

Modbus Communication for Edison Relays

R150-05-3

This document outlines all of the communication parameters necessary to interface via the Modbus communication protocol to Cooper's Edison line of protective relays.

Serial Port Settings

PARAMETER	SETTING
Protocol	RTU
Baud rate	9600
Data bits	8
Stop bits	1
Parity	None
*Echo	Off
Flow control	Optional

* Note: The echo setting on Cooper's RS232/485 converter has to be set to off by moving the internal jumper to position 1 and 2.

Converting Measurement Data

Since Modbus only stores integer data, conversion of the retrieved data must be performed to correctly interpret the data.

To convert Modbus setting data to actual values, multiply the Modbus value by the setting step size. For example, if the setting step size is 0.01, then the Modbus value for the setting must be multiplied by 0.01 to obtain the correct value.

To convert measurement data to actual values divide the data as follows:

- For phase currents, divide the data by 10.
- For ground currents, divide the data by 100.
- For ground voltage, divide the data by 1.
- For frequency measurements, divide data by 100.
- For nominal frequency settings, at 50Hz a value of "0" will be returned, and a "1" for 60Hz.

Register Addresses

Modbus register addresses for all the Edison relays is listed in the following pages. Note that for quantities common to one or more relays, the Modbus address for this data is identical in all Edison relays. This listing is comprehensive and is not sorted by relay type. Therefore the user must note which data is actually available in the relay that communication is being planned. When one or more data values are specific to a particular Edison relay, this information noted in the table.

Modbus registers on the Edison relays can be accessed using 3X or 4X addressing. Add 30001 or 40001 to the register addresses for the specific parameter. For example, to read phase "a" amps (address 1), use 30002 or 40002 addressing.

EDISON RELAY MODBUS REGISTERS

ACTUAL MEASUREMENTS

ADDRESS	NAME	MEANING
0	I/In	Highest among the 3 phase-currents (as % of the rated current of CTs)
1	IA	Phase A current (RMS, primary amps)
2	IB	Phase B current (RMS, primary amps)
3	IC	Phase C current (RMS, primary amps)
4	Io	Earth fault current (RMS, primary amps)
5	Us	RMS voltage as % of rated Vts secondary
6	Uo	Zero sequence voltage (at PT's secondary)
7	φ	Symmetric phase displacement
8	φA	Phase A displacement degrees
9	φB	Phase B displacement degrees
10	φC	Phase C displacement degrees
11	φO	I0/Uo displacement angle in degrees
12	T/Tn	Actual temperature rise (as % full load temperature)
13	Id/m or Id/t	Positive sequence component (as % of full load current)
14	Is/m or Is/t or I2	Negative sequence component (as % of full load current)
15	F or f	Frequency
16	UA	RMS value of system's phase to phase voltage A-B
17	UB	RMS value of system's phase to phase voltage B-C
18	UC	RMS value of system's phase to phase voltage C-A
19	Uo	Zero sequence voltage at secondary of systems's P.Ts.
20	EA	RMS value of system's phase A to neutral voltage (kV)
21	EB	RMS value of system's phase B to neutral voltage (kV)
22	EC	RMS value of system's phase C to neutral voltage (kV)
23	Ed/En	Direct sequence component of voltage (as % rated voltage)
24	Es/En	Inverse sequence component of voltage (as % rated voltage)
25	Tw	Windings temperature rise displayed as % full load state
26	Tf	Oil /iron temperature rise displayed as % full load state
27	αo	Displacement in degrees of Io from IA (360 anti clockwise) (IM30C)
28	Id	Unbalance compensated current as p.u. of rated input (IM30C)
29	W or P	Three phase active power as % of the generator's rated power
30	I	Phase average current
31	E	Phase to neutral average voltage
32	U	Phase to phase average voltage
33	Cos φA	Phase A power factor
34	Cos φB	Phase B power factor
35	Cos φC	Phase C power factor
36	Cos φ	Phase average displacement degrees
37.0	PA sign	Phase A active power measurement, sign flag
37.1	PB sign	Phase B active power measurement, sign flag

ADDRESS	NAME	MEANING
37.2	PC sign	Phase A active power measurement, sign flag
37.3	P sign	Total active power measurement, sign flag
37.4	QA sign	Phase A reactive power measurement, sign flag
37.5	QB sign	Phase B reactive power measurement, sign flag
37.6	QC sign	Phase C reactive power measurement, sign flag
37.7	Q sign	Total reactive power measurement, sign flag
37.8	Wh sign	Active energy total measurement, sign flag
37.9	Rh sign	Reactive energy total measurement, sign flag
37.10	Wt sign	Active energy in a definite time, sign flag
37.11	Rt sign	Reactive energy in a definite time, sign flag
37.12	I sign	Current sign (MU30-CC)
37.13	E sign	Voltage sign (MU30CC)
38.0	ΔU sign	UG – UB sign, SPM21
38.1	Δf sign	fG – fB sign, SPM21
38.2	α sign	UG – UB displacement, SPM21
39	Sign3	Sign word #3
40	Sign4	Sign word #4
41	SA or AA	Phase A apparent power
42	SB or AB	Phase B apparent power
43	SC or AC	Phase C apparent power
44	S or A	Average apparent power
45	PA	Phase A active power
46	PB	Phase B active power
47	PC	Phase C active power
48	P	Average active power
49	QA	Phase A reactive power
50	QB	Phase B reactive power
51	QC	Phase C reactive power
52	Q	Average reactive power
53	Wh	Active energy total measurement, MSW
54	Wh	Active energy total measurement, LSW
55	Rh	Reactive energy total measurement, MSW
56	Rh	Reactive energy total measurement, LSW
57	Wt	Active energy in a definite time, MSW
58	Wt	Active energy in a definite time, LSW
59	Rt	Reactive energy in a definite time, MSW
60	Rt	Reactive energy in a definite time, LSW
61	Current time 1	Current time: Year (format: 00YY (BCD))
62	Current time 2	Current time: Month, Day (format: MMDD (BCD))
63	Current time 3	Current time: Hour, Minute (format: HHMM (BCD))
64	Current time 4	Current time: Second, Tenth of second (format: SSTT (BCD))
70	DA	R.M.S. value of differential current of phase A

EDISON RELAY MODBUS REGISTERS

ADDRESS	NAME	MEANING
71	DB	R.M.S. value of differential current of phase B
72	DC	R.M.S. value of differential current of phase C
73	Do	System frequency component of current I _o

ADDRESS	NAME	MEANING
74	1A	R.M.S. value of current of phase A of transformer's side 1
75	1B	R.M.S. value of current of phase B of transformer's side 1
76	1C	R.M.S. value of current of phase C of transformer's side 1
77	2A	R.M.S. value of current of phase A of transformer's side 2
78	2B	R.M.S. value of current of phase B of transformer's side 2
79	2C	R.M.S. value of current of phase C of transformer's side 2
80	d2A	2 nd Harmonic component of differential current of phase A
81	d5A	5 th Harmonic component of differential current of phase A
82	d2B	2 nd Harmonic component of differential current of phase B
83	d5B	5 th Harmonic component of differential current of phase B
84	d2C	2 nd Harmonic component of differential current of phase C
85	d5C	5 th Harmonic component of differential current of phase C
SCM21, SPM21		
100	1U / UG	1UL input voltage (SCM21) or generator voltage (SPM21), %Un
101	2U	2UL input voltage, %Un
102	BU / UB	BU input voltage (SCM21) or bus voltage (SPM21), % Un
103	1Hz / HzG	1UL input frequency (SCM21) or generator frequency (SPM21), 10mHz
104	2Hz	2UL input frequency , 10mHz
105	BHz /HzB	BU input frequency (SCM21) or bus frequency (SPM21), 10mHz
106	1ΔU / ΔU	1U – BU (SCM21) or UG – UB (SPM21)
107	2ΔU	2U – BU
108	1Δf or Δf	1f – Bf (SCM21) or fG – fB (SPM21)
109	2Δf	2f – Bf
110	1α / α	1U-BU displacement (SCM21) or UG- UB displacement (SPM), degrees
111	1α	2U – BU displacement, degrees
UFD14		
120	U	Single phase voltage

IM30CE		
130	I _o vectorial	Zero sequence current.
MU30-CC		
150	I	Mean value of current
151	E	Mean value of voltage
152	P	Calculated power

MAX VALUES - INRUSH

ADDRESS	NAME	MEANING
1000	IA	Phase A current (as p.u. of C.T.'s rated current) after 100 ms
1001	IB	Phase B current (as p.u. of C.T.'s rated current) after 100 ms
1002	IC	Phase C current (as p.u. of C.T.'s rated current) after 100 ms
1003	Io	Earth fault current after 100 ms
1004	Us	RMS voltage as % of rated Vts secondary
1005	Uo	Zero sequence voltage (at PT's secondary) after 100 ms
1006	T/Tn	Highest temperature recorded since the start of the run
1007	Id/m or Id/t	Positive sequence component (as % of full load current)
1008	Is/m or Is/t or I2	Negative sequence component (as % of full load current)
1009	SA	Phase A current (as p.u. of C.T.'s rated current)during the first 100 ms
1010	SB	Phase B current (as p.u. of C.T.'s rated current) during the first 100 ms
1011	SC	Phase C current (as p.u. of C.T.'s rated current) during the first 100 ms
1012	SO	earth fault current during the first 100 ms
1013	SUo	Uo during the first 100 ms
1014	Sd/m	Positive sequence component (as % of motor full load current) during starting time
1015	Ss/m	Negative sequence component (as % of motor full load current) during starting time
1016	tSt	Measure of the start time
1017	Ir	Reverse current as % of the generator's rated current
1018	W	Active power as of the generator's rated power
1019	Tw	Windings temperature rise displayed as % full load state
1020	Tf	Oil /iron temperature rise displayed as % full load state
1021	Trigger time 1	Trigger time: Year (format: 00YY (BCD))
1022	Trigger time 2	Trigger time: Month, Day (format: MMDD (BCD))
1023	Trigger time 3	Trigger time: Hour, Minute (format: HHMM (BCD))
1024	Trigger time 4	Trigger time: Second, Tenth of second (format: SSTT (BCD))
1025	IA time 1	Time elapsed between trigger time and current max. val recording : Hour, Minute (format: HHMM (BCD))
1026	IA time 2	Time elapsed between trigger time and current max. val recording: Second, Tenth of second (format: SSTT (BCD))
1027	IB time 1	Time elapsed between trigger time and current max. val recording : Hour, Minute (format: HHMM (BCD))
1028	IB time 2	Time elapsed between trigger time and current max. val recording: Second, Tenth of second (format: SSTT (BCD))

