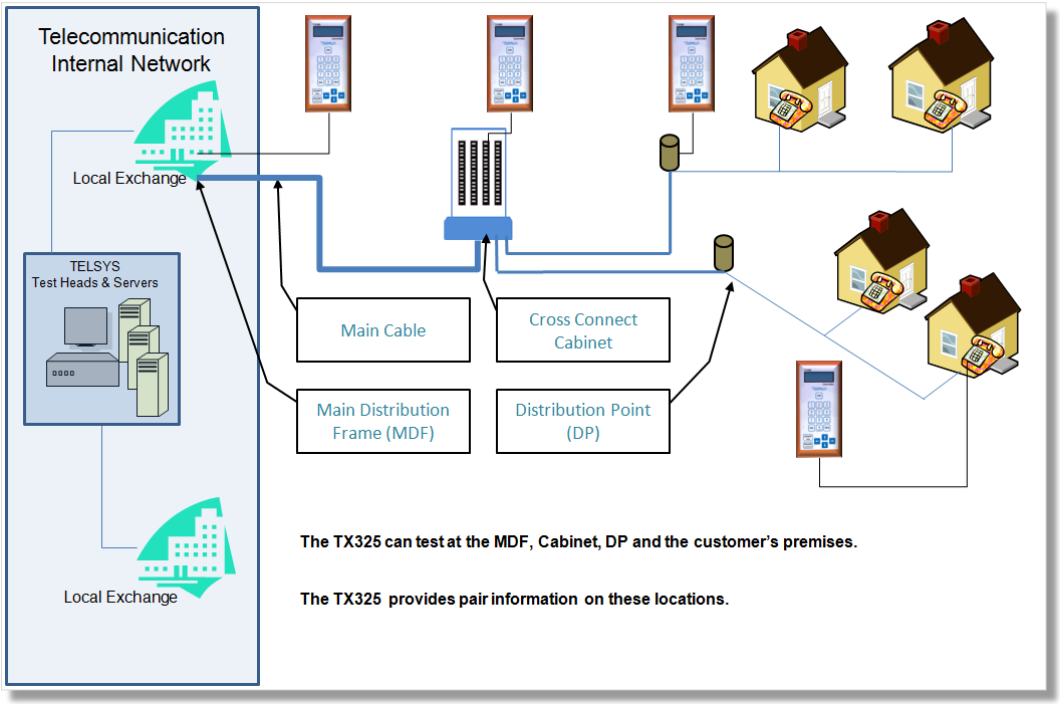
TELSYS – TX325 Instrument

telsys by teletech

Take control of cable pair testing & record maintenance



How can a telecommunication provider reduce the cost of record keeping for copper network assets? And at the same time increase their ability to track the performance of the field workforce?

The answer is the TELSYS system and the TX325 field instruments. These tools enable the field technician to automatically record and advise any changes to the cable pair records. It also records the quality of field installations and maintenance tasks.

How is this achieved? Teletech have developed a new copper field test instrument, the TX325. It is best explained by describing how a TX325 is typically used in the field. The field technician keys the cabinet and cable pair details into the TX325. The TX325 prompts the field operator to advise any cable pair swaps or changes. The TX325 is connected via a lead to the cable pairs and an auto test is performed on the cable. This take about 30 seconds and the TX325 displays the status of the service and if the service line is capable of supporting broadband. The 'sign-off' is completed with the test results and the cable record details instantly uploaded into TELSYS.

The operator can run the tests from the exchange, cabinet, DP or the customer's premises.

TELSYS retains a permanent record of the:

- Telephone number of the working services;
- Electrical properties of the cables (both working and faulty cable); and
- Broadband capability of the cables.

A telco can choose to have TELSYS interface into their cable record database. If TELSYS interfaces into a cable record system it uploads all cable record changes initiated by field technicians using the TX325.

TELSYS – The System Window

TELSYS is both a test equipment data management system and an integrated, multi-level reporting tool. It has two major components; CRU Test Heads and Servers.

Web Server and Database

TELSYS database and website provides reporting to support the cabinet mapping.

If required, reports can be made available to the Internet via tight security, using user-names, passwords and a challenge and response system.

Some of the many reports in TELSYS are:

- Broadband capability reporting of individual pairs and cables;
- A Test Browser to view the test results from a TX325;
- TX usage to display compliance to field processes. It displays which services dispatched to the field have been tested to ensure the service is working correctly;
- Summary reports covering equipment and technicians. These reports can be used to show where instrument usage is high; where cable faults indicate cable replacement is necessary etc.

