

Ingeteam References in the World



Power Grid Automation



Ingeteam

INGETEAM POWER GRID AUTOMATION WORLDWIDE

- More than 3,000 installations from 3.3kV to 500kV
- More than 75,000 IEDs installed
- 18 GW in renewable energy around the world
- More than 7,000 Secondary Switchgear automatized and monitored



POWER GRID AUTOMATION IN EUROPE

Country	Equipment	SAS Systems	Clients
ALBANIA	> 20 IEDs since 2008	SS Fieri	
BELGIUM	> 30 IEDs since 2013	WF Feluy	GESTAMP
BOSNIA AND HERZEGOVINA	> 60 IEDs since 2017	SS Pazaric SS Hadizi	Elektroprenos BiH
FRANCE	> 30 IEDs since 2010	EDF Hydro Lab 5 RTU for windfarm substations such as: WF Mountlouby II WF Rampont	EDF
GERMANY	> 15 IEDs	SS Hobo	Iberdrola, ArcelorMittal
GREECE	> 270 IEDs since 2005	WF Koukoura 20/150 kV WF Korobili 20/150 kV	Public Power Corporation, S.A, CNI SA
ITALY	> 225 IEDs since 2012	15 substation automation systems, including IEC 61850, such as: WF La Rocca 150/30 kV WF Lucus150/30 kV WF Wincap150/30 kV WF Conza150/30 kV WF Troia 150/30 kV WF Tivano 150/30 kV	Iberdrola, EDPR
LITHUANIA	> 15 IEDs since 2015		
LUXEMBOURG	> 40 IEDs since 2008		
MOLDOVA	> 15 IEDs	SS CHP Balti 20/6 kV	SA CET-Nord
POLAND	> 300 IEDs since 2006	11 substation automation such as: WF Gostyn 110 WF Karscino Amp 110/20kV WF Marszewo 110kV	Iberdrola, Acciona, Tauron, Elektrobudowa S.A.
PORTUGAL	> 500 IEDs since 1999	4 substation automation such as: PV Moura PV De Amareleja	Acciona, EDPR, Paper Prime
ROMANIA	> 360 IEDs since 2011	Over 10 substation automation systems, including IEC 61850, such as: SS Fagaras 110/10 kV WP Cobadin 110/20 kV SS Tatarani 110/20 kV WF Facaeni 400/115/33 kV SS Odorhei 110/20 kV SS Philip Morris 110kV	EDPR, Iberdrola, ELECTRICA, Philip Morris
SERBIA	> 450 IEDs since 2005	SS Guca 110/35/10kV	

SPAIN	> 25.000 IEDs since 1994	<p>> 1000 Substation Automation Systems (SAS) up to 400kV, both with legacy and IEC61850 solutions</p> <p>> 10.000 Secondary Substations Automation</p> <p>> 15.000 Voltage Sensors for AIS and GIS switchgear</p> <p>> 400 Secondary Distribution Transformer Monitoring Systems</p>	REE, Iberdrola, Enel, Naturgy, EDPR, Acciona, X-Elio
TURKEY	> 60 IEDs	<p>SS MEDAS</p> <p>SS Seçme Dm 30kV</p>	
UNITED KINGDOM	> 60 IEDs since 2012	<p>PV Everley</p> <p>PV Canworthy 132/33 kV</p> <p>SS Wind Hill 132 kV (IEC 61850)</p> <p>SS Currie 132 kV (IEC 61850)</p>	SPEN, PRIMROSE SOLAR, Iberdrola, Scottish Power Energy Networks, Kronos Solar





