

**SYSCO**



partenze / departures

LUNEDÌ 9 OTTOBRE 9:39

destinazione	ind. suss.	class.	orario	bin.	ora effett.	informaz.
•• FARA SABINA		REG	9:41	5	9:56	
•• F. AEROPORTO		REG	9:51	8		
•• C. VECCHIA		REG	9:54	4		
•• FARA SABINA		REG	9:56	5		
•• F. AEROPORTO		REG	10:06	8		
•• ROMA TERMINI		REG	10:06	1		
•• FARA SABINA		REG	10:11	5		
•• ROMA TERMINI		<b>IE</b>	10:14	1		
•• TORINO P. N.		<b>IE</b>	10:18	4		
•• F. AEROPORTO		REG	10:21	8		

informazioni supplementari

arrivi / arrivals

provenienza	ind. suss.	class.	orario	bin.	ora effett.	informaz.
•• F. AEROPORTO		REG	9:39	5	9:54	
•• ORTE		REG	9:49	8		
•• ROMA TERMINI		REG	9:53	4		
•• F. AEROPORTO		REG	9:54	5		
•• FARA SABINA		REG	10:04	8		
•• C. VECCHIA		REG	10:05	1		
•• F. AEROPORTO		REG	10:09	5		
•• LA SPEZIA C.		<b>IE</b>	10:12	1		
•• NAPOLI C. LE		<b>IE</b>	10:16	4		
•• FARA SABINA		REG	10:19	8		

informazioni supplementari

09-10-2000	ARRIVI				10:12
PROVENIENZA	CAT	ORARIO	ORA EFF.	DIN	
F. AEROPORTO	REG	10:09	10:19	5	
LA SPEZIA C.	<b>IE</b>	10:12		1	
NAPOLI C. LE	<b>IE</b>	10:16		4	
FARA SABINA	REG	10:19		8	
ROMA TERMINI	<b>IE</b>	10:23		4	
F. AEROPORTO	REG	10:24		5	
F. AEROPORTO	REG	10:34		8	
C. VECCHIA	REG	10:35		1	

\*\*\* RIGA INFORMATIVA PER \*\*\*  
\*\*\* MONITOR ARRIVI \*\*\*

SYSCO SYSTEMS

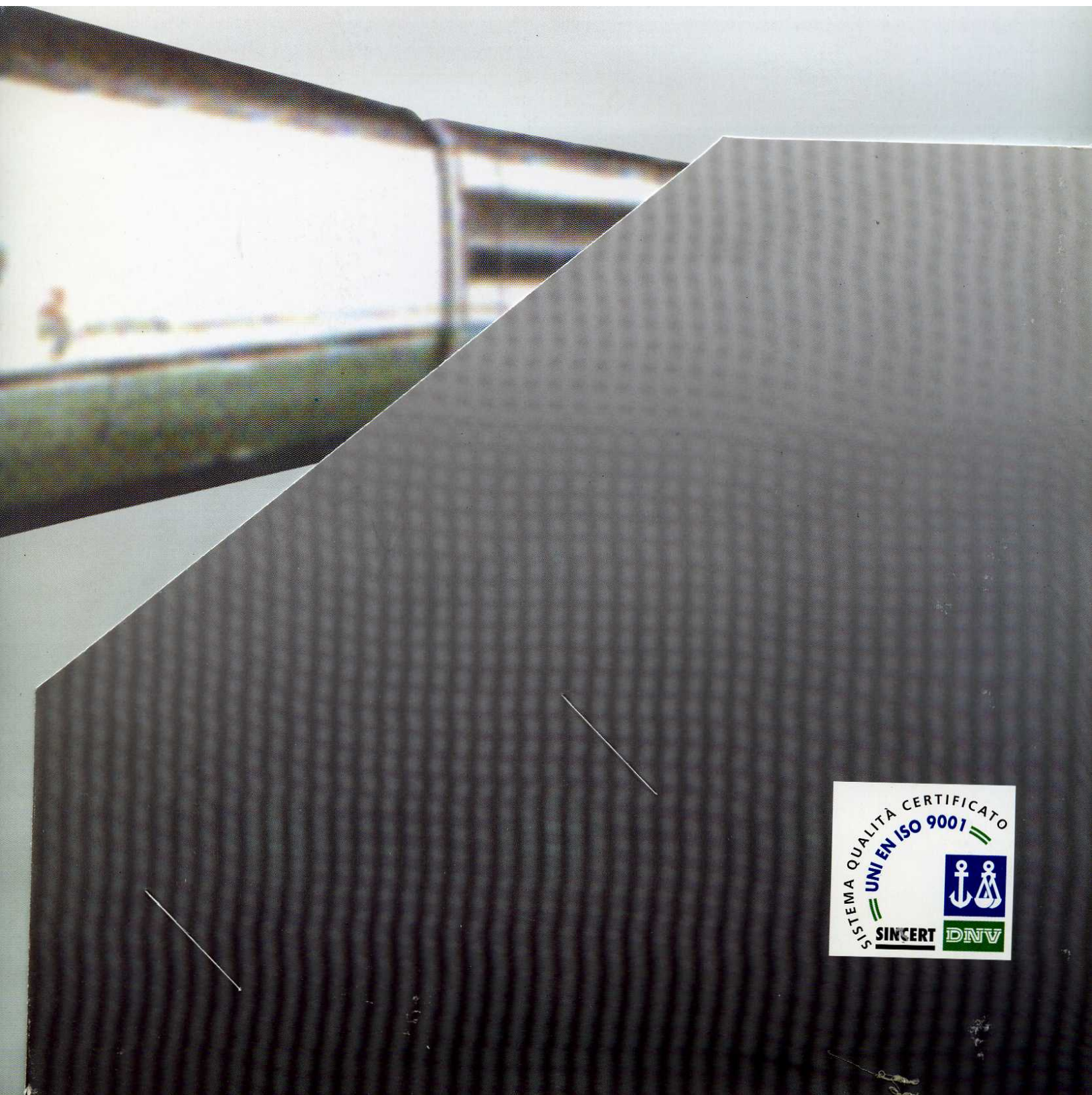
*Il progetto**L'hardware innovativo**La personalizzazione del software**La realizzazione chiavi in mano**L'assistenza sistemistica e  
la manutenzione nel ciclo di vita.*

BIN. 1	destinazione
	ROMA TERMINI
	class.
	orario
	10:44 E5*
	ora effett.
	informazioni sussidiarie

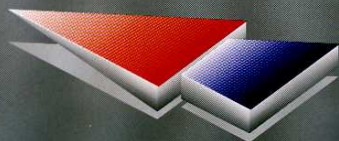
SYSCO SYSTEMS

*Sistemi e Apparati di Automazione di Impianti*







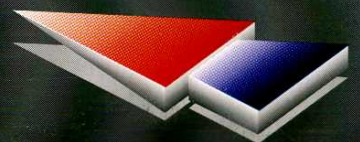


**SEDE LEGALE:**  
Via Monte Bianco n. 75 - 00141 ROMA

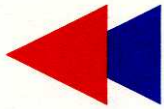
**DIREZIONE:**  
Via Monti Sibillini n. 10  
00141 ROMA  
Tel: 06/8188125  
Fax: 06/8186006

**STABILIMENTO:**  
Via Di Vannina n. 78  
00156 ROMA  
Tel: 06/41206021-06/4103724  
Fax: 06/4100510

**UFFICI OPERATIVI LAVORI:**  
Milano, Bologna, Cosenza, Cagliari, Palermo, Roma







# SYSCO



**UFFICIO DI ROMA:**  
VIA DEI MONTI SIBILLINI, 10 - 00141 ROMA  
Tel. 06.8188125, 06.8184188 - 06.8186006 (FAX)

**STABILIMENTO:** VIA TRENTO, 5c - 00040 POMEZIA  
Tel. 06.9122488 (FAX)

**SEDE LEGALE - VIA MONTE BIANCO, 75 00141 ROMA**

**INTERNET URL:** <http://www.tin.it/syscoinfo>  
**ELECTRONIC-MAIL:** [sysco@tin.it](mailto:sysco@tin.it)

## PRESENTAZIONE DELLA SYSCO

La Sysco S.r.l. é una società d'integrazione di sistema a capitale privato che, dal 1978 svolge attività di progettazione, sviluppo, produzione, installazione ed assistenza nei seguenti settori di mercato:

- informazioni al pubblico (visive sonore).
- automazione d'impianto (teleprenotazione, emissione biglietti, sistemi cronografici di rilevazione d'eventi)
- elaborazione e trasmissioni dati (sistemi gestionali, reti LAN)

La società svolge, inoltre, attività di realizzazione e manutenzione di impianti tecnologici:

- reti di rilevazione di eventi
- diffusione sonora
- illuminazione ed impianti elettrici BT
- telesorveglianza, antintrusione e rilevazione incendio
- impianti tecnologici ferroviari (TE, IS, IFM, TT)
- impianti di telecomunicazioni e trasmissione dati

Il fatturato del 1999 é stato di 10,5 miliardi. La previsione di fatturato per il 2000 è di 14 miliardi.