CRU Test Heads

The TELSYS CRU provides the interface to the TX325s. It has the following features:

- Integrated with the TELSYS servers via the system's own network;
- It is a very secure firewall between the field equipment and the servers and telco network;
- Data from TX325s are loaded via the CRU directly into the database; and
- Data is immediately available via the web reports.

The CRU test heads communicate with the TX325 field instruments and control aspects of the testing and measurement integral to the system.

Our engineer inspecting the CRU Test Heads

KEEPING CABLE PAIR RECORDS ACCURATE

One universal problem facing all Telecommunication organisations is keeping the cable pair records accurate. This can be changed with the TX325.

TX325 – A Sophisticated Test Instrument

The TX325 can perform accurate testing of a comprehensive number of cable parameters. The results of the tests are stored in TELSYS for future analysis. These tests include:

- DC Voltage (A-B),(A-G) & (B-G)
- AC Voltage;
- Line Current (A-B);
- Insulation Resistance (A-B),(A-G) & (B-G);
- Capacitance (A-B),(A-G) & (B-G);
- Capacitance Balance; and
- VF and Broadband Noise

The TX325 can perform noise tests to check a pair's suitability for Broadband services. The tests can be used to estimate a pair's Broadband attenuation and S/N Ratio and calculate the ADSL upload and download speeds.

TX325 Features

The new TX325 has features such as:

- Input fields for network descriptions;
- User friendly interface;
- Light weight;
- Alpha numeric keypad; and
- Quick testing;
- A multi-meter for measuring the lines;
- Rechargeable (4 x AA) Batteries; and
- 240 volt battery charger.

ADVANTAGES of the TX325 and TELSYS

Real Cost savings in Capital Expenditure, call centre staff reduction, network maintenance and field staff.

Automatic Pair Swap Recording

Uploading direct from the field, Telcos can reduce call centre costs; and

Field technicians save time (and money) by pair swapping without needing paperwork or phone calls.

Control of field workforce

More control of external contractors;

Performance monitoring of internal field staff;

Provide office based technical support for field staff;

Accurate testing of new and faulty services reducing the instance of re-reported faults and therefore reducing the overall network maintenance cost; and

Reduced repair time as a full history of the fault is available to field staff.

Cost savings

REDUCE CALL CENTRE COSTS by directly uploading pair information;

REDUCE RE-REPORTED FAULTS with accurate testing of new and faulty services;

SAVE TIME (and money) by automatically uploading pair swap details (reduced need for phone calls or paperwork); and

BROADBAND PREQUALIFICATION on the entire network.

Better Customer Service

Deal with faults more efficiently;

Reduce repair time with a full history of the fault available to field staff; and

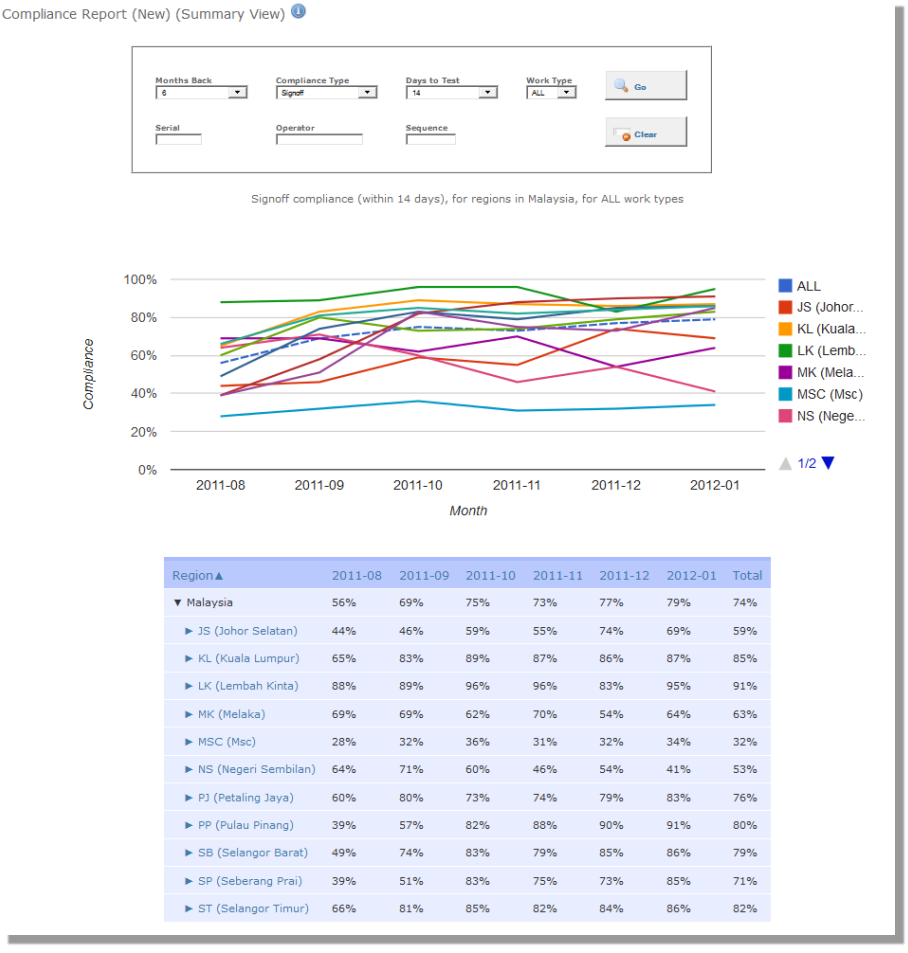
Front of House staff have access to up-to-date information and pair records are more likely to be correct.