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ADDRESS	NAME	MEANING
1029	IC time 1	Time elapsed between trigger time and current max. val recording : Hour, Minute (format: HHMM (BCD))
1030	IC time 2	Time elapsed between trigger time and current max. val recording: Seconds, Tenths of second (format: SSTT (BCD))
1031	S	Apparent power
1032	S time 1	Time elapsed between trigger time and current max. val recording : Hour, Minute (format: HHMM (BCD))
1033	S time 2	Time elapsed between trigger time and current max. val recording: Second, Tenth of second (format: SSTT (BCD))
1034	P	Active power
1035	P time 1	Time elapsed between trigger time and current max. val recording : Hour, Minute (format: HHMM (BCD))
1036	P time 2	Time elapsed between trigger time and current max. val recording: Seconds, Tenths of second (format: SSTT (BCD))
1037	Q	Reactive power
1038	Q time 1	Time elapsed between trigger time and current max. val recording : Hour, Minute (format: HHMM (BCD))
1039	Q time 2	Time elapsed between trigger time and current max. val recording : Hour, Minute (format: SSTT (BCD))
1040	Wt	Active energy in a definite time (MSW)
1041	Wt	Active energy in a definite time (LSW)
1042	Wt time 1	Time elapsed between trigger time and current max. val recording : Hour, Minute (format: HHMM (BCD))
1043	Wt time 2	Time elapsed between trigger time and current max. val recording : Hour, Minute (format: SSTT (BCD))
1044	Rt	Reactive energy in a definite time (MSW)
1045	Rt	Reactive energy in a definite time (LSW)
1046	Ri time 1	Time elapsed between trigger time and current max. val recording : Hour, Minute (format: HHMM (BCD))
1047	Rt time 2	Time elapsed between trigger time and current max. val recording : Hour, Minute (format: SSTT (BCD))
1048.0	P sign, max. val.	Total active power, sign flag, max. val.
1048.1	Q sign, max. val.	Total reactive power, sign flag, max. val.
1048.2	Wt sign, max. val.	Active energy in a definite time, sign flag, max. val.
1048.3	Rt sign, max. val.	Reactive energy in a definite time, sign flag, max. val.
1048.4	I sign, max. val.	Current, sign flag, max. val (MU30CC)
1049	Sign6	Sign word #6
1050	Sign7	Sign word #7
1051	Sign8	Sign word #8
1060	DA	Differential current of phase A ,p.u. of rated phase input current
1061	DB	Differential current of phase B ,p.u. of rated phase input current

ADDRESS	NAME	MEANING
1062	DC	Differential current of phase C ,p.u. of rated phase input current
1063	Do	System frequency component of current I _o p.u. of rated phase input current
1064	1A	R.M.S. value of current of phase A of transformer's side 1
1065	1B	R.M.S. value of current of phase B of transformer's side 1
1066	1C	R.M.S. value of current of phase C of transformer's side 1
1067	2A	R.M.S. value of current of phase A of transformer's side 2
1068	2B	R.M.S. value of current of phase B of transformer's side 2
1069	2C	R.M.S. value of current of phase C of transformer's side 2
1070	d2A	2 nd Harmonic component of differential current of phase A
1071	d5A	5 th Harmonic component of differential current of phase A
1072	d2B	2 nd Harmonic component of differential current of phase B
1073	d5B	5 th Harmonic component of differential current of phase B
1074	d2C	2 nd Harmonic component of differential current of phase C
1075	d5C	5 th Harmonic component of differential current of phase C
1076	SUs	RMS voltage as % of rated V _{ts} secondary, first 100ms
IM30CE		
1080	I _o	Vectorial Earth fault current after 100 ms
MU30-CC		
1090	I	Max. value of current
1091	I time 1	Time elapsed between trigger time and current max. val recording : Hour, Minute (format: HHMM (BCD))
1092	I time 2	Time elapsed between trigger time and current max. val recording: Second, Tenth of second (format: SSTT (BCD))
1093	P	Max. Power

EDISON RELAY MODBUS REGISTERS

LAST TRIP

ADDRESS	NAME	MEANING
2000	Cause or F	Function which caused the last trip (Last Trip – 0)
2001	IA	Phase A current (as p.u. of C.T.'s rated current) (Last Trip – 0)
2002	IB	Phase B current (as p.u. of C.T.'s rated current) (Last Trip – 0)
2003	IC	Phase C current (as p.u. of C.T.'s rated current) (Last Trip – 0)
2004	Io	Earth fault current (Last Trip – 0)
2005	Us	RMS voltage as % of rated Vts secondary
2006	Uo	Zero sequence voltage (Last Trip – 0)
2007	ϕo	Zero sequence displacement degrees (Last Trip – 0)
2008	trr	Remaining time to elapse of tr (IM30-DR) (Last Trip – 0)
2009	ϕA	Phase A displacement degrees
2010	ϕB	Phase B displacement degrees
2011	ϕC	Phase C displacement degrees
2012	Id/m or Id/t	Positive sequence component (as % of full load current)
2013	Is/m or Is/t or I2	Negative sequence component (as % of full load current) (Last Trip – 0)
2014	T/Tn	Motor heating
2015	F or f	Frequency
2016	UA	Voltage A-B
2017	UB	Voltage B-C
2018	UC	Voltage C-A
2019	Uo	Zero sequence voltage
2020	EA	RMS value of system's phase A to neutral voltage (kV)
2021	EB	RMS value of system's phase B to neutral voltage (kV)
2022	EC	RMS value of system's phase C to neutral voltage (kV)
2023	Ed/En	Direct sequence component of voltage (as % rated voltage)
2024	Es/En	Inverse sequence component of voltage (as % rated voltage)
2025	Id	Unbalance compensated current as p.u. of rated input (IM30C)
2026	αo	Displacement in degrees of Io from IA (360 anti clockwise)
2027	1Hz	Frequency rate of variation as detected by the 1st df/dt element
2028	2Hz	Frequency rate of variation as detected by the 2nd df/dt element
2029	V/s	Voltage rate of variation as detected by the de/dt element
2030	F	Function which caused the trip #1 (Last Trip – 1)
2031	IA	Phase A current (as p.u. of C.T.'s rated current) at trip #1 (Last Trip – 1)
2032	IB	Phase B current (as p.u. of C.T.'s rated current) at trip #1 (Last Trip – 1)
2033	IC	Phase C current (as p.u. of C.T.'s rated current) at trip #1 (Last Trip – 1)
2034	Io	Earth fault current at trip #1 (Last Trip – 1)
2035	F	Function which caused the trip #2 (Last Trip – 2)
2036	IA	Phase A current (as p.u. of C.T.'s rated current) at trip #2

ADDRESS	NAME	MEANING
		(Last Trip – 2)
2037	IB	Phase B current (as p.u. of C.T.'s rated current) at trip #2 (Last Trip – 2)
2038	IC	Phase C current (as p.u. of C.T.'s rated current) at trip #2 (Last Trip – 2)
2039	Io	Earth fault current at trip #2 (Last Trip – 2)
2040	F	Function which caused the trip #3 (Last Trip – 3)
2041	IA	Phase A current (as p.u. of C.T.'s rated current) at trip #3 (Last Trip – 3)
2042	IB	Phase B current (as p.u. of C.T.'s rated current) at trip #3 (Last Trip – 3)
2043	IC	Phase C current (as p.u. of C.T.'s rated current) at trip #3 (Last Trip – 3)
2044	Io	Earth fault current at trip #3 (Last Trip – 3)
2045	F	Function which caused the trip #4 (Last Trip – 4)
2046	IA	Phase A current (as p.u. of C.T.'s rated current) at trip #4 (Last Trip – 4)
2047	IB	Phase B current (as p.u. of C.T.'s rated current) at trip #4 (Last Trip – 4)
2048	IC	Phase C current (as p.u. of C.T.'s rated current) at trip #4 (Last Trip – 4)
2049	Io	Earth fault current at trip #4 (Last Trip – 4)
2050	W	Three phase active power
2051	Tw	Windings temperature rise displayed as % full load state
2052	Tf	Oil /iron temperature rise displayed as % full load state
2053	SA or AA	Phase A apparent power
2054	SB or AB	Phase B apparent power
2055	SC or AC	Phase C apparent power
2056	S or A	Average apparent power
2057	PA	Phase A active power
2058	PB	Phase B active power
2059	PC	Phase C active power
2060	P	Average active power
2061	Cos ϕ A	Power factor, phase A
2062	Cos ϕ B	Power factor, phase B
2063	Cos ϕ C	Power factor, phase C
2064	Cos ϕ	Average power factor
2065.0	Cos ϕ A sign, last trip	Sign of phase A displacement, last trip
2065.1	Cos ϕ B sign, last	Sign of phase B displacement, last trip