La connotazione caratterizzante della Sysco é "**L'orientamento al Cliente**", ovvero la particolare attenzione posta nell'identificare e comprendere le esigenze del cliente, nel proporre tempestivamente soluzioni sistemiche personalizzate, nel supportare con continuità i propri prodotti per tutto il ciclo di vita.

La Sysco possiede la **certificazione del sistema di assicurazione della qualità ISO 9001** ed é costantemente impegnata nel miglioramento dei prodotti e dei processi impiegati nella realizzazione dei sistemi d'informazione al pubblico, che comprendono le seguenti componenti a tecnologia avanzata :

- Centrale di gestione basata su Personal Computer e su un software applicativo di sviluppo originale Sysco.
- Apparecchiature periferiche di visualizzazione di progettazione originale Sysco basate su tecnologie tradizionali a rulli di palette o matrici bistabili e/o su tecnologie innovative a "Vacuum Fluorescent Display", LED, LCD e su monitor grafici a colori a tubi a raggi catodici e al plasma.
- Complessi per gli Annunci Sonori Automatici (ASA) e per le Interrogazioni Telefoniche Automatiche (ITA), basati su Personal Computer e su pacchetti di software applicativo di sviluppo originale Sysco:

Tra i principali clienti della Sysco vi sono le Ferrovie dello Stato, L' Azienda Trasporti Milanese, l'ENEL, la Sirti ed altre maggiori aziende di pubblica utilità.

La Sysco é iscritta all'ANC nelle seguenti categorie con gli importi a fianco indicati

Cat. Importo (milioni)		Cat. Importo (milioni)	
G1	1500	S1	750
G11	1500	S9	750
		S19	6000





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# DET NORSKE VERITAS

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## QUALITY SYSTEM CERTIFICATE

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Certificate No. **SQ 1313-IT**

*Si attesta che / This is to certify that*

*IL SISTEMA QUALITA' DI / THE QUALITY SYSTEM OF*

**SYSCO S.r.l.**

**Via Monti Sibillini, 10 - 00141 Roma (RM) - Italy**

**Via Trento, 5c - 00040 Pomezia (RM) - Italy**

*E' CONFORME AI REQUISITI DELLA NORMATIVA  
HAS BEEN FOUND TO CONFORM TO THE QUALITY SYSTEM STANDARD*

**UNI EN ISO 9001; 1994 (ISO 9001; 1994)**

*Questa certificazione è valida per il seguente campo applicativo:  
This certificate is valid for the following product or service ranges:*

**Progettazione, realizzazione e manutenzione di apparati e sistemi elettronici ed elettromeccanici. Produzione di dispositivi e apparecchiature periferiche per sistemi di informazione al pubblico**

*Design, manufacture and maintenance of electronic and electromechanical equipment and systems.  
Production of peripheral devices and equipment for public information systems*

*Luogo e data  
Place and date*  
**Agrate Brianza, (MI) 1999-11-25**

*Data Prima Emissione:  
First Issue Date:*  
**1996-11-26**

*per l'Organismo di Certificazione  
for the Accredited Unit*  
**Det Norske Veritas Italia S.r.l.**

**Lead Auditor: FABRIZIO EFRATI**

**Settore EA: 19**

**SINCERT**

Registrazione N. 003A

  
**Leonardo Omodeo Zorini  
Management Representative**



## SISTEMI DI INFORMAZIONE AL PUBBLICO REALIZZATI DALLA SYSCO (Ottobre 2000)

STAZIONI	ANNO	PRODOTTI
1. NAPOLI MERGELLINA	1989	Flaps+VFD+Monitors
2. CIVITAVECCHIA	1989	Flaps+VFD+Monitors
3. ROMA OSTIENSE	1990	Flaps+VFD+Monitors+Asa
4. ORTE	1990	Flaps+VFD+Monitors
5. LAMEZIA TERME C.LE	1991	Flaps+VFD+Monitors
6. MESSINA	1992	Flaps+VFD+Monitors+Asa
7. REGGIO CALABRIA C.LE E LIDO	1994	Flaps+VFD+Monitors+Asa
8. FOGGIA	1994	Flaps+Monitors+Asa
9. CHECK IN ALITALIA (Roma Termini)	1994	Monitors+Asa
10. ROMA TRASTEVERE	1995	Flaps+VFD+Monitors
11. GOLFO ARANCI	1995	Flaps+Monitors+Asa
12. MACOMER	1995	Flaps+Monitors+Asa
13. ORISTANO	1995	Flaps+Monitors+Asa
14. SASSARI	1996	Flaps+Monitors+Asa
15. CHILIVANI	1996	Flaps+Monitors+Asa
16. DPV ROMA TIBURTINA	1996	Monitors
17. ROMA (VILLA BONELLI)	1996	Flaps
18. COLLEFERRO	1996	Monitors
19. VILLA S. GIOVANNI	1996	Flaps+VFD+Monitors+LED+Asa
20. ASTI	1996	Flaps
21. DPV ROMA TERMINI	1996	Monitors
22. ROMA SMISTAMENTO	1997	Asa
23. ROMA NOMENTANO	1997	Asa
24. SIENA	1997	Flaps+Monitors
25. MONFALCONE	1997	Flaps+Monitors
26. BRACCIANO	1997	Flaps+Asa
27. FURBARA	1997	Flaps+Asa
28. TRENTO	1998	Flaps+Monitors+Asa
29. VICENZA	1995	Flaps+Monitors+Asa
30. SIRACUSA	1998	Flaps+VFD+Monitors
31. CAGLIARI AEROPORTO (Area Bagagli)	1998	Flaps+Monitors
32. GENOVA BRIGNOLE	1998	Flaps+Monitors
33. CASALE MONFERRATO	1998	Monitors
34. FIUMICINO AEROPORTO	1998	Flaps+Monitors+Asa
35. CHIUSI	1998	Flaps+Monitors
36. AREZZO	1998	Flaps+Monitors