Keeping the records accurate

One universal problem facing all Telcos is keeping their cable pair records accurate. The cost of inaccuracy can be substantial in terms of lost productivity and misdirected capital expenditure. TELSYS provides a solution to this problem.

- TELSYS enables the keeping of more accurate cable pair records. The recording of the cable pair details doesn't require a phone call, paperwork, call centre operators or data entry operators;
- Even better, the pair details can be directly interfaced into a cable record system;
- Also the system encourages the field operator to test the services and upload the cable details.
- TELSYS TX usage reporting identifies field operators that may require training.

Imagine a system where no more phone calls, paperwork, call centre or data entry operators are needed to capture the cable pair records.

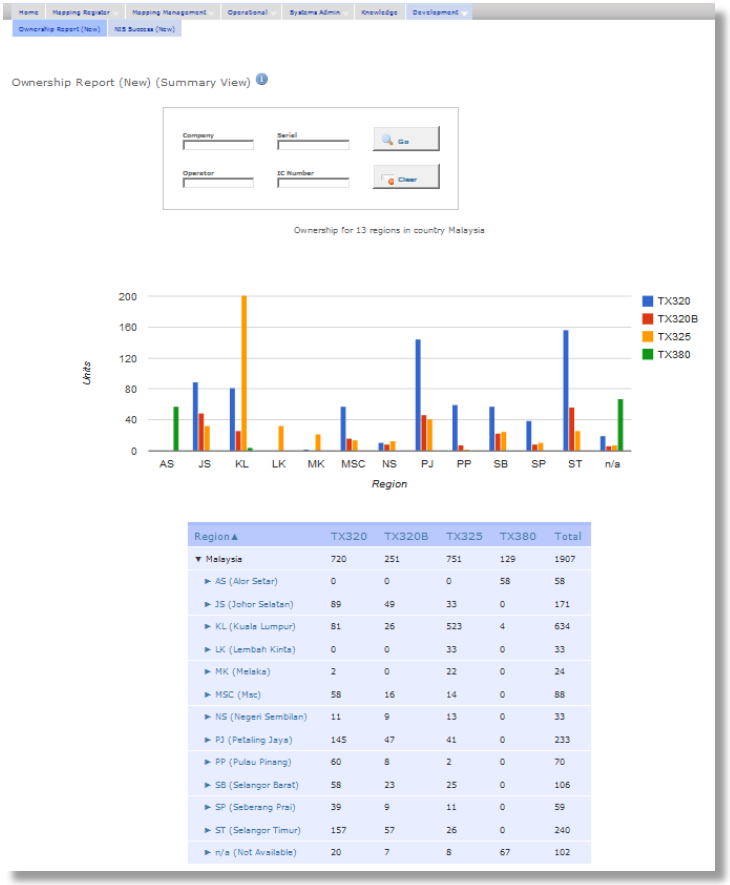


Region▲	2011-08	2011-09	2011-10	2011-11	2011-12	2012-01	Total
▼ Malaysia	56%	69%	75%	73%	77%	79%	74%
► JS (Johor Selatan)	44%	46%	59%	55%	74%	69%	59%
► KL (Kuala Lumpur)	65%	83%	89%	87%	86%	87%	85%
► LK (Lembah Kinta)	88%	89%	96%	96%	83%	95%	91%
► MK (Melaka)	69%	69%	62%	70%	54%	64%	63%
► MSC (Msc)	28%	32%	36%	31%	32%	34%	32%
► NS (Negeri Sembilan)	64%	71%	60%	46%	54%	41%	53%
► PJ (Petaling Jaya)	60%	80%	73%	74%	79%	83%	76%
► PP (Pulau Pinang)	39%	57%	82%	88%	90%	91%	80%
► SB (Selangor Barat)	49%	74%	83%	79%	85%	86%	79%
► SP (Seberang Prai)	39%	51%	83%	75%	73%	85%	71%
► ST (Selangor Timur)	66%	81%	85%	82%	84%	86%	82%