POWER GRID AUTOMATION IN SOUTH AMERICA

Country	Equipment	SAS Systems	Clients
ARGENTINA	> 300 IEDs since 2000	SS San Lorenzo Refinery SS Río Grande	Petrobras, DWF en Tierra de Fuego
BOLIVIA	> 200 IEDs	8 substation automation such us: SS Pailon SS Cañoto and OCR controllers for CRE	ELFEO, CRE
BRAZIL	> 8000 IEDs since 1998	More than 200 substation automation systems up to 500kV and in SS for more than 2 GW of renewable power installed	CEMAT, CEPISA, ELEKTRO, COSERN, IBERDROLA, CELG, ELETROACRE, MANAUS ENERGIA, VALE, FURNAS, COPEL, ELECTROSUL, CELPA, CEAL, LIGHT, CELPE, ECHO ENERGIA, GESTAMP
CHILE	> 1.5GW of Renewable Energy > 400 IEDs since 2006	More than 15 substation automation systems, most of them in IEC 61850, such us: PV Bolero 220/33 kV WF SS Tal-Tal 220/33kV 220/33 kV WF Buenos Aires 66/33 kV PV Los Loros 110/23 kV PV Romero 220/33 kV WF Sierra Gorda 220/33 kV PV Uribe 110/33 kV PV Santiago Solar 110/30 kV SS Mahns, S Pedro y Ejército	EnelGP, Acciona, Edf, Ibereolica, GPG, Solarpack, Solaire Direct
COLOMBIA	> 110 IEDs	WF Urubo 69/10,4 kV CH La Naveta	ENERTOLIMA, CODENSA
ECUADOR	> 170 IEDs since 2008	SS Los Bancos 24 kV (IEC 61850) Relays for Switchgear and Capacitor MV cubicles Control units for Sectionalizers	EEQ, CNEL Santa Elena, CENEL EP, Empresa Eléctrica de Quito, CENEL ElOro, CENEL Manabí,..
PARAGUAY	> 1000 IEDs	More than 20 substations 220/23 Kv, IEC 61850 included, such as: SS Capitán Bado SS Puerto Sajonia SS Vaquería SS Mallorquín SS La Colmena SS Mburucuya SS San Pedro SS Minga Pora SS Altos	ANDE, BEIGEL
PERU	> 300 IEDs since 2005		HIDRAANDINA, ENSYS SAC, ALICORP ,PLUSPETROL

URUGUAY	> 1200 IEDs since 2004	WF Pintado 150/30kV WF Generadores 150/31,5kV WF Maldonado WF Pastoreale 150/31,5kV	UTE, Vestas, ENEL Green Power
VENEZUELA	> 500 IEDs	40 substation automation such us: Cai Cogedes Cai Monagas	CORPOELEC, PDVSA





POWER GRID AUTOMATION IN CENTRAL AND NORTH AMERICA

Country	Equipment	SAS Systems	Clients
COSTA RICA	> 40 IEDs since 2002	SS La Caja	ICE
CUBA	> 1150 IEDs since 2005	15 Control and protection systems such as: SS Nuevitas SS 30 Noviembre SS Mariel 220/110 kV (IEC 61850)	Minaz, Azcuba
DOMINICAN REPUBLIC	> 20 IEDs since 2006		
GUATEMALA	> 40 IEDs since 2015	WF Viento Blanco 138/34,5 kV WF San Antonio 230/34,5 kV	ENEL GREEN POWER, VESTAS
HONDURAS	> 10 IEDs	PV Aura Solar II	Aura Solar
MÉXICO	> 2100 IEDs since 2002	More than 25 substation automation systems most of them in IEC 61850, such as: SS Ingenio 230/17,5 kV SS Camargo 115/34,5 kV SS El Cortijo 400/34,5 kV SS San Jacinto 115/34,5 kV SS Villanueva 400/34,5 kV SS Conejos Medanos SS Kaixo 115/34,5 kV SS Tres Mesas 400/115/34,5 kV SS Salitrillos 138/34,5 kV SS Vicente Guerrero 115/34,5 kV SS Potosí 400/34,5 kV SS Rumorosa 69/34,5 kV	CFE, Luz y Fuerza, PEMEX, Equipos Eléctricos de Baja California, Iberdrola Ingeniería y Construcción México, ENEL, ACCIONA, Aldesa, Grasolar, Ormazabal, Alstom Grids Mexico, ELIOLAP, GasNatural FENOSA, SINERGIA, SEPSA, INELAP
NICARAGUA	> 220 IEDs since 2010	18 substation automation systems, most of them in IEC 61850, such as: SS Las Colinas 138/13,8 kV SS Malpaisillo 138/13,8 kV SS Terrabona 138/24,5 kV SS Yali 138/24,9 kV SS Aeropuerto 138/13,8 kV SS San Ramón 138/24,9 kV SS Villa El Carmen 13,8/138 kV SS Casur 138/13,8 kV SS La Dalia 138/24,9 kV SS Waslala 138/24,9 kV SS Santa Clara 138/24,9 kV	ENATREL, CASUR