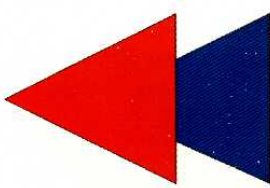




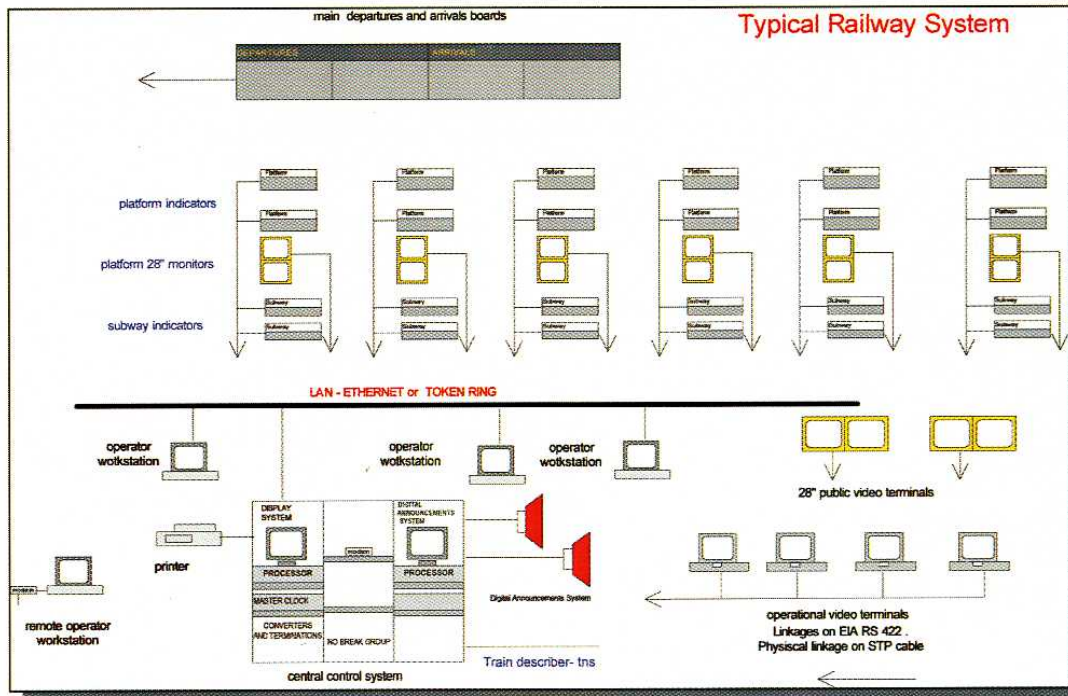
37.	S. GIOVANNI VALDARNO		1998	Monitors
38.	ROMA TERMINI		1999	VFD
39.	SALERNO		1999	Flaps+VFD+Monitors
40.	CASERTA		1999	Flaps+VFD+Monitors
41.	VERCELLI		1999	Flaps+VFD+Monitors
42.	CASSINO		1999	Flaps+Monitors
43.	MODENA		1999	Flaps+Monitors
44.	REGGIO EMILIA		1999	Flaps+Monitors
45.	SANTHIA'		1999	Flaps+Monitors
46.	ANZIO - NETTUNO - MARECHIARO		1999	Flaps+Monitors
47.	MESSINA M.MA		1999	VFD+Monitors+LED+Asa
48.	MESSINA C.LE	(Potenziamento)	1999	Monitor+LED
49.	CIVITAVECCHIA	(Rinnovo)	2000	Flaps+VFD+Monitors
50.	PIEDIMONTE		2000	Diffusione Sonora
51.	PIACENZA		2000	Flaps+Monitors
52.	LODI	(In Corso)	2000	Flaps+Monitors
53.	PALERMO		2000	Flaps+Monitors+LED
54.	BOLOGNA C.LE		2000	Flaps+Monitors+LED
55.	ROMA OSTIENSE	(In Corso)	2000	Flaps+VFD+Monitors
56.	NAPOLI C.LE	(In corso)	2000	Flaps+VFD+ Monitor+Asa
57.	VILLA S. GIOVANNI		2000	Flaps+VFD+Monitors+LED+Asa
58.	REGGIO CALABRIA	(In Corso)	2000	Flaps+VFD+Monitors+LED+Asa
59.	N. 17 STAZIONI ATM	(In corso)	2000	Monitor plasma+LED

**ASA = Annunci Sonori Automatici**





# SYSCO



## System and Software

### The Passenger Information System

#### System's architecture

In the design of Public Information Systems for Transport Terminals, in particular, Railway Stations, SYSCO Srl, offers a technologically advanced set of solutions to the market requirements through a proprietary System for information management and distribution. The System completely satisfies the outline and detailed specifications of the Italian state railways for such Systems. These Systems use processing units and display terminals together with digital audio information to inform the passengers on the Terminal's traffic.

All the processing units are PC IBM compatible units.

#### Components

The basic components of the central information System are:

- Master server
- Operator's workstation (slave)
- Digital announcements subsystem (ASA)

All the processing units are linked through an Ethernet Local Area Network (LAN) on which all the data exchanges are performed. The standards and

modularity of the LAN approach allows, besides a high transmission speed and safety in the data transmission, to share its resources between other subsystems in the Terminal, which can link and communicate independently from the information system's proceedings.

The main features of this System are:

- operational functions distribution between the network units
- immediate upgrade of Passenger dedicated information
- modularity and expandability of this System
- standard hardware utilisation

#### Master unit

This Control Unit is the main control centre (Master) for "Stand Alone" information Systems, which are dedicated to managing only one Transport Terminal (a Station or an Airport). Other Hardware and Software packages described in other documents, are designed to handle multiple Terminals.

This unit is engineered to be housed in a 19" Standard rack which contains the processor and the hardware communication and field interfaces necessary to process information and communicate with all the dedicated peripherals. The processor runs the operating system and application programs which manage the system's functionality



and diagnostics. The system's management is performed from the central unit and operator's workstations. The Central Unit and the Operator's workstations (and optionally the peripheral units) are linked on a LAN (Local Area Network) which for all standard applications is Ethernet based. Through it all the data exchanges between workstations and central unit are performed as database access and input of non-scheduled data.

In medium to small systems the linkage between Central unit and periphery is performed via an asynchronous serial datalink as STP. In the Central Unit the main traffic database with the scheduler information for the Terminal (Station) is stored with all the departing and arriving movements according to the current timetable. On this unit disk are stored all the application programs and databases necessary to perform all the display functions, drive of sub-systems as ASA and run all the diagnostic programs for the periphery. A backup no-break group is recommended for the continuous operation of the Central control Unit and to protect it from spurious high voltage transients.

#### ***Operator's workstation slave units***

This unit is the Operator's interface (Slave) to the system. The operator performs on this unit all the database files upgrading, inputs all the non-scheduled events of interest to the information dissemination and monitors the correct performance of all the system's dedicated peripherals.

The operator's workstations are linked to the central control Unit by an Ethernet LAN for a continuous high speed safe data exchange

#### **Application SOFTWARE**

The application software package which manages the whole system, is available for two different environments: Operating Systems: M.S. D.O.S. and Windows N.T. It's structured in a modular way, allowing a complete control over the system and timely and precise diagnostics on the system peripherals. The package lends itself to an extreme ease of integration and control of new types of displays and functions to satisfy particular information needs in the Transport terminal. The main feature of the SYSCO control software is to be completely configurable by number, type and performance of the terminals, both visual and audio, so as to be able to satisfy the Terminal's needs. This system allows for the mixing of various display technologies without need to modify the application software code

The application software to communicate with the specialised peripherals avails itself of resident drivers to handle as TSR the protocols installed in the central system. Peripherals are both display units and Local Information Systems

This software package will allow to manage the information systems using the Windows '95/98 and NT operating systems from early 1999. The man-machine interaction will improve dramatically with a universally understood graphic interface user friendly to the operators. The utilisation of standard programming

interfaces will permit the easy integration of the system in communication networks and with hosts with uniformity of data exchange procedures.

#### **Automated Sound Announcements (A.S.A.)**

The Automated Sound Announcements systems of SYSCO Srl are the outcome of several years' field experience and successful deliveries to the Italian State Railways, integrating the Audio Announcements into the Passenger Terminal Information System.

The system offers an advanced set of features among which we want to underline its reliability, ease of operation, industry standard interfacing and optimal announcements broadcast. It is designed to transmit audio information messages on a scheduled basis or on operator's command.

The audio output is compatible with the majority of Public address broadcast systems.

It stores the digitised messages segments database and the composition and scheduling programs. The messages creation and broadcast are commanded by the System Central Processor through dedicated application routines.

#### ***Functional features***

The system is based on a Personal Computer equipped with the following components:

- a custom audio interface card designed by SYSCO Srl with PCM 16 bit D/A conversion,
- a hard disk to store the application program and the digitised database, with all the words and phrases needed to build the Terminal's vocabulary,
- a drive for 3 1/2" floppies for loading and backup
- an Ethernet LAN card, to interface it to the MASTER computer,
- a standard 14" video monitor to verify the messages composition in maintenance.
- an extended keyboard.