A NEW ERA IN CAPTURING CABLE COPPER NETWORK RECORDS

SAMPLE of TELSYS REPORTING

Ownership Report - provides detailed information on each TX320/TX320B/TX325

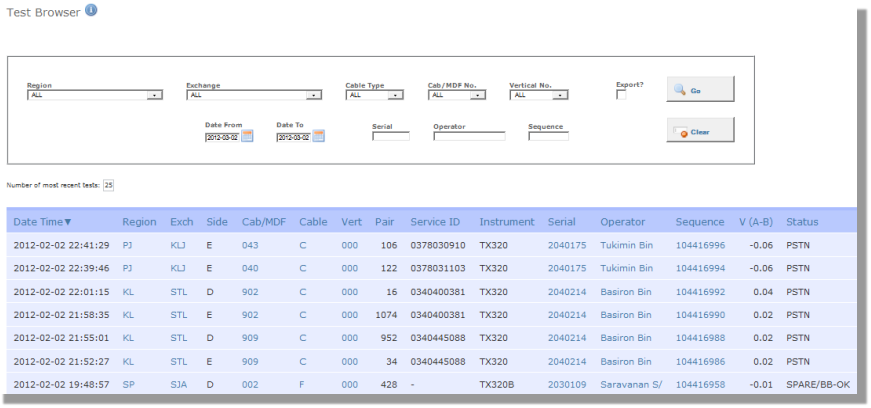


Region▲	TX320	TX320B	TX325	TX380	Total
▼ Malaysia	720	251	751	129	1907
► AS (Alor Setar)	0	0	0	58	58
► JS (Johor Selatan)	89	49	33	0	171
► KL (Kuala Lumpur)	81	26	523	4	634
► LK (Lembah Kinta)	0	0	33	0	33
► MK (Melaka)	2	0	22	0	24
► MSC (Msc)	58	16	14	0	88
► NS (Negeri Sembilan)	11	9	13	0	33
► PJ (Petaling Jaya)	145	47	41	0	233
► PP (Pulau Pinang)	60	8	2	0	70
► SB (Selangor Barat)	58	23	25	0	106
► SP (Seberang Prai)	39	9	11	0	59
► ST (Selangor Timur)	157	57	26	0	240
► n/a (Not Available)	20	7	8	67	102

TX usage (Detailed View) – Tracks multiple process compliance parameters. It will confirm that a dispatch job was done; the quality of the repair and/or confirm the interface of pair swap details.

#	Completion Date	Work Type	Exch ID	Cab	E-side	D-side	Act Ref	Team ID	Operator	PSTN	Compliance?	Quality?	NIS Success?	No. of Signoffs
1	2011-12-05 15:18:00	Webstar	BAK	056	557	385	1-1940829358		Muhammad Faiz Bin Omar	0391021442	✓	⚠	✓	1
2	2011-12-05 15:21:00	Webstar	BAK	023	355	551	1-1939103938		Muhammad Faiz Bin Omar	0391016322	✓	⚠	✓	1
3	2011-09-10 02:05:00	iCare	BAK	043	133	583	1-L1JDWP		Zulkifli Bin Mohd Saad	0391016968	✓	✓	✓	1
4	2012-01-17 11:47:00	Webstar	BAK	103	264	622	1-2319054381		Muhammad Faiz Bin Omar	0391003832	✓	⚠	✓	1
5	2012-01-15 12:03:00	Webstar	BAK	021	247	535	1-2320642638		Muhammad Faiz Bin Omar	0391001954	✓	⚠	✗	2
6	2012-01-15 11:20:00	Webstar	BAK	007	126	115	1-2322852104		Muhammad Faiz Bin Omar	0391003119	✓	⚠	✗	1
7	2012-01-17 12:45:00	Webstar	BAK	099	419	581	1-2322905137		Muhammad Faiz Bin Omar	0391013033	✓	⚠	✓	1
8	2012-01-17 17:29:00	Webstar	BAK	012	104	341	1-2333943584		Muhammad Faiz Bin Omar	0391005496	✓	⚠	✓	1
9	2012-01-21 15:06:00	Webstar	BAK	026	14	183	1-2344461453		Muhammad Faiz Bin Omar	0391022207	✓	⚠	✓	1
10	2012-01-19 10:48:00	Webstar	BAK	056	117	551	1-2344551124		Telecom Malaysia Store	0391017002	✓	✗	✓	1

A Test Browser – tests done in the field can be viewed instantaneously.



