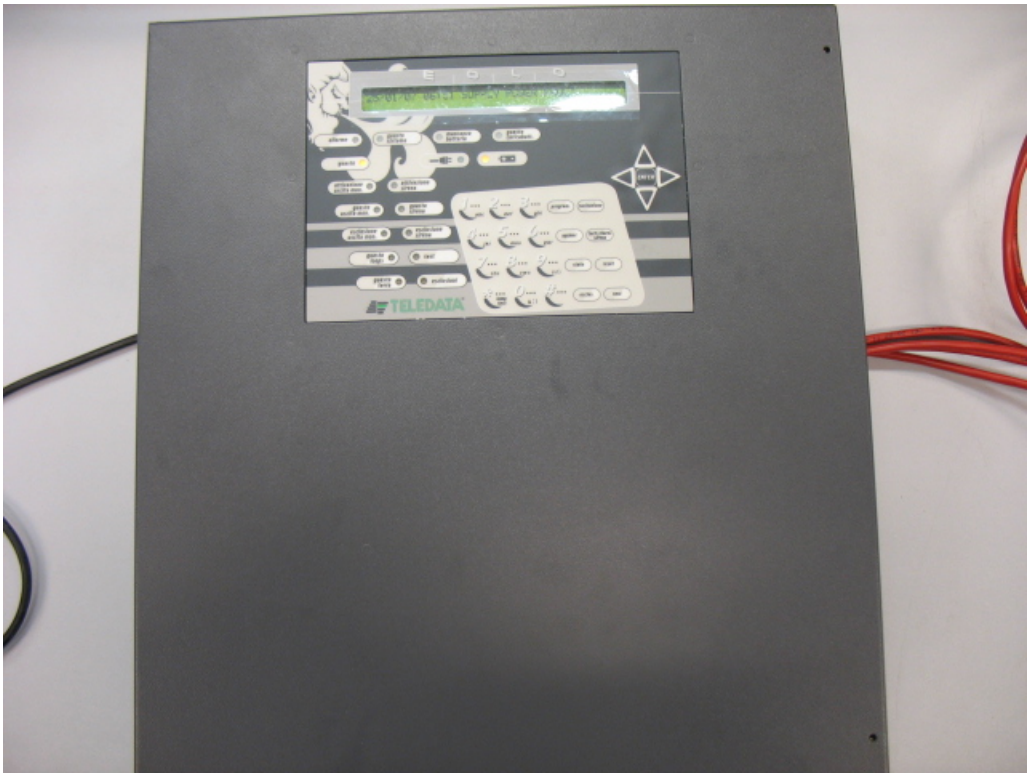
*) Results of the EMC tests are in EMC Test Report no.: 0136E/2008

Table 1: Functional tests

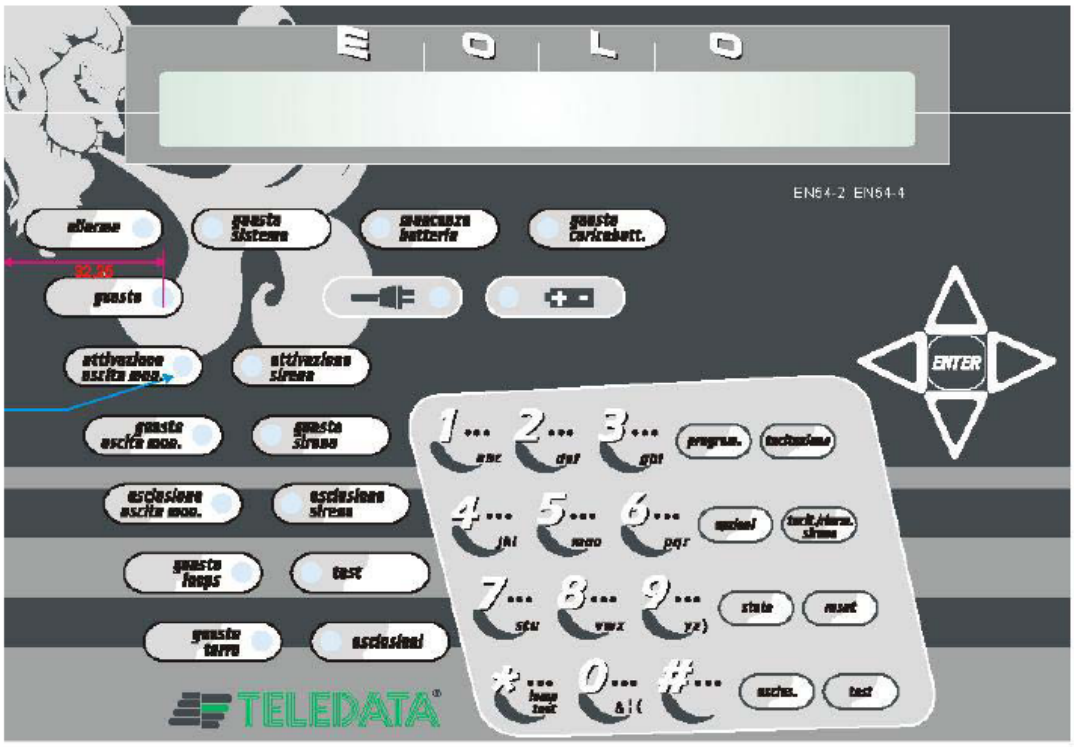
Test	Mains supply voltage	State of battery	Output current load	Duration of test (hours)	Valuation
1	V_n a) +10%	discharged b)	I max. a	4	P
2	Vn -15%	discharged b)	I max. a	4	P
3	V_n -15%	discharged b)	I max. b	according to specification of manufacturer, min. 5min.	P
4	Disconnect	discharged c)	I max. b		P
5	V_n -15%	compensation short circuit d)	I max. a		P
6	V_n -15%	compensation short circuit e)	I max. a		P
7	V_n +10%	discharged	I max. b		P
8	V_n -15%	discharged	I max. b		P
9	V_n +10%	full charged f)	I min.		P