EDISON RELAY MODBUS REGISTERS

ADDRESS	NAME	MEANING
	trip	
2065.2	Cos φ C sign, last trip	Sign of phase C displacement, last trip
2065.3	V/s, sign	Sign of voltage rate of variation as detected by the de/dt element
2065.4	f', sign	Sign of frequency rate of variation, last trip (UFD14)
2065.5	f', sign	Sign of frequency rate of variation, last trip -1 (UFD14)
2065.6	f', sign	Sign of frequency rate of variation, last trip -2 (UFD14)
2065.7	f', sign	Sign of frequency rate of variation, last trip -3 (UFD14)
2065.8	f', sign	Sign of frequency rate of variation, last trip -4 (UFD14)
2066.0	ΔU sign	Sign of UG - UB (SPM21)
2066.1	Δf sign	Sign of fG - fB (SPM21)
2066.2	α	Sign of UG - UB displacement (SPM21)
2067	Sign11	Sign word #11
2068	Sign12	Sign word #12
2070	dA_0	Differential current of phase A ,p.u. of rated phase input current
2071	dB_0	Differential current of phase B ,p.u. of rated phase input current
2072	dC_0	Differential current of phase C ,p.u. of rated phase input current
2073	do_0	System frequency component of current I _o p.u. of rated phase input current
2074	1A_0	R.M.S. value of current of phase A of transformer's side 1
2075	1B_0	R.M.S. value of current of phase B of transformer's side 1
2076	1C_0	R.M.S. value of current of phase C of transformer's side 1
2077	2A_0	R.M.S. value of current of phase A of transformer's side 2
2078	2B_0	R.M.S. value of current of phase B of transformer's side 2
2079	2C_0	R.M.S. value of current of phase C of transformer's side 2
2080	d2A_0	2 nd Harmonic component of differential current of phase A
2081	d5A_0	5 th Harmonic component of differential current of phase A
2082	d2B_0	2 nd Harmonic component of differential current of phase B
2083	d5B_0	5 th Harmonic component of differential current of phase B
2084	d2C_0	2 nd Harmonic component of differential current of phase C
2085	d5C_0	5 th Harmonic component of differential current of phase C
2086	dA_1	Differential current of phase A ,p.u. of rated phase input current
2087	dB_1	Differential current of phase B ,p.u. of rated phase input current
2088	dC_1	Differential current of phase C ,p.u. of rated phase input current
2089	do_1	System frequency component of current I _o p.u. of rated phase input current
2090	1A_1	R.M.S. value of current of phase A of transformer's side 1
2091	1B_1	R.M.S. value of current of phase B of transformer's side 1
2092	1C_1	R.M.S. value of current of phase C of transformer's side 1
2093	2A_1	R.M.S. value of current of phase A of transformer's side 2
2094	2B_1	R.M.S. value of current of phase B of transformer's side 2
2095	2C_1	R.M.S. value of current of phase C of transformer's side 2
2096	d2A_1	2 nd Harmonic component of differential current of phase A
2097	d5A_1	5 th Harmonic component of differential current of phase A

ADDRESS	NAME	MEANING
2098	d2B_1	2 nd Harmonic component of differential current of phase B
2099	d5B_1	5 th Harmonic component of differential current of phase B
2100	d2C_1	2 nd Harmonic component of differential current of phase C
2101	d5C_1	5 th Harmonic component of differential current of phase C
2102	dA_2	Differential current of phase A ,p.u. of rated phase input current
2103	dB_2	Differential current of phase B ,p.u. of rated phase input current
2104	dC_2	Differential current of phase C ,p.u. of rated phase input current
2105	do_2	System frequency component of current I _o p.u. of rated phase input current
2106	1A_2	R.M.S. value of current of phase A of transformer's side 1
2107	1B_2	R.M.S. value of current of phase B of transformer's side 1
2108	1C_2	R.M.S. value of current of phase C of transformer's side 1
2109	2A_2	R.M.S. value of current of phase A of transformer's side 2
2110	2B_2	R.M.S. value of current of phase B of transformer's side 2
2111	2C_2	R.M.S. value of current of phase C of transformer's side 2
2112	d2A_2	2 nd Harmonic component of differential current of phase A
2113	d5A_2	5 th Harmonic component of differential current of phase A
2114	d2B_2	2 nd Harmonic component of differential current of phase B
2115	d5B_2	5 th Harmonic component of differential current of phase B
2116	d2C_2	2 nd Harmonic component of differential current of phase C
2117	d5C_2	5 th Harmonic component of differential current of phase C
2118	dA_3	Differential current of phase A ,p.u. of rated phase input current
2119	dB_3	Differential current of phase B ,p.u. of rated phase input current
2120	dC_3	Differential current of phase C ,p.u. of rated phase input current
2121	do_3	System frequency component of current I _o p.u. of rated phase input current
2122	1A_3	R.M.S. value of current of phase A of transformer's side 1
2123	1B_3	R.M.S. value of current of phase B of transformer's side 1
2124	1C_3	R.M.S. value of current of phase C of transformer's side 1
2125	2A_3	R.M.S. value of current of phase A of transformer's side 2
2126	2B_3	R.M.S. value of current of phase B of transformer's side 2
2127	2C_3	R.M.S. value of current of phase C of transformer's side 2
2128	d2A_3	2 nd Harmonic component of differential current of phase A
2129	d5A_3	5 th Harmonic component of differential current of phase A
2130	d2B_3	2 nd Harmonic component of differential current of phase B
2131	d5B_3	5 th Harmonic component of differential current of phase B
2132	d2C_3	2 nd Harmonic component of differential current of phase C
2133	d5C_3	5 th Harmonic component of differential current of phase C
2134	dA_4	Differential current of phase A ,p.u. of rated phase input current
2135	dB_4	Differential current of phase B ,p.u. of rated phase input current
2136	dC_4	Differential current of phase C ,p.u. of rated phase input current
2137	do_4	System frequency component of current I _o p.u. of rated phase input current
2138	1A_4	R.M.S. value of current of phase A of transformer's side 1
2139	1B_4	R.M.S. value of current of phase B of transformer's side 1

EDISON RELAY MODBUS REGISTERS

ADDRESS	NAME	MEANING
2140	1C_4	R.M.S. value of current of phase C of transformer's side 1
2141	2A_4	R.M.S. value of current of phase A of transformer's side 2
2142	2B_4	R.M.S. value of current of phase B of transformer's side 2
2143	2C_4	R.M.S. value of current of phase C of transformer's side 2
2144	d2A_4	2 nd Harmonic component of differential current of phase A
2145	d5A_4	5 th Harmonic component of differential current of phase A
2146	d2B_4	2 nd Harmonic component of differential current of phase B
2147	d5B_4	5 th Harmonic component of differential current of phase B

ADDRESS	NAME	MEANING
2148	d2C_4	2 nd Harmonic component of differential current of phase C
2149	d5C_4	5 th Harmonic component of differential current of phase C
IM3G-V		
2150	Ir	Reverse current as % of the generator's rated current
SPM21 – SCM21		
2200	EVT	Event code (SX1, SX2, tU>, tU<, tf >, tf <) (SCM21)
2201	UG	Last event generator voltage, %Un (SPM21)
2202	BU / UB	Last event BU input voltage (SCM21) or bus voltage (SPM21), %Un
2203	HzG	Last event generator frequency (SPM21)
2204	BHz / HzB	Last event BU input frequency (SCM21) or bus frequency (SPM21), 10Mhz
2205	1ΔU / ΔU	Last event 1U – BU %BU (SCM21) or UG – UB %UB (SPM21)
2206	2ΔU	Last event 2U – BU %BU (SCM21)
2207	1Δf / Δf	Last event 1f – Bf (SCM21) or fG – fB (SPM21), 10mHz
2208	2Δf	Last event 2f – Bf (SCM21)
2209	1α / α	Last event 1U – BU displacement (SCM21) or UG – UB displacement (SPM21), degrees
2210	2α	Last event 2U – BU displacement, degrees (SCM21)
UFD14		
2300	U	Voltage, last trip
2301	f'	Frequency rate of variation, last trip
2302	Spare	
2303	f	Frequency, last trip – 1
2304	U	Voltage, last trip – 1
2305	f'	Frequency rate of variation, last trip - 1
2306	Spare	
2307	f	Frequency, last trip – 2
2308	U	Voltage, last trip – 2
2309	f'	Frequency rate of variation, last trip – 2
2310	Spare	
2311	f	Frequency, last trip – 3
2312	U	Voltage, last trip – 3
2313	f'	Frequency rate of variation, last trip – 3