Date Time▼	Region	Exch	Side	Cab/MDF	Cable	Vert	Pair	Service ID	Instrument	Serial	Operator	Sequence	V (A-B)	Status
2012-02-02 22:41:29	PJ	KLJ	E	043	C	000	106	0378030910	TX320	2040175	Tukimin Bin	104416996	-0.06	PSTN
2012-02-02 22:39:46	PJ	KLJ	E	040	C	000	122	0378031103	TX320	2040175	Tukimin Bin	104416994	-0.06	PSTN
2012-02-02 22:01:15	KL	STL	D	902	C	000	16	0340400381	TX320	2040214	Basiron Bin	104416992	0.04	PSTN
2012-02-02 21:58:35	KL	STL	E	902	C	000	1074	0340400381	TX320	2040214	Basiron Bin	104416990	0.02	PSTN
2012-02-02 21:55:01	KL	STL	D	909	C	000	952	0340445088	TX320	2040214	Basiron Bin	104416988	0.02	PSTN
2012-02-02 21:52:27	KL	STL	E	909	C	000	34	0340445088	TX320	2040214	Basiron Bin	104416986	0.02	PSTN
2012-02-02 19:48:57	SP	SJA	D	002	F	000	428	-	TX320B	2030109	Saravanan S/	104416958	-0.01	SPARE/BB-OK

TECHNICAL DETAILS

The TELSYS CRU test heads support the following cable testing:

Description	Test Type	Notes
DC tests		
	Voltage	[A-B, A-E, B-E]
	Loop resistance	[A-B]
	Loop current	[A-B]
	Insulation resistance	[A-B, A-E, B-E]
	Capacitance	[A-B, A-E, B-E]
Voice frequency (VF) tests		
	AC voltage	[A-B, A-E, B-E]
	Line insertion loss	(300Hz to 3,400Hz)
	Noise measurements	3 kHz flat & Psophometric
	Power spectral density (PSD)	
	Propagation delay	
	Echo level and delay	
	Return loss	
Broadband tests (with broadband terminating unit)		
	Line insertion loss	(300Hz to 2.2MHz)
	Noise measurement	
	Flat, D,E, and F filters	
	Power spectral density (PSD)	
	xDSL noise margin and bit rate	

TELSYS supports various field test equipment instruments:

- Teletech TX320/TX320B/TX325/TX380
- Radiodetection RD6000 CTS

TX325 Cable Tests

Description	Range	Resolution	Notes
Resistance (A-B, A-E, B-E)	1 – 100MΩ	0.1MΩ	3Vdc/200kΩ source
Capacitance (A-B, A-E, B-E)	1 – 2000nF	1nF	
DC Line Voltage (A-B, A-E, B-E)	1 – 400V	0.1V	
AC Line Voltage (A-B, A-E, B-E)	0 – 250Vrms	0.01V	
Current (A-B)	0 – 100mA	0.1mA	500Ω termination
VF Noise (A-B) 300Hz to 3kHz	-70 to -20dBm	0.1dB	600Ω terminating impedance
Broadband Noise (A-B) 26kHz to 138kHz	-70 to -20dBm	0.1dB	100Ω terminating impedance
Broadband Noise (A-B) 138kHz to 1.1MHz	-70 to -20dBm	0.1dB	100Ω terminating impedance

Teletech is an established, Australian company supplying a unique range of telephone cable test instruments to the global market. Our products are acclaimed for their accuracy, dependability and the delivery of end-user costs benefits

Teletech's products include a range of single-operator pair identifiers with remote control of the line termination. These are the Loop-a-Line range consisting of TX905, TX910, TX915, and TX935.

The Teletech instrument range includes cable testers to check the quality of lines for various broadband services including ADSL, HDSL, ISDN and SHDSL. These instruments are our TX120A and TX125 and a Multi-Line Identifier TX180.

Teletech makes systems such as TELSYS. These have electronic equipment housed in a central office telephone exchange and operate with several field instruments including our TX320, TX320B, TX325 and TX380.

Teletech

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