

Sollar Cards – smart-card based payment system

Electronic payment system and discount system of clients' loyalty maintenance in one card



Main features

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“TECHNOTRADE LTD”

System “**Sollar Cards**” is a multi-purpose automated system which combines the possibilities of smart card based electronic payment system and coalition loyalty system using bank security technologies. It can be utilized in any trade network (gas stations, drug stores, supermarkets, tourist agencies) and allows uniting various retail trading segments. The supported customer loyalty systems are cumulative, discount, bonus, discount-bonus, etc.



Specialized *payment cards* are a convenient tool of account. It is attractive for the client because goods can be purchased under the fixed price, the owner of business wins because he receives circulating assets in the advance payment.

The system “**Sollar Cards**” allows to control a *discount policy* of complementary (coalition) trading networks and networks of services. The basic features “**Sollar Cards**” in this plan - a big number of base variants of discounts, flexible and simple adjustment, opportunity of fast launching of new schemes of discounts and actions - for separate groups of consumers, for certain periods, for certain conditions. Not the last value has also acceptable, rather low (in comparison with analogues) cost of the system.

“**Sollar Cards**” system is universal and can be used in any business area. It also allows companies to unite into coalition *loyalty programs*.

“**Sollar Cards**” is an individual approach to each customer’s needs. A flexible mechanism of discount-bonus policies creation is a powerful tool for marketing specialists.

“**Sollar Cards**” allows to control effectively mutual settlements of accounts performed with the help of cards, approach each client individually and take a strict control over the money expenses.

System of electronic payments

In «**Sollar Cards**» system the resources entered to a client on a *payment card* are distributed into two kinds of purses - monetary and commodity. The monetary purse is measured in a currency equivalent. In commodity purses the commodities are specified in the prices for a commodity unit, for example, for fuel - in liters, for packings of butter - in pieces, etc.

The «**Sollar Cards**» system allows to completely automate the account of products, fuel and accompanying goods sold by means of smart-cards - with the set frequency all transactions about use of cards on points of sales are transmitted to the Operational center. The system supports usage of several payment schemes and enables to choose the most convenient - an electronic purse, the limit scheme, etc.

Simplicity of usage of card of «Sollar Cards» system by the client

For the client the scheme of work of the system « Sollar Cards » is very simple. The client receives his *payment-discount card* at the office of a trading network, in which the Operational center of system is installed. One card contains various kinds of purses and a set of discount policies which the manager will establish for the given client. After giving out the card is at once ready for use in all places of sales.

The system offers client to recharge cards in an operating centre as well as in points of sales. Thus the owners of the system receive the possibility of attracting more prepaid funds. Non-cash settlements of accounts help to avoid collection procedures.

Loyalty system

“**Sollar Cards**” offers to the marketing department of the company unlimited possibilities for sales stimulating and clients satisfaction with the help of cumulative, discount, bonus and discount-bonus loyalty programs.

During loyalty programs development the system allows company management to concentrate their customers on the current goals of the trade network – it can be either customers attraction with the help of campaign discounts, ‘regular receipt’ price increase, specific brands sales stimulating, long-term customers satisfaction with the help of cumulative system or bonus program and so on.

At the given moment the basic “**Sollar Cards**” system delivery package includes 38 basic variants of loyalty and discount programs.

Coalition discount system

The primary goal of the discount system - to promote increase in a turnover of a trading network and strengthening of its positions in the market. “**Sollar Cards**” system provides:

- **Attraction of new clients** - by means of smaller, than at competitors, price for the goods/services, more convenient forms of the payment, more attractive kinds of discounts, faster service;
- **Keeping of existing buyers** - accumulative discounts with time become more and more favorable, bonuses and gifts stimulate to make necessary volume of purchases;
- **An individual approach to each client** - allows to strengthen stimulus for new purchases due to an exact binding to personal volume of payments, to italicize VIP clients;
- **Conformity to requirements of the market**, especially if competitors also use discount systems;
- **Cooperation with business supplementing** (banks, other shops and service providers) - at joint usage of one discount system and its smart-cards.

Variants of discounts and bonuses in system “Sollar Cards”

Benefit from usage of the discount system directly depends on the kinds of discounts and bonuses which can be realized with its help.