The system is interfaced to the main station control system from which it receives the fields and type of message to broadcast. The operations are based on a schedule, linked to the main timetable for arrivals, departures, change of platform, delay, general utility messages, etc.

On output the system is interfaced to the station's PA system on an analog audio plug with power output level easy settable under software control.

#### **Custom applications**

Sysco delivered replacement and upgrading software and processors for most of minicomputer and PC based systems on the market.

All these new upgrades save costly investments on still operative electromechanical displays with up-to-date software and new display networks.



# **SYSCO**

#### Headquarters

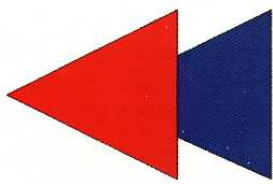
Sysco Srl  
Via dei Monti Sibillini 10 - 00141 Roma - Italy  
Tel +39 06 8188125 Fax +39 06 8186006  
email [sysco@tin.it](mailto:sysco@tin.it)  
URL: <http://web.tin.it/syscoinfo>

#### Plant

Sysco Srl  
Via Trento 5/C - 00040 Pomezia - Italy  
Legal Address:  
Via Monte Bianco, 75 - 00141 Roma - Italy

**ISO 9001 Certified**





# SYSCO



## Split-Flap Modules

### Sysco Split-Flap Modules for Information Display

In Information Display Systems for Public Transport Terminals, the displayed information must be presented to the Passengers in a clear and unambiguous way to assist them in finding quickly their way without generating any doubt on the interpretation and correctness of the display.

Thus legibility is the main issue for large display boards which to-day comprise both electromechanical and electronic display means.

The target is to present data with :

- high contrast
- wide legibility angle
- familiar fonts
- good changeover speed

The split-flap principle is to present variable inscriptions printed on a high contrast background flap. A full inscription is made of two flaps and the flap unit stores the printed flaps around a central drum, presenting, after a coded selection, the required inscription for public viewing..

A set of Split-Flap units together with their control electronics and framing mechanics can be organised into lines of information, to be termed boards, or as self contained units specific to a place usually called indicators as platform or gate or baggage indicator. From the information displaying capability point of view, there are two types of units: alphanumeric, which usually store a complete uppercase alphabet and units numbers set and a

few punctuation marks, and long module units which can be printed with any kind of inscription on the allotted surface. These can present Multi-letter destinations in discrete, as Roman, or continuous fonts as Arabic, Farsi, Urdu etc. and colour graphics as Airline or Train Logos.

The displaying capability of these media is given by the number of flaps, 40 to 60 per unit, the characters height, 100 , 60, 35 mm and their width, defined in multiples ( modules) of the alphanumeric unit. Their advantages are a long service life, unsurpassed legibility, no power consumption when idle, infrequent maintenance interventions.

### The Split-flap units RP-SYSCO

Sysco introduced their Split-Flap units with a wide range of display combinations starting from their basic set of display units manufactured with three character heights, referred to the uppercase A, and various widths which can be combined in a modular way. The difference between SYSCO Split-Flap units and the other manufacturers similar units stays in the on-unit electronics which take care of the positioning, diagnostics and communications with the main display controller. This electronic controller, RISC based, is the most advanced between similar products and is the only one to be microprocessor drive.

The SYSCO Split-Flap unit is made of :

1. a 12 V cc polarised induction stepper motor which, through a geared set of wheels, sets the forward rotation of cam on which are located two , for the alphanumeric to six sprockets on which the flaps are snapped in.
2. the unit controller, a microprocessor which supervises to



- the communications with the board controller,
- the positioning of the flaps from the information read from the position encoder

3. the encoder which utilises contact-less infrared optical sensors to read the position changes commanded by the stepper motor

#### Reliability

The reliability of the RP-SYSCO split-flap unit is thus guaranteed by the total lack of electromechanical contacts and relays on the unit and by the totally solid state integration of the control and positioning sub assemblies. All the units belonging to the same type are interchangeable regardless of the display on which they are installed.

The SYSCO Split-Flap units are guaranteed for 1.000.000 operations in incremental mode, that is, one million writing operations. This datum is field proven and is supported by SYSCO's field experience and tests performed according the requirements of major State railways.

#### Positioning and feedback

Two dust proof sealed polycarbonate shells contain the optically coded wheel made of nylon and set on an inox steel axle connected to the gear train.

The encoder card is based on a RISC microprocessor chip that actuates the position commands received from the board controller through an RS 485 serial link.. The card has two PCBs : one that houses all the electronics and power supply components and the second that supports the optical LEDs .

#### Flaps sets.

The flaps are of different sizes for every type of SYSCO Split-Flap units.

In the basic version they are composed by 40 flaps snapped in two or more sprocket wheels, made of auto-lubricant plastic material, centred on a drive axle.

The axles are made of plastic and aluminium to allow for rigidity and alignment even on long module units..

Those flaps sub assemblies ( including sprocket) which have only two connection points are mounted on plastic axles, , while the ones with more fixing points are connected to an hexagonal aluminium axle.

#### Flaps plastic laminate features

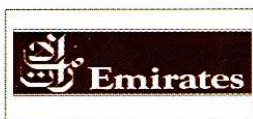
All flaps are made of a plastic laminate type WOPADUR Info 9010", which grants a high resistance to warping at high temperatures.

#### Legibility

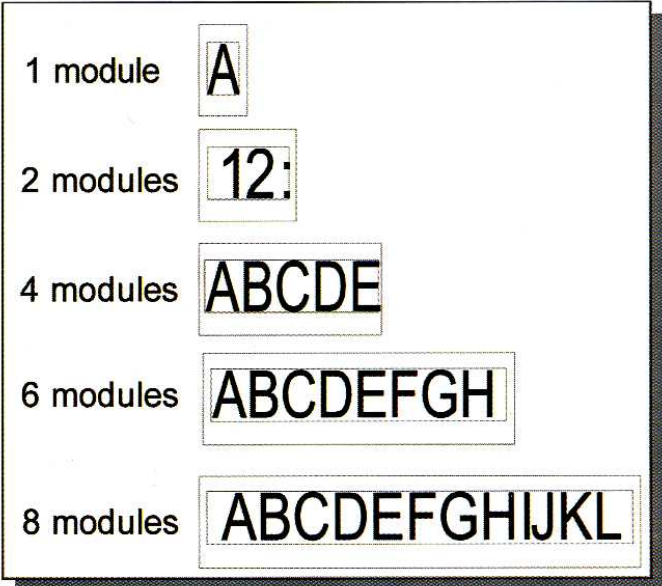
The inscriptions are silk-screen printed on the flaps using special vinilic paints characterised to be anti reflections, fireproof with stability 10 for light and saline environment. They can be supplied to comply with RAL or PANTONE colour charts. The basic font is Helvetica Medium with some compression on wide characters as W and M and various heights according to the particular exigencies. The colours usually employed are white or yellow, while LOGOS and Pictograms can be reproduced according to the Customer supplied artwork. On some particular units, as Remarks, the inscriptions can be printed on half flap in half height characters, with an increase in information content accompanied by a reduction in legibility distance.