POWER GRID AUTOMATION IN ASIA

Country	Equipment	SAS Systems	Clients
ARMENIA	> 40 IEDs since 2013		
CHINA	> 40 IEDs since 2016	SS Hangzhou Xiguan	
INDIA	> 860 IEDs since 2005	Maneri Bhali Hydro Electric proj. Auto Recloser Controllers	Eswari Electricals Pvt Ltd, Megawin Switchgear, GAIL, India Ltd.
INDONESIA	> 300 IEDs since 2004		PLN, PT DIELEKTRIKA PERSADA TEKNIK , PT SEMEN TONASA - MAKASSAR
IRAN	> 800 IEDs since 2006	SS South Pars SS Sistan 63/20 kV (IEC 61850) SS Kalaf Beglue	Guilan REC, Khozestan REC, Semnan REC, Tehran REC, Azarbayejan REC, Hormozgan REC
IRAQ	> 180 IEDs since 2014	SS Iman (132/33kV)	
JAPAN	> 40 IEDs since 2016	Recloser Controllers	TOGAMI
LAOS		Control & Protection IEDs	Electricite Du Laos (EDL)
MALAYSIA	> 10 IEDs since 2007		
MYANMAR	> 300 IEDs since 2005	SS Ayarwon 230/66kV (IEC 61850) SS Yesb 230kV Myiangan CCPP SS Taunggyi 132/66 kV (IEC 61850)	MEPE, MOEE, YESB, SEMBCORP MYINGYAM POWER COMPANY
PHILIPPINES	> 430 IEDs since 2010	Automation of more than 10 secondary substations	NORECO, MERALCO, PENELCO, ASELCO, CASURECO,..
SRI LANKA	> 10 IEDs since 2018	MV Feeder Protection	
TAIWAN	> 1400 IEDs since 2001	Jieshou SS 161/23kV Beizi SS 161/23kV Longzi SS 161/23kV Jiayi SS 161/23kV	TPC, Taipei Water Department, Taiwan Railways Administration
THAILAND	> 4000 IEDs since 2005	Over 110 Control systems for substations, IEC 61850 included, such as: SS Ko Samui 2 115/22 kV SS Roi ET2 SS 115/22kV SS Sin Sakhon 115/22kV SS Song Phi Nong 2 115/22kV Berkprai Cogeneration	PEA, EGAT, SIAM PURE RICE; GULF MP, DEMCO

VIETNAM	> 230 IEDs since 2013	Control systems for substations, IEC 61850 included, such as: SS Binh Phuoc 110 kV SS Ham Kiem PV 110/20 kV SS Thuy Pong Solar PP 110/20 kV SS Tra Noc 220 KV	HCMPC, DNPC, Ha Tien Cement Company, EVN PTC4
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POWER GRID AUTOMATION IN MIDDLE EAST

Country	Equipment	SAS Systems	Clients
EGYPT	> 50 IEDs since 2005	SS Kuraimat PP 150 kV	NREA
IRAN	> 800 IEDs since 2006	SS South Pars SS Sistan 63/20 kV (IEC 61850) SS Kalaf Beglue	Guilan REC, Khozestan REC, Semnan REC, Tehran REC, Azarbayejan REC, Hormozgan REC
JORDAN	> 45 IEDs	WF Al Rajef 132/33 kV (IEC 61850)	ELECNOR
OMAN	> 130 IEDs since 2017	SS Sohar 33/11/0,4 kV (IEC 61850)	Sohar SWRO Company, L.L.C.
SAUDI ARABIA	> 40 IEDS since 2014		Gulf Ply Company for Paper
SYRIA	> 300 IEDs since 2008		PEDEEE
UAE	> 80 IEDs since 2015	SS Taweelah Power Station (IEC 61850)	Total Tractebel Emirates O&M



POWER GRID AUTOMATION IN AFRICA

Country	Equipment	SAS Systems	Clients
ANGOLA	> 200 IEDs since 2009	14 SAS systems, among others: SS Gabela Sumbe 60 kV SS Sapu Edel 60 kV SS Cavaco 60 kV SS Dos Caminhos de Ferro 60 kV (IEC 61850) SS Cabinda (upgrade)	ENE, EDEL
BURKINA FASO	> 50 IEDs	PV Zagtoui 33kV – OMEXOM	SONABEL
KENYA	> 35 IEDs since 2013	WF Ngong II 132/33 kV WF Kinangop 132/33 kV (IEC 61850)	Iberdrola Kenya Electricity Gen. Co Ltd.
MALAWI	> 100 IEDs since 2018	SS Bangwe 33/11 kV SS Fundi Cross 66/33 kV SS Nkula 66/33 kV	ESKOM
MOROCCO	> 20 since 2013	RTU & Distribution automation	ONEE, RADEEF
TANZANIA	IED for PS Mafia island		NGOMBENI POWER LTD
SOUTH AFRICA	> 1000 IEDs since 2005	PV Jasper 132/22 kV (IEC 61850) SS Kangaroo 132 kV (IEC 61850) City Power RTU Tender SS Gaborone 33/11 KV Botswana SS Vesco 88/11 kV SS Eldorado (IEC 61850)	ESKOM, City Power Jo., Emfuleni Municip., Iberdrola, WPI (mining), Hawker Siddeley switchgear

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