At present the quantity of base variants of the discounts incorporated in typical delivery of system “**Sollar Cards**” - 38, and they are grouped in 9 groups. Examples of some kinds of discounts and bonuses (*the concrete size of the discount can be changed*):

- *The night tariff*: at purchases from 20.00 till 8.00 - 1 % discount from the sum of the order;
- *Accumulative discount*: at a total sum of purchases up to sum N - 0,5 %, up to (N+1000) - 1 %, up to (N+2000) - 2 %, etc.;
- *"money-box"*: accumulative bonus system - a gift for the certain volume of purchases;
- *Action*: the discount 2,007 % from the sum of purchased goods for a period from 1st January till 10th January;
- *Discount for a kind of commodity*: the discount 1 % at purchase of the goods of the certain nomenclature (as a part of promotion of this commodity group or for the accelerated reduction of commodity stocks at insufficient volumes/rates of realization);
- *Conditional discount*: the special discount to separate groups of customers (for example, the VIP-customers, to members of "gold" clients club (Golden Card Club), etc.);
- *Discount in a place of sale*: at purchases in the certain shops or points of service (for example, for attraction of buyers to new shops);
- *Contests*: the discount 5 % to each 1000th buyer.

Managers of a trading network can develop and add new kinds of discounts. To create a new variant of discounts, it is enough for manager of the company to fill a few fields in the program.

“Sollar Cards” - three levels of management

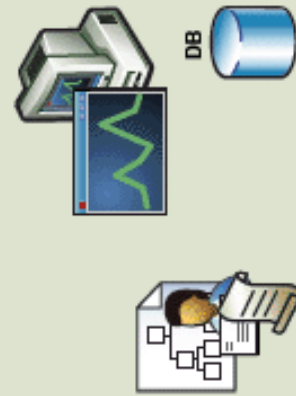
The system “**Sollar Cards**” covers all three levels of management and three key elements of the discount system and account of payments on cards:



- **Operational Center (OC)** in which management over discounts is conducted (assignment of rules of discounts calculation, conditions of bonuses issue, etc.) and where the information about the clients, allowed discounts for them and payments operations made by them is stored. Data stored in the operation center serve as a basis at preparation of reports and at analysis of actions and discounts being conducted;
- **Points of sales**, where the equipment for reading of information from discount cards and computer programs for calculation (according to set in OC rules) discounts for the given client;
- **Discount/payment cards**, given out to the clients:

Automatization of the network of retail trade company

Head Office – company office



Workplace of the trade network manager

Head Office Functional capabilities:

- ❖ Centralized gathering of all trading information from subdivisions: data exchange with all «subordinate systems»
- ❖ Organization and conducting of all directories of the system: classifier of goods, services, suppliers
- ❖ Consignment account of goods in the light of suppliers
- ❖ Management of the price and assortment politics of goods
- ❖ Account of expiration dates of the goods: control over the term of realization
- ❖ Financial analysis: mutual settlements with clients and suppliers
- ❖ Control over the operations executed in Back-office: the system forbids backdating data input
- ❖ Analytical reporting: the system contains more than 40 kinds of base reports in various aspects

Operational center of the card system



Workplace of the card system operator

Operational center

- Functional capabilities:**
- ❖ Formation of discount politics by regional managers and their automatic updating on Front Office
 - ❖ Issue of discount cards
 - ❖ Formation of reports

Back Office

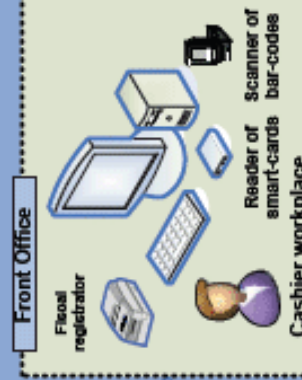


Workplace of the goods manager

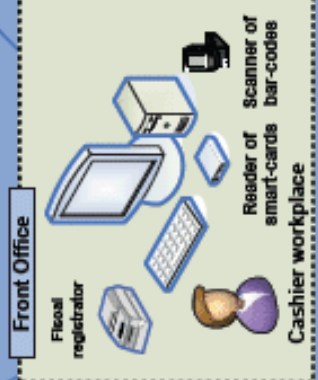
Back Office Functional capabilities:

- ❖ Organization and conducting of all directories of the system: classifier of goods, directories of counterpartents
- ❖ Data exchange with Front Office
- ❖ Automatic formation of documents on results of Front Office sales
- ❖ Conducting the warehouse account: reception of goods; discarding of goods; rejection of goods; revaluation of goods; return of goods to the supplier; inventory of goods
- ❖ Account, control and analysis: movements of goods; goods remains and balance
- ❖ Data exchange with Head-office for synchronization of the help information and exchange of account and administrative documents