With the standard Helvetica font , and white on black print, we have a maximum theoretical legibility of 19, 36 e 65 meters respectively for RP-35, RP-60 e RP-100 flap units. The total maximum angle at which the inscriptions are still readable is of 140°

### Colour Airline Logos samples



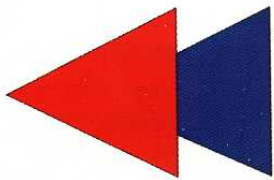
### Sysco's Split-flap units modularity



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 email sysco@tin.it  
 URL: <http://web.tin.it/syscoinfo>

**Plant**  
 Sysco Srl  
 Via Trento 5/C - 00040 Pomezia - Italy  
 Legal Address:  
 Via Monte Bianco, 75 - 00141 Roma - Italy





# SYSCO

partenze / departures							arrivi / arrivals						
destinazione	ind. ass.	class.	orario	bin.	ora eff.	informaz.	provenienza	ind. ass.	class.	orario	bin.	ora eff.	informaz.
** FARA SABINA		REG	9 41	5	9 58		** F. AEROPORTO		REG	9 39	5	9 54	
** F. AEROPORTO		REG	9 51	8			** ORTE		REG	9 49	8		
** C. VECCHIA		REG	9 54	4			** ROMA TERMINI		REG	9 53	4		
** FARA SABINA		REG	9 58	5			** F. AEROPORTO		REG	9 54	5		
** F. AEROPORTO		REG	10 06	8			** FARA SABINA		REG	10 04	8		
** ROMA TERMINI		REG	10 06	1			** C. VECCHIA		REG	10 05	1		
** FARA SABINA		REG	10 11	5			** F. AEROPORTO		REG	10 09	5		
** ROMA TERMINI		REG	10 14	1			** LA SPEZIA C.		REG	10 12	1		
** TORINO P. N.		REG	10 18	4			** NAPOLI C. LE		REG	10 16	4		
** F. AEROPORTO		REG	10 21	8			** FARA SABINA		REG	10 19	8		

## Split-Flap Display Boards

### Sysco Display Boards for Passenger Information

#### Functional Features

The main Departures/Arrivals boards are the fundamental components of the Transport Terminal's Public Information System and their configuration is designed to give information in scheduler form about Departing and Arriving Trains, Aircraft, Buses etc.

The differentiation between Departures and Arrivals is given by the different text on the main headings and by the different arrangement of some fields (gate, baggage etc.), while other fields may have the same format but with different meaning (origin-destination) in both boards..

A Split-Flap display board has the following features:

- It grants unambiguously clear high contrast written information readable between 1 and 18 meters in the 35 mm characters size, 3 and 30 meters in the 60 mm version , or between 5 and 65 meters in the 100 mm option. The printed information grants a reading angle of 140°, thus enabling it to be installed in medium to large Terminals with large halls.
- Dynamic information is provided by Sysco split-flap modules with 40 or 60 flaps per module.
- It uses continuous and familiar characters fonts and colors to enhance contrast and it can provide special full colour logos and symbols.
- Information can be written on two lines of half size characters on some wide module split-flap units.
- Its readability is improved by high ambient light,

while the normal inside illumination is enough for an optimal intelligibility.

#### Fixed headings

In Railway boards the heading is " Departures" (res. Arrivals) printed with white characters 150 mm high. On the right of this inscription, other inscriptions in a smaller Italic font can repeat the word departures (Arrivals) in other languages. The field headings are centered over the corresponding fields and are printed on two lines with 50 mm characters.

#### Dynamic split-flap information lines

As an application example this is the configuration of the 5 lines board illustrated above:

Field	Quantity	Type
Destination / Origin	12 s-flap unit RP 60	M1
Scheduled time	2 s-flap unit RP 60	M2 +
	1 s-flap unit RP 60	2xM1
Type	1 s-flap unit RP 60	M4
Remarks	1 s-flap unit RP 60	M6
Delay	1 s-flap unit RP 60	M4
Platform	1 s-flap unit RP 60	M2

#### The Display Board structure

SYSCO has a unique approach to the board's design which increases it's reliability and helps weight saving with fresh ideas on the type and location of the internal board components satisfying these requirements:

- provide a rigid frame to house the Split-Flap units
- connect internally the Split-Flap units to their controllers
- connect these controllers to the processing System



- satisfy the electrical safety regulations
- satisfy the protection level standards for displays to be placed in severe environment

We can divide the board into these categories of equipment :

*The mechanical frame*

From a physical point of view the board is made of the following parts: outside frame, made of zinc treated iron sheet 25/10 and polyester painted usually in matt black. Internal frame to support the Split-Flaps and their electronics, made of 6060 aluminium , with two sides and as many shelves as the number of lines plus one, to house the power supplies and termination strips. the supports for the information lines backplane wiring.

*The information lines*

The set of split flaps, their line controllers and backplane wiring constitute the information line. Its length is not limited by the backplane addresses availability.

*The internal power wiring*

The internal power wiring is divided into three parts:

- Service circuits
- Split-Flap power and communications
- Line Electronic control cards

*Service circuits*

The connection to mains is performed through a termination strip which connects the mains to the line power supplies at 12V DC. The mains supply is protected by a magneto thermal switch 15 A with PI 6 KA which also protects an outlet at 220 V 16 A.

*Split-Flap power and communications*

The feed and control circuits for the Split-Flap units are divided into:

- low voltage circuits, made of as many 220VAC-12VDC 12 A ( Switching power supply 150 W ) ,

- protected by a magneto thermal switch 15A 6KA.
- a bus matrix of one bus every two lines which feeds both the 12V DC and the RS 485 levels to all the Split-Flap units

*Line Electronic control cards*

The information display control is task of one controller CR-SYSCO every two lines . They perform all the writing, drive and control functions on the boards.

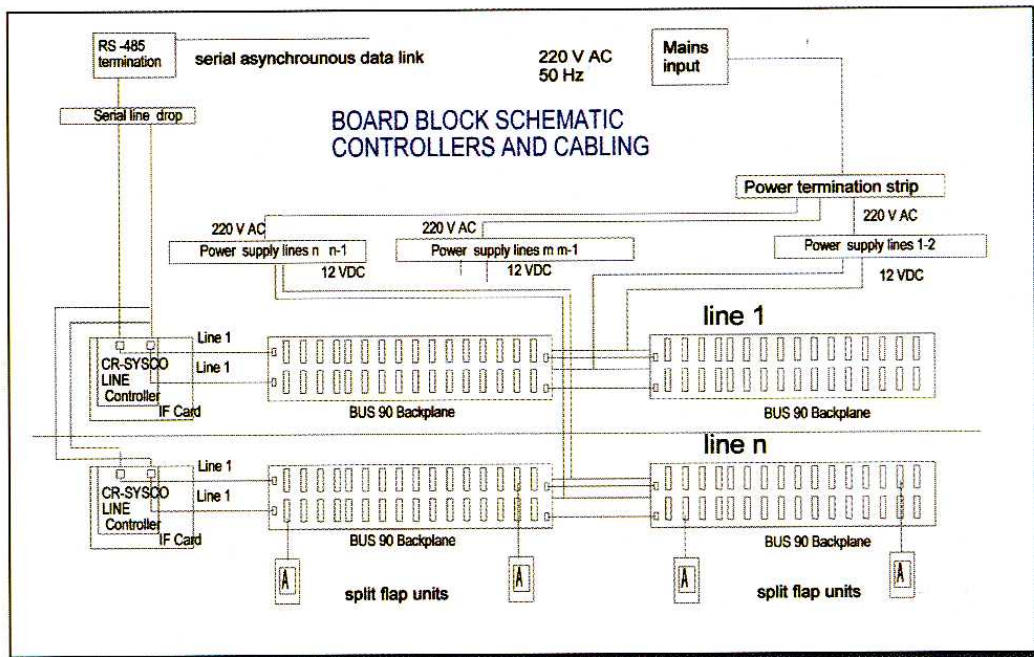
An interface card IF and its related cables connect these cards to the central computer ( RS 422) to which is drop terminated on a line termination strip D and to the Split-Flap units on RS 485 multidrop on the BUS 90 backplane cards . The BUS 90 backplane cards card is a passive backplane card which interfaces the controller to the individual Split-Flap units with a short cable which in some cases can be dispensed of.