ADDRESS	NAME	MEANING
2314	Spare	
2315	f	Frequency, last trip – 4
2316	U	Voltage, last trip – 4
2317	f'	Frequency rate of variation, last trip – 4
2318	Spare	
	Gap	
IM30SA		
2350	Is/m or Is/t or I2	Negative sequence component (as % of full load current) (Last Trip – 1)
2351	Is/m or Is/t or I2	Negative sequence component (as % of full load current) (Last Trip – 2)
2352	Is/m or Is/t or I2	Negative sequence component (as % of full load current) (Last Trip – 3)
2353	Is/m or Is/t or I2	Negative sequence component (as % of full load current) (Last Trip – 4)
	Gap	
MX7-5		
2360	Last trip time 1	Last trip time: Year (format : 00YY (BCD))
2361	Last trip time 2	Last trip time : Month, Day (format : MMDD (BCD))
2362	Last trip time 3	Last trip time : Hour, Minute (format : HHMM (BCD))
2363	Last trip time 4	Last trip time : Second, Tenth of second (format: SSTT (BCD))
2364	DI status, last trip	Status of digital inputs, last trip
2365	DO status, last trip	Status of outputs, last trip
2366	Last trip – 1 time 1	Last trip – 1 time: Year (format : 00YY (BCD))
2367	Last trip – 1 time 2	Last trip time – 1: Month, Day (format : MMDD (BCD))
2368	Last trip – 1 time 3	Last trip time - 1: Hour, Minute (format : HHMM (BCD))
2369	Last trip – 1 time 4	Last trip time – 1 : Second, Tenth of second (format: SSTT (BCD))
2370	DI status, last trip – 1	Status of digital inputs, last trip – 1
2371	DO status, last trip - 1	Status of outputs, last trip – 1
2372	Last trip – 2 time 1	Last trip – 2 time: Year (format : 00YY (BCD))
2373	Last trip – 2 time 2	Last trip time – 2: Month, Day (format : MMDD (BCD))
2374	Last trip – 2 time 3	Last trip time - 2: Hour, Minute (format : HHMM (BCD))
2375	Last trip – 2 time 4	Last trip time – 2 : Second, Tenth of second (format: SSTT (BCD))
2376	DI status, last trip – 2	Status of digital inputs, last trip – 2
2377	DO status, last trip – 2	Status of outputs, last trip – 2

EDISON RELAY MODBUS REGISTERS

ADDRESS	NAME	MEANING
2378	Last trip – 3 time 1	Last trip – 3 time: Year (format : 00YY (BCD))
2379	Last trip – 3 time 2	Last trip time – 3: Month, Day (format : MMDD (BCD))
2380	Last trip – 3 time 3	Last trip time - 3: Hour, Minute (format : HHMM (BCD))
2381	Last trip – 3 time 4	Last trip time – 3 : Second, Tenth of second (format: SSTT (BCD))
2382	DI status, last trip – 3	Status of digital inputs, last trip – 3
2383	DO status, last trip – 3	Status of outputs, last trip – 3
2384	Last trip – 4 time 1	Last trip – 4 time: Year (format : 00YY (BCD))
2385	Last trip – 4 time 2	Last trip time – 4: Month, Day (format : MMDD (BCD))
2386	Last trip – 4 time 3	Last trip time - 4: Hour, Minute (format : HHMM (BCD))
2387	Last trip – 4 time 4	Last trip time – 4 : Second, Tenth of second (format: SSTT (BCD))
2388	DI status, last trip – 4	Status of digital inputs, last trip – 4
2389	DO status, last trip – 4	Status of outputs, last trip – 4
2400	D α	Delta Alfa (vectorial jump) (UM30SA)
IM30CE		
2450	Io	Vectorial Earth fault current after 100 ms
MU30-CC		
2460	I	Current, last trip
2461	E	Voltage, last trip
2462.0	I, sign	Sign of current, last trip
2462.1	E, sign	Sign of voltage, last trip

TRIP NUMBER

ADDRESS	NAME	MEANING
3000	I>	Low set time delayed overcurrent
3001	I>>	High set time delayed overcurrent

ADDRESS	NAME	MEANING
3002	O>	Low set time delayed earth fault
3003	O>>	High set time delayed earth fault
3004	tA>	Low set time delayed overcurrent phase A
3005	tB>	Low set time delayed overcurrent phase B
3006	tC>	Low set time delayed overcurrent phase C
3007	tA>>	High set time delayed overcurrent phase A
3008	tB>>	High set time delayed overcurrent phase B
3009	tC>>	High set time delayed overcurrent phase C
3010	T>	Thermal overload
3011	I<	No load running / undercurrent
3012	LR	Locked rotor
3013	StN	Number of consecutive startings
3014	ITr	Too long startings
3015	I2t	i2t
3016	f' or fa or 1f or 1t	First frequency delayed element
3017	f'' or fb or 2f or 2t	Second frequency delayed element
3018	u' or ua or 1U	First voltage delayed element
3019	u'' or ub or 2U	Second voltage delayed element
3020	Uo>	Low set zero sequence voltage delayed elementg
3021	Uo>>	High set zero sequence voltage delayed elementg
3022	Ed	Direct sequence voltage delayed element
3023	Es	Inverse sequence voltage delayed element
3024	1 ϕ	V/Hz delayed first element
3025	2 ϕ	V/Hz delayedsecond element
3026	1Is or Is>	Low set unbalance time delayed element
3027	2Is	High set unbalance time delayed element
3028	IL	Low set overcurrent trips
3029	IH	High set overcurrent trips
3030	OL	Low set unalance
3031	OH	High set unbalace
3032	1C	N di reclousure operated by the first reclosing shot 1C
3033	2C	N di reclousure operated by the 2 nd reclosing shot 2C
3034	3C	N di reclousure operated by the 3 rd reclosing shot 3C
3035	OPS	Number of Circuit Breaker's operation
3036	fc or 3t	3 rd frequency delayed element
3037	fd or 4t	4 th frequency delayed element
3038	1d	1 st level df/dt element
3039	2d	2st level df/dt element
3040	de	de/dt element

EDISON RELAY MODBUS REGISTERS

ADDRESS	NAME	MEANING
3041	lr>	Reverse power delayed element
3042	Z<	Under impedance delayed element
3043	Tw	Windings temperature
3044	Tf	Oil /iron temperature
3045	1u	First instantaneous voltage element (MU30)
3046	2u	Second instantaneous voltage element (MU30)
3047	1f	First instantaneous frequency element (MU30)
3048	2f	Second instantaneous frequency element (MU30)
3049	1i	First instantaneous current element (MU30)
3050	2i	Second instantaneous current element (MU30)
3051	1p	First instantaneous active power element (MU30)
3052	2p	Second instantaneous active power element (MU30)
3053	1q	First instantaneous reactive power element (MU30)
3054	2q	Second instantaneous reactive power element (MU30)
3055	1a	First instantaneous apparent power element (MU30)
3056	2a	Second instantaneous apparent power element (MU30)
3057	1w	Second instantaneous active energy element (MU30)
3058	2w	First instantaneous active energy element (MU30)
3059	1r	Second instantaneous reactive energy element (MU30)
3060	2r	First instantaneous apparent energy element (MU30)
3061	dA>	Low set differential element phase A (MD32T)
3062	dB>	Low set differential element phase B (MD32T)
3063	dC>	Low set differential element phase C (MD32T)
3064	dA>>	High set differential element phase A (MD32T)
3065	dB>>	High set differential element phase B (MD32T)
3066	dC>>	High set differential element phase C (MD32T)
3067	do>	Earth fault element (MD32T)
3068	W<	Minimum power (IM3G-V)
SCM21 – SPM21		
3100	SX1 / SX	Closing command to C/B line 1 (SCM21) or closing command to C/B (SPM21)
3101	SX2	Closing command to C/B line 2 (SCM21)
3102	tU>	Tripping of delayed overvoltage element
3103	tU<	Tripping of delayed undervoltage element
3104	tf >	Tripping of delayed overfrequency element
3105	tf <	Tripping of delayed underfrequency element
IM30-DRE		
3110	4C	N di reclosure operated by the 4rd reclosing shot 4C
3111	I2	Negative sequence
IM30SA		
3112		
UFD14		
3120	1t&	First frequency element associated to df/dt (1 or 2)

ADDRESS	NAME	MEANING
3121	2t&	First frequency element associated to df/dt (1 or 2)
3122	3t&	First frequency element associated to df/dt (1 or 2)
3123	4t&	First frequency element associated to df/dt (1 or 2)
MX7-5		
3130	O1	Output #1 operations
3131	O2	Output #2 operations
3132	O3	Output #3 operations
3133	O4	Output #4 operations
3134	O5	Output #5 operations
3200	D α >	Delta Alfa operations (UM30SA)
IM30-T		
3250	RT	Remote trip
IM30CE		
3300	AOL	Vectorial Earth fault current Low set
3301	AOH	Vectorial Earth fault current High set

EDISON RELAY MODBUS REGISTERS

SETTINGS

ADDRESS	NAME	MEANING
5000	NodeAddress	Identification number on serial bus
5001	Fn	System frequency
5002	In	Rated primary current of the phase C.T.'s
5003	On	Rated primary current of the tore C.T.
5004	Unp	Rated primary phase to phase voltage of system's P.Ts.
5005	Uns (Vns)	Rated secondary phase to phase voltage of system's P.Ts.
5006	Ib	Base current
5007	α	Characteristic direction of phase fault current
5008	F(I \gt) or F(IL)	Operation characteristic of the low set overcurrent element
5009	I \gt or IL	Trip level of low-set overcurrent element
5010	tI \gt or TIIL	Trip time delay of low-set overcurrent element
5011	I \gg or IH	Trip level of high-set overcurrent element
5012	tI \gg or tIH	Trip time delay of high-set overcurrent element
5013	αo	Characteristic direction of earth fault current
5014	F(O \gt) or F(OL)	Operation characteristic of the low set earth faultt element
5015	O \gt or OL	Trip level of low-set earth fault element
5016	tO \gt or tOL	Trip time delay of low-set earth fault element
5017	O \gg or OH	Trip level of high-set earth fault element
5018	tO \gg or tOH	Trip time delay of high-set earth fault element
5019	TBO	Max reset time delay of the instantaneous element
5020	TBF	Max reset time delay of the instantaneous element
5021	TBf	Delay deleting block input phase (off- 2tBO)
5022	TBo	Delay deleting block input ground(off- 2tBO)
5023	Bf or Blf	Blocked phase functions
5024	Bo or Blo	Blocked ground functions
5025	TFres	Reset after tripping mode (manual , auto)
THERMAL IMAGE		
5026	Im	Motor full load current
5027	Ist	Motor starting current
5028	Tst	Motor starting time
5029	tm or tc	Thermal time constant of motor or generator while running
5030	To	Steady motor thermal time constant
5031	Ta/n	Prealarm (motor) heating level
5032	Ts/n	Motor restart heating level
LOCKED ROTOR		
5033	ILR	Locked rotor current
5034	TLr	Time delay
F 46		