Point of Sales



Cashier workplace



Cashier workplace

Payment system

Reception of mobile communication payments



Front Office - general commercial solution

- Functional capabilities:**
- ❖ Convenient interface of the cashier
 - ❖ Conducting of several goods baskets
 - ❖ A big quantity of ways of goods registration
 - ❖ Detailed information on each good
 - ❖ Support of plural bar-code for one good
 - ❖ Combined payment for the goods
 - ❖ Payment by bank payment cards
 - ❖ Payment for refilling of mobile communication accounts
 - ❖ Discount on %, discount on a sum of money
 - ❖ Discount cards. Support of discount-bonus system on the basis of smart-cards
 - ❖ Operation of many cash registers through the dedicated database server

High level of protection of information in the system

In order to prevent not authorized information leakages (for example, to competitors) and in order to prevent abusings from unfair consumers or attendants, data on discount cards is protected by technologies applied for bank cards.

Usage of the high-tech smart-cards, bank technologies of data protection and secure channels of data transmission allows to protect the system from hackers' intrusion.

Protection of the information in the operational center is provided both at a program level (system of passwords and identifications of users on the basis of SAM security module), and by means of organizational actions of the company and the corresponding technical equipment of the center.

“Sollar Cards” system uses the most recent electronic plastic cards with a chip of SLE66CXXXP series.

Brief description of the system possibilities

General

1. Conduction of databases on counterparts, accounts, issued smart-cards, nomenclature of products, etc in the system.
2. Usage of printed document forms for reporting.
3. Usage of reports for analysis.
4. Flexible mechanism for creation of discount-bonus politics from a large set of schemes and parameters.
5. Usage of high-tech smart-cards and bank technologies of data protection on a smart-card and secure channels of data transmission.
6. A set of operations of reading/writing to a smart-card (creation, deleting, setting of parameters of purses, refilling/withdraw of funds).
7. Possibility of simultaneous writing to a smart-card of a big quantity of purses and discount politics.
8. Formation of a list of blocked smart-cards/purses (black-list).
9. Usage of user roles (work places) - «administrator», «extract», «issue», «manager» with corresponding set of documents.
10. Refilling of smart-cards at Places Of Sales.

Schemes of operation

1. Few flexible configurable schemes of smart-cards usage as a cashless form of payment (BC – balance of a card, BA – balance of account).
2. Possibility to apply limits on usage of payment means (hour, week, month).
3. Possibility to use prepayment and postpayment (in debt) by smart-cards.
4. Possibility to use the same card as a discount-bonus card and for cashless payments.
5. Support of several types of purses on cards (commodity, liter, money, service, bonus, etc).

Conduction of account

1. Account of sales on cards (sales on purses and sales using discount politics).
2. A set of operations with smart-cards (entry in turnover, issue, return, blocking/unblocking, withdrawal).
3. A set of operations with accounts of counterparts (creation, refilling/withdrawal of funds, blocking/unblocking).
4. Conduction of a history of all actions with smart-cards and accounts (history of cards owners, changes, operations with purses and discount-bonus politics, etc).
5. A set of base reports for reporting and analysis (remains on cards/accounts, turnover, usage of cards, etc).
6. A block of stock account of smart-cards as inventory with a corresponding set of documents
7. Account of embossed card numbers (external).

Data exchange with software

1. Data exchange with Points Of Sales (collection of data on sales and refilling, sending of black lists).
2. Mechanism of data collection from Points Of Sales in automatic mode on schedule.

Advantages received at application of the system “Sollar Cards”

1. Involvement of prepaid customer money funds.
2. Increase of sales.
3. Due to a big quantity of parameters and schemes of operation the system allows to provide an individual approach to every client (company or physical person).
4. Operatively control settlements with counterparties, early block cards of debtors.
5. Due to a mechanism of discount-bonus politics the system allows to effectively keep old clients, attract new and also stimulate purchases of clients by accumulation of bonuses with a subsequent purchasings.
6. System can be used in any kind of business (petrol stations, drugstores, supermarkets, tourist agencies, restaurants, clubs, etc).
7. In petrol stations business the system completely replaces old forms of sales on talons and pay-sheets.
8. Cashless settlements allow to avoid collection of large sums of money from the Points of Sales.
9. Reduction of expenditures on communication, because the system works in “offline” mode.
10. Work steadily using channels with a bad connection quality.
11. More flexibly work with clients and more precisely control money spent by them.
12. Distribute responsibility and reinforce cards for responsible persons. Possibility to track information about location of any card in any time.
13. Attracting of new clients due to a convenient way of cards refilling at Points Of Sales.
14. Instrument for viewing information on cards allows to precisely determine and solve possible problems with card owners.
15. Format of cards allows to separate a card into several independent areas (1 area for 1 organization) – this brings a possibility for companies to unite in partner networks, for example petrol station + car maintenance + Car shop. Accordingly this expands a base of clients of each company and increases profits.
16. Protection of cards using SAM modules allows to reliably protect cards from unauthorized reading/writing, and also from entry in turnover of fake cards.
17. Usage of workplaces allows to simultaneously work with the system of various groups of users with various sets of rights and actions.
18. Mechanism of automatic collection of information from Points Of Sales allows to avoid humans participation in this operation.
19. Usage of the full documentation within the system
20. Reports allow to more detailedly and conveniently analyze all necessary information about the system activity, which increases efficiency of decision-making by management.