*Options*

The main options are

- Up to 20 lines
- Clock on the main heading (Dial or VFD)
- Anti-vandalism front protection
- Illumination
- Anti condensation heating
- 1 or 2 free format lines
- Special weatherproof enclosures

Voltage	220 V AC +/- 10%
Frequency	47 - 63 Hz
Temperature	-20° +60° C
Interface	RS - 422 - Ethernet optional
Speed	1200 a 9600 Baud
Format	8 bit Data, 1 bit Stop, Even parity
Protocol	Multipoint
Safety standard	IEC 950



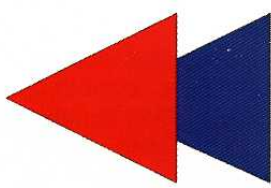
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**ISO 9001 Certified**

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# SYSCO



## Platform Indicators

### Sysco Platform Indicators for Passenger Information

The purpose of platform indicators is to provide to Passengers clearly readable travel information on platforms alongside tracks . They can be built as single or double face units with standard configurations for almost all the major railways. They are provided with adequate illumination that is turned on at information posting. The number of lines depends on the complexity of the information to be displayed : hence two basic versions with two or three lines.

The dynamic information is provided by *split-flap units* and they are assembled according to the necessity of displaying variable alphanumeric information, with single units, or fixed pre-set information, as train logos or complementary information, on wide modules. These latter will be defined with the Customer and their maintenance during the system's life cycle will be performed with the supply of replacement flaps. Our description will follow with a typical Railway indicator for outside installation: it's exemplary of all the family of indicators and the others are obtained with a constructional simplification of this complex design

#### Indicator's structure

The indicator's enclosure will be engineered as to withstand severe environmental conditions. Moreover the single face ones are designed as to allow for their coupling to assemble a double face ones. The platform indicators are supplied complete with the mounting brackets for pole, banner or ceiling mounting.

#### Platform indicator 2 lines double face

It's structured on two lines with different characters height and contents as follows:

Line 1				
FIELD	UNITS	TYPE	CH.	H mm
DESTINATION	12	ALPHANUM.	1	100
Line 2				
REMARKS	1	WIDE FLAP	6	60
TYPE	1	WIDE FLAP	4	60
HOURS	1	WIDE FLAP	2	60
MINUTES	2	ALPHANUM.	1	60
DELAY	1	WIDE FLAP	4	60

#### Mechanical frame

The mechanical frame design of an indicator for railways must comply with environment constrains which are summarised by the IP standards: usually the requirements are for IP 54 or IP 55 protection standards: The first digit of the standard denoting the ability of the display being sealed to dust ( 4 and 5 denoting the size of dust particles to be stopped) and the second number the resistance to vertically falling water (4) or pressure sprayed (5) water.

#### The standard mechanical frame

From a physical point of view the standard indicator is made of the following parts:

- Outside frame, made of zinc treated iron sheet 15-20/10 and polyester painted usually in matt black.
- Internal frame to support the Split-Flaps and their electronics, made of 6060 aluminium , with two sides and four shelves, the upper two to house the power supplies and termination strips and the others the supports



for the information lines backplane wiring.

### The weatherproof enclosure

The design allows for ventilation slits that are implemented with a special bending of the sheet so that the IP55 standard is obtained. The gasket frame on the front tempered glass panel is also specially designed to allow the falling water to flow along its sides downwards, thus avoiding the water to seep into the frame.

Two front glazing of 5 mm tempered glass are framed by zinc treated iron sheet 15/10 and polyester painted in matt black. During service the doors are kept open by gas loaded spring retainers. The cables entry is through sealed joints. The unit is provided with thermostat controlled internal anti-condensation heating. Optionally additional heating can be added for extremely low expected temperatures (-20°)

### Lighting and service circuits

The connection to mains is performed through a termination strip which connects the mains to the line power supplies at 12V DC. The mains supply is protected by a magneto thermal switch 15 A with PI 6 kA which also protects an outlet at 220 V 16 A.

An output is also given to the two fluorescent lamps of 36 W rating through two fast rise ballast units.

The lamps set to be always on or they can be lighted every time there is a display operation, and turned off at every cancellation.

### Split-Flap units power and communications

The feed and control circuits for the Split-Flap units are divided into low voltage circuits, made of as many 220VAC-12VDC 12 A ( Switching power supply 150 W) protected by a magneto thermal switch 15A 6KA, and a bus matrix of one bus every two lines which feeds both the 12V DC and the RS 485 levels to all the Split-Flap units

### Line electronic control cards

The information display control is task of one controller CR-SYSCO every two lines . They perform all the

writing, drive and control functions on the boards. An interface card IF and its related cables connect these cards to the central computer ( RS 422) to which is drop terminated on a line termination strip and to the Split-Flap units on RS 485 multidrop on the BUS 90 backplane cards . It also houses the protection fuses and the static relays to turn on/off the lighting . The BUS 90 backplane cards card is a passive backplane card which interfaces the controller to the individual Split-Flap units with a short cable which in some cases can be dispensed of.

### The information lines

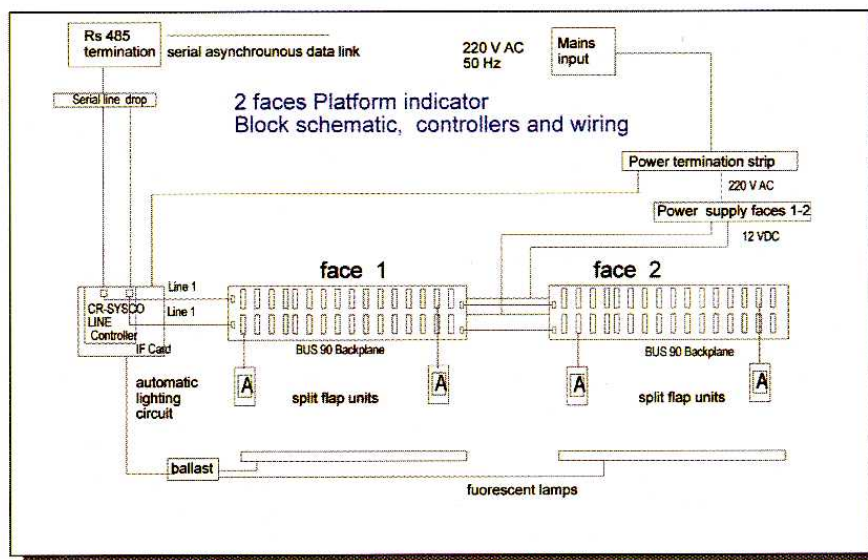
Each face of the indicator is treated as a separate line. Each is driven by a separate RS 485 line , connected to the CR-SYSCO controller, one per each indicator, by the IF card.Each face's Split-Flap units are connected to the BUS 90 backplane through local connectors which link them to the backplane lines

### Optional features are

- Side dial clock
- Extra heating
- Temperature sensor
- Humidity sensor
- Remote lighting control
- Remote ventilation control
- Local diagnosis terminal

### General Technical features

Voltage	220 V AC +/- 10%
Frequency	47 - 63 Hz
Power	100 W
Heating	300 W
Temperature	-20° +60° C
Humidity	from 10% a 90% no condensation
Interface	RS - 422
Speed	1200 to 9600 Baud
Format	8 bit Data, 1 bit Stop, Even parity
Protocol	Multipoint
Safety standard	IEC 950



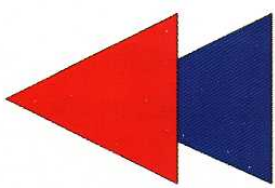
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# SYSCO

TRENI IN ARRIVO						TRENI IN PARTENZA					
PROVENIENZA	INDICAZIONI SUSS.	CAT.	ORA	RIT.	BIN.	DESTINAZIONE	INDICAZIONI SUSS.	CAT.	ORA	RIT.	BIN.
TORINO P.R.		EXP.	10:13	2h45*	2	REGGIO CAL.		EXP.	10:18	2h45*	2
REGGIO CAL.		IC	11:18		3	REGGIO CAL.		EXP.	11:21		4
MILANO C.LE		EXP.	11:15	20*	4	REGGIO CAL.		EXP.	11:31		2
MILANO C.LE		EXP.	11:28		2	ROMA TERRINI V. NAPOLI C.LE	IC	11:35			5
TORINO P.R. AUTO+CUCCETTE		EXP.	11:35	1h20*	1	LAMEZIA T.C. VIA TROPEA	REG.	11:58			3
REGGIO CAL.		REG.	11:48		3	LAMEZIA T.C. VIA MILETO	DTR.	12:21			3
REGGIO CAL.		DTR.	12:28		3	BOLOGNA C.LE VIA TROPEA	IC	12:33			3
REGGIO CAL.		IC	12:30		3	LAMEZIA T.C. VIA TROPEA	REG.	12:52			3
REGGIO CAL.		REG.	12:58		3	REGGIO CAL.	REG.	13:05			2
LAMEZIA T.C. VIA TROPEA		REG.	13:03		2	REGGIO CAL.	NETR.	13:38			1