ADDRESS	NAME	MEANING
5035	Is> or 1IS	Trip level of umbalance 1 element
5036	tIs>	Time delay of umbalance 1 el
5037	2IS	Trip level of umbalance 2 element
5038	t2Is	Time delay umbalance of 2 el
5039	Ks or t2	I2t heating time
5040	Tcs	I2t cooling time
UNDERCURRENT		
5041	I<	Trip level
5042	(tI<)	Time delay
STARTING NUMBER		
5043	St No	Max number of startings
5044	TStNo	Time into wich StNo is counted
5045	TBSt	Restart inhibition time after tripping StNo
SWITCH OVER		
5046	Itr	Switch over current
5047	TTr	Switch over time from start-up
5048	I>/U	Enable F51V
5049	I>>/U	Enable F50V
AUTOMATIC LEVEL DOUBLING		
5050	2I>>	Enable auto level doubling
IM3G-V		
5051	4 =	Functions blocked by 14-1 input
F 27/59 UNDER OVER VOLTAGE		
5061	Un XXX u' or Un XXX ua	Operation mode of the 1 voltage element
5062	1v or u' or ua	1 element trip level
5063	t1v or tu' or tua	1 element time delay
5064	Un XXX u" or Un XXX ub	Operation mode of the 2 voltage element
5065	2v or u" or ub	2 element trip level
5066	t2v or tu" or tub	2 element time delay
de/dt		
5067	De	Trip level of the element de/dt
5068	de/dt	Operation mode of the function de/dt
F 27D/59D UNDER OVER VOLTAGE POSITIVE SEQ		
5069	Edn	Operation mode
5070	Ed	Trip level
5071	TEd	Time delay
F 59S UNDER OVER VOLTAGE NEGATIVE SEQ		
5072	Es>	Trip level

EDISON RELAY MODBUS REGISTERS

ADDRESS	NAME	MEANING
5073	tES>	Time delay
F 590 OVER VOLTAGE ZERO SEQ		
5074	Uo> (Uo)	1 element trip level - (Blocking level)
5075	tUo>	1 element time delay
5076	Uo>>	2 element trip level
5077	tUo>>	2 element time delay
V/Hz		
5078	U/F or 1φ>	Trip level of the 1 element
5079	tU/f or K	Timedelay coefficient
5080	2φ>	Trip level of the 2 element
5081	t2φ	Time delay (definite time)
F 81 UNDER OVER FREQUENCY		
5082	Fn XXX f' or Fn XXX fa	Operation mode of the 1 frequency element
5083	1f or f' or fa	1st element trip level
5084	t1f or tf' or tfa or 1t	1st element time delay
5085	Fn XXX f'' or Fn XXX fb	Operation mode of the 2 frequency element
5086	2f or f'' or fb	2nd element trip level
5087	t2f or tf'' or tfb or 2t	2nd element time delay
5088	Fn XXX fc	Operation mode of the 3 frequency element
5089	Fc	3rd element trip level
5090	ffc or 3t	3rd element time delay
5091	Fn XXX fd	Operation mode of the 4 frequency element
5092	Fd or 4f	4 element trip level
5093	Tfd or 4t	4 element time delay
F 40 LOSS OF FIELD		
5098	α	Characteristic angle
5099	Tz	Time delay
5100	Ti	Integration time
5101	K1	Diameter
5102	K2	Offset
F 32 REVERSE ACTIVE POWER		
5103	lr>	Trip level
5104	tlr>	Time delay
F 37 UNDER POWER		
5105	P<	Trip level
5106	tP<	Time delay
IM30 C		
5107	tRI<	Wait time for the reenergization of the capacitors
5108	lc	Unbalance compensation level

ADDRESS	NAME	MEANING
5109	αC	Io/IA phase displacement
IM30SA		
5110	So	Trip level sensitive earth fault So>
5111	tSo	Time delay sensitive earth fault So>
IM30-T		
5112	It	Rated current of the current of the C.T.s or of the core C.T. supplying the zero sequence current
5113	tw	Warming-up time constant if the windings' thermal element
5114	tf	Warming-up time constant of the oil/iron thermal current of phase C.T.s
5115	t2	Trip time delay of the I2t element when I=2[It]
MU30		
5116	WOUT	Enable frequency output for electromechanical energy meter
5117	TIn	Integration time
5118	Tsca	Scanning time
5119	Tsyn	Synchronisation period
5120	Current time 1	Current time : Year (format : 00YY (BCD))
5121	Current time 2	Current time : Month, Day (format : MMDD (BCD))
5122	Current time 3	Current time : Hour, Minute (format : HHMM (BCD))
5123	Current time 4	Current time : Second, Tenth of second (format : SSTT (BCD))
5124	1u	Setting of first instantaneous voltage element (+, -, +/-)
5125	1u	Tripping level of first instantaneous voltage element
5126	2u	Setting of second instantaneous voltage element (+, -, +/-)
5127	2u	Tripping level of second instantaneous voltage element
5128	1f	Setting of first instantaneous frequency element (+, -, +/-)
5129	1f	Tripping level of first instantaneous frequency element
5130	2f	Setting of second instantaneous frequency element (+, -, +/-)
5131	2f	Tripping level of second instantaneous frequency element
5132	1i	Setting of first instantaneous current element (+, -, +/-)
5133	1i	Tripping level of first instantaneous current element
5134	2i	Setting of second instantaneous current element (+, -, +/-)
5135	2i	Tripping level of second instantaneous current element
5136	1p	Setting of first instantaneous active power element (+, -, +/-)
5137	1p	Tripping level of first instantaneous active power element
5138	2p	Setting of second instantaneous active power element (+, -, +/-)
5139	2p	Tripping level of second instantaneous active power element
5140	1q	Setting of first instantaneous reactive power element (+, -, +/-)
5141	1q	Tripping level of first instantaneous reactive power element
5142	2q	Setting of second instantaneous reactive power element (+, -, +/-)
5143	2q	Tripping level of second instantaneous reactive power element
5144	1a	Setting of first instantaneous apparent power element (+, -, +/-)
5145	1a	Tripping level of first instantaneous apparent power element
5146	2a	Setting of second instantaneous apparent power element (+, -, +/-)

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ADDRESS	NAME	MEANING
5147	2a	Tripping level of second instantaneous apparent power element
5148	1w	Tripping level of first instantaneous active energy element
5149	2w	Tripping level of second instantaneous active energy element
5150	1r	Tripping level of first instantaneous reactive energy element
5151	2r	Tripping level of second instantaneous reactive energy element
MD32T		
5152	1In	Rated primary current of Cts on Transformer's side 1
5153	2In	Rated primary current of Cts on Transformer's side 2
5154	1V	Rated voltage of Transformer's side 1 (phase to phase voltage)
5155	2V	Rated voltage of Transformer's side 2 (phase to phase voltage)
5156	α g	Vector group of Transformer (side 1 = High voltage)
5157	d>	Basic minimum pick-up level of low set phase differential element
5158	d>>	Basic minimum pick-up level of low set phase differential element
5159	R	Bias percentage
5160	2H	2 nd harmonic restraint level
5161	5H	5 th harmonic restraint level
5162	R2H	Reduced 2 nd harmonic restraint level during the time tH from Transformer Switch-on
5163	R5H	Reduced 2 nd harmonic restraint level during the time tH from Transformer Switch-on
5164	tH	Time during which harmonic restraint level's reduction is active
5165	do>	Minimum pick-up level of Earth Fault Element
5166	tdo	Time delay of Earth Fault Element
5167	Bdo	Earth Fault Element can be blocked during tH(Bdo=ON) or active (Bdo=OFF)
5168	B1	Digital input B1 blocks the function selected
5169	TRG	Trigger for oscillography records is Internal or External via digital input B3
5170	Rd>>	Percent Bias on functions d>> : Active(ON) / Non Active (OFF)
5171	1R	Bias percentage in the zone $0.5 < IR < P$
5172	2R	Bias percentage in the zone $IR > P$
5173	P	Bias slope change point
5174	BF	Selection of element controlling the Braker Failure function
5175	tBF	Breaker Failure time delay
IM30 CE		
5180	F(AOL)	Operation characteristic of the low set earth faultt element
5181	AOL	Trip level of low-set earth fault element
5182	tAOL	Trip time delay of low-set earth fault element
5183	AOH	Trip level of high-set earth fault element
5184	tAOH	Trip time delay of high-set earth fault element
Df/dt		
5200	1df xxx	Operation mode of 1 st element of frequency rate of variation