Basic differences of the system «Sollar Cards» from analogue systems

In comparison with similar systems of other manufacturers the system «Sollar Cards» possesses such properties, as

- Support of several kinds of flexibly adjusted payment purses;
- Big number of base kinds of discounts (38);
- Opportunity of fast creation and launching of new kinds of discounts and actions;
- Flexible and simple adjustment, high detailing of conditions (down to the separate client);
- Opportunity to use the cards of system both for clearing settlements and sales on credit;
- Low cost of the system;
- High security of cards (level of bank cards);
- User support of the system, regular updatings and improvements of the system.

Due to the modern technical solution and innovative opportunities on support of trading business, the system «**Sollar Cards**» allows to noticeably improve the quality of servicing and to strengthen positions of a trading network in the market.

The important difference of «**Sollar Cards**» from analogues: the system supports not only the fixed purses for payment of fuelling, but also has opportunities for stimulation of the client, for example, purses for free-of-charge (bonus) car-washings or replacement of oil.

Structure of technical means and software in the system

Operational Center

Equipment

- 1) Personal computer – 1 pcs.
- 2) Card-reader – 2 pcs. :
 - 1 card-reader for a service security card (SAM);
 - 2 card-reader for a client cardклиентской карты;
- 3) modem – 1 pcs.

Software

- 1) Operation system Windows 2000/XP/2003
- 2) Database system MS SQL 2000/2003, Postgre SQL
- 3) Accounting platform 1C 8.1

Point Of Sales

Equipment

- 1) Personal computer – 1 pcs.
- 2) Card-reader – 2 pcs. :
 - 1 card-reader for a service security card (SAM);
 - 2 card-reader for a client cardклиентской карты;
- 3) modem – 1 pcs.

Software

- 1) Operation system Windows 2000/XP

General technical characteristics

##	Parameter	Value
System mode of operation		
1	System mode of operation	Offline
Data exchange between Operational Center and Point Of Sales		
2	Data exchange between Operational Center and Point Of Sales	Automatic /manual upon a request from an Operational Center
3	Channels of data transmission between Operational Center and Point Of Sales	Wired/wireless
4	Type of connection between Operational Center and Point Of Sales	Modem/Ethernet
5	Minimal bandwidth of data transmission channels	16 KB/sec
6	Type of data exchange between Operational Center and Point Of Sales	File
7	Encryption algorithm of communication channels	3DES
Software		
8	Operation system of Operational Center and Points Of Sales	Windows 2000/XP/2003
9	Database system of Operational Center	MS SQL 2000/2003, Postgre SQL
10	Operational Center platform	1C 8.1
Smart-cards		
11	Smart-card types	Microprocessor electronic contact plastic cards with a chip of SLE66CXXXP series
12	Access to client’s cards	Using a module of security (SAM)
13	Cards operational system	UkrKOS 2.0
Interaction with systems of other manufacturers		
14	Interoperation with computer based cash register systems	On exchange protocol with a dll «Sollar Cards»
15	Activities needed for implementing «Sollar Cards» in computer based cash register systems	Реализация в ККС протокола обмена с dll «Sollar Cards»
Point Of Sales architecture		
16	Structure of Point Of Sales software	Client-server
17	Maximum quantity of client’s application on Point Of Sales	More than 30
Functional possibilities		
18	Quantity of commodity nomenclature	Not limited
19	Quantity of serviced smart-cards in the system	Not limited
20	Quantity of counterparts in the system	Not limited
21	Possibility to use coalition (partner) loyalty programs	Present
22	Quantity of partners on coalition loyalty programs	Not limited

23	Possibility to use bonus politics	Present
24	Possibility to use discount politics	Present
25	Possibility to use prepaid money and commodity purses of cards/accounts	Present