\*LE F.S. AUGURANO AI SIGNORE VIAGGIATORI UN BUON VIAGGIO\* \* \* \* \*

\* CONVALIDARE IL BIGLIETTO PRIMA DI INIZIARE IL VIAGGIO\* \* \* \* \*

## Vacuum Fluorescent Displays - VFD

### VACUUM FLUORESCENT DISPLAY - VFD GENERAL DESCRIPTION

With the introduction of VFD technology as display medium it's possible to present wholly electronic Information display boards with a high luminous intensity (350 cd/m<sup>2</sup>) suitable to be installed in Transport terminals large halls and to provide clearly readable information in the normal ambient luminance levels met in such an environment.

The VFD boards, a first by SYSCO srl, offer a standard blue-green colour providing an optimally legible medium at two to three times the luminous intensity obtainable with Led of similar, but not same colour. The VFD can be compared with all the other active matrix displays and be always found winning in terms of legibility, long term optical features constancy and low cost.

The General Departures Arrivals Boards, gate and baggage signs and platform and subway indicators for railways are available with the following features:

- ★ information is displayed with 50 mm high 7x5 VFD characters of blue-green colour
- ★ clear readability of its information in a range of 2 to 30 meters.
- ★ information is clearly readable in an arc of 140° centred on the board's centreline, making the display suitable to be installed in large halls.
- ★ the displayed font and colour have no match in solid state displays at the same brightness level.

### Board's functional structure

The board has a functional structure made of five blocks:

1. fixed headings
2. dynamic VFD information lines
3. board and line control electronics
4. wiring
5. Internal and outside frame

### Fixed headings

The headings with any specified inscription occupy the upper part of the board.

Optionally a digital VFD clock can be added on the heading frame.

### VFD information lines

The dynamically changeable information is displayed with VFD matrix characters. The matrix is 7 pixels in height by 5 wide and each pixel's dimensions are 5x6 mm..

All ASCII uppercase characters are displayable with a luminous intensity of 350 cd/m<sup>2</sup> and a blue-green colour, a unique feature of this display. However other colours and character sizes are available on request.

The quantity and structure of the information on the board will be defined by the customer, however we present here a standard for the Italian State Railways

### Board and line control electronics

A control unit labelled CPU-VFD performs all the communication, control and diagnostic functions on the board. The connection to the central computer is performed on a RS 422 line. Each line has a local CPU to drive the line VFD. All these line CPU communicate with the board controller on an RS 485 line.

Each line has its own power supply.



## Backplane and Wiring

Internal wiring almost completely eliminated due to the backplane connections between the CPU

The power wiring is made line by line from the line power supply to the VFDs.

## Frame

The board frame is made of aluminium extrusions painted with polyester paint. The self-supporting structure is light and of limited depth. Colours for the standard finish are available on Customer's request. The board is supplied with mounting hardware for ceiling or wall suspension according to the customer approved design. The front of the board is made of a contrast enhancing grey plastic panel

## Options

Optional features are:

- Simple VFD clock
- Day-date FVD clock
- Front anti-vandalism screen
- Free format information lines
- Ethernet connection

## Board Technical features

### Feeding

Voltage 220 V AC +/- 10%

Frequency 47 - 63 Hz

### Environmental conditions

Temperature -20° +60° C

Humidity from 10% to 90% no condensation

### Communications

Interface RS - 422

Speed 1200 a 9600 Baud

Format 8 bit Data, 1 bit Stop, parity Even

Protocol Multipoint

Safety standard IEC 950

## VFD Vacuum Fluorescent Display - Principle

The VFD is a variation of the Triode vacuum tube which is composed of three basic electrodes:

the Cathode ( Filament), Anode and Grid working in a high vacuum environment in the glass envelope.

The cathode is a directly heated fine tungsten wire which is coated by an alkaline earth metal oxide.

The Grid is a thin metal mesh. The Anode is a conductive electrode shaped as a dot or segment on which the light emitting phosphor is deposited . The combination of dots or segments produces a matrix on which characters or symbols can be generated by light emission.

Electrons emitted from the cathode are accelerated by the positive potential applied to both Grid and anode to emit luminous radiation. The desired luminous patterns can be set controlling the potentials of the grid and anode.

## Colour

The most common colour for VFD is the blue-green for its high brightness, long life and aesthetic appeal. Eight additional colours can be achieved and are available on request.

The colours are : Blue, Sky Blue, Blue Green ( Standard) , Neo Green, Lemon, Yellow, Amber, Mandarin, Red. All the colours are rated at about 30% Brightness ratio compared to the standard Blue green. In a multi colour display the tone balance is achieved adjusting the single colours by voltage or duty factor.

## Optical filters

The purpose of optical filters is to protect the VFD adjusting the colour luminance and achieving greater contrast. Contrast is enhanced blocking the reflection of inactive segments which are coated with whitish phosphor with a grey colour optical filter

## Technical features:

The following data are applicable to a widely used VFD display component, the 5 x7 matrix 50 mm high for alphanumeric data representation to large audiences. The unit is composed of a 5 x 7 matrix of 35 display elements with 5 x 6 mm dimensions, with these features

Power 1.5 W all 35 pixels on

Temperature -20° to 60°

Humidity 1 0% to 90% non cond.

Dimensions WxHxD 43,7 x 84,6 x 7,6 mm

Weight 75 g

Luminance 3 50 cd/m<sup>2</sup> (102 ft/Lambert)



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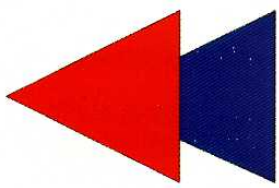
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### Plant

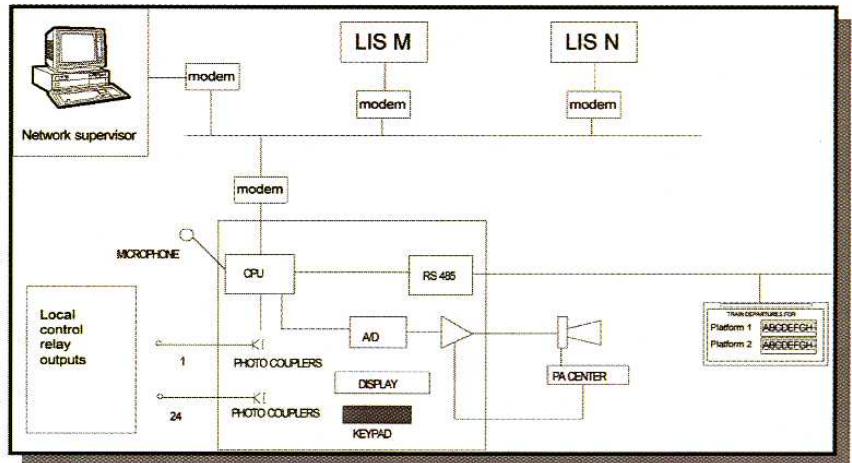
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# SYSCO

# LIS



# Local Information System

## LOCAL INFORMATION SYSTEM FOR MULTISTATION RAILWAY LINES AND OVER AND UNDER GROUND NETWORKS

This system, designed and developed by Sysco Srl of Rome, Italy, was designed to answer the safety and general passenger requirements in unattended railway stations or similar public Transport stops.

LIS is an integrated system composed of digital audio and display units. These latter can be of any type suitable for the purpose of displaying correct information at any time in any ambient illumination condition and must be, among other requirements, vandal proof

The major field of application of LIS is in multi station lines, depending from major stations where a supervision Control unit can be installed.