ADDRESS	NAME	MEANING
5201	1d or 1f'	Trip level of the 1 st element of frequency rate of variation
5202	1dt	Evaluation time of the first df/dt element
5203	2df xxx	Operation mode of 2 nd element of frequency rate of variation
5204	2d or 2f'	Trip level of the 2 nd element of frequency rate of variation
5205	2dt	Evaluation time of the 2 nd df/dt element
IM30-B		
5301	Fn'	System frequency, 2 nd setting
5302	In'	Rated primary current of the phase C.T.'s , 2 nd setting
5303	On'	Rated primary current of the core C.T. , 2 nd setting
5308	F(I >)'	Operation characteristic of the low set overcurrent element, 2 nd setting
5309	I >'	Trip level of low-set overcurrent element, 2 nd setting
5310	tl >'	Trip time delay of low-set overcurrent element, 2 nd setting
5311	I >>'	Trip level of high-set overcurrent element, 2 nd setting
5312	tl >>'	Trip time delay of high-set overcurrent element, 2 nd setting
5314	F(O >)'	Operation characteristic of the low set earth fault element, 2 nd setting
5315	O >'	Trip level of low-set earth fault element, 2 nd setting
5316	tO >'	Trip time delay of low-set earth fault element, 2 nd setting
5317	O >>'	Trip level of high-set earth fault element, 2 nd setting
5318	tO >>'	Trip time delay of high-set earth fault element, 2 nd setting
5320	Tbf	Max reset time delay of the instantaneous element, 2 nd setting
5350	2I >>	Enable auto level doubling, 2 nd setting
SCM21 – SPM21		
5360	U <	Minimum bus voltage (line voltage if dead bus detected) to allow C/B closure, system undervoltage level when at least one C/B closed (SCM21) or Minimum bus voltage to allow C/B closure (SPM21)
5361	tU <	Trip delay of undervoltage function (SCM21)
5362	U >	Maximum bus voltage (line voltage if Dead Bus detected) to allow C/B closure, system overvoltage level when at least one C/B closed (SCM21) or Maximum bus voltage to allow C/B closure (SPM21)
5363	tU >	Trip delay of overvoltage function (SCM21)
5364	1ΔU / ΔU	Maximum permissible voltage difference for closing of C/B L1 (SCM21) or Maximum permissible voltage difference for closing of C/B (SPM21)
5365	2ΔU	Maximum permissible voltage difference for closing C/B line 2 (SCM21)
5366	Tu	Period of pulse to voltage regulator (SPM21)
5367	tu <	Minimum pulse duration (SPM21)
5368	tu >	Maximum pulse duration (SPM21)
5369	Gs/V	Gain for proportional pulse duration (voltage regulator)
5370	f <	Minimum bus frequency (line frequency if Dead Bus detected) to allow C/B closure, system underfrequency level when at least one C/B closed (SCM21) or Minimum bus frequency to allow C/B closure (SPM21)
5371	tf <	Trip time delay of underfrequency function (SCM21)

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ADDRESS	NAME	MEANING
5372	f >	Maximum bus frequency (line frequency if Dead Bus detected) to allow C/B closure, system overfrequency level when at least one C/B closed (SCM21) or Maximum bus frequency to allow C/B closure (SCM21)
5373	tf >	Trip time delay of overfrequency function (SCM21)
5374	1 Δ f / Δ f	Maximum permissible frequency difference for closing of C/B L1 (SCM21) or Maximum permissible frequency difference for closing of C/B (SPM21)
5375	2 Δ f	Maximum permissible frequency difference for closing of C/B L2 (SCM21)
5376	Tf	Period of pulse to speed regulator (SPM21)
5377	tf <	Minimum pulse duration (SPM21)
5378	tf >	Maximum pulse duration (SPM21)
5379	Gs/Hz	Gain for proportional pulse duration (SPM21)
5380	1 α / α	Maximum permissible displacement angle 1U/BU for closing of C/B L1 (SCM21) or Maximum permissible displacement angle UG/UB for closing C/B (SPM21)
5381	2 α	Maximum permissible displacement angle 2U/BU for closing of C/B L2 (SCM21)
5382	ts	Minimum permanence time of voltage and frequency closing condition to start checking of angle (SCM21 AND SPM21)
5383	tk	Time after which closing is forced if angle remains steady within the max. permissible without searching α CB (automatic adjusted angle) (SCM21)
5384	tcb	Closing time of C/B for automatic adjusting of the closing angle 8SCM21 AND SPM21)
5385	to	Minimum reclose time (SCM21 AND SPM21)
5386	DB	Dead bus operation allowed (ON) or not (OFF) (SCM21 AND SPM21)
5387	DL	Dead line operation allowed (ON) or not (OFF) (SCM21)
IM30-DRE		
		Settings # 1 (parziale)
5400	F α	Mode of characteristic direction of phase fault current(Dis-Dir-Sup)
5401	α	Characteristic direction of phase fault current
5402	F(I2)	Operation characteristic of inverse time current unbalance protection element
5403	I2	Trip level of inverse time current unbalance protection element
5404	tI2	Trip time delay of inverse time current unbalance protection element
5405	1C	Selection of the function(s) selected to initiate the 1 st reclosing shot
5406	2C	Selection of the function(s) selected to initiate the 2 nd reclosing shot
5407	3C	Selection of the function(s) selected to initiate the 3 rd reclosing shot
5408	4C	Selection of the function(s) selected to initiate the 4 th reclosing shot
5409	t1C	Reclosing time interval of 1 st reclosing shot
5410	t2C	Reclosing time interval of 2 nd reclosing shot
5411	t3C	Reclosing time interval of 3 rd reclosing shot
5412	t4C	Reclosing time interval of 4 th reclosing shot

ADDRESS	NAME	MEANING
5413	tr	Reset interval (reclaim time) after any succesful reclosure
5414	SEQ C	Sequence Coordination Switch (ON-OFF)
5415	tBF	Time Delay Breaker Failure.
5416	B-> I>	I> blocking control (ON – OFF)
5417	B-> I>>	I>> blocking control (ON – OFF)
5418	B-> O>	O> blocking control (ON – OFF)
5419	B-> O>>	O>> blocking control (ON – OFF)
5420	B-> I2	I2 blocking control (ON – OFF)
5421	B->Rcl	Rcl blocking control (ON – OFF)
		Settings # 2 (parziale ,rappresentato con : ')
5430	Uo> (Uo)'	1 element trip level - (Blocking level)
5431	F α '	Mode of characteristic direction of phase fault current(Dis-Dir-Sup)
5432	α '	Characteristic direction of phase fault current
5433	F(I2)'	Operation characteristic of inverse time current unbalance protection element
5434	I2'	Trip level of inverse time current unbalance protection element
5435	tI2'	Trip time delay of inverse time current unbalance protection element
5436	1C'	Selection of the funtion(s) selected to initiate the 1 st reclosing shot
5437	2C'	Selection of the funtion(s) selected to initiate the 2 nd reclosing shot
5438	3C'	Selection of the funtion(s) selected to initiate the 3 rd reclosing shot
5439	4C'	Selection of the funtion(s) selected to initiate the 4 th reclosing shot
5440	t1C'	Reclosing time interval of 1 st reclosing shot
5441	t2C'	Reclosing time interval of 2 nd reclosing shot
5442	t3C'	Reclosing time interval of 3 rd reclosing shot
5443	t4C'	Reclosing time interval of 4 th reclosing shot
5444	tr'	Reset interval (reclaim time) after any succesful reclosure
5445	SEQ C'	Sequence Coordination Switch (ON-OFF)
5446	tBF'	Time Delay Breaker Failure.
5447	B-> I>'	Blocking control (ON – OFF)
5448	B-> I>>'	Blocking control (ON – OFF)
5449	B-> O>'	Blocking control (ON – OFF)
5450	B-> O>>'	Blocking control (ON – OFF)
5451	B-> I2 '	Blocking control (ON – OFF)
5452	Switch to 2 nd setting	Switch to 2 nd setting
5453	B->Rcl	Rcl blocking control (ON – OFF)
5454	LO#	Lock Out number (single)
5455	ChSet	Change Set (single)
5470	L.T.	Latency Time (for serial sinchronization)
UFD14		
5500	NCy	Number of cycles evaluated for tripping

EDISON RELAY MODBUS REGISTERS

ADDRESS	NAME	MEANING
5501	1&f'	df/dt control of first frequency element
5502	1t&	Trip time delay of first frequency element when df/dt active and tripped
5503	2&f'	df/dt control of second frequency element
		Trip time delay of second frequency element when df/dt active and tripped
5504	2t&	Trip time delay of second frequency element when df/dt active and tripped
5505	3&f'	df/dt control of third frequency element
5506	3t&	Trip time delay of third frequency element when df/dt active and tripped
5507	4&f'	df/dt control of fourth frequency element
5508	4t&	Trip time delay of fourth frequency element when df/dt active and tripped
5509	U <	Undervoltage lockout level
MX7-5		
5520	AND10	Row 1. Config. of I1..I7
5521	AND11	Row 1. Config of OFF and ON.
5522	AND20	Row 2. Config. of I1..I7
5523	AND21	Row 2. Config of OFF and ON.
5524	AND30	Row 3. Config. of I1..I7
5525	AND31	Row 3. Config of OFF and ON.
5526	AND40	Row 4. Config. of I1..I7
5527	AND41	Row 4. Config of OFF and ON.
5528	AND50	Row 5. Config. of I1..I7
5529	AND51	Row 5. Config of OFF and ON.
5530	AND60	Row 6. Config. of I1..I7
5531	AND61	Row 6. Config of OFF and ON.
5532	AND70	Row 7. Config. of I1..I7
5533	AND71	Row 7. Config of OFF and ON.
5534	AND80	Row 8. Config. of I1..I7
5535	AND81	Row 8. Config of OFF and ON.
5536	AND90	Row 9. Config. of I1..I7
5537	AND91	Row 9. Config of OFF and ON.
5538	AND100	Row 10. Config. of I1..I7
5539	AND101	Row 10. Config of OFF and ON.
5540	OR1	Col. 1. Config. of Row1..Row10
5541	OR2	Col. 2. Config. of Row1..Row10
5542	OR3	Col. 3. Config. of Row1..Row10
5543	OR4	Col. 4. Config. of Row1..Row10
5544	OR5	Col. 5. Config. of Row1..Row10
5545	OCONF	Configuration of outputs (NC or NO)
5546.0 .. 5546.6	ICONF	Configuration of inputs (local or remote)
5546.7	Reserved	//
5546.8	ON – remote conf	Configuration of ON push button (1 = remote, 0 = local)
5546.9	OFF – remote conf	Configuration of OFF push button (1 = remote, 0 = local)