a) V_n is the nominal voltage of the public electricity supply or equipment.
b) Battery with max. specified capacity value discharge on its definite voltage according to article 9.3.1.1. Battery can he charge during test
c) In this test can he battery replace laboratory power to provide required output current. Output supply voltage has to gradually reduce from full charging battery voltage on voltage, near that is of output p.s.e. shut off, according to 5.2.3.
d) Mains can be use over replaced by battery short circuit
e) After using networks battery replace by short circuit.
f) Battery charging on its consistent voltage

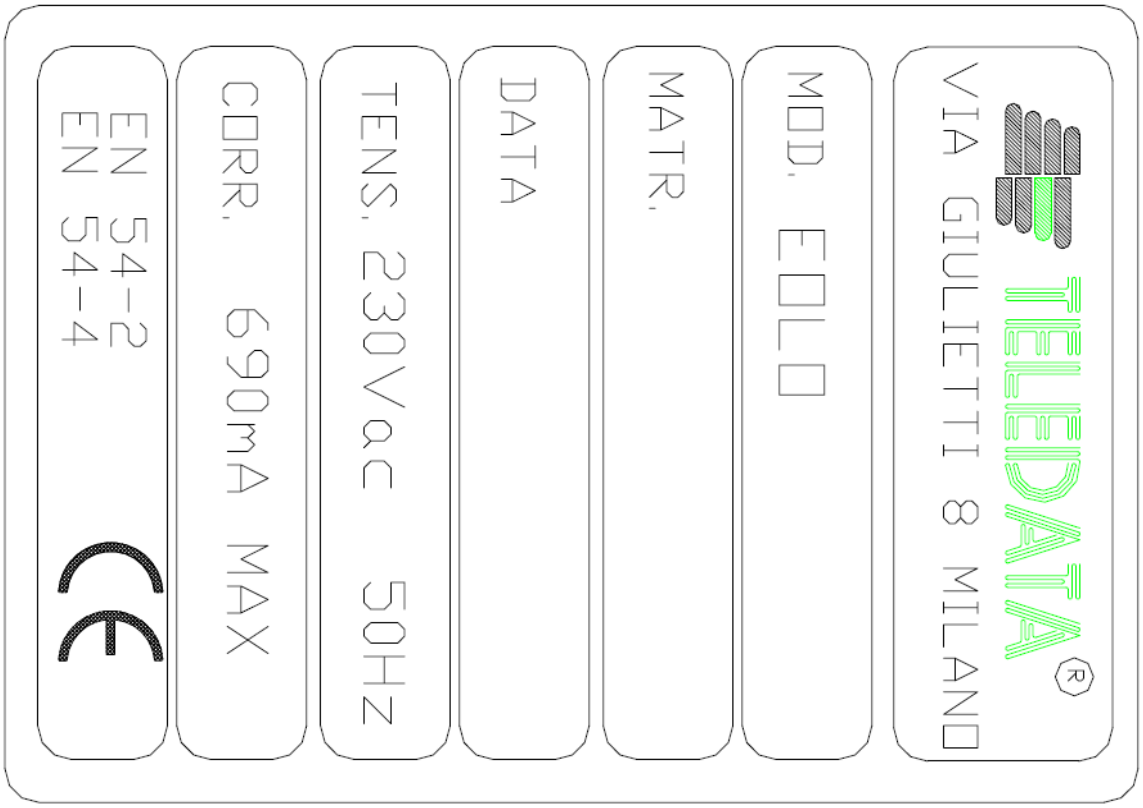
Picture annex



control panel EOLO



eolo's keyboard



label of control panel

internal view