The low cost of the Local Information System allows for the installation of the system in passenger traffic sensitive stops, implementing the supervisory Control through any serial data link from the main, or "gate" system.

The LIS can be linked to the "gate" system via a local modem and dedicated serial channel, regardless of its hardware implementation in a wired or wireless mode. Locally the system is connected to relay information to synchronise the scheduler information with the actual situation of the trains on the line.

## Main features

The system has these main features:

- Capability of displaying information with up to 8 video monitors
- Capability of displaying information with split-flap units
- Generation and diffusion of digitally generated audio announcements relative to departing, arriving and transiting (no stop) trains. The system accepts inputs from local relays to effectively synchronise the announcements.
- Co-ordination of audio and visual information
- Timed general utility audio announcements

## System parameters

The LIS is fully configurable and allows for the definition of the following system's parameters:

- Programming of the Arriving, Departing and Transit trains local threads
- Input from signalling programmable by logical AND/OR operators
- Association of messages to pre-programmed conditions
- Timed fixed messages
- Association of visual and audio information



## Utility functions

In addition to the standard features there are also utilities as:

- Digital setting of the audio output level
- Control and playback of stored messages
- Capability of recording free format messages from a local microphone
- Playback and editing of free format messages

The potential of the LIS is such as to permit the implementation of a distributed information network managed by a central, "gate", unit which is responsible for the centralised generation and maintenance of all the information package. All the local diagnostics are transmitted to the "gate" unit.

## System's hardware

The LIS is contained in an ABS enclosure certified to IP66 environment protection standard, with a front transparent door, which houses the CPU card, the power supply, and Liquid Crystal Display service display and the programming keypad.

The system's electronics have the following features:

- Switching power supply AC/DC input 150-230 Vac, output 5 and 12 Vdc 1 A
- Microprocessor control unit INTEL 80151/80251 8/16 bit , 11 MHz clock.
- Program EPROM 256 KBytes
- Battery backed-up RAM 128 KBytes
- RTC calendar clock with 10 years battery
- Service console with Liquid Crystal Display alphanumeric 2 lines by 40 characters backlit and 6 functional keys
- D/A converters for audio output using an ADPCM sampling at 8 KHz , with a band of 3.4 KHz, for a total stored messages capacity of 6 minutes of speech.
- D/A converter for the free format messages storing for a maximum of 2 minutes of messages
- Audio output of 0.5 Watt with hardware handshaking interface( free/busy) with the PA console.
- Serial line to the visual displays on RS 485 ( split-flaps, video monitors etc.)
- Serial line port RS 232 at 9600 baud for remote control by a BB/BF modem.
- Relay interface of 24 photo coupled inputs : input current can be configured through jumpers as internal or external. The input range shall be 12 - 150 V dc/ac.

## Sample resident audio segments and messages

As an example we describe a typical set of audio segments on which to build the message for a system.

It is possible to generate stored segments for all the fixed parts of the message as City names, fixed parts etc. which are assembled into messages.

SYSCO Srl supplies with LIS a program which runs under a OC Windows environment to manage and record the audio segments and transfer them to LIS chip support.

## Sample message structure:

Audio segments:

- train
- originating from
- is arriving at platform
- is departing from platform
- Caution. Train in transit . Stay back from the platform edge.
- For
- One
- Two
- City 1
- City 2
- City N

Fixed messages:

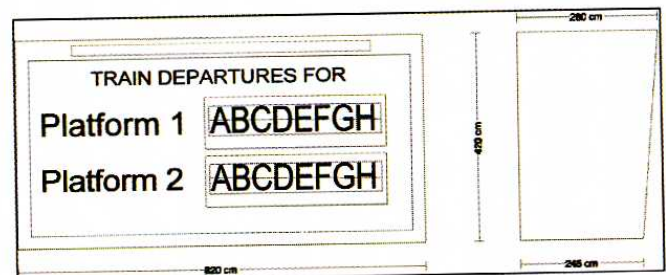
- Do not cross the rails. Use the underground passage.
- Customers are kindly reminded that smoking is forbidden on the station premises.

### Message - split-flaps association

Through this function it is possible to associate to a given message a split-flap unit position.

Activating the function these fields are shown:

- message sequence number
- flap sequence number on a given unit
- 4 fields giving the split-flap units addresses



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# *Impianti, Sistemi, Apparatati per le informazioni al pubblico*

partenze / departures							arrivi / arrivals						
destinazione	ind. suss.	class.	orario	bin.	ora effett.	informaz.	provenienza	ind. suss.	class.	orario	bin.	ora effett.	informaz.
** FARA SABINA		REG	9:41	5	9:56		** F. AEROPORTO		REG	9:39	5	9:54	
** F. AEROPORTO		REG	9:51	8			** ORTE		REG	9:49	8		
** C. VECCHIA		REG	9:54	4			** ROMA TERMINI		REG	9:53	4		
** FARA SABINA		REG	9:56	5			** F. AEROPORTO		REG	9:54	5		
** F. AEROPORTO		REG	10:06	8			** FARA SABINA		REG	10:04	8		
** ROMA SERMINI		REG	10:06	1			** C. VECCHIA		REG	10:05	1		
** FARA SABINA		REG	10:11	5			** F. AEROPORTO		REG	10:09	5		
** ROMA TERMINI		REG	10:14	1			** LA SPEZIA C.		REG	10:12	1		
** TORINO P. N.		REG	10:18	4			** NAPOLI C. LE		REG	10:16	4		
** F. AEROPORTO		REG	10:21	8			** FARA SABINA		REG	10:19	8		



## *Il progetto*

*L'hardware innovativo*

*La personalizzazione del software*

*L'interfacciamento con sistemi e apparati di segnalamento e informazione (SCC, ACS, CTC, ACEI, CCL, ATN)*

*La realizzazione chiavi in mano*

*L'assistenza sistemistica e la manutenzione nel ciclo di vita.*



## *Sistemi e Apparatati di Automazione di Impianti Registratori Cronologici di Eventi*

**DIREZIONE TECNICO AMMINISTRATIVA**

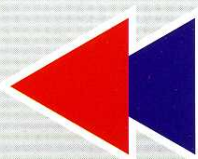
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e-mail: sysco@tin.it

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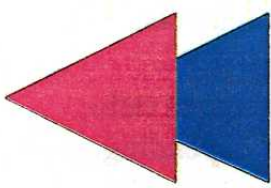
**UFFICIO OPERATIVI LAVORI A:**

Milano, Bologna, Cesena, Cagliari, Roma



# SYSCO





## **Full Color Large-Screen Display Systems**

Sysco “giant” full-color display systems exploit the most advanced Light Emitting Diode (LED) technology in order to achieve high resolution graphic presentation and television quality video.

The flat LED matrix boards are of modular construction and can be assembled to configure any size of presentation area. They can be used for indoor or outdoor presentations, in fixed or transportable mounts.

The giant-screen display applications are dedicated to visual advertising and great events presentations to large number of people assembled in theatres, conference rooms or in large sport and commercial centres. This kind of visual presentations generally concern with video animation,

TV programming and graphic and textual information:

- Outdoor and indoor advertising;
- Entertainment and sport events presentation;
- Highway and road public information;
- Conference presentations;
- Passenger information for transportation terminals.

Due to the high degree of adaptivity and modularity, the Sysco “Vision Systems” products can satisfy any possible application need. The presentation area, the level of resolution and brightness and all the other technical specifications are defined in tight connection with the customer’s requirements and constraints in



order to achieve the optimal cost/ effectiveness ratio.

The "Vision System" products encompass the following technical features:

- high reliability components, selected among the catalogs of quality manufacturers;
- high modularity and scalability of the Led matrix, with the possibility of achieving very large graphical

area and high resolution levels;

- smart brightness and contrast ratio, automatically adjusted depending on the ambient light;
- capability of million colours with optimal hue rendering;
- low energy consumption;
- compatibility with practically all the PC and TV video standards.



**SYSCO**

**ISO 9001 Certified**

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