ADDRESS	NAME	MEANING
5546.10	Reserved	Reserved
5546.11 ..5546.14	Spare	Spare
5546.15	Loc. enable	Enable/Disable front panel push buttons
5547	TO1	Output 1 delay
5548	TO2	Output 2 delay
5549	TO3	Output 3 delay
5550	TO4	Output 4 delay
5551	TO5	Output 5 delay
5552	TR1	Output 1 reset delay
5553	TR2	Output 2 reset delay
5554	TR3	Output 3 reset delay
5555	TR4	Output 4 reset delay
5556	TR5	Output 5 reset delay
5557.0	Local mode	Enable local mode
5557.1	Remote mode	Enable remote mode
5557.2	Lock out mode	Enable lock out mode
5600	D α >	Trip level of « vectorial jump » protection element (UM30SA)
5601	D α	Mode of « vectorial jump » protection element (UM30SA)
5602	Ub<	Blocking Voltage for « vectorial jump » protection element (UM30SA)
5700	Sync. latency time	Reserved : this time is added to wmscnt when clock is restarted after a synchro via serial port

OUTPUT RELAYS

ADDRESS	NAME	MEANING
6000	I> or IL	Low-set overcurrent instantaneous element
6001	tl> or TiL	Low-set overcurrent time delayed element
6002	I>> or IH	High-set overcurrent instantaneous element
6003	tl>>or Tih	High-set overcurrent time delayed element
6004	O> or OL	Low-set earth fault instantaneous element
6005	tO> or tOL	Low-set earth fault time delayed element
6006	O>>or OH	High-set earth fault instantaneous element
6007	tO>>or tOH	High-set earth fault time delayed element
THERMAL IMAGE		
6008	T>	Motor overload
6009	Ta	Motor overload prealarm
LOCKED ROTOR		
6010	ILR	Locked rotor
F 46		

EDISON RELAY MODBUS REGISTERS

ADDRESS	NAME	MEANING
6011	tIs> or t1Is or tI2	Unbalance current 1st level time delayed element
6012	t2Is	Unbalance current 2nd level time delayed element
UNDERCURRENT		
6013	I<	No load running
STARTING NUMBER		
6014	StN°	Max number of startings
SWITCH OVER		
6015	Itr	Switch over current
F 27/59 UNDER OVER VOLTAGE		
6016	1v or u' or ua	1st voltage level instantaneous element
6017	t1v or tu' or tua	1st voltage level time delayed element
6018	2v or u" or ub	2nd voltage level instantaneous element
6019	t2v or tu" or tub	voltage level time delayed element
De/dt		
6020	De	Element de/dt operates relay
F 27D/59D UNDER OVER VOLTAGE POSITIVE SEQ		
6021	Ed	Direct sequence voltage instantaneous element
6022	TEd	Direct sequence voltage time delayed element
F 59S UNDER OVER VOLTAGE NEGATIVE SEQ		
6023	Es>	Negative seq. voltage instantaneous element
6024	tES>	Negative seq. voltage time delayed element
F 59O OVER VOLTAGE ZERO SEQ		
6025	Uo> (Uo)	Low-set earth fault instantaneous elements
6026	tUo>	Low-set earth fault time delayed elements
6027	Uo>>	High-set earth fault instantaneous elements
6028	tUo>>	High-set earth fault time delayed elements
V/Hz		
6029	U/F or 1φ>	1Φ> instantaneous element
6030	tU/f or t1φ	1Φ> timedelayed element
6031	2φ>	2Φ> instantaneous element
6032	t2φ	1Φ> timedelayed element
F 81 UNDER OVER FREQUENCY		
6033	1f or f' or fa	1st frequency level instantaneous element
6034	t1f or tf' or tfa	1st frequency level time delayed element
6035	2f or f" or fb	2nd frequency level instantaneous element
6036	t2f or tf"	2nd frequency level time delayed element

ADDRESS	NAME	MEANING
	or tfb	
6037	3f or f''' or fc	3rd frequency level instantaneous element
6038	t3f or tf''' or tfc	3rd frequency level time delayed element
6039	4f or f'''' or fd	4th frequency level instantaneous element
6040	t4f or tf'''' or tfd	4th frequency level time delayed element
6041	1d or 1f'	1st element df/dt level
6042	2d or 2f'	2nd element df/dt level
F 40 LOSS OF FIELD		
6043	tZ<	Underimpedence time delayed element
F 32 REVERSE ACTIVE POWER		
6044	tlr>	Reverse power time delay element
F 37 UNDER POWER		
6045	tW<	Underpower time delayed element
IM30 C		
6046	tl<	Time delayed element min current
6047	C	Reclousure
6048	RT	Remote trip input
MU30		
6049	1u	First voltage element
6050	2u	Second voltage element
6051	1f	First frequency element
6052	2f	Second frequency element
6053	1i	First current element
6054	2i	Second current element
6055	1p	First active power element
6056	2p	Second active power element
6057	1q	First reactive power element
6058	2q	Second reactive power element
6059	1a	First apparent power element
6060	2a	Second apparent power element
6061	1w	First active energy element
6062	2w	Second active energy element
6063	1r	First reactive energy element
6064	2r	Second reactive energy element
6065	R1tr	Reset time rel. 1
6066	R2tr	Reset time rel. 2
6067	R3tr	Reset time rel. 3
6068	R4tr	Reset time rel. 4
MD32T		

EDISON RELAY MODBUS REGISTERS

ADDRESS	NAME	MEANING
6069	d>	Low set differential element operates relay R1,R2,R3,R4 as programmed
6070	d>>	High set differential element operates relay R1,R2,R3,R4 as programmed
6071	do>	Instantaneous Earth Fault element operates relay R1,R2,R3,R4 as programmed
6072	tdo	Time delayed Earth Fault element relay operates relay R1,R2,R3,R4 as programmed
MD32G		
6074	tBF	Breaker Failure function relay, operates relay R1,R2,R3,R4 as programmed
IM30CE (Zero sequence vectors)		
6080	AOL	Low-set earth fault instantaneous element
6081	tAOL	Low-set earth fault time delayed element
6082	AOH	High-set earth fault instantaneous element
6083	tAOH	High-set earth fault time delayed element
SCM21		
6100	SX1	Closing command of C/B L1
6101	SX2	Closing command of C/B L2
6102	tU <	Time delayed undervoltage
6103	tU >	Time delayed overvoltage
6104	tf <	Time delayed underfrequency
6105	tf >	Time delayed overfrequency
IM30-DRE		
6120	I2>	Inverse time current unbalance protection element
6121	C	Reclosures operates relays R1 R2 R3 R4
6122	tBF	Breaker Failure
6123	rLO	Mancata richiusura (Lock Out)
6124	BT	Breaker Trip
UFD14		
6130	U <	Undervoltage lockout
6131	D1f	D1 blocks 1f, 2f, 3f, 4f
6132	D1f'	D1 blocks 1f', 2f'
6133	D2t	D2 blocks 1t/∞, 2t/∞, 3t/∞, 4t/∞
RELAYS WHICH CAN BE CONNECTED TO REX-8 OUTPUT UNIT		
6150	RAtr	RA reset time
6151	RBtr	RB reset time
6152	RCtr	RC reset time
6153	RDtr	RD reset time

ADDRESS	NAME	MEANING
6154	REtr	RE reset time
6155	RFtr	RF reset time
6156	RGtr	RG reset time
6157	RHtr	RH reset time
6158	RItr	RI reset time
6159	RJtr	RJ reset time
6160	RKtr	RK reset time
6161	RLtr	RL reset time
IM30SA		
6170	So	Sensitive earth fault instantaneous element
6171	tSo	Sensitive earth fault time delayed element
6180	D α	« Vectorial Jump » instantaneous element (UM30SA)
IM30ABC		
6200	Ch	Close serial command
6201	Op	Open serial command
IM30-T		
6250	I2t	Energy inrush element
REMOTE CONTROL OF OUTPUT RELAYS		
6300	Rem	Remote control of output relays

EDISON RELAY MODBUS REGISTERS

TRIP FLAGS

ADDRESS	NAME	MEANING
7000-0	I> or IL	Low-set overcurrent instantaneous element
7000-1	tI> or tIL	Low-set overcurrent time delayed element
7000-2	I>> or IH	High-set overcurrent instantaneous element
7000-3	tI>> or tIH	High-set overcurrent time delayed element
7000-4	O> or OL	Low-set earth fault instantaneous element
7000-5	tO> or tOL	Low-set earth fault time delayed element
7000-6	O>> or OH	High-set earth fault instantaneous element
7000-7	tO>> or tOH	High-set earth fault time delayed element
THERMAL IMAGE		
7000-8	T>	Motor overload instantaneous element
7000-9	tT>	Motor overload delayed element
7000-10	Ta	Motor overload prealarm
LOCKED ROTOR		
7000-11	ILR	Locked rotor
F 46		
7000-12	I _s > or 1I _s	Unbalance current 1st level instantaneous element
7000-13	tI _s > or t1I _s	Unbalance current 1st level time delayed element
7000-14	2I _s	Unbalance current 2nd level instantaneous element
7000-15	t2I _s	Unbalance current 2nd level delayed element
UNDERCURRENT		
7001-0	I<	No load running instantaneous element
7001-1	tI<	No load running delayed element
STARTING NUMBER		
7001-2	StN°	Max number of startings
SWITCH OVER		
7001-3	I _{Tr}	Switch over current
F 27/59 UNDER OVER VOLTAGE		
7001-4	1v or u' or ua	1st voltage level instantaneous element
7001-5	t1v or tu' or tua	1st voltage level time delayed element
7001-6	2v or u" or ub	2nd voltage level instantaneous element
7001-7	t2v or tu" or tub	2nd voltage level time delayed element
De/dt		

ADDRESS	NAME	MEANING
7001-8	de	Element de/dt operates relay
F 27D/59D UNDER OVER VOLTAGE POSITIVE SEQ		
7001-9	Ed	Direct sequence voltage instantaneous element
7001-10	tEd	Direct sequence voltage time delayed element
F 59S UNDER OVER VOLTAGE NEGATIVE SEQ		
7001-11	Es>	Negative seq. voltage instantaneous element
7001-12	tES>	Negative seq. voltage time delayed element
F 59O OVER VOLTAGE ZERO SEQ		
7001-13	Uo> (Uo)	Low-set earth fault instantaneous elements
7001-14	tUo>	Low-set earth fault time delayed elements
7001-15	Uo>>	High-set earth fault instantaneous elements
7002-0	tUo>>	High-set earth fault time delayed elements
V/Hz		
7002-1	U/f or 1 ϕ >	1 Φ > instantaneous element
7002-2	tU/f or t1 ϕ	1 Φ > timedelayed element
7002-3	2 ϕ >	2 Φ > instantaneous element
7002-4	t2 ϕ	1 Φ > timedelayed element
F 81 UNDER OVER FREQUENCY		
7002-5	1f or f' or fa	1st frequency level instantaneous element
7002-6	t1f or tf' or tfa	1st frequency level time delayed element
7002-7	2f or f'' or fb	2nd frequency level instantaneous element
7002-8	t2f or tf'' or tfb	2nd frequency level time delayed element
7002-9	3f or f''' or fc	3rd frequency level instantaneous element
7002-10	t3f or tf''' or tfc	3rd frequency level time delayed element
7002-11	4f or f'''' or fd	4th frequency level instantaneous element
7002-12	t4f or tf'''' or tfd	4th frequency level time delayed element
7002-13	1d	1st element df/dt level
7002-14	2d	2nd element df/dt level
F 40 LOSS OF FIELD		
7002-15	Z<	Underimpedence instantaneous element
7003-0	tZ<	Underimpedence time delayed element
F 32 REVERSE ACTIVE POWER		
7003-1	lr>	Reverse power instantaneous element
7003-2	tlr>	Reverse power time delay element
F 37 UNDER POWER		

EDISON RELAY MODBUS REGISTERS

ADDRESS	NAME	MEANING
7003-3	tW<	Underpower instantaneous element
7003-4	tW<	Underpower time delayed element
IM30 C		
7003-5	I<	Min current instantaneous element
7003-6	tI<	Min current time delayed element
7003-7	C	Reclousure
7003-8	RT	Remote trip input
IM30 CE		
7003-9	newOL	Low-set earth fault (vectorial) instantaneous element
7003-10	newtOL	Low-set earth fault (vectorial) delayed element
7003-11	newOH	High-set earth fault (vectorial) instantaneous element
7003-12	newtOH	High-set earth fault (vectorial) delayed element
MU30		
7004-0	1u	First voltage element (over)
7004-1	1u	First voltage element (under)
7004-2	2u	Second voltage element (over)
7004-3	2u	Second voltage element (under)
7004-4	1i	First current element (over)
7004-5	1i	First current element (under)
7004-6	2i	Second current element (over)
7004-7	2i	Second current element (under)
7004-8	1p	First active power element (over)
7004-9	1p	First active power element (under)
7004-10	2p	Second active power element (over)
7004-11	2p	Second active power element (under)
7004-12	1q	First reactive power element (over)
7004-13	1q	First reactive power element (under)
7004-14	2q	Second reactive power element (over)
7004-15	2q	Second reactive power element (under)
7005-0	1a	First apparent power element (over)
7005-1	1a	First apparent power element (under)
7005-2	2a	Second apparent power element (over)
7005-3	2a	Second apparent power element (under)
7005-4	1f	First frequency element (over)
7005-5	1f	First frequency element (under)
7005-6	2f	Second frequency element (over)
7005-7	2f	Second frequency element (under)
7005-8	1w	First active energy element
7005-9	2w	Second active energy element
7005-10	1r	First reactive energy element
7005-11	2r	Second reactive energy element

ADDRESS	NAME	MEANING
MD32T/G		
7009-0	dA>	Low set differential element phase A
7009-1	dB>	Low set differential element phase B
7009-2	dC>	Low set differential element phase C
7009-3	dA>>	Low set differential element phase A
7009-4	dB>>	Low set differential element phase B
7009-5	dC>>	Low set differential element phase C
7009-6	do>	Earth fault element
7009-7	tdo>	Delayed Earth fault element
SCM21/SPM21		
7010-0	L1 On	Led 1 On
7010-1	L1 FI	Led 1 Flashing
7010-2	L2 On	Led 2 On
7010-3	L2 FI	Led 2 Flashing
7010-4	L3 On	Led 3 On
7010-5	L3 FI	Led 3 Flashing
7010-6	L4 On	Led 4 On
7010-7	L4 FI	Led 4 Flashing
7010-8	L5 On	Led 5 On
7010-9	L5 FI	Led 5 Flashing
7010-10	L6 On	Led 6 On
7010-11	L6 FI	Led 6 Flashing
7010-12	L7 On	Led 7 On
7010-13	L7 FI	Led 7 Flashing
7010-14	L8 On	Led 8 On
7010-15	L8 FI	Led 8 Flashing
UFD14		
7011-0	U <	Undervoltage lockout
7011-1	f1 + df/dt	f1 trip controlled by df/dt
7011-2	f2 + df/dt	f2 trip controlled by df/dt
7011-3	f3 + df/dt	f3 trip controlled by df/dt
7011-4	f4 + df/dt	f4 trip controlled by df/dt
IM30SA		
7015-0	So	Sensitive earth fault pick up
7015-1	tSo	Sensitive earth fault delayed
UM30SV		
7015-5	D α	Vectorial Jump Trip
MX7-5		
7020.0	O1	Status of O1 output
7020.1	O2	Status of O2 output
7020.2	O3	Status of O3 output
7020.3	O4	Status of O4 output

EDISON RELAY MODBUS REGISTERS

ADDRESS	NAME	MEANING
7020.4	O5	Status of O5 output
IM30-T		
7025.0	I2t	I2t = K

DIGITAL INPUTS

ADDRESS	NAME	MEANING
Address	Name	
7500.0	2-1	BI input
7500.1	3-1	BO input
7500.2	14-1	14-1 input
MX7-5		
7501.0	I7	I1 input (R/W)
7501.1	I6	I2 input (R/W)
7501.2	I5	I3 input (R/W)
7501.3	I4	I4 input (R/W)
7501.4	I3	I5 input (R/W)
7501.5	I2	I6 input (R/W)
7501.6	I1	I7 input (R/W)
7501.7	//	Spare
7501.8	ON	Level of ON button
7501.9	OFF	Level of OFF button
7501.10	IRF	Internal fault
7502.0	2-1 R/W	MU30 3.00 : set by the unit when input 2-1 active. Can be reset by host.

EDISON RELAY MODBUS REGISTERS

COMMANDS

ADDRESS	VALUE	MEANING
8000	1	Test
	2	Test + trip
	3	Reset
	4	Self programming
	5	Reset energy counters
	6	Trigger event recording
	7	Event recording trigger enable
	8	Event recording trigger disable
	9	Time synchro
	10	Switch to 2 nd setting (IM30-DRE)
	11	Load default settings (MX7-5)
	12	Clear (MX7-5)
	13	Close Relay Ch (IM30ABC)
	14	Close Relay Op (IM30ABC)
	15	RESET 196KX (ARCOSAT)
	16	CLEAR E2P Registration zone (ARCOSAT)
	17	SET TIME RTC (9 : TS ? ? ?) (ARCOSAT)
	18	DOWN LOAD DATA (ARCOSAT)
8001	*****	Password for settings
		Comandi a bit :
8002.0	0/1	Reset/set relay 4 (MU30)
8002.1	0/1	Reset/set relay 3 (MU30)
8002.2	0/1	Reset/set relay 2 (MU30)
8002.3	0/1	Reset/set relay 1 (MU30)

STATUS WORD

ADDRESS	NAME	MEANING
9000-0	ALU	ALU error
9000-1	ADC	ADC error
9000-2	E2P	E2P error
9000-3	WD	Watchdog error
9000-4	KBD	Keyboard error
9000-5	RTC	Real Time Clock error
9000-6	DSP	DiSPlay error
9000-7	FRN	FRoNt panel error
9000-8	IRF	generic InteRnal Fault
9000-9	PRG	PRoGramming
9000-10	BRF	BReaker Failure
9000-11	TST	TeST running